The *Journal of International Agricultural and Extension Education* is the official peer-reviewed, refereed publication of the Association for International Agricultural and Extension Education. The purpose of the *Journal* is to enhance the research and knowledge base of agricultural and extension education from an international perspective.

Articles intended for publication should focus on international agricultural education and/or international extension education. Articles should relate to current or emerging issues, cite appropriate literature, and draw out implications for international agricultural and extension education. **Manuscripts must not have been published or be under consideration for publication by another journal.**

Three types of articles are solicited for the *Journal*: Feature Articles; Commentary Articles; Tools of the Profession Articles.

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Feature articles focus on philosophy, current or emerging issues, and the methodology and practical application of specific research and appropriate technologies, which have implications for developed and developing countries. For publication in the *Journal*, feature articles must pass the *Journal’s double blind, peer-review process*, which utilizes peer reviewers who evaluate manuscript content and ensure readability. Reviewers are selected usually from the membership of the AIAEE. In the double-blind, peer-review process, all reference to author(s) is removed before the manuscript is sent to reviewers. Feature Articles may be re-submitted for peer-review a total of three times before they are no longer acceptable for publication in the *Journal*.

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Commentary articles state an opinion, offer a challenge, or present a thought-provoking idea on an issue of concern to international agricultural and extension education, including a published article in the *Journal*. Commentary articles are reviewed by two members of the Editorial Board for appropriateness and relevance to the *Journal*, and for readability.

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Journal of International Agricultural and Extension Education

Volume 10  Number 2  Summer 2003

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From the Editor

Greetings from the *Journal of International Agricultural and Extension Education (JIAEE)* and the Association for International Agricultural and Extension Education (AIAEE).

*Journal* readers and AIAEE members alike have taken to heart the repeated requests for submitting their manuscripts for review and publication in the *Journal*. We have many articles that are accepted for publication and awaiting their place in a future issue of *JIAEE*. As we all know, this summer issue is devoted to the outstanding AIAEE Annual Conference papers, so space is limited and we will not be able to publish additional manuscripts in this issue. However, the fall issue is shaping up nicely. I send thanks to all who have submitted articles for review and publication in the *Journal*.

Although I had to miss this year’s AIAEE Annual Conference in Raleigh, North Carolina, I heard it was another raging success. I extend my gratitude to the AIAEE Leadership Team for continuing on their path of excellence in providing AIAEE members a consistent venue to share thoughts and renew friendships. You will find the some of the fruits of this labor in this issue. Please read these articles to understand better the international agricultural and extension education efforts in Jordan, China, United States, and Uruguay. Along the way, you will read interesting findings that might lead you to conduct research in these or similar areas. Who knows, maybe your paper will be appearing in the summer issue of *JIAEE* next year. Other ideas may be generated by reading through the abstracts for posters, carousels, and all research papers presented at the Annual Conference.

It must be noted that outstanding conference papers are required to be peer-reviewed by *JIAEE* Editorial Board members prior to publication in the summer issue. This extra process ensures that 1) scholarly contributions to the *Journal* are consistent in all issues, and 2) authors are given additional space to elaborate upon their original conference papers and additional feedback on areas of improvement. This process will continue indefinitely as we seek to maintain the rigor of the *Journal*, which has a consistent 38% acceptance rate over the past two years.

With the gracious assistance of associate editor, Dr. James Lindner, the annual *JIAEE* Editorial Board meeting produced some significant changes to future issues of our *Journal*. First, the number of words allowed in all article abstracts has been increased from 150 to **250** words. Please make a note of this important change as the board felt the increase allows authors to more fully describe their research, which is beneficial when searching abstract-only indices on the Internet. Second, the current “glossy” cover will be replaced by a matte finish starting in 2004. The new cover type allows for faster drying ink and less distortion to the AIAEE logo and lettering; changes that will produce a faster printing process and higher quality “look” for the *Journal*. Third, the *JIAEE* Editorial Board will institute an *Article of the Year* award (see p. 113) to recognize the outstanding scholarly achievements of our contributors. Finally, additional decisions were discussed on voted on by the board, including publication of abstracts in the author’s native language (vote denied), increasing the page limit for manuscripts (vote denied), and changing the AIAEE logo on the cover (vote denied, use updated geographically corrected version). It should be noted the Editor retains the privilege of accepting manuscripts for review that are more than the 12-page, double-space limitation, under special circumstances; reviewers will be notified of these situations. In addition, the Editorial Board recommended that all *JIAEE* manuscript reviewers must have been published in the *Journal* prior to serving as a reviewer; changes to the list of *JIAEE* reviewers are being made to reflect this decision.

I send my thanks to all *Journal* contributors, reviewers, and board members for assisting in the production of this issue. Enjoy your summer issue and continue doing what you can to promote greater understanding of agricultural and extension education worldwide.

Sincerely,

Gary J. Wingenbach, Editor

*Journal of International Agricultural and Extension Education*
Association for International Agricultural and Extension Education
19th Annual Conference

Raleigh, North Carolina, USA
April 8-12, 2003

Outstanding Papers

Outstanding Paper Presentation

An Analysis of Extension Agents’ Attitudes in the State of Jordan toward Farm Business Management and Their Assessment of Training Needs
Ahmad Shukri Al-Rimawi, University of Jordan

1st Runner-Up Outstanding Paper Presentation

Trends and Developments within the Chinese Agro-Technical Extension System
Burton E. Swanson, University of Illinois at Urbana-Champaign
Nie Chuang and Feng Yan, Ministry of Agriculture, People’s Republic of China

2nd Runner-Up Outstanding Paper Presentation

Ryan J. Schmiesing, The Ohio State University
R. Dale Safrit, North Carolina State University Cooperative Extension
Joseph A. Gliem, The Ohio State University

3rd Runner-Up Outstanding Paper Presentation

The New Agricultural Economy: Implication for Extension Programs
Burton E. Swanson, Mohamed M. Samy, and Andrew Sofranko
University of Illinois at Urbana-Champaign

Outstanding Graduate Student Paper Presentation

Evaluating a Dairy Herd Improvement Project in Uruguay to Test and Explain Q Methodology
Brett Kramer, Iowa State University
Pedro de Hegedus and Virginia Gravina, Agriculture College of Uruguay
Jordanian Extension Agents’ Attitudes Jordan toward Farm Business Management and Training Needs

Ahmad Shukri Al-Rimawi, Associate Professor
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Outstanding Paper presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

Abstract

The study aimed at examining the knowledge, attitudes and training needs of extension agents for farm management practices and marketing extension in Jordan. Data were collected from all public agents using four 5-point Likert-type scales. Cronbach’s alpha coefficients ranged between 0.81 – 0.94, which indicated the internal consistency of the study scales. Parametric and non-parametric tests were used to analyze the data. The extension services were found to be largely oriented to technical and production aspects, as less than one tenth of extension agents indicated that they offer general extension services in farm management or marketing extension. Few agents gave high ratings to their knowledge of farm management techniques. However, most agents attached high importance to farm management and marketing skills in an increasingly competitive environment. Similarly, most agents gave high ratings to their need for practical training to improve their farm management and marketing skills using multi-day workshops, irrespective of their attributes. Knowledge and need for training scale ratings were negatively correlated, which suggests that lower knowledge is associated with higher need for training. Coordinated efforts are momentous to enable agents to provide farmers with a basis for sound decision-making, and the skills to carry out profitable farm operations.

Introduction and Conceptual Framework

The world is faced with making agriculture more sustainable, more profitable, and more productive with fewer resources (Zijp, 1998). Farmers in less developed countries need to upgrade their business management skills to cope with changes in agribusiness environment, and run their businesses more effectively. Efficiency in the business of agriculture would improve income and living standards and bring about higher family satisfaction. However, improved technical efficiency, production management and hard work are no longer enough, and farm operators need good management and marketing skills for success. Therefore, the educational role of improving the managerial skills of the farmers is an important task for the public extension services. It is essential that these skills be improved continuously through participation in management training activities (Murray-Prior & Dymond, 2000). However, production is not completed until products are at the point of purchase and are yielding consumer satisfaction. Farmers and their information needs are thus inevitably linked into finding solutions to marketing problems, as well as to production (Rolls, 2001). Only a competitive agricultural sector can guarantee farmers’ incomes in the longer run.

Information is an essential resource for technically efficient and profitable farming. Informed decisions are needed about what and how to produce, when and in what quantity in order to achieve the possible levels of income. Extension agents make the farmer learn about alternative courses of action (van den Ban, 1986). Knowledge of farm management principles provides farmers a basis for sound farming decision-making. It helps them to solve the economic problems associated with maximization of returns or minimization of costs. It also helps to make the right choice between crop enterprises according to individual levels of financial, labor, land resources and risk aversion (AGSP, 2002). Farm management concerns the future in terms of trading for which budgets and capital considerations are required, which need investment appraisals. Information is needed on past and present trading on the farm in terms of records, accounts and balance sheets (Rolls, 2001). Financial and technical records are an integral part of the long-term success of farm businesses. Properly used, farm records can
help managers monitor production costs; analyze production enterprises; and make well-informed management decisions (Zoller, 2000). The farm operator must be able to interpret and analyze his records properly if the best decisions are to be made. Extension farm management agents can assist farmers to develop their business management skills. Agents can help in setting up a working record system, planning, and analyzing the farm operation from the previous years records (Bryant, 2000). The extension agents can help farmers; to make better and more informed decisions; to acquire the skills that help them to analyze their decisions; to asses the market; to identify business opportunities; and to plan for a successful business in a highly competitive business environment.

Interest is growing in integrating farm management in extension services. Rapid change throughout Europe in the agribusiness sector, calls for appropriate development of farm management skills by East and Central Europe (ECE) farmers for their future viability (Rolls, 2001). Priority needs for virtually all ECE farmers include market information and improved skills in management, especially accounting, and cost-benefit analysis (Zijp, 1998). Twelve country studies have been launched in various African regions to analyze the scope and importance of farm business management in the provision of extension services (AGSP, 2002). In Jordan, increasing complexities of farming activities in irrigated agriculture, and the relatively high level of competence on the part of farmers, demands advisory services related to the second generation of farm problems, i.e. farm management and marketing (Rimawi, 1996). Freeing of trade and removal of the price support systems have made it very difficult for farmers to sustain their businesses in the aftermath of Jordan’s membership in the World Trade Organization (MOA, 2001). Two of the main policy objectives are to increase the profitability of the agricultural sector and to improve standards of living for farmers (MOA, 1997). Yet, most farmers report that they are incurring economic losses. Professional extension farm management personnel can help to re-establish profitability. Public and private extension services are largely production-oriented, while improving the managerial and marketing abilities of the farmers are most needed (Habbab & Rimawi, 2002). The emphasis of extension agents on technical rather than business aspects of farming is placing the farmers’ long-term viability in danger. Thus, it is imperative to investigate the perceptions of agents towards integrating farm business management, and marketing extension in their services, and to identify their training needs.

**Purpose**

The purpose of this study was to examine the perception of extension agents of the importance of farm management and marketing skills to business viability; to get a better understanding of the agents’ need for knowledge of business management and marketing; and how to meet their educational needs.

**Objectives**

The specific objectives of the study are the following:

- To investigate the knowledge and attitudes of extension agents on farm management principles, practice, and tools for decision-making.
- To assess extension agents’ needs for in-service training on the subjects of farm management and marketing extension, and the preferred way to provide training.

**Methods**

The targeted population was the public extension agents who work for the Ministry of Agriculture (MOA) in Jordan. The total number of agents was 110 agents at the time of the survey. Considering the small number of the agents, data were collected from all agents by personal interview during July-August 2002. With the high instability of the staff of public extension (Rimawi & Arabiat, 1998), the agents serving at the time of the survey were considered as a sample drawn from an infinite population of all potential agents who would join the extension services from the staff of the MOA. The rate of response was 90%. The threat to the external validity of the findings is minimal, as suggested by Lindner, Murphy and Briers (2001), and Lindner and Wingenbach (2002) who concluded that procedures for control of nonresponse error are not necessary when a response rate beyond 85% is achieved.
Results
Profiling Extension Agents

Extension agents were found to be relatively young, as 71% were less than 40 years old. Respondents reported that 95% had a university degree, of which 4% had a master degree in agriculture sciences. Sixty percent were specialized in crop production or plant protection. One-fifth of agents (22%) had a specialty in agricultural economics, and may be trained to serve as subject matter specialists for farm management and marketing extension. One quarter of agents had a part time administrative assignment. About half of them offer extension services for irrigated vegetables and fruit growing farms where the need to improve farm business management is the highest. About half (48%) had experience in agriculture of more than 10 years, while 29% had more than 10 years experience in extension work, which indicates a high turnover ratio. Only 8% of extension agents indicated that they offer general extension services in farm management in the areas of how to get a loan, and how to manage a farm. Similarly, 5% of the agents reported that they cover marketing extension in the areas of selecting proper crops, timing of planting, storing products, and ways of marketing. Thus, the public extension is largely oriented to technical and production aspects.

Table 1 presents statistical information of the four 5-point Likert-type scales, which were used as an instrument to gather primary data. Respondents were asked to rate their attitudes to the importance and knowledge of farm management concepts and techniques, and to rate their needs to improve their economic and financial management and marketing extension skills. The ratings were on a scale of one to five, with one being “strongly disagree”, two being “disagree”, three being “neutral”, four being “agree” and five being “strongly agree”. The knowledge, attitude and need for training on farm management scales consisted of 13 items each, and the summed ratings ranged between 13 and 65 points. The need for training in marketing extension scale consisted of 10 items, and the ratings ranged between 10 and 50 points.

Table 1
Statistical Information of the Survey Instrument Scales (No. of cases 99)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Attitude Scale</th>
<th>Knowledge Scale</th>
<th>Need Scale for Training on Farm Management</th>
<th>Need Scale for Training on Marketing Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of items</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Minimum</td>
<td>30.00</td>
<td>13.00</td>
<td>13.00</td>
<td>14.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Cronbach’s Alpha</td>
<td>0.82</td>
<td>0.93</td>
<td>0.94</td>
<td>0.81</td>
</tr>
<tr>
<td>Mean</td>
<td>49.20</td>
<td>39.99</td>
<td>43.40</td>
<td>38.26</td>
</tr>
<tr>
<td>Median</td>
<td>52.00</td>
<td>40.00</td>
<td>45.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>8.30</td>
<td>12.39</td>
<td>13.69</td>
<td>8.85</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.410</td>
<td>-0.98</td>
<td>-0.398</td>
<td>-0.603</td>
</tr>
<tr>
<td>Kolmogrov-Smirnov test of normality</td>
<td>Z = 1.033</td>
<td>Z = 0.569</td>
<td>Z = 1.082</td>
<td>Z = 0.925</td>
</tr>
<tr>
<td>(P &lt;0.236)</td>
<td>(P &lt;0.903)</td>
<td>(P &lt;0.193)</td>
<td>(P &lt;0.359)</td>
<td></td>
</tr>
</tbody>
</table>

Descriptive statistics were used to profile the extension agents. Agents were grouped into age categories of less than 30 years, 31-40 years, 41-50 years, and 50+ years. Experience in agriculture and in extension categories included less than five years, 6-10 years, 11-15 years, and 15+ years. To test the reliabilities of the scales, Cronbach’s alpha coefficients were calculated. As Table 1 displays, the coefficients ranged between 0.81 and 0.94, which indicated that the scales were internally consistent. The close values of the means and medians, and the low values of the negative skewness coefficients provide indications of the almost normal distributions of scales. Results of the non-parametric Kolmogrov-Smirnov test of normality shows a large probability (> 0.10) for the Zs, which clearly indicates that the frequency distributions of the scales are likely to fit by normal distribution. Therefore, parametric tests were used to determine whether there were significant
differences between mean ratings for groups of agents. One-way analysis of variance (ANOVA) was used to analyze the data collected. The Levene test (SPSS, 1999) was used to check the equality of variances of the populations, which is an important assumption for the F-test. The LSD method was consequently used in investigating where the differences occurred among groups. Levels of knowledge and need for training on farm management were established based on the overall ratings of knowledge and need for training scales. Overall ratings beyond half a standard deviation below the mean were labeled as low. Similarly, overall ratings beyond half a standard deviation above the mean were labeled as high. Overall ratings in the range of a half of standard deviation below or above the mean were labeled as medium. Chi-square tests were used to investigate associations between the knowledge and need for training levels and the individual rating of training methods and selected agents’ attributes.

Objective One
Perceptions of Farm Management Extension

The attitude scale was used to measure the perception of agents of the importance of farm management skills to business viability, which influences the chance of success of integrating farm management in extension work. Agents were asked to rate; the significance of operators’ farm management skills to profitability; the provision of farm business management and marketing extension services; the need to create awareness and to train farmers to improve their ability to use management concepts and techniques such as book-keeping, budgeting, and financial statements. Table 1 shows that the distribution of the attitude scale scores was slightly skewed to the left due to the existence of few extreme low ratings. Most agents (55-86%) scored 4 or 5 points on individual items of the attitude scale when asked to rate how much importance they attach to the management skills. The attitude scale scores ranged between 30 and 65 points, and the mean score was 49.2 points (76% of the maximum rating). The mean scores for individual items ranged between 3.30 and 4.37 points. Offering farm business management and marketing extension scored 4 or 5 points by 79% and 70% of agents respectively. These results indicate that the agents are aware of the significance of knowledge and skills in farm business management in an increasingly competitive environment.

Table 2

<table>
<thead>
<tr>
<th>Field of Specialty</th>
<th>Attitude’s Scale Ratings</th>
<th>Knowledge’s Scale Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Crop production</td>
<td>31</td>
<td>45.60**</td>
</tr>
<tr>
<td>Plant protection</td>
<td>20</td>
<td>51.30</td>
</tr>
<tr>
<td>Animal production</td>
<td>9</td>
<td>50.55</td>
</tr>
<tr>
<td>Soil and water</td>
<td>7</td>
<td>48.00</td>
</tr>
<tr>
<td>Agricultural economics</td>
<td>24</td>
<td>50.58*</td>
</tr>
<tr>
<td>General agriculture</td>
<td>8</td>
<td>53.12*</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>49.20</td>
</tr>
</tbody>
</table>

Levene statistic = 1.44, P < 0.216, F = 2.09, P < 0.07, LSD test: °* Sig. at the .05 level

Levene statistic = 0.664, P < 0.652, F = 5.11 P < 0.0001, LSD test: °* Sig. at the .05 level

Using one-way ANOVA, no significant differences in the mean ratings of attitude were observed between age and experience in agriculture groups, education levels, and major areas in extension. However, Table 2 shows that the overall mean ratings of attitude for fields of specialty approach significant differences (p < 0.07). As expected, mean rating for agricultural economists, was significantly different from mean ratings of the crop production, plant protection and general agriculture specialists (LSD test; p < 0.05). Using Pearson and
Spearman’s Rho tests of correlation, attitudes scale scores were negatively correlated with age, years of experience in agriculture and in extension work, but the correlations were not statistically significant. This suggests that relatively younger agents and the less experienced agents might be more positive to farm management extension.

Knowledge of Economic and Financial Management Techniques

The knowledge scale was used to measure the knowledge of extension agents on economics and financial management techniques. The items of the knowledge scale covered filing, book-keeping, optimum input use, short and long term budgeting, credit management, income statements, balance sheets, simple methods of calculating indicators to analyze the financial position of farms, and computer applications on technical and financial management. As compared to the attitude scale, fewer agents (30-49%) gave 4 or 5 points when asked to rate their knowledge for individual items. The mean and median of rating scores were 40.0 (61% of the maximum value). The knowledge scale scores ranged between 2.72 and 3.48. The highest mean item scores (3.09 – 3.48) were observed for keeping records of input use and farming operations, how to get a loan, preparation and analysis of the loss and profit statement, as well as short and long term budgeting. The lowest mean scores (2.72 - 3.03) were for the use of computers in farm management and calculating return for agricultural loans.

ANOVA test was used to examine whether there were differences between the mean rating scores of the knowledge scale by selected attributes. The only statistically significant differences were observed between fields of specialties (p< 0.0001). Table 2 shows that the mean score of the agricultural economists was significantly larger than the mean scores of the main specialties; crop production and plant protection specialists (LSD test; p < 0.05). Similarly, the mean score of the knowledge scale for plant protection specialists was significantly different from the mean score for agricultural economists, animal production, and soil and water specialists (LSD test; p < 0.05). Using Pearson and Spearman’s rho tests, knowledge scale ratings were not correlated with years of age, experience in agriculture and in extension work, which suggest that agents are alike in their knowledge of farm management techniques, irrespective of their age and experience. Only 30% of the agents scored 4 or 5 points to their ratings of knowledge on the computer application of farm business management. Using $\chi^2$ test of independence, knowledge on the use of computers in farm management was not associated with age groups, years of experience groups, and education levels, which suggests that low knowledge on computer application is a general problem.

Objective Two

Training on Farm Business Management Activities

Using the need scale for training on farm business management, agents were asked to rate their perceived importance of training on economics and financial management techniques. The items in the need scale were the same as in the knowledge scale. As compared to the knowledge scale, more agents (44-67%) gave 4 or 5 points on all items of the need scale. As Table 1 shows, the mean rating was 43.3 points (67% of the maximum value). The mean scores for individual items ranged between 3.21 and 3.66. The highest mean scores (3.33 – 3.66) were observed for training on the use of computers in farm management, scheduling of credits, book-keeping, preparation and analysis of budgets. The lowest mean scores (3.21 - 3.28) were observed for the preparation and analysis of loss and profit statement, record keeping for farm operations, how to borrow money, and long term budgeting.

Using ANOVA test, no significant differences in the mean ratings of knowledge were observed between age groups, experience in agriculture groups, specialty, and education levels. Using Pearson and Spearman’s rho tests, the need scale was not correlated with agents’ age and years of experience, which suggests that agents are alike in their perception of the need for training, irrespective of their age and experience. However, the knowledge and need scale ratings were negatively correlated ($\tau = -0.269, P < 0.01$), which means that the lower the knowledge, the higher the need for training. Two thirds of the agents gave 4 or 5 points to the need for the use of computers in farm management. Using $\chi^2$ test of independence,
need for training on the use of computers on farm management was not associated with age groups, years of experience groups, and education levels, which suggests that it is a generally felt need between agents for the envisaged training. However, Table 3 shows that higher percentages of agents with low or medium knowledge on farm management practices were willing to participate in training ($\chi^2 = 14.5$, d.f. = 4, $p < 0.006$).

Table 3

<table>
<thead>
<tr>
<th>Knowledge Level</th>
<th>Need for Training on Farm Management Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (17.6%)</td>
<td>Medium (29.4%)</td>
</tr>
<tr>
<td>Low</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Medium</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>High</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Overall</td>
<td>32</td>
<td>28</td>
</tr>
</tbody>
</table>

Test of independence: $\chi^2 = 14.507$, d.f. = 4, $P \leq 0.006$.

Training on Marketing Extension Services

A scale of 10 items was used to measure the need of extension agents for training on marketing extension activities. These items covered timing for planting, type of crop, introduction of new crops, methods and timing for harvesting, sorting, grading, packing, market information on alternative markets and prices, and standards and opportunities for exporting. As compared to the need for training on farm management scale, much more agents (58-83%) scored 4 or 5 points on the individual items of the scale. The mean score of the scale items was 38.3 (77% of the maximum value). This finding demonstrates that the agents are aware of the farm operator’s need of good marketing skills for success. The highest mean scores (3.88–4.32) were observed for training on timing for planting, type of crop, introducing new crops, standards and opportunities for exporting. Using ANOVA, correlation and $\chi^2$ tests for the analysis of the data produced similar results to the analysis of the need scale for training on farm management. These findings suggest that agents are alike in their perception, and there is a general support for marketing extension training.

Methods of Training

Extension agents need to be trained in the subjects of marketing extension and on the application of farm management techniques on actual farm situations. Agents were asked to rate their preference to the methods of training to improve their skills in these subjects. Table 4 shows that 79% of agents agree or strongly agree to use multi-day workshops as a method of training, 64% supported short presentations, 43% supported self-study of educational materials, and 11% backed one-day workshop.

Table 4

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Total (N = 99)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-day workshop</td>
<td>4.1</td>
<td>7.2</td>
<td>22.7</td>
<td>20.6</td>
<td>45.4</td>
</tr>
<tr>
<td>Multi-day workshops</td>
<td>54.4</td>
<td>24.2</td>
<td>12.1</td>
<td>7.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Short presentations</td>
<td>34.3</td>
<td>30.3</td>
<td>22.2</td>
<td>9.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Educational materials</td>
<td>19.2</td>
<td>24.2</td>
<td>17.2</td>
<td>21.2</td>
<td>18.2</td>
</tr>
</tbody>
</table>
Of the suggested farm management and marketing extension areas were cost accounting, financial feasibility, bookkeeping, computer application of farm management, credit management, optimum quantities or combinations of inputs, sorting, grading and methods of marketing. In-depth multi-day workshops was the preferred way to provide theoretical training to be backed by educational materials and practical examples on the concepts, purposes of budgeting, financial statements, measures of performance, and market information. Four fifths of the agents support the idea of producing farm management bulletins. To examine the association between ratings of training methods and selected attributes, $\chi^2$ test of independence was used. Younger and less experienced agents were more likely to support the use of lectures ($p < 0.03$), to use educational material to support training ($p < 0.04$), and less likely to support one-day workshops ($p < 0.06$). Similar, but less significant results were observed for field agents with no administrative duties ($p < 0.09$).

**Conclusions and Implications**

The public extension services are oriented to technical and production aspects, as 5-8% of agents offer services on farm management and marketing extension. The emphasis on technical rather than business aspects of farming is placing the farmers’ long-term viability in danger. Less than half of the agents gave high ratings when asked to rate their knowledge of economic and financial management techniques irrespective of their age and experience. The implication is that the current programming efforts of the public extension agents do not meet the educational needs of farmers.

More than two thirds of agents attached high importance to farm management and marketing skills, and recognize that technical skills, as well as farm management are important to the success of farm businesses in an increasingly competitive environment. The implication is that the positive attitude of agents increases the chance of success in integrating farm management in extension work.

There is a general support for the training of state extension agents to meet the needs better of producers. The majority of agents gave high ratings to their need for training on farm business management, and even higher ratings for marketing extension, irrespective of their age, experience and specialty. The educational background of four fifths of agents is technical with limited orientation to economics of production and business aspects of farming. The knowledge and need scale ratings were found to be negatively correlated, which suggests that lower knowledge is associated with higher need for training. The implication is that, with the continuous changes in agribusiness environment, public agents in all disciplines need to be empowered to provide farmers with long-term management advice, and to look more critically at their marketing activities.

Four fifths of the agents were in favor of multi-day workshops for training, to provide in-depth theoretical information, to be followed by practical training, and backed by educational materials. Younger and less experienced field agents were more likely to support the use of lectures and educational material to support training, while the older and more experienced agents appeared to be more inclined to practical learning processes. The implication is that; programs for training have to be tailored to the specific training needs of the groups; active participation through workshops that address the practical applications has to be emphasized; and training has to be supported by self-learning educational materials in the profession of farm management and marketing.

**Educational Importance and Recommendations**

The study contributes to the development of appropriate extension services to support competitive farming. It calls for providing farmers with a basis for sound and more informed decision-making, and the skills to carry out profitable farm operations. It sheds lights on the significance of meeting the specific and more pressing educational needs of the extension agents to improve their farm management and marketing competence. The diversity of the educational needs calls for concerted efforts of the public extension and the educational institutions to ensure successful implementation of training programs. Multi-day workshops have to be organized to promote professionalism in the fields of farm management and marketing extension. It is recommended that training be made more practical and concentrated on the means to
empower agents. Training should help participants set up a working record system; plan for the future; analyze business performance; assess the market and identify business opportunities; plan timing, quality, and quantity of products to satisfy the targeted market; and computer applications practical workshops for training. The typically small state extension staff, demand forming a qualified national professional team to serve as a focal point for farm management and marketing extension-related activities. The area of expertise teams would cover several regions to improve the organization and management of farms.

Improved technical efficiency and hard work are no longer enough, and farm operators need good management and marketing skills for success. The sharing of the significance of farm management and marketing extension to promote business-like farming among conference participants, would add to the efforts of integrating farm management dimension in agricultural extension, especially in the less developed countries, where the need to keep agriculture viable and competitive is no more evident. Farmers in less developed countries need to upgrade their business management skills to cope with changes in agribusness environment, and run their business more effectively. It is recommended to consider this subject matter as a sole or main theme for future conferences, and to promote further and cooperative research from the perspective of the extension agents, as well as farm operators.

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References


Trends and Developments within the Chinese Agro-Technical Extension System

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Abstract

This paper describes important developments undertaken to improve the performance of the Chinese extension system. During the early 1980s, 29 counties pilot tested a new organizational model whereby seven different county level stations were integrated into a County Agro-Technical Extension Center (CATEC). This new model greatly improved extension performance and is now being used in 80% of the counties. In addition, this integrated system strengthened linkages between CATECs and Township Agro-Technical Extension Stations (TATES), which organize front-line extension activities. TATES work through village-level farmer technicians and demonstration farm households in organizing demonstrations and farmer training. During the 1990s, specialized farm households and farmer associations (higher value products) have become an important target group for extension.

Passage of “Extension Law” in 1993 fully decentralized the extension system, so most funding comes from the corresponding level of government. County and township governments provide partial funding for extension programs and operations, but CATECs and TATES are expected to generate an increasing share of funding for extension programs. Many different funding approaches have been field-tested, however, the “Prescription and Filling the Prescription” model has gained broad acceptance. This approach is similar to how private firms and cooperatives in North America and Europe fund technical advisory services. The cost of these “privatized” advisory services is recovered directly from farmers when they purchase inputs directly from the “commercial” side of the extension center. Farmers prefer this new approach and the number of technical advisory personnel funded by these “commercialized agricultural services” has been greatly expanded.

Introduction

The Chinese agricultural extension can be traced back to the imperial dynasties of 3-4000 years ago. Extension activities in ancient times were primarily the exchange and diffusion of experience-based skills, knowledge and technology. The development of the modern extension system, which is linked with agricultural research and education, began at the turn of the Twentieth century. However, since the founding of Peoples Republic of China (P. R. C.) in 1949, many new, government-based institutions have emerged to strengthen agricultural extension services. In particular, agricultural production in China has increased rapidly since the economic reforms of 1979, quadrupling 1949 production levels. The Agro-Technical Extension Center (ATEC) system, which was established in the early 1980s because of these reforms, has played a key role in helping China to become self-sufficient in food production (Delman, 1991).

Purpose

The purpose of this paper will be to describe and analyze important developments and reforms that have been implemented during the past 25 years to improve the performance of the ATEC System. These developments also reflect several concomitant factors, including the progressive move to a market-based economy, broader government reforms, and the reduction in public funding for extension.

Trends and Developments in the ATEC System

The current ATEC system consists of five administrative levels (see Figure 1), plus farmer technicians who operate at the village level. At the end of 2001, the ATEC system was
Figure 1: Structure of Agro-Technical Extension System

Ministry of Agriculture

National Agro-Tech. Extension & Service Center
National Animal & Veterinary Station
National Aquatic Station

Provincial Department of Agriculture

Provincial Agro-Tech. Extension Center
Provincial Agro-Tech. Extension Station
Provincial Plant Protection Station
Provincial Soil Fertilizer Station
Provincial Seed Station

Municipal Department of Agriculture

Municipal Agro-Tech. Extension Center
Municipal Agro-Tech. Extension Station
Municipal Plant Protection Station
Municipal Soil Fertilizer Station
Municipal Seed Station

County Department of Agriculture

County Agro-Technical Extension Center

Township Dept. of Agriculture

Township Agro-Technical Extension Station

Farmer Technicians
Specialized Farm Households
Farmer Associations

Demonstration Farm Households
composed of approximately 371,350 staff (Ministry of Agriculture, 2001), 500,000 farmer technicians (FT) who primarily operate at the village level, and 6.6 million demonstration farm households (DFHs).

Establishing CATECs to Promote System Development

Prior to 1979, there were many separate agricultural development agencies serving farmers at the county and township levels, including the Extension Station, Agro-Research Institute, Crop Cultivation Station, Plant Protection Station, Seed Station, Soil and Fertilizer Station, and the Agro-Technical School. These individual agencies were weak, duplicated efforts and were generally inefficient. To develop a strong, grassroots extension system, these different stations were integrated into a new County Agro-Technical Extension Center (CATEC). This new integrated approach created many efficiencies and allowed more resources to be focused on extension priorities within each county. This approach was pilot tested in 29 counties during the early 1980s and subsequently expanded throughout the country during the 1990s. Now, over 80% of the counties in China have adopted the CATEC model.

The mission of these new CATECs was to 1) design or formulate extension programs based on local needs; 2) introduce new technologies (e.g., new varieties, fertilizer, agro-chemicals) from research; 3) train and support Township Agro-Technical Extension Station (TATES) staff, township government officials, and village-level farmer technicians, 4) prepare extension materials for use at the township and village levels; and 5) conduct crop scouting surveys for insect and disease occurrence and, when needed, to disseminate pest control recommendations to farmers.

At the same time, the TATES were being reorganized and strengthened. TATES are responsible for front-line extension activities by organizing, coordinating and supporting the work of village-level farmer technicians, and by working through the demonstration and specialized farm households (SFHs) in each village. During the past two decades, TATES have become more closely linked with their respective CATEC, especially due to the efforts of the county extension staff who provide training and technical support for the TATES staff.

CATEC and TATES are the main grassroots extension units in China. Recently, in some areas of China where agronomic conditions are similar and the working efficiency of extension is higher, CATECs are establishing multi-township Regional Agro-Tech Extension Stations (RATES). Extension personnel for these RATES are primarily coming from existing TATES, with a few staff members being transferred from the local CATEC. In these cases, the county government is financing these new RATES. Also, in some poorer areas, where the township government has difficulty providing adequate finance to support a TATES, these multi-township RATES are being established by the county government.

Decentralizing the ATEC System in Response to the Market Economy

As the CATECs and TATES became established, they began taking on increasing responsibility for crop related science, technology, and education activities within each county. First, the county government, through the Department of Agriculture, took increasing responsibility for funding county extension activities (Maalouf, Adhikarya, & Contado, 1991). By 1993, when the “Law of the People’s Republic of China on the Agricultural Techniques Extension” was passed, each level of government (national to the township levels) became fully responsible for providing both capital (facilities and equipment) and operating funds for their own respective extension activities (Nie, Swanson, & Feng, 2002; Swanson & Samy, 2002).

In addition, other county-level government offices began collaborating with CATECs to allocate funds for development projects and/or to provide training for farmers. For example, CATECs began submitting proposals to the County Department of Science and Technology (Nie, Swanson, & Feng, 2002). If these projects focus on promising technologies, address real needs and have the political support of farmers within the county, then they are likely to be funded. CATECs also cooperate with other government offices, such as the County Women’s Federation (CWF) in providing training for women farmers. By collaborating with these different government offices, the CATEC is able to gain access to new
soures of operating funds and to build strategic alliances within the county for the benefit of rural farm households.

Targeting Extension Programs to Reflect Clientele Differences

At the village level, there are large numbers of very small farmers that need to be reached with extension programs. During the 1980s, as the ATEC system was being established, CATECs and TATES focused their efforts on demonstration farm households (DFHs) as the key focal point in each village to demonstrate new food crop production technologies. In demonstrating new technologies, these DFHs are supported and monitored by village-level farmer technicians (FTs). These FTs are not regular extension staff, but they are farmers with technical agricultural education (see section on CABTS below) and who work about 50% time on extension activities for a modest stipend (Nie & Wu, 1993).

During the 1990s, as the agricultural sector began to diversify, younger, better-educated farmers began to specialize in higher value farm products, such as fruits, vegetables and specialized livestock. This new generation of farmers is designated as specialized farm households (SFHs) and they are more aggressive in seeking out the most promising technologies and new markets for their products.

In an effort to solve input supply, technical, and/or marketing problems, these SFHs began organizing “commodity specific” Farmer Associations (FAs). In townships or counties near larger cities, there may be 10 or more different FAs, with each group focusing on a different high value commodity. There are an estimated 100,000 FAs that have been organized across China (FECC, 2001) and these producer groups will become increasingly important now that China has joined the World Trade Organization (WTO) and will be competing for high value overseas markets.

Extension Methods

Demonstrations

To deal with the problem of large numbers of small farmers and to increase the working efficiency of extension, a combination of extension methods has been used to extend technologies. First, both “method” and “result” demonstrations are widely used by extension.

CATECs and TATES utilize both DFHs and “demonstration villages” to popularize new crop production technologies. During the growing season, field days are organized for other farmers to see the result demonstrations and learn new techniques. In a survey carried out in Wuqing County, it was estimated that TATES staff spent 45% of their time on demonstration activities (Nie, Swanson, & Feng, 2002).

Training

Group training is commonly used by the CATECs in staff development (i.e., TATES level extension staff and FTs) and it is an efficient way for the TATES to train both “demonstration farmers” and other farmers within each township. Both CATECs and TATES have training facilities and equipment, and most training events are based on a needs assessment that is carried out by the extension staff. Subject matter specialists (SMSs) from CATECs, scientists from provincial or prefecture research units, and faculty from a nearby agricultural college or university are all used to provide different types of training within each county. In addition, township or county-level FAs utilize these same facilities to hold business meetings and/or to conduct their own training activities.

Mass Media

The mass media is widely used in China to disseminate new agricultural technology, alert farmers of potential pest problems and for farmer training. CATECs produce printed materials that are disseminated through TATES and farmer training events. In addition, most farm households have TV sets; therefore, TV is commonly used during extension campaigns to create awareness of new technologies or to warn of pest problems. Many Provincial Agro-Technical Extension Centers (PATECs) have broadcast quality television equipment that is used to both produce TV programs for extension campaigns and training videos for use at the county and/or township level.

Distance Education

The Central Agricultural Broadcasting and Television School (CABTS) also makes extensive use of educational TV to provide training courses for field level extension staff, including FTs. CATEC staff members frequently serve as tutors for these courses that
are offered via distance education. Finally, individual CATECs are now using the Internet for a variety of purposes, including: reporting on new research findings and technology, identifying new markets for farmers within their county, and helping farmers to advertise and sell high value products in cities.

**Alternative Approaches to Financing Extension**

As a part of government reforms that were implemented in the 1990s, the ATEC system has been required to develop new revenue generating mechanisms and to shift more extension costs to farmers. Different mechanisms are being field-tested and described, including *contract extension*, *private extension* and *commercialized agricultural services*.

**Contract or Fee-Based Extension**

Farmers’ demand for new technologies has increased tremendously over the past two decades with the commercialization and specialization of agricultural production. In responding to this new situation, some extension units have begun offering *technical contract extension services* at the village or farm level. One approach has the TATES director sign a technical contract with the village head. The contract calls for the TATES staff to provide specific types of technical services for farmers in the village, such as information on new production technologies, disease and pest forecasting and protection, marketing information, and better access to high quality production inputs. These contract extension services are provided directly to individual farmers in the village or through a village committee. In return, each farmer is expected to pay the TATES for these services at the end of season. In this case, extension becomes essentially a *fee-based* service (Nie, Swanson, & Feng, 2002).

In some provinces, individual extension staff members have signed technical contracts to provide *fee-for-service* advisory services to specialized crop farmers. Again, the underlying assumption is that if the farmer receives valuable advice that increases their productivity and income, then they should be willing to pay for this service. In some provinces, individual farmers have signed *consultancy agreements*, secured good yields and received higher incomes. However, at the end of the season, they have been unwilling to pay the consultancy fee; they still think that extension should be a free service. This procedure raises several important policy and personnel issues about the advisability of individual extension staff members providing fee-based consultancy services to individual farmers while they still government employees (Nie, Swanson, & Feng, 2002).

**Private and Privately Funded Extension**

In recent years, private agribusiness firms have begun signing production contracts with individual farmers. Under these contracts, most companies specify the production technology to be used. In addition, they may provide the specific variety of seed, planting material or young animals to be used and/or other types of technical inputs that will help ensure product quality. These private companies may also provide direct training to farmers or they may sub-contract needed extension and training activities to the local CATEC or TATES. At the end of season, the company collects each farmer’s production at a fixed price and pays for all input supply, training and advisory services from proceeds.

Under this approach, both the company and farmers benefit. Contract production is commonly found in areas where high value vegetables, fruit, and/or dairy milk is produced. This approach is also being used by firms that contract for high quality rice, wheat and corn for export, or other high value end-use markets. Where the company provides inputs and training, the approach is called the *Company + Farmers* model. In cases where the local extension service is involved, it is called the *Company + Extension + Farmers* model (Nie, Swanson, & Feng, 2002).

There are several advantages to *contract production* and *private extension*. First, companies benefit since they have direct contact with farmers and are able to ensure a stable supply of high quality products. Second, where extension units contract directly with the private firm to provide technical training and supervision, they have a new revenue source to support extension activities within the township. Third, farmers are satisfied with this arrangement since they have access to the best available technology and a guaranteed market for their products. Fourth, the government
encourages this type of public-private collaboration, since large numbers of farmers in one or more townships can be organized as a group or farmer association to capture economies of scale in producing specific high value products. This allows private firms, in combination with local farmers, to be more competitive in pursuing both domestic and foreign markets.

Selling Input Supplies or “Prescription and Filling the Prescription.”

Many TATES\(^1\) have established commercial input supply shops to provide an integrated source of diagnostic and advisory services in combination with recommended seeds, fertilizers, pesticides and other agricultural inputs. These ATEC service and input supply centers are quite similar in function to a private or cooperative input supply centers in North America or Europe. Farmers get one-on-one consultations and advice from a trained technician and then the cost of this “advisory service” is financed from the sale of production inputs.

To separate commercialized agricultural services (CAS) from on-going extension programs, the approach developed under a recent World Bank financed Agricultural Support Services Project (ASSP) was to bifurcate each TATES into two administratively separate units: extension and CAS. The publicly funded extension staff works on farmer training and demonstration programs, while the commercially funded staff provides one-on-one advisory services to individual farmers. The TATES director has overall responsibility for both functions. Under the ASSP, each TATES was assisted in establishing a diagnostic service\(^2\).

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\(^1\) In an effort to increase new sources of financing for extension, some CATECs have also established input supply and service centers for farmers in surrounding communities.

\(^2\) The ASSP only provided diagnostic equipment for the service center. Each township government was responsible for constructing the TATES building, except for the classroom (70M\(^2\) on the second floor of the TATES) that was financed by the project. Other ASSP financed investments for each TATES included audio-visual equipment and teaching aids, staff training, a small library and a utility truck.

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The profits from these CAS are used to expand both extension and advisory services. First, these profits fully finance the salaries of those TATES personnel who provide “individualized” technical, management, and diagnostic services to farmers, and who sell agricultural inputs. For example, in a typical township, two extension staff members (the TATES director and his/her assistant) are generally paid directly by the local township government. In addition, project supported TATES have hired, on average, 5-6 additional staff members whose salaries are directly financed from CAS earnings\(^3\). To ensure that farmers receive sound technical advice, all TATES staff are technically trained\(^4\) and work under the overall supervision of the TATES director. In addition, they receive in-service training and technical backstopping from CATEC subject matter specialists (SMSs).

In addition to substantially expanding “individualized” advisory and diagnostic services to farmers, some of the CAS profits are used to finance the operational costs of on-farm demonstration and farmer training programs. To

\(^3\) Based on monitoring and evaluation indicators compiled by the Ministry of Agriculture, at the end of ASSP (2001), an additional 4019 technicians had been employed to carry out individual advisory and CAS activities in the 705 TATES that were strengthened under the project, or an average increase of 5.7 technicians/TATES.

\(^4\) The minimum level of training of all TATES personnel would be a technical high school diploma, with most receiving their training from the Central Agricultural Broadcasting and Television School (CABTS); some TATES staff, especially the TATES’s director, would have a three year, post-secondary agricultural diploma.
provide some indication of the importance of these CAS earnings in financing “extension” activities, between the mid-1990s and 2001, the 705 ASSP supported TATES reported an aggregated gross income of over 7 billion Yuan\(^5\) (¥) or about $851 million. These 705 TATES reported aggregated net earnings of about ¥524 million ($63 million), with about 181 million ($22 million) being reinvested in extension programs, the remainder is being used to cover the salary and operational costs of CAS activities (FECC, 2001). This basic model is now being widely adopted by TATESs and CATECs throughout much of the country.

Establishing Commercial Enterprises

In response to government reforms and the need to generate new revenue streams, many extension units established their own agriculturally related enterprises. These enterprises range from value-added corn processing and rice milling factories to fertilizer blending plants. For example, under ASSP, the project provided \textit{in-kind} working capital to any CATEC that wanted to establish a fertilizer blending plant that would produce compound fertilizer in line with the nutritional requirements of major crops, and based on soil test and adaptive research trial results. The rationale for promoting this type of CAS was the lack of compound fertilizer in most provinces. To participate in this program, the CATEC was required to take out a capital loan and construct a factory that would meet minimum Chinese Chemical Industry Bureau standards. Some of these commercial enterprises are financially successful, but these ventures tend to detract extension from its central mission.

Trial and Demonstration Farms as Commercial Enterprises

Because of expanding economic activities, an increasing number of farmers have migrated to towns and cities in pursuit of higher paying off-farm employment. Many of these farmers give up their \textit{land use rights}\(^6\) to avoid paying the land tax, since it is very difficult to generate a profit on very small farms (e.g., <0.25 hectare). In villages where there has been an exodus of farmers, some TATES have organized \textit{Trial and Demonstration Farms}. Under this approach, TATES rents a block of available land from the village and then it operates the T&D Farm as a commercial enterprise. For example, they may decide to demonstrate a new high yielding variety as a demonstration. In the process, they are also able to multiply the seed for sale the following season as certified seed. In other cases, they may produce nursery stock for direct sale to other farmers (Nie, Swanson, & Feng, 2002).

Conclusions

As China began the transition to a market economy, the government initiated a number of extension reforms to give farmers greater access to new skills and improved technology. The most important structural change, to improve the performance of the extension system, was to create a CATEC in each county that integrated all agricultural research, extension, and education programs and personnel into a single center. Another important reform was to shift financial responsibility for extension programs to county and township governments. Under this decentralized extension system, county departments of agriculture played a larger role in setting extension priorities. The decentralization of the ATEC system was fully completed a decade later when the Chinese government passed the Extension Law in 1993. Under this law, each level of government became fully responsible for funding its own extension system.

In 1993, the central government undertook other reforms designed to downsize rapidly the entire public sector. Consequently, the ATEC system has experimented with

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\(^5\) The reporting period differed across project units, but this figure represents the total gross income for about 5 years. The amount of annual gross and net income being generated at the close of the project was not determined.

\(^6\) Chinese farmers do not have \textit{fee simple} ownership over their farmland, but they do have long-term \textit{use rights} that can be passed on from generation to generation. To maintain these use rights, farmers must continue to produce agricultural products, pay land taxes and sell a specified amount of grain (rice, wheat or some other staple food crop) to the government to ensure food security. If farmers take up off-farm employment and “abandon” their farmland, they forgo their use rights and the land reverts to the township or village government for redistribution.
different approaches to financing extension. The goal was to maintain the effectiveness of the extension system as government investments in agricultural research and extension were reduced. The Prescription and Filling the Prescription approach actually expanded “one-on-one” advisory services to farmers on a full cost recovery basis. This approach, which has already been widely adopted across China, has partially privatized the ATEC system in China by bundling production inputs (private goods) with technical information (public goods). Several other financing approaches have been tried, but these models look less promising and need further evaluation to determine the long-term advantages and disadvantages.

The other significant development that has occurred in Chinese agriculture during the 1990s has been the shift toward diversification into high value agriculture. In the process, many farmers have specialized into high value crops, livestock or other enterprises. These specialized farm households have organized into different types of farmer associations, especially to market their products in urban areas. Because of these changes, the extension system in China has become increasingly farmer center and market driven. These reforms and developments offer important lessons that other countries may wish to consider in improving their respective extension system.

References
Factors Affecting OSU Extension Agents’ Perceptions of Organizational Justice and Job Satisfaction

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Abstract

This descriptive-correlational study investigated Ohio State University (O.S.U.) Extension county agents’ perceptions of organizational justice (including distributive, procedural, interactional, and systemic justice) and job satisfaction. The researchers used a census of O.S.U. Extension county agents and a mailed questionnaire to collect data, achieving a final response rate of 86%. The findings suggest that O.S.U. Extension county agents have a somewhat uncertain perception of organizational justice; agree with procedural and interactional justice; disagree with distributive and systemic justice; and are very satisfied with their employment. A low, positive association was found between O.S.U. Extension county agents’ perceptions of organizational justice and current level of job satisfaction. Positive relationships were found between job satisfaction and interactional justice, procedural justice, and systemic justice. The findings suggest that O.S.U. Extension administration should investigate and strengthen reward structures and continue to offer opportunities for employees to be engaged in dialogue, decision-making, and the implementation of decision outcomes, when appropriate, while encouraging individual creativity in program development and implementation.

Introduction

Ohio State University (O.S.U.) Extension has been in existence for nearly 100 years, serving the needs of Ohio citizens through a variety of community-based educational programs focused in 4-H youth development, family and consumer sciences, agricultural and natural resources, and community development. In the current state of economic uncertainty and population shifts, rapid and complex change has been a constant for O.S.U. Extension similar to many other Cooperative Extension Systems.

A complicating factor in the management of O.S.U. Extension is the autonomy of individual employees in a large and complex system and their evolving roles and responsibilities, coupled with the flexibility afforded to supervisors when carrying out their administrative responsibilities. For the past several years, O.S.U. Extension has prepared for, and now faces, many challenges: Balancing budgets under extreme fiscal constraint; addressing pay equity among individual employees; supporting employees balancing workloads and work/life issues; encouraging and assisting in the promotion and tenure review process; and supporting the tremendously complex and unique county agent position as they develop and implement innovative and unique educational programs. During such challenging times, it is only natural that Extension employees could find themselves questioning organizational decisions and how they are made, frequencies and effectiveness of communications between administrators and employees, and individual rewards and incentives. All of these potential employee reactions are addressed in the construct of organizational justice.

In perhaps the most simplistic terms, organizational justice involves peoples’ perceptions of fairness in the organizational setting or workplace (Byrne & Cropanzano, 2001; Greenberg 1987). It is an evaluative
judgment by individuals of the fair treatment by others (Bazerman, 1993; Furby, 1986) and a fluid concept that involves actions, interactions, and perceptions of individuals and groups. Organizational justice in a broader sense also refers to individuals' and groups' perceptions of the fairness of treatment received from organizations, including their behavioral reactions to such perceptions (James, 1992).

Most recently, Beugre' (1998) stretched the definition of organizational justice to “the perceived fairness of the exchanges taking place in an organization, be they social or economic, and involving the individual in his or her relations with superiors, subordinates, peers, and the organization as a social system” (pp. xiii). Beugre’ and Baron (2001) suggested that organizational justice be considered in relation to (a) the fairness of organizational rewards (distributive justice), (b) interaction with others in the organization (interactional justice), (c) formal organizational procedures utilized (procedural justice), and (d) the organization as a system (systemic justice).

While several authors have investigated the concept of organizational justice within for-profit organizations (Beugre’, 1998; Beugre’ & Baron, 2001; Lind & Tyler, 1988; Rahim, Magner, & Shapiro, 2000), minimal research has been conducted to investigate perceptions of organizational justice of O.S.U. Extension county agents. Kutilek (2002) investigated organizational justice as it relates to work/life guidelines within O.S.U. Extension. Additionally, researchers have critically analyzed levels of job satisfaction in Extension organizations over the years (Boltes, Lippke, & Gregory, 1995; Bowen, Radhakrishna, & Keyser, 1994; Keffer, 1976; Mallilo, 1990; Miller, 1997; Nestor & Leary, 2000; Riggs & Beus, 1993). However, no study has been conducted that investigated relationships between current perceptions of organizational justice and levels of job satisfaction and selected personal, professional, and organizational characteristics of O.S.U. Extension county agents.

**Purpose and Objectives**

The purpose of this research was to describe O.S.U. Extension county agents’ perceptions of organizational justice and job satisfaction. More specifically, the purpose of this study was to: (1) Describe the perceptions of organizational justice held by O.S.U. Extension county agents; (2) describe the current level of job satisfaction of O.S.U. Extension county agents; and (3) explore relationships between agents’ perceptions of organizational justice and level of job satisfaction.

**Methodology**

Utilizing descriptive-correlational research methodology, the researchers developed a mailed questionnaire, consisting of four sections, to collect data. Section I: 35 items adapted from Beugre’s (1998) organizational justice instrument, including individual constructs of distributive, interactional, procedural, and systemic justice; each employed a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree); Section II: 14 items measured on a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) that comprised Warner’s (1973) job satisfaction instrument. Two additional sections, one measuring initiation and participation of continuing professional education and another collecting demographic data, were included. Summated scores were used to obtain descriptive statistics: means, medians and standard deviations.

The organizational justice scale used for this study was originally developed by Beugre’ and Baron (1997) to measure distributive, procedural, interactional, and systemic justice. The original scale was developed from a “pilot study of sixty-one participants, and then in a main study including a sample of 232 employees” (Beugre’, 1998; pg. 94). The pilot study used a scale that included 75 items, which was reduced to 41 for follow-up with the larger sample. Using factor analysis with the data collected, the four factors of distributive (ten items), procedural (five items), interactional (ten items) and systemic justice ( ten items) were developed (Beugre’, 1998). For this study, the researchers modified some language to reflect the support team concept when conducting performance evaluations, rather than a single supervisor as is reflected in the original instrument.

The researchers conducted a pilot test with 18 members of the Ohio Extension Agents Association to establish reliability of the
instrument. Using pilot test data, the researchers calculated Cronbach’s Alpha to measure the respective constructs’ internal reliabilities as indicators of the instrument’s reliability; resulting individual construct reliabilities ranged from .87 to .95. The population for the study was a census of all O.S.U. Extension county agents employed as of February 1, 2002 with one or more of the following program area responsibilities: (1) 4-H Youth Development; (2) Family & Consumer Sciences; (3) Agriculture & Natural Resources; or (4) Community Development. There were 284 O.S.U. Extension county agents in the population. A final response rate of 86% (246 respondents) was achieved following two follow-up reminders and one additional mailing to non-respondents.

Findings

Selected Demographics

O.S.U. Extension county agents responding to this survey have worked for the organization an average of 13 years (SD = 9) and were 45 years of age (SD = 9). A large number (144 out of 245) of respondents worked for a business or organization other than the Cooperative Extension Service for an average of 10 years (SD = 10) prior to their current employment with Ohio State University Extension. Respondents were 55% female and 45% male with an overwhelming majority (89%) having a Masters degree as their highest completed degree. A modest number (43%) of respondents had completed their highest degree in Education, followed by Agriculture (20%), and Home Economics (19%).

Organizational Justice and Job Satisfaction

Respondents had an overall mean score of 3.08 (SD .71) for their perception of organizational justice (Table 1) with mean scores for individual constructs of distributive, procedural, interactional systematic justice ranging from 2.49 to 3.61. Respondents had a rather high level of job satisfaction with a mean of 4.13 (SD .64) on a five-point scale.

A low, positive association (Davis, 1971) was found between O.S.U. Extension county agents’ perceptions of organizational justice and current level of job satisfaction (Table 2). Overall, a positive relationship was found between organizational justice (.199) and job satisfaction. Additionally, positive relationships were found between job satisfaction and interactional justice (.235); procedural justice (.155); and systemic justice (.215). Using Cohen’s effect size suggestions (.5 = large; .3 = medium; .1 = small), the researchers would suggest that the relationships between organizational justice (including individual constructs) and job satisfaction are small.

Table 1

<table>
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<th>Construct</th>
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<td>.85</td>
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<td>.83</td>
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<td>.81</td>
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<td>Organizational Justice</td>
<td>3.14</td>
<td>3.08</td>
<td>.71</td>
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<tr>
<td>Job Satisfaction</td>
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<td>4.13</td>
<td>.64</td>
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Table 2

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<th>Davis Convention</th>
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<td>Systemic Justice</td>
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Conclusions and Implications

The numerous, rapid changes that have occurred within O.S.U. Extension have had direct impacts on county agents, and have ultimately impacted Extension volunteers and program participants. As O.S.U. Extension experiences continual change and it seeks to address the many challenges that such a large organization encounters, it is important and necessary to understand perceptions of organizational justice and current levels of employees’ job satisfaction. Based on these perceptions, organizational leaders must ensure that employee needs are being met thus, potentially, ensuring their long-term commitment to the organization.

Distributive Justice

Distributive justice refers to the distribution of decision outcomes broadly defined; however, the researchers believe that respondents focused predominantly upon the distribution of salaries or other financial outcomes since this section’s initial question was related to salary. Thus, considering Ohio’s current fiscal crisis and, more specifically, the financial outlook for O.S.U. Extension, the researchers were not surprised by the respondents’ low perceptions of distributive justice. In 2001, all O.S.U. Extension employees received a minimal salary increase (~$395) intended to cover additional parking and medical benefits expenses. Other than financial rewards of salary, O.S.U. Extension administrators struggle to identify meaningful rewards of merit for Extension county agents due, in part, to the tremendous size, scope and diversity of the organization. The researchers further suspect that the perception exists within the organization that Extension administrators determine salary increases based more upon an egalitarian philosophy rather than individual performance. The organization establishes a baseline salary increase with everything above being merit; unfortunately, the percentage above the baseline is minimal in most cases.

O.S.U. Extension administrators have attempted to offer additional financial incentives to county agents by funding continuing professional education activities and travel, paying professional dues, and establishing competitive grant programs supporting innovative program development and agent specialization. However, the researchers suggest that the respondents did not consider this additional financial support for professional and program development as offsetting perceived inequities in salary. Furthermore, in the months preceding data collection, the innovative grants program was eliminated, and travel and professional development budgets reduced due to the organizations financial outlook.

Interactional Justice

Respondents’ relatively positive perceptions of interactional justice may be expected in an organizational culture where high levels of interaction are evident at various levels. During the past five years, O.S.U. Extension administrators increased efforts to foster communication in the organization by soliciting and considering county agents’ direct input into statewide issues affecting them locally. Additionally, county Extension agents may be more frequently and/or extensively participating in electronic communications or face-to-face meetings, viewing and participating in satellite updates, reading communiqués from administrators or program area leaders, or participating in any number of active task forces, teams, or committees that are contributing to organizational decisions.

Procedural Justice

While individuals may perceive the actual rewards that are distributed as unfair, they may perceive the procedures used to determine those distributions as fair (Greenberg, 1996). Although O.S.U. Extension county agents did not perceive the distribution of rewards as fair, they did perceive the procedures used as relatively fair. Within O.S.U. Extension, there have been increased efforts to communicate better the procedural and policy information by creating an Extension administration Web site, and through direct verbal and written communications. Therefore, employees have not only had more opportunities to read, reflect upon, and better understand how decisions have been made, but have also been provided increased opportunities to ask questions and seek clarifications. Finally, in some cases, Extension county agents are directly involved in the development of new policies and procedures.

Greenberg (1993) noted that it is somewhat difficult to separate interactional and procedural justice as they are closely related. During the past several years, O.S.U. Extension
administrators have placed increased emphases on engaging employees from all program areas and positions in meaningful roles related to the organization’s future. These efforts have resulted in a recognized increase in the numbers of county Extension agents serving on statewide task forces, organizational committees, or leadership teams providing managerial input and direction to specific programmatic and/or organizational issues. Serving on one of several committees or task forces offers county Extension agents opportunities to not only have a voice in the process of decision-making, but also to have direct input into potential or real outcomes that result in new policies, procedures and guidelines. However, while respondents may perceive that they are provided opportunities for input into decisions affecting them, the researchers would argue those respondents’ perceptions of both interactional and procedural justice should have been even more positive considering the emphasis placed on engaging Extension county agents in task forces, committees, and teams. They would question whether respondents’ relatively positive perceptions of both interactional and procedural justice are indicative of O.S.U. Extension’s “clan culture” described by Berrio (1999).

Systemic Justice

The rather low perception of systemic justice may be the result of the many, conflicting subsystems that produce and distribute potentially inaccurate and inconsistent information (Beugre’, 1998) within the O.S.U. Extension structure. Organizations are social systems in which individuals have “norms, values, shared beliefs, and paradigms of what is right and what is wrong, what is legitimate and what is not and how things are done” (Bennis, 1989, p. 30). In a large and complex organization such as O.S.U. Extension, informal and formal groups and subsystems may be sending simultaneous yet conflicting or incongruent messages that could either support or undermine the image that a specific individual has about the organization (Thompson & Luthans, 1990). Individuals who comprise these groups and subsystems essentially determine, based on past experiences, other individuals’ perceptions of how the organization operates in terms of what is communicated and how it is communicated.

The fact that respondents had a relatively low perception of systemic justice should be reason for concern for O.S.U. Extension administrators. Respondents may have perceived that organizational decision-makers do not have complete or accurate information and are thus not consistent in applying decision outcomes. This overall negative perception of the fairness of the system could be detrimental to the organization in both retaining current county agents and attracting quality candidates for vacant positions. Current Extension county agents may not provide a very positive overall picture of the organization based on their perceived treatment.

Job Satisfaction

The relatively high level of job satisfaction of O.S.U. Extension county agents may be explained by the work roles of the individuals. Vroom (1964) suggested that individuals’ job satisfaction is directly related to the extent their jobs provide them with rewarding outcomes such as pay, variety of stimulation, consideration from their supervisor, opportunity for promotion, interaction with co-workers, opportunity to influence decisions that will directly influence them, and control over their pace of work. Working for O.S.U. Extension offers employees interaction with co-workers, a variety of types of stimulation, opportunity to influence decisions, and control over their pace of work.

O.S.U. Extension county agents have many opportunities to interact with peers through formal and informal networks. County agents have formal mentors that are assigned when starting in the job, have informal mentors who they have identified, and participate within a network that they often self-identify with based on personal interests, similar county program, or geographic location. Informal or formal mentoring and networking opportunities allow for high levels of communication between employees. Additionally, many county agents participate on subject matter teams, committees, or task forces that allow them to interact with peers and establish professional relationships that further offer opportunities for ongoing communication about program development, implementation, and evaluation.

O.S.U. Extension county agents have unique opportunities within their county to engage in a variety of programs on a regular
basis, work with diverse populations, and see directly the impact they are having on clientele. Extension county agents may work with very traditional types of programs (small family farms, resident camping, or nutrition education) one day; and, the very next day be engaged in program development efforts focusing on more non-traditional programs issues, grant writing to support after-school programs, teaching financial management courses, or assisting with attracting large business to improve economic conditions of the community. County agents taking advantage of the vast opportunities in their communities are likely more satisfied as new and innovative programs stimulate their creative thinking and challenge them professionally (Vroom, 1964).

There are many opportunities for O.S.U. Extension county agents to be actively involved in decisions that directly affect their everyday work responsibilities. Extension county agents are directly involved in decision-making processes through their responsibilities as county chair or co-chair, supervising program assistants, volunteers or other employees, and through their leadership positions in professional associations. It is very common for county agents to be invited to be a member of a task force or committee that will potentially impact their future responsibilities. Participation in each of these committees or task forces allow county agents to provide input and recommendations on potential impact that future decisions might have, therefore influencing how or if decisions are made. Furthermore, the autonomy offered O.S.U. Extension allows county agents’ to make their own decisions in terms of daily tasks and projects.

The Extension county agent position is very autonomous, allowing individuals to make key decisions that affect the development, implementation, and evaluation of educational programs. While the agent must work with a number of stakeholders when developing programs, it remains up to the individual agent to determine their degree of participation, level of responsibility they want to accept, and manner they choose to complete their tasks. Usually, supervisors do not require county agents to work at a pre-determined pace or to develop or participate in a minimum number of programs each year. Essentially, the pace at which employees work or accomplish program goals is determined by the individual county agent.

Relationship between Organizational Justice and Job Satisfaction

As Extension county agents’ perceptions of organizational justice became more positive, their levels of job satisfaction increased. Although perceiving rewards as unfair, O.S.U. Extension county agents gain satisfaction from other sources, including the manner in which policies are developed and the level of communication and involvement they perceived. Several studies have confirmed the impact of justice on job satisfaction. Specifically, Folger and Konovsky (1989) found that positive perceptions of distributive and procedural justice led to satisfaction. Additionally, researchers have noted the importance and impact of procedural justice on satisfaction (Alexander & Ruderman, 1987; Lind & Tyler, 1988). The findings of this research suggest that Extension county agents derive at least some satisfaction from interaction (e.g. opportunity for voice, participation in decision-making, timely feedback) and procedures (e.g., how policies, procedures, and rules are put into place) that are in place in the organization. In terms of systemic justice, the job satisfaction of Extension county agents increased, as they perceived the overall organization, including its structures and processes, to be fair.

The culture that exists within O.S.U. Extension is one that supports interaction, communication, consensus, commitment and loyalty. Berrio (1999) found that O.S.U. Extension, like a large majority of higher education institutions, is a “clan culture”. The clan culture is viewed as a friendly place to work, where individuals share a lot of themselves with each other through interaction at various levels and in various forms. Within the clan culture, there exists a high level of commitment among employees; tradition and loyalty are important; and an emphasis on individual development, morale, teamwork, participation, and consensus. Similar to other large organizations, there also exist other, less dominant cultures including hierarchy, market, and adhocracy cultures.
Recommendations

(1) Recognizing that O.S.U. Extension is not able to compensate, salary-wise, at a level that is considered fair by employees, administrators, including county chairs, should identify additional methods to reward employees. Administrators should consider additional financial support for travel to professional conferences, meetings, or workshops; support in the form of start-up money for program development; new technologies or equipment for individual agents; one-time monetary rewards for outstanding program development; increased stipends for agents’ assuming additional roles or responsibilities due to county vacancies; and additional vacation or flextime options.

(2) O.S.U. Extension should concentrate on rewarding individual achievements and accomplishments rather than developing a system that rewards all Extension county agents equally, regardless of their accomplishments (Beugre’, 1998). There should not be salary adjustments or monetary rewards based on longevity of employment, rather they should be based on impact of programs and for positive risk-taking, new partnership development, program growth, scholarly and creative works, and stakeholder feedback;

(3) O.S.U. Extension should assist new Extension county agents in developing ongoing formal and informal networks within the organization so that they may better understand the complexity of the organization, including communication patterns, expectations, and policies and procedures. This initiative should include the purposeful selection of mentors who possess a positive outlook on the organization’s future, who are people orientated, who have excellent communication and conflict-management skills, and who are resourceful.

(4) O.S.U. Extension must critically analyze the support team concept and how it is implemented in each district. Administrators must recognize and adjust for significant differences, and require consistent implementation of the support team concept to help insure support for Extension county agents. Strengthening the support team concept and developing a consistent approach in all districts should be based on the eight constructs developed by Fourman, Ludwig, and Stitzlein (1994) and investigated by Zoller and Safrit (1999): (a) Personal and interpersonal skills; (b) program promotion and public relations; (c) program implementation and teaching; (d) chair and support team responsibilities; (e) program planning and development; (f) professional growth; (g) program evaluation; and (h) faculty research and scholarly activities. Zoller and Safrit found that the majority of the mean scores for support of the eight constructs were less than those for importance, potentially indicating that Extension county agents are not receiving the level of support they would like.

(5) O.S.U. Extension should form a task force, including county, district, and state representatives, to review and revise Extension county agent performance evaluation procedures. The performance evaluation process should be consistent across the organization and county situations for Extension county agent positions (faculty, and administrative and professional) based on their overall responsibilities as this would help ensure fairness in the process (Beugre’, 1998).

References


The New Agricultural Economy: Implication for Extension Programs

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Abstract

A new global agricultural economy is emerging, with important implications for extension. Farmers are growing value-enhanced (VE) crops, exploring new ways of cooperating, searching out contracts, linking to international markets, and making investments in new business opportunities that utilize their farm products. This characterization represents a vastly different agricultural system than the one extension has served in the past. This Illinois study provides a window into the future for extension systems worldwide as they prepare farmers for these emerging global opportunities. This new global agricultural system demands that extension specialists adopt new strategies, understandings and skills, if they are to satisfy the emerging knowledge and information needs of agricultural producers in their respective countries.

This paper uses data from over 10,000 Illinois farmers to explore topics related to the new global agricultural economy. An index was developed to differentiate farmers into three groups representing different levels of participation in this new global agricultural system. The resulting analyses show that the “high participation” group is made up of younger, large-scale, and better-educated farmers. The “no participation” group is a reverse image: older, less educated, smaller-scale, and less likely to have a side business. The high participation producers are pursuing a variety of income generating strategies. Producers are making complex decisions that are connected with the global agricultural economy, yet they have inadequate information about these new market opportunities. The research-extension project on which this paper is based was designed to produce information on differentiated and value-added markets and to diffuse this information to farmers throughout the state. The survey reveals a growing demand for educational programs on different aspects of the new global agricultural system, which will require new sources of unbiased information on these new market opportunities.

Introduction

Agricultural extension organizations, in both developed and developing countries, are undergoing considerable reexamination and change. This has taken place against the backdrop of declining public resources, increasing corporate control over key agricultural sector components, increased competition from abroad, and new relationships among producers and between producers and end-user markets. Many of these trends are referred to as the new global agricultural economy. These changes have profoundly influenced how knowledge and information are produced and disseminated. In order for agricultural extension in developed and developing countries to remain a viable and credible source of information in this rapidly changing environment, it will need to identify the types of farmers who are more/less oriented toward and interested in the new global agricultural economy, and address their emerging knowledge and technology needs.

Framework

New biological and information technologies, more efficient means of transportation and distribution, and the elimination of trade barriers are resulting in a dramatic transformation of the global agricultural economy. As a result, commodity prices have decreased in both developed and developing countries. In addition, the traditional business model of being the “low cost commodity producer” has been seriously challenged. Worldwide, farmers are facing a difficult choice; either adopt new business models or exit the industry (Goldsmith & Gow, 2001). For example, during the 1990s it is estimated that 92,000 U.S. farmers were forced...
out or left farming (Agricultural Census, 2000). Consequently, increasing numbers of those remaining in farming are turning to more differentiated, value-added products and away from the production of bulk commodities. Many are also moving up the value chain by investing in value-added processing; focusing on “products” instead of commodities; integrating into supply chains instead of being intermediaries; and participating in networks rather than acting solely as independent producers (Flora, 1996).

The participation of farmers in these new economic relationships demands new skills and knowledge, new communication networks among like-minded producers, and the ability to identify and take advantage of emerging marketing and agro-processing opportunities. These developments are seen in both developed and developing countries (Swanson, Sofranko, & Samy, 2001). Consequently, extension organizations, if they are to remain viable institutions, need to plan and deliver extension programs that can help farmers take advantage of these new opportunities to increase their income within this new global agricultural economy.

In September 1998, a new research-extension initiative was launched in Illinois to help farmers learn how to utilize new business models for participating more effectively in the new global agricultural economy. It was apparent that if new economic models were to expand beyond a relatively small number of farmers, it would be essential to first identify the demographic characteristics of those producers who could successfully participate in these new business models. The second step would be to provide them with the necessary information, technology, skills, and social infrastructure to produce successfully for these new differentiated markets, thereby, capturing additional value from their farm products.

**Methods and Procedures**

A mail survey was used to collect data for this study from all farmers in Illinois between December 1998 and June 2001. Over 10,000 farmers completed the survey, representing about 14.3% of all farmers and over 30% of the farmland in that state. It is noteworthy to point out that the average farm-size for the respondents in this study is 650 acres in comparison with the state average of 355 acres. The survey instrument included several questions relevant to the topics being discussed in this paper: a) farmers’ level of participation in new economic/business models (including production of value-enhanced (VE) farm products, joining producer organizations, and investing in value-added processing); b) farmers’ socio-economic characteristics (including age, education, farm size, on-farm storage capacity, proportion of income from farming); and c) new educational needs, as determined in part by the respondents’ expressed future strategies to increase farm income. Data were coded, summarized, and then descriptive statistics were calculated for each variable.

The main objective in the analysis is to develop an index, which measures producers’ participation in the new agricultural economy or, in other words, their receptivity to thinking in terms of a new business model. Three variables in the survey met the criteria. In developing an index to measure farmers’ participation in new agricultural economic and business models, three variables were selected to form the index. These variables are: 1) production of VE crops; 2) joining farmers’ organizations such as “produces alliances;” and 3) willingness to invest in agro-processing firms or to sign multi-year marketing contracts. The first variable, “production of VE crops,” reflects the level of farmers’ willingness to shift from the bulk commodity market to more differentiated VE product markets. The respondents were asked to indicate if they produced or were interested in producing VE crops. The variable was coded on three-point scale where “2” indicates “currently producing VE crops;” “1” indicates “interested in producing VE crops;” and “0” indicates “no interest in VE crop production.”

The second variable, “orientation towards joining farmers’ organizations” reflects
the degree of farmers’ willingness to work in networks, share information and gain economies of scale rather than work independently. The variable was coded on a three-point scale where “2” indicates “currently a member of a farmer organization;” “1” indicates an “interest in joining an organization;” and “0” indicates “no interest.” The third variable “willingness to invest in a value-added (VA) processing firm and/or sign a multi-year contract,” measures farmers’ willingness to be part of a food supply-chain by either investing in value-added processing or by signing a multi-year marketing contract. This variable was coded on a three-point scale where “2” indicates “willingness to both invest in value-added processing and sign a multi-year contract,” “1” indicates “willingness to either invest or sign a multi-year contract,” and “0” indicates “no interest in either one.”

To establish the validity of this index, the relationships among the variables were examined using correlation analysis. Table 1 presents the correlation coefficients among the three variables. The results of this analysis reveal that all three variables have significant positive relationships, which indicate that these three variables are representatives of different aspects of the same concept/procedure, and thus can be summed into an index. The scores of the three variables were summed up to form the index for “participation in the new economy”. The respondents’ scores range from zero to eight. They were then divided into three groups indicating their level of participation in the new global agricultural economy. The aggregate scores of the respondent who indicated no participation in the new economy were coded “0.”

If the aggregate scores ranged from one to three, which indicated low participation in the new economy, farmers were coded “1.” If the score ranged from four to eight, indicating high participation in the new economy, farmers were coded “2.” As shown in table 2, 26.2% of the respondents had “high participation” in the new economy, 43.1% had “low participation,” while 30.7% had “no participation” in new economic models.

### Findings

**Socio-Economic Characteristics:**

The three groups of farmers vary not only in their level of participation in the new agricultural economy, but also show significant differences in their social and economic characteristics. Table 3 presents the major socio-economic characteristics of the farmers in the study, and those with different levels of participation in a new economy. Farmers who have “high participation” in the new economy were younger, averaging 49.7 years, operated farms more than a thousand acres, had larger herds of animals (if they raised livestock), had more on-farm storage capacity, and were more involved in value-added livestock production. In addition, about two-third of their family income was generated from their farms; 43% of these farmers were full time farmers, and 34% had an on-the-farm “sideline business,” which was used to generate additional income. The middle group of farmers, who have “low participation” in the new economy, were older and had fewer resources than farmers had in the high interest group. Their farms contributed less to their family income and they were more likely to engage in off-farm employment.

### Table 1

**Correlation Coefficients among Index Items for “Participation in the New Global Economy”**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Producing VE crops</th>
<th>Joining farmers’ organizations</th>
<th>Investing in VA or signing contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation towards VE crops</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joining farmers’ organizations</td>
<td>.303*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Investing in VA or signing contract</td>
<td>.380*</td>
<td>.292*</td>
<td>--</td>
</tr>
</tbody>
</table>

*Note. Correlation is significant at the 0.01 level.*
Table 2

Number and Proportion of Farmers Showing Different Levels of Participation in the New Economy

<table>
<thead>
<tr>
<th>Level of Participation</th>
<th>Score</th>
<th>Number of Farmers</th>
<th>Percent of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Participation</td>
<td>0</td>
<td>3,119</td>
<td>30.7</td>
</tr>
<tr>
<td>Low Participation</td>
<td>1-3</td>
<td>4,382</td>
<td>43.1</td>
</tr>
<tr>
<td>High Participation</td>
<td>4-8</td>
<td>2,663</td>
<td>26.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10,164</td>
<td>100</td>
</tr>
</tbody>
</table>

On the other end of the spectrum is the group of farmers with “no participation” in the new economy. These farmers were older, averaging 61.8 years, less educated, had smaller farms and less on-farm storage capacity, had fewer number of animals and were less involved in value-added livestock production. These farmers received less than 55% of their income from farming and only 16% of them had sideline business on the farm (Table 3).

Strategies to Increase Farm Income:

To identify the information and educational needs for these three groups, farmers in the survey were asked about how likely they were to pursue any of the following strategies to increase their farm/family income within the next 3-5 years: rent or buy more land, add or expand livestock, produce VE crops under contract, produce VA livestock under contract, improve their management skills, improve marketing skills, join farmers’ organizations to improve market access, start direct-marketing to consumers, increase off-farm employment, and start or expand a sideline business. Table 4 presents the percentage of farmers in each group who indicated that they are highly likely to follow each of these strategies to increase their farm/family income.

As shown in table 4, all three groups of farmers agreed that improving both marketing and management skills are their top strategies in increasing their income during the next 3-5 years. However, the relative importance placed on each of these strategies varies among the three groups. More than one-third of the high-participation group was “highly likely” to improve their marketing and management skills, in comparison with 22.6% and 19.9% of the low- participation group, and only 8.9% and 8.3% of the farmers in the no participation group. The third strategy that was selected by the three groups was to add more land to their farms. Slightly more than 28% of the high participation group saw increasing their farm size as an important strategy to increase their income; while between only 14.8 and 6.2% of the low- and no-participation groups, respectively, shared the same view.

Table 3

Socio-Economic Characteristics of Farmers, by Level of Participation in the New Agricultural Economy

<table>
<thead>
<tr>
<th>Socio-Economic Characteristics</th>
<th>No Participation</th>
<th>Low Participation</th>
<th>High Participation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>61.8</td>
<td>54.1</td>
<td>49.7</td>
<td>55.3</td>
</tr>
<tr>
<td>Education (Years)</td>
<td>12.5</td>
<td>13.3</td>
<td>14.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Average Farm Size (Acres)</td>
<td>382</td>
<td>606</td>
<td>1,033</td>
<td>650</td>
</tr>
<tr>
<td>On-Farm Storage Capacity (Bushels)</td>
<td>18,615</td>
<td>32,224</td>
<td>62,218</td>
<td>36,606</td>
</tr>
<tr>
<td>Number of Animals</td>
<td>115</td>
<td>211</td>
<td>354</td>
<td>216</td>
</tr>
<tr>
<td>Value-Added Livestock Producers (%)</td>
<td>10.4</td>
<td>14.2</td>
<td>20.3</td>
<td>14.7</td>
</tr>
<tr>
<td>Income From Farming (%)</td>
<td>54.0</td>
<td>56.6</td>
<td>65.3</td>
<td>58.0</td>
</tr>
<tr>
<td>On-Farm Sideline Business (%)</td>
<td>16</td>
<td>22</td>
<td>34</td>
<td>23</td>
</tr>
<tr>
<td>Off-Farm Employment (%)</td>
<td>60</td>
<td>72</td>
<td>57</td>
<td>65</td>
</tr>
</tbody>
</table>
Table 4

Farmers’ Expected Utilization of Income-Improvement Strategies, by Level of Participation in the New Agricultural Economy

<table>
<thead>
<tr>
<th>Strategy to Increase Income</th>
<th>No Participation</th>
<th>Low Participation</th>
<th>High Participation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent or buy more land</td>
<td>6.2</td>
<td>14.8</td>
<td>28.3</td>
<td>16.0</td>
</tr>
<tr>
<td>Add or expand livestock</td>
<td>4.4</td>
<td>6.3</td>
<td>6.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Produce value-enhanced crops under contract</td>
<td>1.8</td>
<td>5.3</td>
<td>22.4</td>
<td>8.9</td>
</tr>
<tr>
<td>Produce value-added livestock under contract</td>
<td>1.6</td>
<td>4.4</td>
<td>13.9</td>
<td>6.1</td>
</tr>
<tr>
<td>Improve management skill</td>
<td>8.9</td>
<td>19.9</td>
<td>33.4</td>
<td>20.4</td>
</tr>
<tr>
<td>Improve marketing skills</td>
<td>8.3</td>
<td>22.6</td>
<td>35.4</td>
<td>22.3</td>
</tr>
<tr>
<td>Join farmers’ organizations to improve market access</td>
<td>1.3</td>
<td>2.4</td>
<td>9.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Start direct-marketing to consumers</td>
<td>1.7</td>
<td>3.8</td>
<td>4.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Increase off-farm employment</td>
<td>5.7</td>
<td>6.9</td>
<td>6.7</td>
<td>6.5</td>
</tr>
<tr>
<td>Start or expand a sideline business</td>
<td>2.4</td>
<td>3.8</td>
<td>5.0</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Another important difference is seen in the strategies to produce VE crops or VA livestock under contract; 22.4 and 13.9% of the high participation group indicated that they are highly likely to pursue these strategies to increase their income, in comparison to 5.3 and 4.4% of the farmers in the low-participation group, and only 1.8 and 1.6% of the farmers in the no-participation group. Improving market access through participation in farmers’ organization was considered as a highly likely strategy by 9.1% of high-participation group farmers, while less than 2.5% of the other two groups said it was of high importance.

Four of these strategies, namely improving marketing skills, improving management skills, producing value-enhanced crops under contract, and producing value-added livestock, underscore the importance farmers attached to not only improving their ability to take advantage of new crop/livestock marketing opportunities but also to be part of a supply-chain, with more emphasis on contract production. Another important market-improving strategy that is significant to the high-participation group is joining farmers’ organizations, which emphasizes marketing, collective learning and knowledge sharing. For the low-participation group, adding or expanding livestock and increasing off-farm employment were given a slightly higher priority than they were by the other two groups.

Summary and Conclusions

Agriculture is changing in many ways, for both producers and for the institutions that serve them, including extension. The new global agricultural economy is characterized by new relationships between producers and end-user markets, and increasing competition from abroad. Many producers are turning to more differentiated, value-enhanced products and away from the production of bulk commodities. These producers are also moving up the value chain by investing in value-added processing. On the other hand, extension, which originally developed around the goal of helping farmers increase their productivity, is now operating in a vastly changing environment. The new global agricultural economy demands that extension adopt new strategies, knowledge and skills that will enable farmers to meet their emerging knowledge and information needs.

The findings of this paper indicate that 26.2% of the Illinois respondents had a “high participation” level in the new global agricultural economy; 43.1% had “low participation;” and 30.7% had “no participation” in these new economic arrangements. These three groups differ greatly in terms of most socio-economic measures. The “high-participation” group is made up of younger, large scale, and better-educated farmers who indicated that improving their marketing and management skills, plus farm expansion, were their expected strategies in adapting to these new opportunities. They expect to produce for
specialized markets, form new production and marketing relationships, and make value-added investments. However, all of these areas involve making major decisions that require new types of information. For producers to make sound decisions on matters such as producing and marketing specialty crops, investing in value-added processing, and evaluating the potential of organized producer groups will require more than conventional production and marketing information.

In adapting to the new global agricultural economy, extension systems worldwide will need to evaluate their present and future roles in disseminating appropriate market information on these new opportunities that will differentially affect producers. The Illinois model described in this paper suggests a “window” into the future as extension organizations assist farmers in responding to these new opportunities and challenges. In many developing countries, this future has already arrived and some farmers have already linked to global niche markets, with little notice by public extension. To increase farm income and reduce rural poverty, more developing country farmers will need to take advantage of these new and emerging opportunities. In this new global system, extension will need to provide appropriate educational programs, including technical and market information, to enable different categories of farmers to take advantage of these new opportunities.

For extension in developing countries to remain a viable and credible source of information in a rapidly changing environment, it will need to identify the types of producers who are more/less oriented toward the new global agricultural economy and their emerging knowledge and technology needs. More specifically, extension will need to focus on: 1) which groups should be the target of these extension efforts; 2) what educational programs should extension concentrate on; and 3) what skills and training are required for extension agents to be effective in assisting producers to be competitive in this new global agricultural economy.

References


Evaluating a Dairy Herd Improvement Project in Uruguay: Testing and Explaining Q Methodology

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Abstract

This paper has two purposes: 1) to describe and explain Q methodology and 2) to describe the evaluation of a dairy herd genetic registry project in Uruguay. The evaluation used Q methodology to focus on the social, economic, and contextual reasons why some producers in Uruguay had not participated in the registry. Centroid factor analysis with theoretical rotation reduced the 27 Q sorts into four distinct perspectives explaining lack of participation in the project. “Technicians” (cited lack of technical assistance available to some producers and sought a solution that focused on delivering the project through better trained technical advisors); “Activists” (cited structural issues as the barrier to participation with improved industry-wide efficiency as the solution); “Independents” (resonated with strong tones of personal and political reasons for the lack of participation); and “Economists” (reflective of the poor economic conditions facing many producers in Uruguay, namely depressed milk prices. However, despite the stark differences, the four perspectives also converged on a possible solution that recommended delivering the project through small, local, established organizations. Practical implications were 1) identifying and understanding why dairy producers abstained from participating was more complex than a simple explanation of a gap in knowledge about the program and 2) Q methodology functioned well in an agriculturally related evaluation context where tapping diverse and sometimes ignored perspectives is critical for program improvement.

Introduction and Setting

According to the International Dairy Federation, world milk production was forecasted to exceed 501 million tons in the year 2002 (IDF, 2002). In 2001, Uruguay produced 1.2 million tons of fresh milk with approximately 350,000 cows. Its northern neighbor, Brazil, was responsible for over 22 million tons of fresh milk from over 16 million head of cows in 2001. In light of this level of milk production, Uruguayan levels pale in comparison. The following paper describes an evaluation of a project designed to assist Uruguayan dairy producers in their efforts to remain competitive regionally and provide domestic foodstuffs.

In 1997, the Instituto Nacional Mejoramiento Lechero (INML) was formed in Uruguay to help improve the dairy industry. The INML closely resembles the Dairy Herd Improvement program (DHI) in the United States and translates from Spanish to “The National Dairy Herd Improvement Institute”. The INML is financed through user fees and the monetary contributions from seven agricultural agencies. This broad support suggests its importance and indicates the many sources of funding necessary to implement agricultural development projects in Uruguay. Central to its mission is the goal of assisting producers to produce more milk through better-informed production decisions, especially those based on data about expected progeny differences (EPD’s). In 1998, INML program planners began a project to improve the genetic base of the dairy industry in Uruguay through a genetic registry. The genetic registry entails recording individual-level production data from producers’ herds with the expectation that producers will use the data to make better decisions, specifically those related to culling unproductive cows.
Purpose, Objectives, and Evaluation Questions

In October of 2002, INML program planners consulted with the authors to request assistance in evaluating the genetic registry project. There was one specific programmatic issue that the evaluation was expected to shed light on and that was the issue of non-participation. In 2002, INML had approximately 200 dairy herds registered out of the roughly 6,000 dairy herds in Uruguay. Although INML had managed to attract the involvement of many large producers and a scattering of medium to small-sized dairy producers, more widespread participation, particularly from operations with less than 100 head, had eluded them. This situation made logical sense when viewed in light of two factors: cost and the price of milk. The user fees that partly support the registry are computed on the number of production units in the registry, thus making it more cost effective for larger producers than for smaller ones. Moreover, the price of milk in Uruguay was at its lowest point in years – approximately seven cents per liter (compared to roughly 32 cents per liter in the United States). However, despite these two barriers, INML program planners believed that the program could be beneficial to producers both large and small.

The authors, in collaboration with program planners, began a focused evaluation of the genetic registry project. However, in addition to providing evaluative information about the project, the authors also wished to test a novel approach to evaluation, termed Q methodology. The evaluation question therefore served as a way to learn about Q methodology in the context of evaluating an important agricultural project.

The authors hoped that the methodology would perform well in uncovering diverse, expected, and unexpected orientations toward the program. Moreover, the authors also hoped that the methodology could identify points of consensus and difference in non-participating producers’ perspectives that program planners could leverage to increase participation in the registry.

Methodology

Q Methodology has a rich, if little known, history. In 1934, British psychologist and physicist William Stephenson (a student of Charles Spearman) penned a letter to the editor of Nature magazine (Stephenson, 1935). In it, he wrote that he had re-conceptualized correlation analysis such that in place of correlating tests vis-à-vis random variables believed to be expressions of traits, he had developed, a method to correlate whole persons. What Stephenson described would grow into the scientific method Q Methodology.

Q Methodology (hereafter simply referred to as Q) involves the study of human subjectivity: the self-referential frame through which human beings define and express their world. Q is more than a technical data analysis tool. It is a way of approaching the study of human behavior with its own epistemology and ontology. Q has been used to explore phenomena in fields such as food and agricultural policy (Pelletier Kraak, McCullum, Uusitalo, & Rich, 1999), political science (Lipset, 1963), public policy (Focht, 2002) communication (Stephenson, 1967), public health (Dennis, 2001), psychology (Block, 1961), and evaluation (Garrard, & Hausman, 1985).

Central to Q is concourse theory (Stephenson, 1978). A Q concourse can be thought of as a population of statements, thoughts, visual depictions, or many other such human expressions. For example, in any given program, there are different opinions, perceptions, feelings, thoughts, and/or ideas about what it is like to be part of the program – or outside of it. These can be captured and recorded using either qualitative data gathering techniques (i.e. interviews), document review, or survey techniques. Once the Q concourse is captured and recorded, a Q sample is taken from it. The Q sample, like many samples, is not undertaken haphazardly. The structure of the
sample is best driven by theoretical concerns in order to provide a subset of the concourse in relation to the issue at hand. In evaluation terms, it makes good practice to structure the sample according to the evaluation questions or program theory.

The authors and INML program planners identified both program personnel and non-participants to interview as a main technique for establishing the concourse. It was our sense that the two groups would have different stories to tell about the genetic registry project. We wanted to understand why dairy producers were not participating in the project from the producer’s point of view. In the evaluation literature in general, non-participants are generally neglected as a source of data; something we wanted to remedy in this project.

We interviewed one dairy cooperative administrator, three technicians (two of whom were not connected to the project), and four dairy producers (all of whom who had not participated in the project). All interviews were transcribed in the speakers’ native language (Spanish) and coded according to emergent and theoretical themes.

The theoretical structure developed for use in this study consisted of two main dimensions (also referred to as “main effects”) with two “levels” within each of these, thereby resulting in the 2x2 matrix displayed in Table 1. The two main dimensions dealt with perspective (that of the farmer and that of the larger context) and pressures (economic pressures and social pressures); the cross-multiplying resulted in four cells that structured the Q sample.

Table 1

<table>
<thead>
<tr>
<th>Main Effects</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressures</td>
<td>Economic $(a)$</td>
</tr>
<tr>
<td>Perspectives</td>
<td>Farmer $(c)$</td>
</tr>
<tr>
<td>Total cells:</td>
<td>$ac + ad + bc + bd = 4$ cells</td>
</tr>
</tbody>
</table>

The coded data (i.e. statements) from the interviews were then divided according to the relative “fit” of each within one of the four cells. Although the Q researcher may choose to identify a particular statement with a specific cell or category, this a-priori “labeling” makes little difference to the subsequent interpretation of the data. No assumption is made that the statements themselves “measure” the identified categories or the theory or structure that undergirds the sample. What Q concerns itself with more directly is the use of theory, and not an attempt to prove it directly (Brown, 1993). The meaning we strive to find via Q does not reside in the statements; rather meaning is in the pattern of their Q sort. Stephenson was interested less in the statements themselves than in what people did with them (Stephenson, 1963).

The purpose of placing statements within a cell of the Fisherian structure is to provide a miniature of the population that mirrors the larger one in terms of its comprehensiveness, without sacrificing representation. In Q, statements are homogeneous with respect to their kind (they are related to the same thing) but heterogeneous concerning variance inherent in difference. In the Uruguayan Q sample, statements were alike with respect to the topic of non-participation yet diverse with respect to the specific mechanisms underlying the non-participation. Furthermore, the Fisherian design in Table 1 ensured representativeness.

It is also important that the Q sample was manageable in terms of size: it is difficult and time consuming for respondents to distinguish among more than 100 items (Brown, 1980). Q samples generally tend to number between 30 and 60, with the exact number being decided by the number of replicates in a given Fisherian theoretical structure. In the Uruguaian design, the authors sampled eight statements from each of the four cells in Table 1 (i.e. $ac$, $ad$, $bc$, $bd$), resulting in a Q sample of 32 statements. The Q sample also needs to be balanced. Balance refers to the respondent having an equal opportunity to react positively and negatively to items in at least one of the main dimensions (such as perspective or pressure). Therefore, within one cell (such as that would be created from combining farmer and economic), four
statements were chosen that reflected a positive assertion while four statements were chosen that reflected disagreement with the positive assertion (Stephenson, 1953, p. 79). Caution must be employed to avoid selecting statements that are antonyms (e.g. “high” and “low”) for they serve little purpose in illuminating the more fine-grained discrimination reflective in most concourses.

Once the Q sample was drawn and statements numbered randomly, they were submitted to respondents for the Q sorting task. Respondents (called a p-set or person-set) were selected because they might have something to say in relation to the topic. Therefore, the p-set was purposeful. The producers were selected based on a 2x2 matrix with herd size (less than 100 head; more than 100 head) and participation (non-participants in any project; participants in other organizations/projects) serving as the main effects for structuring the sample.

Respondents were asked to place the statements, (written on individual cards), in an array that resembled a quasi-normal distribution. The distribution is oftentimes more platykurtic (i.e. “flatter”) than a normal distribution but retains the shape and properties of symmetry (see Figure 1).

![Figure 1. Q sort array for the 32-statement Uruguayan Q sample.](image)

Respondents were directed to begin sorting the 32 statements into three piles: statements on the left reflective of those most unlike respondents; statements in the middle having no relevance for respondents; and finally, statements on the right reflecting those most like respondents. Once all of the statements were placed into their respective pile, respondents were instructed to select the two statements most uncharacteristic of their position and place them on the far left of the sorting surface. Once complete, respondents were then instructed to select the same number of statements that were most reflective of them and place them on the far right of the sorting surface. Respondents then proceeded to work alternately from opposite ends of the distribution, finally arriving in the middle – the location of least relevance. They were then asked to record the array on a sheet of paper.

It is at this stage that the evaluator analyzes the Q sorts, generally with the assistance of modern computing technology. There exists debate within the Q community over this issue despite Stephenson’s (1953) strong theoretical arguments in support of the centroid method.

To summarize briefly, the debate over the different methods of factor extraction have to do with their statistical properties. Centroid factor extraction uses an average correlation estimate (on average, the correlation between the sort under scrutiny and all others) to place on the diagonal of the inputted correlation matrix. This allows the researcher to pursue theoretical hunches for it does not require a determinant solution. Principal components analysis, on the other hand, uses a perfect inter-sort correlation estimate (1.0) to place on the diagonal of the inputted correlation matrix. This result is a clean factor analytic structure whereby factors are extracted in descending order according to the amount of variability that each explains. However, this ordering suggests that the factors so arranged is a somehow more “correct” solution to the data, thus discouraging any theoretical pursuits deemed interesting (Brown, 1980). The authors, informed by Stephenson, used the centroid method of factor extraction.

Factor analysis is of limited use without rotation. Rotation consists of changing the reference points of the geometric coordinate
system to fit more closely the data and obtain “simple structure.” Simple structure refers to a situation in which individuals’ Q sorts are maximized on one factor with near-zero loadings on all others, thus enhancing interpretability of the results (McKeown & Thomas, 1988, p. 52). There are two methods most widely practiced by modern Q researchers: theoretical rotation and varimax rotation. Varimax rotation proceeds according to the mathematical criteria of minimizing the sum of the squared differences between the individual data points and the factor vectors. Theoretical rotation proceeds according to principles based upon expected phenomenological events and while it does not have the convenient statistical properties of varimax, what it lacks in this arena it more than makes up for through its flexibility. This flexibility is made possible through centroid factor extraction. In summary, the centroid method is most often used in conjunction with theoretical rotation and principle components analysis is most often augmented by varimax rotation.

Moreover, rotation in Q is undertaken in order to arrive at one factor solution at a time, such that sorts are purely loaded on one factor and near zero on others, thus focusing the lens through which we can view the factors and their relation to one another. This focusing, via rotation, does nothing to disturb the fundamental nature of the data; nor does it change the coordinates of any data point (i.e. Q-sort) in geometric space. What it does do, however, is to aid in the interpretation of factors at the other end. The authors used theoretical rotation in this study.

**Findings**

The 32 statement Q-sample was submitted to 27 individuals for sorting. Of these, 20 were producers who were not enrolled with the INML project or any other similar project; the other seven respondents were program personnel (e.g., planners, technicians). Of the 20 producers, nine had herds numbering over 100 head and 11 had herds numbering less than 100 head. The reason for choosing such a p-set was to compare non-participants’ perspectives in relation to those of program personnel.

First, it was necessary to “test” whether or not the data supported an inference that the two groups would differ in their Q sorts. This was done via factor analysis: if the program planners generally loaded on the same factor, we could then reason that their individual perspectives had common functional roots, different from other perspectives discovered in the study. Such a condition would allow us to pursue a rotational scheme that sought to maximize their sorts’ variability on the same factor and explore the ways in which this perspective converged and diverged from other perspectives in order to address non-participation.

In the analysis, it was determined that the inferred structure did indeed hold true for the p-set: the unrotated factor loadings indicated that five of the seven program personnel loaded on the same factor (called Factor A). A varimax solution was first sought for the data matrix. This is not unusual and oftentimes helps to lend insight into possible rotation solutions before any theoretical rotation begins. However, in this particular case, varimax rotation led to a decidedly unsatisfactory solution: although it accounted for 26 of the 27 sorts, it did so in nine different factors with no accompanying consensus or differentiating items. Theoretical rotation then proceeded according to the following principles, listed in order of importance:

1. Maintain as many of the seven program personnel as possible on the same factor.
2. Account for the greatest number of sorts in the fewest number of factors.
3. Eliminate any confounded (dual-loading) sorts.

The result was a four-factor solution, accounting for 17 of the original 27 sorts and 39% of the variability in the original 27x27 correlation matrix. Factor A contained nine significant sorts and explained 16% of the variability; Factor B held three sorts and 10% of the variability; Factor C had three sorts and eight percent of the variability; and finally, Factor D consisted of two sorts and explained five percent of the variability. None of the 27 sorts were confounded after rotation, although several had high loadings (but not statistically significant) on more than one factor.

A Q-analysis generally proceeds by way of factor interpretation; that is, those factors with significant Q sorts associated with them are analyzed in terms of their item scores. Not only are the individual factors’ item scores analyzed, but the relative placement of items with respect to other factors is also analyzed. This method of
data presentation will become readily apparent in the following section. There are two driving principles in data presentation: 1) presentation and explanation of the factor item scores for each factor and 2) presentation of factor items scores that differentiate the particular factor from other factors.

**Factor A: The Technicians**

Factor A is characterized by a focus on the technical approach to programming. The factor rejects low milk prices or international policy as explanations for the lack of producer participation. Five of the seven program personnel loaded on this factor and were joined by four producers. Furthermore, it is a producer whose sort is most highly correlated with the factor. The Technicians view technology (and its attendant experts) as the answer to participation woes, as well as to depressed economic conditions. Factor A is defined by the following two ideas: 1) program participation can be enhanced if the program would focus on working through technicians and 2) producers would be more likely to participate if they were provided the technical training and assistance.

The technical focus is illustrated by the following items (with item scores in parentheses for Factors A through D respectively; Factor A’s scores are in italics):

- (+4 0 -4 -4) The way to get more producers to participate in the project is through the technicians that provide assistance.
- (+3 0 +1 0) In order for producers to utilize the system, the project needs to provide them with technical assistance.
- (+3 -2 -4 -3) I want to use the system of the Milk Improvement Project, but I need help to keep data and enter it in the computer.

With the exception of Factor C in the second item, there is little agreement with Factor A’s perspective among the other three. Indeed, with respect to the first item, both Factors C and D reject the item as strongly as the Technicians embrace it – they are polar opposites with respect to increasing participation in the project by way of the technician as a medium to do so. Additionally, the third item highlights Factor A’s fixation on the assistance part to the equation; Technicians believe that producers need physical help to deal with the technology.

The following pricing and policy items deepen the Technicians perspective (item scores arranged as before). Note that the Technicians reject rather than affirm these statements:

- (-4 +2 +3 0) Milk prices are low because the international markets and the policies of the bigger countries keep them low.
- (-4 +4 +2 +4) If we could modify the international markets, milk prices would be more favorable to us.

Factor A factor not only endorses technology as a solution to participation and economic woes, but it couples this endorsement with a rejection of price as a barrier to economic prosperity. Factor A is in agreement with prototypical diffusion-adoptions model of technology transfer (Rogers & Burdge, 1972). In other words, in order to solve real-world problems, agencies are thought to need to implement technical solutions via experts, preferably via one-on-one contact with producers.

**Factor B: The Activists**

Factor B is demarcated by its endorsement of activism towards the international markets and the industry as a whole. According to the Activists, the way to increase participation is to make the system more efficient from markets to the entire supply chain. Although the Activists do not reject technology, it is not foremost on their radar screen. Items that clarify the Activists’ perspective are:

- (+1 +4 -1 -1) If we want the producers to participate, we have to help them to become more efficient as in other parts of the world.
- (-4 +4 +2 +4) If we could modify the international markets, milk prices would be more favorable to us.
- (-2 +3 -1 0) The only way for producers to participate more in the project is through the improvement of the entire technological process of the industry, so that the producers can become more competitive.

Although there is some agreement between the Activists and Factor D with respect to international markets, it is in what the Activists reject that further illuminates their perspective:

- (+1 -4 0 0) If I had more time I would participate in the project, but the problem is that it takes time to sit down and enter data in the computer.
Producers simply do not want to use the record system - that is why they do not participate.

I already belong to a dairy organization and it is difficult for me to be part of several different ones.

The Activists strongly reject the idea that lack of participation (or its appropriate solution) has anything to do with time, motivation, or competing organizational interests. This also squares with the tone of the items scored +4: both extremes resonate with a sense of resolve, action, and motivation to address structural issues affecting the individual dairy producer.

Factor C: The Independents

Factor C, the Independents, is a bi-polar factor with two sorts on the positive pole and one sort on the negative pole and is populated by producers who had more than 100 head of cows. The positive pole was more strongly defined. The two sorts were correlated with the factor at .66 and .75 respectively, while the sort negatively correlated with the factor was -.54. The authors therefore offer a tentative explanation of the factor, although one that is supported by the differentiating items.

The Independents is a perspective characterized by items that carry tones of independence while rejecting technical solutions to non-participation. However, interwoven through the factor is a cynicism that the project is not particularly equipped to address the overwhelming issue of price. This cynicism is buttressed by the notable absence of “solution” items at the positive end of the continuum and a rejection of other “solution” items at the other end of the continuum. Items that characterize Factor C are:

(+1 +1 +4 -4) The milk prices are too low, but we cannot turn that around - we have to accept the current situation and see what we can do. It is not because of low milk prices that I have not participated.

(-1 +1 +4 +2) I do not like to be pressured to participate. It is my decision and no one else’s.

(-3 -1 +3 -3) I do not see what the project can do to help increase low milk prices.

In addition, at the other end of the continuum, notice the rejection of solution items:

(-2 -3 0 +2) I already belong to a dairy organization and it is difficult for me to be part of several different ones.

(-3 -1 +3 -3) I do not see what the project can do to help increase low milk prices.

Factor D: The Economists

Factor D was the most difficult factor to interpret. There are paradoxes within the factor array: at one end, price seems to be the reason
for non-participation while at the other end of the array, price as an explanation for lack of involvement seems to be rejected. It appears from the factor array that the Economists have a fixation on price as the motivating force behind their personal lack of involvement. However, despite the fact that price appears to be a force prohibiting broader involvement, the solution offered to increase participation has more to do with social forces, such as working with other organizations and training producers.

(-1 0 +3 +4) I do not see what the project can do to change the policies that determine the low prices of milk.
(-4 +4 +2 +4) If we could modify the international markets, milk prices would be more favorable to us.
(-3 -2 +3) I do not believe milk prices are likely to increase, so I do not think I will participate to keep records.

Unlike the Technicians, Activists, or Independents, the Economists reject the following item because it is low prices that have barred their greater involvement with the project:

(+1 +1 +4 -4) The milk prices are too low, but we cannot turn that around - we have to accept the current situation and see what we can do. It is not because of low milk prices that I have not participated.

There is nonetheless a sense of harmony within the perspective and it is about price. Price is a formidable barrier to Economists’ participation; one has only to view the item scored +3 above to get a sense that this group will not participate because prices are not likely to increase. Moreover, the item is unambiguous in its explication of a cause-and-effect relationship: low prices (the cause) drive non-participation (the effect). A summary of the four perspectives is presented in Table 2.

Table 2.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reason for non-participation</th>
<th>Possible solution</th>
<th>Leverage points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technicians</td>
<td>Lack of technical assistance</td>
<td>Train technicians – deliver program through them</td>
<td>Focus on a service mentality</td>
</tr>
<tr>
<td>Activists</td>
<td>Nothing to do with lack of time or motivation; it is structural</td>
<td>Improve efficiency of the entire industry/supply chain</td>
<td>Focus on making the argument that the project is aimed at increased efficiency</td>
</tr>
<tr>
<td>Independents</td>
<td>Personal and to some extent, political/social</td>
<td>Focus on working with local organizations</td>
<td>Give them space to disagree – but look for ties to local organizations</td>
</tr>
<tr>
<td>Economists</td>
<td>Low price of milk</td>
<td>To a degree, deal with prices but also technology</td>
<td>Unclear at this point</td>
</tr>
</tbody>
</table>

Discussion and Implications

The strength in using Q is that oftentimes, consensus items emerge from a study. One of the most striking discoveries was a possible way in which to increase participation: via the local existing organizations, as seen in the following statement:

(+4 +2 +2 +3) If we want producers to participate, the project must work with other organizations that are actually currently providing services to the producers.

This finding was affirming: program planners at INML had already begun this process as of the 2002 calendar year. They had switched tactics in 2002 and had begun presenting program information through small, local organizations of roughly 10 or so producers. Program planners’ experiences, as well as the data, confirm that this was a wise programming decision and should continue. The second reason concerns policy. In Uruguay as in more developed countries, several organizations operate on the local level, charge a fee, and are active in policy discussion. This makes these organizations political in nature and competitive with respect to membership. Many of these local organizations perform technical service similar to that of INML – but none so broadly or with so many registrants. INML is therefore challenged to work with oftentimes-politicized local
organizations to attract members into a strictly technical venture. Each of the four perspectives, however, sees the potential benefit from working with these organizations, despite current challenges.

Local organizations, then, become strategic advantage points for program intervention. Although there is no way for the current study to infer what percentage of non-participants are associated with each perspective, what is critical is that all of the perspectives agree that working with the local organizations is a desirable way in which to increase participation in the genetic registry project.

The current study also holds numerous implications for extension education. One theoretical implication has to do with a conception of needs. What is oftentimes perceived to be a straightforward process of needs identification is more complex than a simple knowledge gap. People have educational needs but these do not always motivate people to participate in meaningful and worthwhile educational interventions. People’s needs are situated within a human value system that envelopes such concepts as need, interests, and motivation, concepts not readily amenable to contemporary forms of needs identification and assessment, which brings us to the methodological implication.

Because the concept of educational need is one that is situated within a larger system of human values and interest (what the article refers to as “perspective”), our methodological choice in tapping these perspectives must be adept at rising to the challenge. Forms of inquiry must take into account not our definition of terms and things – but must allow participants to saturate these very terms and things with their individual, very human, meaning. Such an approach calls for privileging participants’ voices over our own and must work from a frame grounded in the program to be sure that the inquiry is grounded in the language of the program itself. All of these characteristics so describe Q. The authors hope that the reader is left at this point intrigued that the methodology holds merit for investigations into human subjectivity within the field of agricultural extension and education.

There are also implications of the research with respect to Q methodology. Three main points come to mind. The authors were also pleased at how receptive program personnel were to Q methodology. Although they had not heard of Q, they were open to its potential to highlight the complexities of the issues. This was unexpected not because the program planners in this study appeared rigid; rather because it is not uncommon for Q researchers to meet methodological inflexibility on the part of those first introduced to Q. Secondly, a hands-on training using Q at the beginning of the research endeavor proved useful in introducing program personnel to the intricacies of the methodology. It is our suspicion that this training reaped dividends because program personnel became excited about the prospect of trying something new. Finally, it is important for researchers and practitioners interested in using Q to realize that there is a learning curve in undertaking such an endeavor. Because Q borrows from two distinct traditions, forging these into a distinct approach to inquiry is at times daunting.

Acknowledgements: The authors would like to thank the following individuals and organizations responsible for supporting the research: Gabriel Rovere and Gabriel Olegini, Instituto Nacional Mejoramiento Lechero; Social Sciences Department, Agriculture College of Uruguay; Department of Agricultural Education and Studies, Iowa State University; Global Agriculture Programs, Iowa State University; Graduate Student Senate, Iowa State University.
References


Association for International Agricultural and Extension Education
19th Annual Conference
Raleigh, North Carolina, USA
April 8-12, 2003

Outstanding Posters

Outstanding Poster Presentation
Analyzing the Process of Curriculum Internationalization: What is being offered to students of agriculture?
Maria Navarro, University of Georgia

1st Runner-Up Outstanding Poster Presentation
Creating a Student-Focused Study Abroad Experience: Looking Forward in Programming Design
Paula Teig and Chuck Steiner, Iowa State University

2nd Runner-Up Outstanding Poster Presentation
Small Budget Programming Has Benefits
Grant Wood, Debra Rasmussen, and Delgermaa Chuluunbaatar, University of Saskatchewan

3rd Runner-Up Outstanding Poster Presentation
A Participatory Educational Model for International Risk Management Programs in the 21st Century
Scott R. Mickelsen and Larry D. Trede, Iowa State University

3rd Runner-Up Outstanding Poster Presentation
Development and Creation of an Online Course: Potato Seed-Tuber Development for Delivery across the Globe
Theresa Pesl Murphrey, Texas A&M University
Patricio Malagamba, International Potato Center
James R. Lindner and Manuel Piña, Jr., Texas A&M University
Analyzing the Process of Curriculum Internationalization:  
What is being offered to students of agriculture?

Maria Navarro  
University of Georgia

*Outstanding Poster presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003*

Internationalization of the curriculum may be defined in different ways, and accomplished to varying degrees of satisfaction and through different methods. For some, it simply means increasing student mobility or adding international elements to some classes. For others, internationalization of the curriculum is not just a set of activities, but an integrated, multifaceted and complex process of educational reform.

**Purpose of the Poster**

To present and analyze graphically and with specific examples of how colleges of agricultural sciences around the world are addressing the internationalization of their curriculum, what opportunities and experiences are being offered to students, and how the different strategies relate to each other.

**Major Points**

We analyze advantages and disadvantages of different strategies and combinations of strategies used for the internationalization of the agricultural curriculum. These include, among others, infusion of international concepts and perspectives into existing ‘regular’ courses, international subject matter courses, specific credit requirements, international certificates, minors, and majors, technology and virtual mobility, short term study abroad courses, semester exchange programs, foreign internships, and internationalization of the campus environment. For each strategy, we give specific examples.

**Conclusions**

There is not a best practice, strategy, or tool for internationalization, and the process may be different at each institution, but learning about the experiences of others will help enhance future efforts.

**Educational Importance**

An internationalized curriculum is no longer an option. It is a necessity, in order to prepare students for performing both professionally and socially in today’s global environment. This study provides information and tools that may aid students, faculty, and administration in their efforts toward internationalization.
Creating a Student-Focused Study Abroad Experience: Looking Forward in Programming Design

Paula Teig and Chuck Steiner
Iowa State University

1st Runner-Up Outstanding Poster presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

Does allowing students the opportunity to develop an area of interest and plan their own itinerary increase effectiveness and achieve expectations of a study abroad program? This question was examined while planning an Australian study abroad program for undergraduate students at Iowa State University.

Students were provided the opportunity to identify and research areas of personal interest that would reflect upon their coursework and future aspirations. Program leaders provided relevant information and resources for student analysis, collected during an initial site visit to the partnering universities in Australia. The students used the information to identify educational and social aspects for incorporation into the program design.

This was accomplished during a pre-trip course formulated with three main goals in mind:
1. To integrate an active learning environment as opposed to the predominant traditional study abroad course format.
2. Provide team building and group activities forming a relationship between the students and program leaders.
3. To allow students the opportunity to take responsibility in the research and planning of the study abroad experience.

The poster’s purpose would center upon the planning of the program, active learning environment and overall assessment by the participants. The poster will provide a visual representation of the study abroad experience and programming design.

<table>
<thead>
<tr>
<th>Major Points</th>
<th>Conclusions</th>
<th>Educational Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Integrate an active learning environment into the pre-class trip as opposed to the predominant traditional course format</td>
<td>(1) An improvement in overall course and trip quality as well as quality of teaching and learning. (2) When given the opportunity, students will create their own useable knowledge path</td>
<td>(1) Change in approach from transmission to dialogue/communication to enhance trip preparation and communication ability</td>
</tr>
<tr>
<td>(2) Focus on student self development in academic as well as interpersonal in preparation for international travel.</td>
<td>(1) Using leadership and small group development students were able to create their knowledge in their area of interest as well as basic areas of Australian agriculture. (2) Student academic motivation increased as a result of knowledge ownership. (3) Leadership, in student area of interest, exceeded instructor expectations.</td>
<td>(1) Students who take responsibility for their knowledge are well prepared to interact with constituents as well as industry experts. (2) Practical application of new mental structures in pre-class trip provided for an academically positive environment. (3) Students exhibit ability to interact, analyze, and interpret information in a confident manner.</td>
</tr>
<tr>
<td>(3) Use of pre-trip course to strengthen participant communication, identify grouping patterns, conduct needs assessment for determining trip itinerary.</td>
<td>(1) Student ability to converse in a knowledgeable fashion, interact within the group as well as with Australian student buddies was strengthened.</td>
<td>(1) Social interaction with the students was enhanced which led to significant interaction and discussion.</td>
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</tbody>
</table>
Small Budget Programming Has Benefits

Grant Wood, Debra Rasmussen, and Delgermaa Chuluunbaatar
University of Saskatchewan

2nd Runner-Up Outstanding Poster presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

The breakdown of the Socialist system and collective farms in Mongolia, coinciding with the collapse of Soviet Union markets and input sources, had a devastating impact on Mongolian agriculture. Years of intensive tillage on fragile lands had resulted in widespread erosion. Grain production in Mongolia plummeted and land was abandoned. Some early techniques of reduced tillage had been copied from North America in the 1970s and 1980s, but deep, frequent tillage was common and minimum tillage systems were not understood or practiced. The Mongolian government and farm leaders placed a high priority on changing crop production and soil management practices and requested assistance from Canada. Funding was secured through the Canadian International Development Agency’s Industrial Cooperation (CIDA INC) program. The project was implemented through a partnership between the Mongolian Farmer and Flour Producers’ Association and AgriTeam Canada, Flexi-coil, NewField Seeds, Bourgault Industries, the University of Saskatchewan, Prairie Agricultural Machinery Institute, and the Saskatchewan Trade Export Partnership. Minimum tillage technology and education were introduced to Mongolia, agri-business relationships were established, and a long-term linkage was formalized between universities.

Purpose

Several valuable lessons were learned from this project. Because the budget was small and restricted, project coordinators had to rely heavily on Mongolian inputs and expertise. This proved extremely successful in helping with the adoption and diffusion of minimum tillage technology. This poster will share the lessons learned.

Information to be Shared

Five lessons were learned from this project: (1) face-to-face dialogue is important at the proposal stage; (2) farmer involvement in participatory on-farm research and demonstration has benefits; (3) use local NGO’s where applicable; (4) foreign partners should facilitate rather than direct; and (5) involve the private sector whenever possible.

(1) Colleagues from developing countries must feel comfortable jointly establishing project and research priorities in order to ensure the activities are applicable to their needs. This is best achieved through face-to-face dialogue. (2) Farmers supplied the land, fertilizer, seed and labour as funds could not be used to purchase materials or equipment. Farmers were eager to learn as their resources were at stake. (3) Local NGO’s are often well connected to the community and can save coordinators an enormous amount of time responding to logistical and administrative details, while providing local knowledge and cultural understanding. (4) A great deal of expertise and experience can be found in the developing country. Help facilitate the blending of new knowledge / technology with existing expertise and experience. (5) Involving local farmers and foreign firms keeps the project focused on achieving immediate economic benefit to the project beneficiaries: farmers. Project planning and reporting is simplified and decision making is faster and more responsive.

Conclusion and Educational Importance

Small budgets force program coordinators to rely more heavily on local a partner, which increases motivation and thus enhances the adoption and diffusion of new technologies. This information will benefit any organization involved in international development projects.
A Participatory Educational Model for International Risk Management Programs in the 21st Century

Scott R. Mickelsen and Larry D. Trede, Iowa State University

3rd Runner-Up Outstanding Poster presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

The purpose of this narrative is to propose an educational model for agricultural educators to use when planning, implementing, and evaluating risk management educational programs. The model is based upon the findings of a larger study dealing with the perceptions of Iowa farmers towards risk management education and the delivery of risk management education (Mickelsen, 2001).

Extension programs in the United States and abroad have taken on a new approach in educating producers. This new paradigm emphasizes the participatory learning process, which allows the producers to be a part of the educational process and help develop topics and instructional methods and tools for the learning process (Toness, 2001).

This model is predicated on continual and beneficial dialogue among researchers, specialists in the field, risk management educators, lenders, farm families, input suppliers, commodity producers, and producers so that effective programming and delivery can take place. The model is a structured and combined effort among the groups or persons responsible for preparing and delivering risk management programs.

Methodology

The first step in creating this model was to gather information using the descriptive, survey research design. Descriptive survey research is used to “describe and interpret what is.” This type of research also attempts to “measure what exists without questioning why it exists” (Ary, Jacobs, & Razavieh, 1985, p. 337).

Based upon the data, a model was constructed using the most important sources of risk, perceptions toward risk management, risk management tools and strategies, and preferred learning styles as described by Kolb’s descriptors, delivery methods, and preferred media and instructional technologies.

The skeletal portion of the model is derived from Stufflebeam’s CIPP model (1983). The CIPP model was selected to incorporate all aspects (content, input, process, product, evaluation) when planning and delivering educational programs.

Educational Importance

This model along with the study from Iowa State University has been used to develop, plan, and integrate risk management educational programs across the State of Iowa and abroad. AgInsight, a sister company to the Iowa Soybean Association, Resource Consulting Services in Australia, and AgAdvantage, a consulting firm, have all requested information to develop successful programs. Successful Farmer, Ag Risk Homepage, and the Farm Centre Homepage in Canada (article submitted) have all published research articles from the research and model.

It is hoped that professionals will use this model in developing risk management educational programs and continue to shape it, add to it, and make it a useful and productive model. The model is designed to help in the planning, design, implementation, and evaluation of educational programs. It also offers the latest cutting-edge responses from Iowa farmers to what they deem necessary and important in risk management.
Development and Creation of an Online Course:  
Potato Seed-Tuber Development for Delivery across the Globe

Theresa Pesl Murphrey, Texas A&M University  
Patricio Malagamba, International Potato Center  
James R. Lindner and Manuel Piña, Jr.  
Texas A&M University

3rd Runner-Up Outstanding Poster presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

Introduction and Purpose

The Department of Agricultural Education at Texas A&M University (TAMU) and the International Potato Center (CIP) formed a partnership in 1999 to explore the use and appropriateness of distance-learning technologies and their delivery to facilitate diffusion of research results and to support sustainable extension and rural development projects. The purpose of this poster will be to describe one specific activity that has been implemented, the development and creation of an online course entitled, “Potato Seed-Tuber Development.”

Information to be Shared

This poster presentation will illustrate the steps undertaken to design, create and deliver the online course. Special attention will be given to exact strategies implemented to involve content experts in the development process to create instructional materials that engage course participants.

Conclusion and Educational Importance

The objective of the program is to empower CIP to utilize technology effectively and efficiently in the delivery of information and training. The educational importance of sharing this specific example, the creation and design of one particular online course, relates to the idea that by sharing the process implemented by the CIP/TAMU team others may benefit from the concepts presented.
Association for International Agricultural and Extension Education
19\textsuperscript{th} Annual Conference
Raleigh, North Carolina, USA
April 8-12, 2003

Outstanding Carousels

\textbf{Outstanding Carousel Presentation}

\textbf{Sustainable Development through Farmer Groups}
\textit{Harry Carey and Thomas H. Bruening, The Pennsylvania State University}

\textbf{1st Runner-Up Outstanding Carousel Presentation}

\textbf{Farmer-Led Extension: An International Perspective of Experiences and Challenges}
\textit{Kibiby Jabir Mtenga and Nick T. Place, University of Florida}

\textbf{2nd Runner-Up Outstanding Carousel Presentation}

\textbf{Advancing Extension Theory: Where and What is the New Paradigm?}
\textit{Geoff Kaine and Denise Bewsell, Social Systems Research Unit, New Zealand}

\textbf{3rd Runner-Up Outstanding Carousel Presentation}

\textbf{Risk Management Education and Its Impacts on Southern Brazil’s Agriculture: A Philosophical Approach}
\textit{Scott R. Mickelsen, Iowa Lakes Community College}
Sustainable Development through Farmer Groups

Harry Carey and Thomas H. Bruening, The Pennsylvania State University

Outstanding Carousel presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

International development organizations are increasingly investing resources in the development of strong grassroots farmer organizations. They believe this approach is more sustainable, especially after so much history of failed top-down efforts.

The Citizen’s Network for Foreign Affairs (CNFA), Agricultural Cooperative Development International and Volunteers for Overseas Cooperative Assistance (ACDI/VOCA), the United States Agency for International Development (USAID), the United States Peace Corps, the United Nations Food and Agriculture Organization (UN/FAO), and other development organizations are in the forefront of assisting to strengthen these local farmer groups.

Methods

Here at Penn State, we have been involved with providing educational assistance to farmer organizational development in Zimbabwe (Indigenous Commercial Farmer’s Union), Zambia (Zambia Fish Farmer’s Associations), and to a lesser degree, South Africa’s Limpopo Province irrigation scheme farmers, and the indigenous Swaziland Sugar Cane Associations.

In Zimbabwe (2001) and Zambia (2002), the scopes of work were similar: 1). Improve their organizational development knowledge and skills, and 2). Improve their knowledge of, and capacity for, teamwork among many other important topics.

Major Points to be Shared

Early on in the workshops the Fish Farmer Association participants expressed the need for more cooperation and participation within their groups. Members claimed they needed better leadership and leaders wanted more active, contributing members.

Therefore, much of the “spin” on the workshops was directed at the fact that it takes more than just a few people to have a strong organization. Some of the leadership must come from the membership. Shared leadership. Many methods of involving members constructively in organizational operation were presented, along with exercises and examples. Leadership styles were discussed from the perspective of “sharing” leadership roles, thus broadening the leadership base and ownership of group activities.

Lessons Learned

As a result of the workshops, Peace Corps volunteers and farmer participants felt they gained a much better understanding of organizational development, along with key skills to take back to their groups for organizational improvement. The participants were involved in train-the-trainer exercises to provide them with experiences in presenting the workshop ideas to the others in the groups. Strategies were discussed to teach others in their local groups, such as:

- breaking workshop topics into units that can be delivered at each meeting without overloading the program
- teaming up with workshop participants from other groups; sometimes it’s more convincing to hear it from outsiders
- utilizing Peace Corps Volunteers as resource people at meeting presentations (15 attended the workshops)

Educational Importance

With the Zambia Fish Farmer’s Associations, it seemed as though group leadership, teamwork, and cooperation on projects is their greater limitation, more than technical knowledge and skills. Centuries of tribalism and decades of colonialism have left a legacy of autocratic processes with groups. Most participants were quite excited at the prospect of contributing to decision-making in the future; of “sharing” group leadership responsibilities and contributing to group decisions and processes with a feeling of ownership.
The need to increase world agricultural productivity is great, as food production in many countries cannot keep pace with the rapid growth of population (Nigel, 1989). Agricultural extension is among the major players facilitating the increase in agricultural production in the world. Many extension approaches have emerged and are being utilized in various parts of the world (Seevers et al., 1997; van Veldhuizen et al., 1997; Bagchee, 1994).

However, some of these extension systems, such as Training and Visit (T & V), Transfer of Technology (TOT), Ministry and Commodity-based systems have been accused of being unsustainable, ineffective, and inefficient in meeting farmers’ demands. Recently, farmer-led extension approaches have come to be considered as appropriate for farmers’ needs (Farrington et al., 1997).

Consequently, this paper intends to share the practices of farmer-led extension approaches. The paper is based on review of various sources of literature on how the practices are conducted, key players involved, lessons learned, challenges faced, and prospects for wider dissemination. Farmer-led extension approaches are feasible and appropriate particularly with small farmers. These approaches increase farmer’s skills, knowledge and ability to make their own choices and decisions on particular technologies. Farmers assume a central role and become key players in technology identification, generation, adaptation and dissemination. Besides these advantages, farmer-led extension approaches also face typical challenges inherent from farmers themselves, community members they live with, the extension performance and accountability methods, and from monitoring and evaluation procedures. There are prospects for wider dissemination of the farmer-led extension approaches by providing more training opportunities, particularly among key players.
Advancing Extension Theory: Where and What is the New Paradigm?

Geoff Kaine and Denise Bewsell, Social Systems Research Unit, New Zealand

2nd Runner-Up Outstanding Carousel presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

Current extension paradigms draw heavily on personal development theories designed to create a culture of innovation and continuous learning amongst farmers. However extensive discussion of the successes and failures of this approach has failed to identify new paradigms for advancing extension theory. We propose an alternative paradigm for discussion that may offer new insights for extension. This new paradigm uses consumer behaviour theory as a model of adoption behaviour in agriculture.

Method

Case studies undertaken in a range of industries in Australia have been used as a means of testing the new model of adoption behaviour. These will be outlined during the discussion.

Major Points/Information to be Shared

Challenging assumptions: Consumer behaviour theory offers an alternative paradigm for extension that may challenge current assumptions about adoption behaviour in the farming community. This is an opportunity to discuss these assumptions and explore future paths for extension.

Other bodies of knowledge: Using consumer behaviour theory has allowed us to tap into a considerable body of knowledge and work that offer many insights into adoption behaviour.

Developing new directions and a new paradigm: An opportunity to shape the future of extension?

Conclusions or Lessons Learned

Our work exploring a new model for adoption behaviour has allowed us to reflect on current extension paradigms. Given the challenges facing extension in every part of the world it is important that extension professionals be part of the process of developing new paradigms for a new century and advance extension theory.

Educational Importance

There is a need for extension professionals to challenge the status quo, to explore new paradigms for extension. This discussion will allow participants, and the profession, to begin this process.
Risk Management Education and Its Impacts on Southern Brazil’s Agriculture: A Philosophical Approach

Scott R. Mickelsen, Iowa Lakes Community College

3rd Runner-Up Outstanding Carousel presented at the 19th Annual Association for International Agricultural and Extension Education Conference, Raleigh, North Carolina, USA, April 8-12, 2003

Brazil is going through major changes in the agriculture sector of the country. Vast amounts of land are being uprooted from pasture and forest land to crop ground for soybean production, irrigation systems are being designed, American farmers are investing money in land for farming purposes, and large scale equipment is needed for planting and harvest. Is the infrastructure of the country and rural Brazil going to be able to adapt to these changes?

Risk management educational programs in the United States have gained momentum as agriculture has been caught in the crosswinds of change. Some of these changes include opening of foreign borders, introduction and application of global markets, volatility of markets, access to capital, age of producers and many others (Mickelsen, 2001). Do these same problems and concerns exist in Brazil? Are educational programs dealing with risk management issues needed in Brazil? If so, how do we as educators and professionals address the issues? And, how do we educate so producers receive a meaningful and beneficial education?

Purpose
The purpose of this discussion is to expand the knowledge base concerning current information regarding Brazil and some of the issues, related to six sources of risk in agriculture (crop production, livestock production, marketing, financial, human, and institutional risk) they are faced with as they continue to expand the farming area. This carousel discussion is one step in advancing a research agenda looking at risk management across boundaries, cultures, and agricultural issues.

Method
Information will be gathered during a 10-ten day visit to the country. Producers, educators, and researchers will all be able to give input to the current status of agriculture in Brazil and visualize whether the changes are beneficial for them and their country. Also, they will have the opportunity to expand on the questions previously stated in the introduction.

Conclusion and Educational Importance
Discussions such as this will lead to continued understanding and knowledge of the educational needs of Brazilian agricultural producers. Partnerships with institutions and educators may be developed to carry out risk management programs. This continued dialogue among researchers, educators, and professionals will help the profession understand the real-life needs of these producers and what we may do to help them enhance their management capabilities.
An Impact Study to Close Phase I of the Agricultural Rehabilitation Project Funded by the World Bank in the Youngest Independent Country – East Timor

Peter Nang Achuonjei, Monitoring and Evaluation Advisor, East Timor
Cesar Jose da Cruz, Director General and Director of ARP Project, East Timor

Administered by World Bank, as trustees, with funding from the Trust Fund of East Timor (TFET), the Agricultural Rehabilitation Project (ARP) was a two-and-a-half-year project with a grant of US $6.8 million dollars for Phase I and US $8.0 million for Phase II. The projects were designed with the overall goal of restoring productive assets and piloted community irrigation and road rehabilitation, livestock vaccination campaigns, the provision of farmer information dissemination, establishment of the Agricultural Service Centres (ASCs), and enhancing agricultural productivity to the levels existing before the 1999 struggle of the East Timorese people for independence.

In order to assess the impact of ARP before its closure on 30 June 2002, a survey was conducted from 13-26 May, 2002 in all 13 districts of East Timor. The survey by M&E and that which was conducted by the independent evaluator in the form of group interviews both revealed that ARP I had a positive outcome and some of the activities such as the Agricultural Service Centres are likely to have a sustainable impact. Rural life appears to have been normalised as farmers now are able to grow crops, most households maintain livestock, and yield of livestock numbers is increasing. The economic situation of the farmers is improving as households are able to feed themselves adequately and are able to sell some of their produce in markets. Irrigation systems have been rehabilitated and are functioning and roads are open, which facilitates the transportation of the produce to market places.

Farmers’ Perceptions of the Effectiveness of the Agricultural Rehabilitation Project (ARP) Information Campaign, East Timor

Peter Nang Achuonjei, Monitoring and Evaluation Advisor, East Timor
Fernando dos Santos, National Monitoring and Evaluation Specialist, East Timor
Yonis Reyes, Information Campaign Coordinator, East Timor

Administered by World Bank, as trustees, with funding from the Trust Fund of East Timor (TFET), the Agricultural Rehabilitation Project (ARP) was a two-and-a-half-year project with a grant of US $6.8 million dollars for Phase I and US $8.0 million dollars for Phase II. The projects were designed with the overall goal of restoring productive assets and significantly enhancing agricultural productivity to the levels before the 1999 struggle for independence. In order to disseminate information about ARP to the farmers, CESVI, an Italian NGO, was contracted with in March 2001 to carry out the information campaign for a period of one year. This information campaign was to be conducted in all thirteen districts in East Timor. To measure the impact of the strategies developed by CESVI, a survey was conducted during March 7–18, 2002. A questionnaire was used for data collection. Data were gathered through personal interviews with farmers. Generally, respondents strongly agreed that the materials and methods used to disseminate information on the three components of the project were beneficial, although some of the information about national vaccination campaigns got to them late.
Integrating Farmers, their Local Level Institutions, and Social Capital into Extension Delivery Systems in Sub-Saharan Africa: Issues, Challenges, and Implications
Adewale Johnson Alonge, Instructor & Interdisciplinary Team Leader, Miami-Dade Public Schools

The tool of organizational scans/analysis was used to analyze the historical, institutional, financial, and political antecedents to the poor state of public sector extension systems in sub-Saharan Africa (SSA). Presented in the paper are analyses of on-going efforts to restructure the institutional framework for the delivery of extension service in SSA. It was concluded that the process exhibits a pro-privatization bias. The paper then discusses the potential national food security, economic, social, and distributive consequences of privatizing extension in SSA.

Using the emerging theoretical framework of social capital and development, discussed in the paper are the important roles that social networks, local institutions, and their inherent social capital play in the rural economies of SSA. Relying on extensive literature review and on qualitative data from selected villages in Nigeria, the paper’s author posits therefore that on-going efforts to improve the delivery of extension services, stimulate rural economy, and fight poverty in SSA are doomed to failure unless farmers, their traditional institutions, and social capital take center stage. Proposed then in the paper is an empowerment model for improving the delivery of extension services and overall agricultural development in SSA. Finally examined are the policy, institutional, and logistical challenges of integrating farmers and their local institutions into the delivery of extension services. Recommendations for overcoming these challenges are proposed.

An Analysis of Extension Agents’ Attitudes in the State of Jordan toward Farm Business Management and Their Assessment of Training Needs
Ahmad Shukri Al-Rimawi, University of Jordan, Amman, Jordan

The study aimed at examining the knowledge, attitudes, and training needs of extension agents for farm management practices and marketing extension in the state of Jordan. Data were collected from 99 of the 110 public agents in Jordan using four 5-point Likert-type scales. Cronbach’s alpha coefficients ranged between 0.81 – 0.94, which indicated the internal consistency of the study scales. Parametric and non-parametric tests were used to analyze the data.

The extension services were found to be largely oriented to technical and production aspects, as less than one tenth of extension agents indicated that they offered general extension services in farm management or marketing extension. Few agents gave high ratings to their knowledge of farm management techniques. But, most agents attached high importance to farm management and marketing skills in an increasingly competitive environment. Similarly, most agents gave high rates to their need for practical training to improve their farm management and marketing skills using multi-day workshops, irrespective of their attributes. Knowledge and need for training scales were negatively correlated, which suggests that lower knowledge is associated with higher need for training. Coordinated efforts are momentous to enable agents to provide farmers with a basis for sound decision–making, and the skills to carry out profitable farm operations.
Advancing a Partnership Model of Extension to Support the Kenya National Agriculture and Livestock Extension Program (NALEP) in Rural Livelihood Improvement
David Mulama Amudavi, Graduate Student, Cornell University

This paper explores the notion of “partnership building” from the standpoint of the management expertise needed by the National Agriculture and Livestock Program (NALEP) in Kenya for addressing challenges facing contemporary rural extension policy analysis and execution. The sharing of knowledge across organizational boundaries, which promotes the formation of trusted relationships and builds social capital that sustains collaboration, enhances the emergence of collaborative partnerships. The partnerships are a vehicle for accelerating organizational learning and for coordinating communities of practice – scientists, extension educators, and farmers. The recognition of the wide diversity in agro-ecological and socio-economic conditions under which many farmers operate has led to the general realization that research and extension agencies do not have the capacity to tailor technologies to the level required by farmers. As extension services have become increasingly ineffective and non-functional, the gap in effective dissemination of knowledge and improved technologies has been largely filled by a variety of NGOs and in some cases by community-based organizations. In turn, this suggests that conventional institutional structures, such as those normally associated with a national extension system, are probably ill prepared on their own to play the necessary transformational role needed to improve the impact of extension. This is especially so in the complex field of sustainable rural livelihoods policy. There is an urgent need for NALEP to embrace new partnerships and ways of working that utilize results-oriented management to bridge rational knowledge and local knowledge as a tool to foster and support farmer innovation as the basis for robust solutions to developing strategies for rural livelihood improvement.

Teaching of Agricultural Science at the Basic Education Level in Developing Countries: A Case Study of the Nature and Constraints at Cape Coast District of Ghana
Festus Annor-Frempong, Lecturer of Agricultural Extension, University of Cape Coast, Ghana
Moses Zinnah, Visiting Lecturer, University of Cape Coast, Ghana
Ibrahim Adam, Lecturer, University of Cape Coast, Ghana

Agricultural education is vital for economic development of most developing countries including Ghana. The central aim of the agricultural education at the basic level is to train students in the basic principles of agriculture, provide avenues for the development of their skills and change the attitudes of the young children towards agriculture. The study was undertaken using a descriptive survey design to assess teachers and head teachers’ perceived constraints to effective teaching of agricultural science at the basic education level in Cape Coast District of Central Region of Ghana.

Pre-tested and validated questionnaires were used to collect the data from 54 randomly selected respondents constituting the sample size for the study.

The findings of the study revealed that the majority of the teachers were mature and experienced. Their major training in agriculture was at the training college level. Only a few have had in-service training in agriculture. Few teachers used a supervised practicum at the school farms. Visits to nearby farms and seeking the assistance of resource people were never used. Constraints identified were related to technical aspects of agriculture, the syllabus, teaching materials, pre-service and in-service teacher training, teacher motivation, supervision, negative attitudes of students and parents towards agriculture, teaching environment, and evaluation. Action strategies to improve teaching of agriculture are provided.
Factors Affecting the Permanence of Livestock Projects Undertaken By Heifer International-Mexico in the State of Durango
Sergio A. Arispe, Graduate Assistant, Texas A&M University
Kim E. Dooley, Assistant Professor, Texas A&M University
Alfredo Cesar, Director of Heifer International-México
Fabián Fernández Sánchez, Coodinador Estatal de la DGETA-Durango, México

Heifer International-Mexico (HI-M), a hunger-relieving non-profit organization, collaborates with the Dirección General de Educación Tecnológica Agropecuaria-Durango (DGETA) to establish livestock projects involving resource-poor individuals and families in the state of Durango, Mexico. This study identified and analyzed the factors affecting the permanence of hog and dairy cow projects within four communities in the state of Durango, Mexico. Seven project managers and 35 beneficiaries were interviewed in July and August 2002 to identify the factors affecting the permanence of livestock projects.

From their responses, the authors developed a list of 22 factors that promoted the permanence of the livestock projects. Key points included personal interaction between beneficiaries in the group(s) and project manager(s), knowledge and skills obtained from workshops, and household economics. The authors developed also a separate list of 20 factors that inhibited the permanence of the livestock projects. Key points included difficulties in livestock production and poor personal interaction and communication between beneficiaries and project managers. Two diagrams illustrate the commonalities and differences advocated by the two groups for both lists. Beneficiaries and project managers shared eight of the 14 factors advocated to promote the permanence of livestock projects. Beneficiaries and project managers shared seven of the 13 factors advocated to inhibit the permanence of livestock projects. Four factors were unique to beneficiaries while two factors were unique to project managers.

Participatory Monitoring and Evaluation Methodology Development of Farmer Field Schools (FFS) for Scaling up the Adoption of Integrated Nutrient Management Technologies and Information
Chigozie C. Asiabaka, Federal University of Technology, Owerri, Nigeria
J. G. Mureithi, Nairobi, Kenya
Michelle E. Owens, FAO Regional Office for Africa, Accra, Ghana

The Farmer Field School (FFS) approach was adopted as one of the methodologies to scale up promising agricultural technologies developed by two Kenya Agricultural Research Institute (KARI) projects; the Soil Management Project and the Legume Research Network Project. The Food and Agriculture Organization (FAO) had earlier promoted the FFS approach in the coastal and western parts of Kenya to scale up agricultural technologies with promising results. Consequently, researchers in the two KARI projects began using this approach during the long rainy season in early 2001. Unfortunately, the frameworks to assess the impact of this approach on farmers’ adoption behaviors were lacking.

A six-day workshop was held in March 2002 with the following objectives: a) to expose participants to the basics of participatory monitoring and evaluation, b) to design jointly and develop participatory tools for internal monitoring and evaluation of the effectiveness of FFS as an approach for up scaling adoption of technologies, and c) to impart participants with analytical and reporting skills for participatory measurement and evaluation. A total of 35 participants attended the workshop. The workshop began by an introduction of the basic concepts and principles of participation, monitoring, and evaluation. The participants were then divided into groups for brainstorming sessions aimed at first identifying the PM&E measurements/outcomes and the indicators. After days of brainstorming and participatory activities, the measurements and indicators were identified by each group. The identified measurements and indicators were harmonized in a plenary session. Techniques and tools for participatory monitoring and evaluation of FFS using the harmonized measurements and indicators were then developed. The methodology is now being used in the field.

This paper discusses the mechanics followed in addressing the workshop objectives and also discusses the relevant measurements/outcomes, indicators, and tools for PM&E of the different stages of the Farmer Field School (FFS) process.
Estimating Attitude of Farmers toward Maize Extension Package Program: Package Policy Assessment in Hararghe Highlands (Eastern Ethiopia)
Fekadu Beyene, Lecturer, Alemaya University of Agriculture, Alemaya, Ethiopia

Studying the attitude of farmers towards an extension program has not been getting attention in Ethiopian Agricultural Technology Systems. Conducted in maize-growing areas of Eastern Ethiopia, this study drew upon farmers’ experiences with maize technological packages with the objective of assessing farmers’ attitudes towards the program and identifying the most important program components that influence attitude.

To measure attitude item score - total score method, the method of Cronbach’s alpha, inter item correlation matrix, intra-class correlation, and two dimensional scaling techniques were used. Each of these methods has been helpful to examine the different items used to estimate attitude.

Survey results show that differences in knowledge and skill existed among farmers in post-harvest management. However, there is homogeneity among farmers in their attitude as indicated by the Cronbach’s alpha coefficient. In this case, items with larger r-values, such as farmer involvement in package program planning, market price levels, and availability of market are the most important components influencing attitude. This implies some externalities like market price and its availability need to be considered in promoting a technological package. In addition, market price levels and availability, involvement in planning and profitability of the technology, and involvement and market price levels are some of the components with larger correlation values implying each pair changes in the same direction simultaneously. From this, it could be deduced that planning an extension program with coexisting consideration of exogenous factors is useful to maintain farmer participation in the program through creating a suitable and encouraging environment.

Challenges of a Management Training Program in Indonesia: A Case Study
Barry Boyd, Kim E. Dooley, Theresa P. Murphrey, Assistant Professors, Texas A&M University
Susan Gilbertz, Senior Lecturer, Texas A&M University
Kelly J. Murphrey, Director, Center for International Business Studies, Texas A&M University

The purpose of this paper is to present “lessons-learned” in the development, delivery, and evaluation of a Management and Leadership Training Workshop delivered in Bali, Indonesia. These lessons may be useful for understanding Indonesian culture and the relational dynamics of working with Indonesian groups, but also are relevant to the development and execution of workshops in any cross-cultural environment. Based upon the lessons learned, the team shares recommendations. A more intensive orientation was needed in this particular case, especially in regards to cultural norms, business practices, and interest/needs of participants. Time to work and rehearse with a translator to ensure that concepts and words can be communicated is critical. The training team should have asked the local planners for Indonesian case studies and situations that would have been relevant in the training activities. Our experience demonstrated the importance of adequate knowledge of the culture and context and that flexibility is critical when working in international training environments.
Authentic Higher Education International Learning Opportunities
Thomas H. Bruening and Harry Carey, Penn State University

Authentic learning provides a means for students to develop problem-solving activities that incorporate genuine, real-life questions and issues. This format encourages collaborative effort, dialogue with experts, and generalization to broader ideas and applications that can be used in later life. Increasingly, it is important for students to make the connection between theory and application and transfer.

This case study involved examining the authentic learning gained by four graduate students who were involved in a participatory rural appraisal (PRA) activity in South Africa. Students indicated through interviews that they gained cultural knowledge, information on South African agriculture, and an ability to communicate with people they met and with whom they interacted. Students also mentioned that this experience was rewarding and that they viewed it as a real learning experience. Students gained enough confidence that some reported that they could effectively contribute to future PRA’s.

People in higher education in the U.S. can use examples such as this to develop teaching models that can help develop courses and evaluation strategies that go beyond traditional examples. While PRA’s are not new, using a modified in-country teaching approach can help provide students with authentic learning opportunities that go far beyond what is available in typical classroom U.S settings.

Early Experience with a New Program for Rural Development in Honduras
Alejandrina Carrasco, Independent Consultant, Tegucigalpa, Honduras
David G. Acker, Assistant Dean, National and Global Programs, Iowa State University

Development projects conducted in rural areas in Honduras have not had the desired impact on rural dwellers’ lives. The recently launched National Program of Sustainable Rural Development was created by the Ministry of Agriculture and Livestock with the intent of coordinating the interventions managed by a variety of projects in rural areas, with the overall goal of assisting rural families and their communities to reach a sustainable level of development. Rural human resources development will be critical to any sustained efforts in rural areas of Honduras.

The purpose of this paper is to describe and comment on past practices of rural development programs in Honduras and to compare these practices with those of a new approach embodied in the National Program of Sustainable Rural Development (PRONADERS). PRONADERS is trying to incorporate some of the best practices in rural development and extension. Although some strategies remain undefined, the philosophical basis and early experience of PRONADERS look promising. This research is part of a longitudinal study of the program.

The Role of Internet in Educational Activities of Graduate Students at Tehran University, College of Agriculture
Mohammad Chizari, Associate Professor, Tarbiat Modarres University
James R. Lindner, Assistant Professor, Texas A&M University

The purpose of this study was to describe factors associated with agricultural graduate student use of the Internet in Iran and to identify factors related to Internet use by graduate students in the College of Agriculture at Tehran University, Iran. All students in the College who had completed at least two semesters of course work were included in the sample (N=150). Data were collected through mailed questionnaires. Overall, usage of the Internet by the students was low. On average students spent less than an hour a week on the Internet. Those students who used the Internet on a frequent basis were likely to access the Internet from their workplace while those who used the Internet on an infrequent basis were likely to access the Internet from the University. Job status and academic major were related to Internet usage.
Searching Institutional Linkages for Implementation of a Participatory Extension Approach in Myanmar

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The root of the problem lies in the fact that, traditionally, agricultural extension services in Myanmar were centrally controlled, bureaucratically oriented, and directed by professional staff. Farmers and lower level extension staff were not perceived as responsible actors in this system but rather as executors of decisions taken “at the top.” The organizational framework did not provide for decision-making from below and consequently, left little or no room for participation of all members of the extension system. Furthermore, training of extension personnel has been insufficient in the past. Concentrating on technical aspects, it has not provided extension agents with the necessary communication skills and methods that allow dialogue-oriented advisory work. In promoting development of agricultural extension services, the importance of institutional linkage between the rural community and the development agents should be considered. With this in mind, an institutional framework that can serve as linkage system between the government organizations, non-governmental organizations, and farmers’ associations is proposed. This paper comes out one part of one author’s PhD research that was conducted from January to April 2001 in Myanmar. The main purposes of this paper are 1) describing the technology/innovation development and dissemination in Myanmar, 2) identifying the problems facing by current extension service, and 3) suggesting an appropriate institutional framework for the implementation of a participatory extension approach in Myanmar. Based on research findings through personal interviews and questionnaires with 130 extension agents, there is an obvious need to rethink the extension system in Myanmar to develop more effective approaches.

Identifying Training Needs of Extension Personnel: A Comprehensive Model

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Determination of training and development for personnel in any organization is a challenging task. The task is even more complex when employees have diverse job responsibilities. That is the challenge that faced a team of professionals with Ohio State University (OSU) Extension who designed and implemented a comprehensive training and development needs assessment in autumn 2000. Program personnel and support staff perceived a greater need for training in personal and professional development topics than in technical subject-matter topics. OSU Extension is not unique in facing the challenges of designing a professional development system that meets the educational needs of a very diverse population of employees.

Using a Systems Approach to Maximize Human Potential or Individual and Organizational Success

Nikki L. Conklin and Linda M. Kutilek, Associate Professors, Ohio State University Extension

Continuing professional development for employees is critical to meet the demands and expectations of the evolving workplace. In the search for career fulfillment, individuals may no longer plan to spend their entire work lives in one organization. Maximizing an individual’s career potential to enhance the success of the organization calls for a systems approach in career development. Systems approaches are implemented in a manner that enables the individual to enter and exit the model at the most appropriate point. This paper provides an overview of the professional development model in a systems context and its application in changing organizations.
International Knowledge and Attitudes of FFA Costa Rican Travel Seminar Participants
James J. Connors, The Ohio State University

The food, fiber, and natural resources system is becoming more and more international every day. United States agriculture is increasingly dependent on foreign markets for American agricultural products and continues to import a large amount of agricultural products from around the world. The purpose of this study was to determine the international knowledge and attitudes of FFA members participating in the Costa Rican Travel Seminar. This study was a descriptive survey research design. The population for the study was all FFA members participating in the 1998 and 1999 Costa Rican Travel Seminars through the National FFA Organization.

The FFA members who participated in the Costa Rican Travel Seminar had an average knowledge of Costa Rican society, culture, and agriculture. They did have positive attitudes towards international travel and learning about international agriculture. At the same time, they were not worried about their safety, food, water, or communications problems while traveling. While participants thought learning about international agriculture was important, they had received little or no instruction about international agriculture as part of their secondary level agriculture program.

Efforts should be made to increase the amount of international agriculture topics covered in secondary and postsecondary agriculture programs. Students participating in international agriculture study tours should receive instruction on the society, culture, and agriculture of the country being visited before the tour begins. Additional instructional time should be included during the tour and debriefing offered at the conclusion.

Going Forward in Education on Agricultural Biotechnology: Extension’s Role Internationally
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The development of agricultural biotechnology has proceeded rapidly amidst public controversy over the ethics of genetic manipulation and the required level of regulation. The role of extension traditionally has been to provide unbiased, research-based information to the public on agricultural issues. This paper reviews a case study in which the Florida Education Initiative for Agricultural Biotechnology (FEIAB) project is examined. The project was initiated with a needs assessment of domestic (Florida extension agents) and international extension stakeholders in 2001 in the area of extension education in agricultural biotechnology. Based on the needs expressed in the survey and related literature on communication of technologies, a web site was developed to provide both extension and the public with information on the issues surrounding agricultural biotechnology.

The needs assessment revealed that there were significant differences between domestic and international stakeholders with respect to training needed in order to facilitate public discussion and view of extension’s role in public education. Respondents’ views also differed as to the role that extension should play in agricultural biotechnology. The results of this study suggest that perceptions of technology may not be value-neutral, and that international extensionists may need to re-examine their role in the communication of agricultural biotechnology.
Levels of Competence and Attitudes toward Supervision as Perceived by Secondary School Agriculture Department Heads in Botswana

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A descriptive correlational survey research was designed to determine the perceptions of the heads of secondary school agriculture departments in Botswana regarding the importance of their supervisory roles, levels of competence in performing the supervisory roles, and their attitudes toward supervision. A researcher-developed, valid, and reliable instrument was used to collect data for the study. Findings showed that secondary school heads of agriculture departments had positive attitudes toward supervision and they considered conducting meetings, planning, directing, coordinating, communicating, budgeting, delegating, and evaluating important competencies to possess in performing their roles. Findings also indicated that heads of agriculture departments were slightly competent in performing their supervisory roles. Meanwhile, attitude towards supervision and location of school where heads of departments were working explained most (about 66%) of the variance on supervisory roles and were the best predictors of levels of competence. The supervisory competencies were mainly acquired at a university or during in-service training courses. The researcher conducting the study recommends that an in-service training program be designed to upgrade agriculture teachers’ knowledge in supervisory competencies.

Extension Management–The Weak Link in Agricultural and Rural Development in South Africa

Gustav H. Düvel, Professor and Director, South African Institute for Agricultural Extension University of Pretoria

The article gives a glimpse into the management efficiency of extension in South Africa by providing empirical data based on the opinions and perceptions of extension personnel of different ranks in two of the nine provinces, namely Northern Province (Limpopo) and North West Province. The information was gathered by means of group interviews or mail questionnaires from samples of between 5 and 10 percent of all extension personnel.

The findings justify the concern about the poor state of extension management. Only about 4 percent of all managers are classified as very good. What further contributes to the gloomy picture is that the efficiency significantly decreases with increasing rank or seniority. The same tendency is found in terms of knowledge of extension and implies that the impact emanating from the potentially most influential managers is curtailed most. The negative correlation between management seniority and the assessment of the current, and also the fact that respondents tended to give managers in their own province a lower assessment those countrywide, is an indication of the reliability of the findings. Significant differences occur between provinces in terms of management efficiency, and it is noteworthy that the lower the efficiency the higher the importance assessment of extension management in terms of improving extension delivery.

The respondents regard the training of managers in extension as the most important solution. Other important solutions to this problem of poor management are more effective accountability, monitoring and evaluation, proper personnel selection, training in management, and general in-service training.
Lithuania’s Accession to the European Union: Looking through the Eyes of the Lithuanian Chamber of Agriculture—What was expected to happen? What happened? Why did it happen that way?

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Linas Putelis, Director’s Advisor, Lithuanian Chamber of Agriculture, Kaunas, Lithuania
William L. Thuemmel, Professor Emeritus, University of Massachusetts

This paper describes the role of the Lithuanian Chamber of Agriculture (LCA) as an advocate for the interests of its members in consultations with representatives of the Lithuanian government while the Agriculture chapter of the European Union’s acquis for accession was negotiated. The study employed a form of practical action research that was instrumental in orientation; it also relied on the emic knowledge of a key informant, i.e., the Director’s Advisor of the LCA, as well as selected archival documents. Six contexts and related conclusions are reported that describe significant behaviors and actions of the LCA and the Lithuanian Ministry of Agriculture (LMA) as the Agriculture chapter of Lithuania’s EU accession was negotiated. Although the Agriculture chapter was resolved, many uncertainties surrounding accession still remain, especially in the agricultural sector and its rural context. Moreover, issues such as trust or lack thereof, poor communication, past confrontations, professional or even personal jealousies may have interfered with the ability of the LCA and LMA to work together effectively. Strong and sustained attempts must be made to resolve these and related issues. Then, these parties can move forward as willing partners who are pursuing the common aim of furthering the welfare of Lithuanian agriculture, its people and their nation as Lithuania continues its journey of accession to the European Union.

The Role of Women in Pest Management Decision Making: A Case Study from Uganda

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Gender often influences the acquisition of knowledge and on-farm decision making and must be thoroughly understood if people in agricultural research and extension programs are to design appropriate technologies for small-scale farming systems. In order to improve IPM program design and delivery, two hundred farmers (52% women, 48% men) from Eastern Uganda were surveyed in 2000 to explore perceptual and knowledge differences between men and women about crop production and pest management. The results indicate that women did play an important role in agricultural production and pest management; however, there is no indication that women play a predominant role in either. Pest management decisions appear to be made by the household head, whether that person is a male or female. Women have greater knowledge of dimensional attributes of IPM, particularly awareness of potential harmful effects of synthetic pesticides. Thus targeting women may expedite adoption of IPM.
Saving International Programs in Colleges of Agriculture

Arlen Etling, Associate Director, International Affairs, University of Nebraska, Lincoln

This case study of the International Programs Division (IPD) of the Institute of Agriculture and Natural Resources, University of Nebraska, Lincoln, is the third in a series. The first case study (Etling, 2001) told how the International Programs Division was revitalized after years of decline. The second case study (Etling & Barbuto, 2002) told how the program grew in the second year and reacted to new challenges with creativity and teamwork. This case study describes the third and final year of efforts to strengthen the Division and adapt to budget shortages only to have the office closed and the programs merged with the university-wide International Affairs Office, which previously dealt with study abroad and international students and visiting scholars.

The purpose of this case study is to describe 1) options for maintaining IPD that were considered, 2) factors that determined the outcome, and 3) lessons learned that may be useful for the future as well as for international programs at other universities. Options for keeping an international presence included severely downsizing the office, merging it with the research, teaching or extension divisions, or merging with the university-wide office, International Affairs. The outcome was determined primarily by political considerations.

Lessons learned included the need to have such programs affiliated with a research, teaching, or extension division. Cooperation among international program directors in neighboring universities, to anticipate and adjust to problems before they threaten the existence of such programs, was recommended. Assistance from USDA and NASULGC were also recommended.

U.S. Universities Partnering with Universities in Other Countries

Arlen Etling, Associate Director, International Affairs, University of Nebraska, Lincoln

Partnerships between U.S. universities and institutions in other countries have often been problematic. The nature of partnership work is often understood differently by the two (or more) institutions. The purpose of this paper is to describe a process that was used to develop and evaluate a set of guidelines for creating international partnerships in higher education. The “participatory rural assessment” methodology for needs assessment was adapted to organize guidelines for discussing the formation of partnerships. Literature on international educational partnerships and needs assessment was reviewed. Experts were questioned by e-mail to determine key questions and issues that should be addressed during partnership formation. The literature review and the expert responses resulted in the content of the guidelines. These guidelines were then tested during the formation of partnerships with six different institutions in five different countries over two years.

Those guidelines then became a “partnership exploration instrument” (Appendix I). During the field testing of these guidelines, much of the discussion between institutions focused on specific projects (usually requests for proposals). A second instrument, needed to analyze the strengths and weaknesses of potential projects, was developed (Appendix II). During the evaluation phase of the partnership development process, another question arose, “Can we be more objective in specifying levels of partnership?” In response to this question, a tentative outline of relative “levels of partnership” was also developed (Appendix III). These instruments need to be more fully evaluated in different settings by different university representatives in order to determine their validity and reliability.
Practical Skills as They Relate to Working Successfully in Cross-cultural Settings as Identified by International Agricultural Professionals
Jan Finley Fernandez, Program Manager, Texas A&M University

The purpose of this descriptive study was to identify the skill set needed by individuals who aspire to have successful professional careers in international agricultural development. A secondary purpose of this study was to identify and propose educational strategies that will increase the success of those professionals.

Subjects in this study included members of the Association for International Agricultural and Extension Education and the Association for International Agriculture and Rural Development. Data were obtained from an online survey developed and tested for this population. Of the 509 professionals in the population, 179 participated.

Through the use of both parametric and non-parametric statistical analyses, several statistically significant relationships were identified as being indicators of success when possessed by international agricultural development professionals. The study revealed statistically significant relationships between perceived success in international work and length of time in other countries, number of international activities and work, and a consistency of skills learned and recommended skills found in the literature. There were no significant relationships between skills that respondents learned before training and the several skills recommended by the respondents. For open-ended items in the survey, the skill most frequently named was language, followed by the skills of flexibility, knowledge of culture, and skills of communication.

Respondents consistently listed “soft” skills as important for success in international settings and noted that communication skills of all types (e.g., social, oral, written, diplomatic) were essential. The findings provide insights into experiences of workers in international settings in agriculture that result in “lessons learned” to support particular content in programs to prepare individuals to work effectively in international settings.

A Survey of Health and Safety on Irish Farms–Implications for Extension and Education
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James Phelan, Professor, The National University of Ireland, Dublin, Ireland

The alarming rate of farming accidents and fatalities resulting from those accidents on Irish farms has highlighted the dangers to which Irish farmers are exposed. This study sought to examine the incidence of farm accidents over a five-year period and also farmers’ attitudes and activities towards health and safety on their farms. A survey was developed and attached to the February 2002 supplement of the National Farm Survey (NFS). It resulted in 1127 utilizable questionnaires.

The results showed that during the five-year period from January 1997 to December 2001 an accident had occurred on 9.7% of the respondents’ farms. In three-quarters of the accidents the farmer was the injured person. Although the majority of farmers described themselves as ‘concerned’ about farm safety, the results illustrated that in the majority of cases this concern was not reflected in farmers’ actions towards safety on the farm. The results highlight the necessity for health and safety education for Irish farmers.
Agricultural and Extension Education Faculty Members’ Use of Emerging Educational Technologies within Their Instruction

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Teaching faculty, are expected to use technologies with only rudimentary support, no incentives, and an inadequate awareness of how to incorporate technologies into instructional settings. A descriptive-correlational study of faculty of the College of Food, Agricultural and Environmental Sciences at The Ohio State University explored factors impacting faculty implementation of educational technologies within teaching/learning exchanges.

Data were gathered via the use of an on-line questionnaire to describe faculty in terms of six dimensions: characteristics (personal, professional, and educational technologies); attitudes and beliefs; access and support; reinforcement and recognition; awareness and interest; and use and frequency. Relationships were examined among the six dimensions. Stepwise multiple linear regression analysis was used to explore the predictive value of these dimensions.

The tenure-initiating unit was a predictor of the frequency of using and the implementation of educational technologies. A majority of faculty believed that educational technologies provide: potential for enhancing student learning; beneficial means for engaging students; and a stimulus for student problem-solving. More than 75% of the respondents reported that they did not currently receive support in the form of expert assistance and reported not having access to training opportunities or a sufficient infrastructure for supporting technology-enhance teaching. The majority of the faculty reported there were no existing incentives for teaching with technology. Awareness and interest were the most valuable predictors for the use of educational technologies within the teaching/learning exchange.

Rethinking Present Extension Strategies for Sustained Adoption of Environment-related Innovations by Small Farmers in the Caribbean

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Present Extension approaches and strategies are characterized by one-way dissemination of information, generated by scientists on research stations distant from and dissimilar to farmers’ fields. Their main objective is increased production on individual farms. While some success has been recorded, the sustainability of the technologies offered and their impact on the environment are being questioned. The need to preserve the environment while increasing production has forced a rethink of strategies in several areas. Current thinking of Scientist-Technology-Farmer is now being expanded to Scientist-Technology-Farmer-Environment to reflect new concerns.

This paper focuses on Integrated Pest Management (IPM) and Soil Conservation technologies offered to treat two serious threats to farming in the Caribbean region, namely the grave destruction caused by pests and diseases, and soil erosion. IPM and soil conservation, now recognized as purely agricultural innovations, are closely related to the environment. From this position, an approach different from the one used to secure adoption of other technologies is needed.

Several issues that should prompt a rethink of strategies are elaborated. These include: the targeting of innovations and the user environment, time frame for results as well as the time specificity of innovations; the need for community, not individual adoption, and determining who will bear the costs of adoption; the importance of contextual knowledge; the demand for collective activity; and the effects of insecure land tenure. Alternative strategies should include the adoption of more participatory approaches to technology development, program design, and delivery. Extension staff will need retraining and the Research and Extension interface must be reorganized and strengthened.
The Development of Agricultural Education in the Education System of Botswana
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W. Wade Miller, Professor, Iowa State University

Botswana is one of the countries in Southern Africa that at one point was largely dependent on subsistence farming based on traditional methods. Agriculture consisted primarily of growing crops and raising animals for food (National Development Plan, 1968). Swartland (1984) stated that the search for educational curriculum relevance to the Botswana way of living started in 1941 when Dumbell, the first director of education for the Bechuanaland Protectorate, proposed the introduction of agriculture into the curriculum. Agricultural education has become a component of general science in the primary school education curriculum, a compulsory subject for all junior secondary school students, a popular optional subject in senior secondary schools and a popular career followed by many tertiary institutions graduates and rural populace. Knowledge of how the teaching of agriculture started, its functions in the past and today, and how it was adopted into the current education system could be used to address the present and future of modern agricultural education, hence the need for this review. The purpose of this paper was to trace the development of agricultural education from pre-independence to the modern era of agricultural education in the secondary school system and to document the accomplishments as well as the challenges of the agricultural education program in the secondary school system of Botswana.

Going Forward In Agricultural Extension: Helping Cooperative Extension Service Employees Adjust To Organizational Changes
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The slowing economy, the changing public needs, and new communication technology have forced the Cooperative Extension Service (CES) to change its organizational structure and staffing pattern. The purpose of this literature research was to synthesize research and philosophical views related to possible changes in the CES and the potential impact of these changes on employees, and to develop a communication model to facilitate the change within the CES. A variety of literature sources was used to gather data and information for the study. Downsizing has become the trend of many recent restructuring initiatives adopted by organizations. During restructuring, the extension staff faces different changes such as job termination, subject area specialization, and relocation of the service centers. These changes inevitably create uncertainty that demands personal and organizational coping strategies. Uncertainty and anxiety are the commonly cited psychological states of employees in an organization undergoing change. These psychological states can negatively impact work performance. Therefore, it is necessary to address these issues and concerns prior to and during organizational change. Employees may have general, job-specific, and personal issues and concerns regarding the change that need to be addressed in order to meet the challenges ahead of the CES in the 21st century. Figure 1 illustrates a communication model for helping human resources to manage the change process in an extension organization. The model identifies the issues and concerns that should be addressed during an organizational change, suggests communication strategies to deal with issues and concerns, and provides guidelines for professional development.
Going Forward in Agricultural Extension: Problems and Alternatives in Diffusing Sustainable Agricultural Practices in Sri Lanka

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Sustainable agricultural concepts were introduced by the Department of Agriculture in Sri Lanka as an alternative approach in response to problems associated with conventional agriculture. However, the diffusion of sustainable agriculture practices in Sri Lanka has been limited in spite of nearly two decades of extension interventions. The main purpose of this study was to identify extension educators’ perceptions regarding the barriers and alternatives in diffusing sustainable agricultural practices in Sri Lanka. The respondents were 30 agricultural extension educators randomly selected from the North-central Province of Sri Lanka. Likert-type scales were used to record extension educators’ perceptions regarding barriers and alternatives in diffusing sustainable agriculture. The majority of extension educators were middle-aged males with a mean of 21 years in extension. The respondents perceived inadequacy in available training materials, research information, and resources to conduct demonstrations, and farmers’ unwillingness to compromise short-term gains of conventional agricultural practices for the long-term benefits associated with sustainable agricultural practices as a main barrier in diffusing sustainable agricultural practices. National agricultural policy is the most important driving force in diffusing sustainable agriculture in Sri Lanka. Provision of research-based information and adequate in-service training programs are important elements in a strategy for overcoming barriers to the diffusion of sustainable agriculture practices. Giving priority to sustainable agricultural practices such as Integrated Pest Management (IPM) and soil conservation, educating women farmers on sustainable agriculture, and introducing sustainable agricultural concepts into school curricula are other important steps in diffusing sustainable agricultural practices in Sri Lanka.

A New Vision of the Extension Education in Ukraine

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The development of civil society in Ukraine has just passed the ten-year mark. But the role of extension education becomes more important by the increasing process of reformation. Ukraine, as other transition countries is occupied with modernized agricultural service on a base of a new vision of extension education. A new vision needs to use a scientific approach to improve extension education courses and training programs to solve the problem of skills and competencies of specialists who are involved in the extension service. The focus of this study was to identify private farmers’ need regarding extension specialists’ skill and competency. The study was based on a survey design and was conducted among of 150 private farmers of different regions of Ukraine. It was found that extension specialists should have competencies in agricultural disciplines and have skills, at first communication skill and leadership, to design training programs. These conclusions were made with the respondents’ age, level of education, time of establishment, regions, farm’s specialization, characteristics of information, consultations and education. Based on this, private farmers in Ukraine need: to use more consultations in special questions such as technological, accounting, and agricultural business management; to receive fresh information about markets, modern technologies, and agricultural service; take part in seminars, training programs, and demonstration days. This finding implies the necessity to focus educational programs on subject matter and on the professional competencies and skills. This experience has meaning to other countries that face the same challenges.
Evaluating a Dairy Herd Improvement Project in Uruguay to Test and Explain Q Methodology
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This paper has two purposes: 1) to describe the evaluation of a dairy herd genetic registry project in Uruguay and 2) to describe and explain Q methodology. The evaluation focused on the complex social, economic, and contextual reasons why some producers in Uruguay had not participated in the registry. Q methodology was used to illuminate non-participating producers’ perspectives in a way that kept their viewpoints whole yet provided for a reduction of the data into a few manageable and interpretable factors. These factors (considered aggregated perspectives) were to be analyzed in the spring of 2003 to identify points of agreement and areas of divergence among them in order to inform program planners on possible future marketing strategies. Therefore, the following paper relies on qualitative data systematically collected from participant interviews and observations.

Four emergent themes explaining producers’ non-participation were identified: productive efficiency (nutrition and herd health were more important, thus prioritizing financial resources); unaware (producers were thought to be simply unaware of the project’s existence); economic resources (low milk prices and costs related to the project depleted available financial resources to participate); social pressures (lack of time and competition with local producer organizations discouraged involvement). Practical implications point to the suitability of using Q methodology in an agriculturally related evaluation context where tapping diverse and sometimes ignored voices is critical for program improvement.

Reshaping Extension Education Curricula for 21st Century Agricultural Development in Sub-Saharan Africa
Margaret M. Kroma, Assistant Professor, Cornell University

A major challenge facing extension systems in sub-Saharan Africa in the 21st century is how to contribute to the process of transforming rural and agricultural systems in sustainable ways. This places a tremendous burden on institutions of higher education that are mandated to develop the human resource capacities to confront these challenges. Education in agricultural extension plays a pivotal role in this process. Revitalization of higher education in agriculture and extension education is imperative, if educators are to be successful in developing the human capacities and competencies needed to address both local and global challenges of economic, social, and ecological sustainability in agricultural and rural development in the region.

Perceptions of Brazilian Agricultural School Teachers toward Attributes of Educational Innovations
Francisco Carlos T. Elite, Ph.D. Candidate, The Pennsylvania State University
Connie D. Baggett and Rama B. Radhakrishna, Associate Professors, The Pennsylvania State University

This qualitative study examines the perceptions of federally supported agricultural school teachers in July and August of 2002 toward the attributes of two educational innovations brought by the educational reform currently taking place in Brazil – the separation between academic and professional education and the emergence of the competency based modular curriculum.

The framework for the study was Rogers’ (1995) diffusion of innovations theory, focusing specifically on the five attributes of innovation as defined by Rogers: relative advantage, compatibility, complexity, trialability, and observability.

Compatibility and relative advantage were the major attributes contributing to teachers’ reactions on the innovations. Teachers have demonstrated high degree of philosophical and ideological incompatibility with the separation between academic and professional education. Lack of teacher preparation programs was found to be the biggest operational flaw in the implementation of the reform.
Perceptions of Brazilian Secondary Agricultural School Principals about the Mission of the Schools
Francisco Carlos T. Leite, Ph.D. Candidate, The Pennsylvania State University
Rama B. Radhakrishna, Associate Professor, The Pennsylvania State University

Globalization, changes in demographics and in economics, coupled with a remarkable structural educational reform have driven to redefine the mission of Brazilian agricultural schools. The implementation of the reform in the professional education system has fostered the debate on the role of agricultural schools. Principals’ visions of the school’s mission are a critical factor for future development of agricultural schools.

This study conducted during the summer of 2002 deals with 112 Brazilian agricultural school principals’ perceptions about the mission of agricultural schools relative to: 1) the vocational profile of students to be admitted to the schools, and, 2) the educational purpose of agricultural schools in preparing students for immediate employment and/or to pursue higher education.

Overall, Brazilian agricultural school principals perceived agricultural schools as institutions devoted to prepare students to pursue higher education and immediate employment in agriculture, through an integrated academic-vocational curriculum. Students do not need to have interest in agriculture as a requisite for admission to the programs.

Instructional Technology Competencies Perceived as Needed by Vocational Teachers in Ohio and Taiwan
Chifang Lu and Larry E. Miller, The Ohio State University

The purpose of this study was to explore and describe the perception of the knowledge, importance, and educational needs of instructional technology for vocational and career-technical education teachers and draw comparisons between Ohio and Taiwan. The objectives of this study were to determine: (a) the demographic characteristics of vocational teachers such as age, gender, highest degree earned, instructional technology experience, and specialty, (b) the perceived knowledge and importance of instructional technology competencies for vocational teachers in Ohio and Taiwan, (c) the perceived need for further education in instructional technology by vocational teachers in Ohio and Taiwan, and (d) the relationships among the demographic characteristics of vocational teachers and their instructional technology education needs.

The population was all vocational education teachers working at 44 comprehensive high schools and six Joint Vocational Schools (JVS) in the Central Region of Ohio and 22 vocational high schools in Kaohsiung district, Taiwan, during 2001-02 academic years.

The Borich needs assessment model was adapted to determine the need of instructional technology knowledge and skills for vocational teachers and the instrument consisted of two parts: (a) demographic data, and (b) a Likert-type scale, to measure the perceived importance and knowledge of instructional technology for teachers. A questionnaire was designed to gather information about vocational teachers’ school and program characteristics and their perceptions of the instructional technology importance and knowledge in their program. The questionnaire was developed with two parallel versions – English version for Ohio and Mandarin version for Taiwan.
**Globalizing Extension-A National Initiative for U.S. Land Grant Universities**  
Barbara G. Ludwig, Professor and Chair, Ohio State University Extension  
Michael J. McGirr, Program Leader, International Extension, USDA/CSREES

This paper describes a current national initiative to strengthen the international dimension of the U.S. Cooperative Extension System (CES). This system consists of a partnership between the U.S. Department of Agriculture’s Cooperative, State Research, Education and Extension Service (CSREES); state extension services at land-grant colleges and universities in every state and territory; and local extension offices in more than 3,000 counties. In today’s era of heightened globalization, this system is increasingly viewed as a tremendous resource in helping citizens understand better the implications of a globally interdependent world. In addition to describing the national initiative, the paper discusses the rationale for extension services engaging in this effort, describes states’ past and current attempts to internationalize programs, analyzes a survey of state extension directors concerning their practices and attitudes toward globalizing their extension services, and outlines some of the obstacles hindering the internationalization process.

The authors emphasize the need to demonstrate the benefits to local clientele that result from internationalizing extension programs. They also stress the importance of linking international activities to multicultural programs, thereby serving diverse domestic audiences and immigrant populations here in the U.S. Recognizing the added challenge of dwindling state budgets, the authors conclude that domestic and international concerns can no longer be dealt with effectively in isolation of one another; therefore, dedicating resources to internationalizing extension is not a luxury, it is an integral part of meeting the needs of CES’ clientele.

**Responding to the Shift from Public to Private Contractual Agricultural Extension Service Delivery: Educational Implications of Policy Reforms in Uganda**  
Margaret Najjingo Mangheni, Makerere University, Kampala, Uganda  
Jeff Mutimba, Coordinator Sasakawa Africa Fund for Extension Education, Makerere University  
Frank Matsiko Biryabaho, Makerere University, Kampala, Uganda

Agricultural extension services are under increasing pressure to be responsive to the ever-growing challenges of making a difference to the lives of small farmers and the rural poor. The pressure for responsiveness is giving rise to calls for changes in the traditional public extension systems which are seen as top-down, paternalistic, inflexible, and subject to bureaucratic inefficiencies. Uganda is in the process of transforming its public extension system in conformity with the rest of its economic transformations. The public extension system is being phased out and it is gradually being replaced by a “private provider advisory system.” In operational terms, this means that the private advisory services providers will operate on contract basis with farmer organizations. The new advisory system is going to create new demands on the agricultural education system, not only in terms of appropriate curricula but also in the mode of instruction. This paper presents perceptions of various stakeholders in different organizations in Uganda with regard to the knowledge and skills that the agricultural extension professionals will need for them to perform effectively under the new system. Data were collected through stakeholder workshops and interviews with key informants. The study revealed that, whilst most of the skills within the public extension system were going to be relevant, additional skills were going to be required by the extension professionals to enable them to perform as independent service providers. The paper calls for a review of modes of instruction at agricultural training institutions, creation of mechanisms to cater to extension staff already in the field, and design of in-service programs to re-orient existing staff to enable them to cope with the new demands.
A Study of the Impact of Disability in Farm Households on the Farm Business in Ireland
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Dermot J Ruane, Senior Lecturer, National University of Ireland, Dublin
Liam Connolly, Head, National Farm Survey, Teagasc, Dublin, Ireland
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The research of reported disability is from a representative sample of farm households (1048) participating in the Irish National Farm Survey of 119.5k households in autumn 2001. Causation and impact of disability on the farm business, time commitment of family members to support the disabled person(s) and an assessment of available services was obtained. The results show that 19.5% of farm households reported one or more persons with disability. Persons with disabilities were the farm operator (39.5%); spouse (10.2%); child(ren) (20.8%); parent(s) (23.1%) and others (6.4%). Types of disability identified were categorised as: physical (from injury) 14.3%, physical (from birth) 6.8%, physical health-related 43.8%, sensory impairment 6.7%, learning/intellectual disability 12.9%, mental health 7.0%, other 8.5%. In 40.9% of households reporting disability a family member attends to the needs of the disabled person. Services and supports needed were specified by 45% of respondents. Disability in affected households had a “major” or “some” affect the farm business in 22.4% and 52.9% of cases respectively. Family farm income per hectare for farms with the farm operator and “all other household members” reporting disability were €434 and €494 respectively compared to €458 for non-disability farms. When the farm operator reported disability the level of off-farm employment for the farm operator and spouse was 13.7% and 23.5% respectively compared to 34.6% and 35.9% for non-disability farms. This incidence of disability on farms suggests that agricultural and extension educators require addressing curriculum development and design issues to meet the future needs of disabled farm households.

Trends within Risk Management Education for International Agricultural and Extension Educators: A Historical Review
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This study focuses on three key areas: relevant literature in adult learning and learning theory, relevant literature in risk management in agriculture, and lastly, relevant literature in risk management education.

The historical review of literature in adult learning and learning theory focuses on the importance of adult education, the key characteristics that make adults unique in the educational process, and Kolb’s learning theory and its possible implication for adult and risk management education. The section on risk management identifies the major sources of risk in production agriculture, the factors that contribute to those risks, and lastly, the priority strategies and techniques to management of those risks. Lastly, the literature review provides an overview of current risk management educational programs.

In summary, the historical overview indicates many challenges and opportunities for educators, consultants, and industry leaders focusing on risk management education. Educational programs dealing with risk management topics and strategies need to be pursued as a high priority.
Motivation and Characteristics of Visitors to Taiwan Vacation Farms
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The purpose of the study was to identify the factors that contributed to visitor motivation for gaining a vacation farm experience and to determine the relationships among visitor motivation and selected demographic characteristics. The selected demographic characteristics included gender, age, educational level, monthly income level, marital status, occupation, and prior visiting experience. The study also sought to identify sources of information that lead to visitors visiting a vacation farm.

The method of data collection was face-to-face administration. The sample size was determined by using the formula of Krejcie and Morgan (1970). As a result, the study included 382 visitors as the sample. The period of data collection lasted 26 days (from December 10, 2001 to January 4, 2002). Systematic sampling was employed where every 10th adult visitor was selected to respond to the questionnaire. The study was conducted at the Tou-Cheng Vacation Farm in I-Lan County, Taiwan.

The findings revealed that to be close to nature, to appreciate the scenery, and to be at ease with myself were the primary factors for motivating people to visit a vacation farm. Learning-related statements were fairly important to vacation farm visitors. Vacation farm visitors who were married had significantly higher level of motivation than visitors who indicated they were single. Friends or co-workers were the dominant informational source that led people to visit a vacation farm.

Impact Assessment of the On-Farm Water Management Project in Hyderabad District of Sindh Province, Pakistan
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Gary Leske, Associate Professor, University of Minnesota
Zahid H. Bhatti, and Shahid A. Khan, Graduate Students, Sindh Agriculture University, Pakistan

Despite the fact that Pakistan has a very large irrigation system basin, a water shortage is threatening. Due to the seepage of canal irrigation, water logging and salinity conditions are increasing. To control the seepage and to minimize the loss of available water, the On-Farm Water Management (OFWM) project was introduced. The primary purpose of this study was to assess the performance of OFWM project phase-III activities and their impacts on irrigated agriculture in Hyderabad District. A random sample of 150 farmers was interviewed using a structured questionnaire. The study found that OFWM Project-Phase III was perceived as successful in renovating the water courses, maximizing the cropping intensities, and producing better yields of the major crops. However, OFWM was not successful in increasing the farmers’ level of interest and participation in the program activities as measured in this study. Based on the findings, it was recommended that (a) additional “kacha”(Rough) water courses should be renovated, (b) farm machinery and laser technology for better precision land leveling should be continued in future OFWM activities, (c) seminars, farmers meetings, demonstration plots, and training sessions should be conducted, and (d) farmers’ participation should be increased. It was recommended that similar studies should be conducted in other parts of Sindh for replication with improved interview design.
Challenges in Implementing Integrated Pest Management (IPM) Practices: Implications for Agricultural Extension
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The impact of increased use of pesticides in agricultural production is now recognized as a threat to human and environmental health. Integrated Pest Management (IPM) is suggested as an alternative to conventional pest management practices. The implementation of IPM, however, encounters several challenges, especially in developing countries. The challenges in implementing IPM programs and adoption of IPM practices are closely linked to policy, social, and psychological factors, extension methods, and training and knowledge. The good will of the government in terms of supportive policy for alternative pest management is vital. Until clear policies are laid down, then it will be impossible to promote use of IPM.

New technologies and practices encounter resistance from those involved, especially farmers, and implementing IPM practices requires that psychological and social barriers be carefully considered. The delivery of new technologies is crucial and the nature of IPM requires participation calling for a paradigm shift in extension methods. IPM implementation also faces the constraints of training and knowledge experienced mostly by farmers and extension agents. The challenges in IPM implementation have implications for extension organizations to increase their role in educating farmers on the new practices. Extension organizations, however, cannot work alone in dealing with the challenges facing IPM and need support from other stakeholders. With reference to extension in Kenya, and on the basis of the literature review, a conceptual framework was developed summarizing the challenges that need to be overcome in order for the farmer to adopt IPM practices.

Primary and Secondary Impacts of Applying eLearning Technologies in a Developing Country
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This paper seeks to describe the environment and process by which an educational CD was developed by two international agencies and to share primary and secondary impacts resulting from the development process. Research questions developed to guide the study included, “Did individuals involved believe they benefited from the eLearning development experience and, if so, how were they impacted?” and “What lessons learned can be shared and transferred to others interested in using technology to facilitate learning?” Qualitative research methods were used to guide the study.

Lessons learned include an awareness of the instructional design process, the importance of interactivity, and logical order of content. The skill-set obtained during the process of developing the CD has empowered the participants to advance in the area of eLearning and serve as an example to others within their organization and beyond. One participant stated, “We learned that we could do more than just provide information.” This project continues to serve as an example of using technology effectively and has served as a foundation for similar projects in Peru.

While the goal of this project was to create a CD, an added outcome of the project was the empowerment of the individuals involved and the awareness generated within participants. The “indirect training” the participants received through their involvement in the project was retained because the subject matter was a “fit” with their work environment. The purpose of this study is not to generalize but to share one case that can be looked to for example and possible justification for similar endeavors.
Going Forward in Teaching and Learning Sustainable Agriculture: Designing an Integrated Agricultural Learning Environment for Women in the New Lands in Egypt

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An integrated agricultural learning environment is one of the crucial elements required to advance agricultural and extension education. The empirical ethnographic study was undertaken in 2001 and 2002 to investigate an agricultural education program designed to incorporate appropriate teaching and learning methods specific to gender. The program, conducted in the New Lands in Egypt, taught sustainable agriculture practices to rural women. Instruction featured female teachers, a woman-only cohort, a social learning approach that encouraged personal relationships and cooperative learning, and broad use of strong cultural symbols to convey affective dimensions of adhering to sustainable agriculture practices. Implications to agricultural extension education include the affirmation that the right educational elements, rather than simply a collection of best practices, are required for educational designs that enable resource-poor women farmers to succeed personally and economically.

Extension Delivery for Small-Scale Sugarcane Growers in South Africa:
A Public/Private Joint Venture

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Historically, neither the public nor private sugar industry in South Africa had the resources to provide an effective extension service for the small-scale sugarcane farmers. In 1996, the South Africa Sugar Association proposed to join forces with the Department of Agriculture and Environmental Affairs to form a private/public partnership called the “Joint Venture” (JV). A more suitable and appropriate extension service to the more than 46,000 small-scale sugarcane farmers was sought using the combined resources of the two organisations. A review of this relationship was conducted in 2002, six years since the inception of the partnership, to determine the extent to which the two principal organisations were able to meet their objectives. The methodology employed in the review of the Joint Venture after orientation included literature review, group and individual interviews, and field visits.

Sugarcane production and small-scale farmers’ incomes from sugarcane have increased since the implementation of the JV, which was attributed largely to more land in production, better distribution of improved varieties, improved communication flow to the farmers, and increased skills and motivations of the extension agents. There has been a substantial contribution to rural development and capacity building in the communities served by the JV. The partnership has not only been responsible for the transfer of technical knowledge and information but has encouraged a positive attitude change in farmers and service providers alike. Field technicians have shown a remarkable transformation and developed increased capability and credibility as a result of this Joint Venture.
New Perspectives for Agricultural Development in Trás-os-Montes Portugal: Extension Advisors in Farmer Organizations
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Artur Cristóvão, Professor, Universidade de Trás-os-Montes e Alto-Douro, Vila Real, Portugal

In Portugal, Extension privatisation measures were launched in 1989 with PROAGRI, a programme integrated in a broader scheme – PEDAP -, designed after Portugal’s integration into the European Economic Communities (EEC) and aiming at the development of Portuguese Agriculture. The major objectives of PROAGRI were to strengthen the technical and managerial capacities of farmer organisations, and to improve their intervention in the provision of extension services to their associates and farmers in general. In essence, the basic idea was to transfer this function from the State to farmer organisations, following the generalised European (and World) trend to make farmers co-responsible for the implementation of technical assistance and agricultural development. These changes opened up new perspectives for regional agricultural development and constitute the subject of analysis in this paper.

The new agricultural knowledge and information “system” supporting agricultural development in Trás-os-Montes (TMAD) is based upon the work of extension advisors for farmer organisations, who perform a central role as facilitators of knowledge and information production and exchanges. Today, according to this analysis, the region of TMAD has a “system” of knowledge and information production and exchange more effective than it has ever had. This “system” supports farmers in various ways, namely by: helping them to deal with the legal-bureaucratic requirements; providing information and facilitating their participation in knowledge construction processes (related, for instance, to product quality and marketing issues); and helping them to evolve as individuals and to be active community members.

An Assessment of Educational Activities of Rural Women in Iran
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Hossein Agahi, Associate Professor and Head, Razi University, Kermanshah, Iran
Rama Radhakrishna, Associate Professor, The Pennsylvania State University

The purpose of this study conducted in 2002 was to assess the educational activities of rural women in Iran. Specifically, this study assessed educational activities of rural women in terms of: 1) importance and quality of educational programs offered, 2) instructional methods preferred, and 3) sources on which rural women rely for information. Descriptive research methodology was used involving a random sample of 177 rural women who were members of Rural Women’s Clubs. All of the 177 were interviewed using a structured interview schedule. Findings indicated that rural women rated educational programs in production agriculture, handcrafts, and food processing “high” for both importance and quality. Lecture was preferred by most rural women as an instructional delivery method. Rural women relied on magazines and publications and friends and neighbors for information.

Findings from this study offer several implications for enhancing extension programs for rural women in Iran. First, there is a need to diversify extension program offerings for rural women. Needs assessments should be conducted in all the provinces to identify programmatic needs of rural women. Then, a profile of needs for each province and programs to meet those needs should be developed. Second, potential use of extension publications from other developing/developed countries should be explored and translated into Farsi. Third, extension specialists and agents should work together to develop educational materials for rural women to use.
Adult Education in Extension: Developing a Web-based Learning Module Based upon Expressed Needs

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Numerous people assume that Extensionists have all the requisite skills needed to conduct effective educational programs. Realistically, in many situations, Extensionists have been hired because of their education, skills and abilities related to a particular program area, and very few have education, training or skills related to adult education. Successful extension educational programs not only depend upon quality content, but, in many cases, an ability to facilitate adult learning may be more critical to truly achieve clientele impact.

An ex post facto study was conducted to determine critical professional development needs of University of Florida County Extension faculty in the area of adult education to guide the development of a web-based learning module. On average, faculty felt that they spend about 50% of their time on adult education, and the majority perceived themselves as effective adult educators. However, the majority also believed that they have a substantial need for additional training in adult education. Across all constructs measured, faculty rated perceived importance higher than possession, creating an educational needs gap. This gap served as the foundation upon which an adult education web module was created. The web module focused upon the most critical needs, and examples related to current Extension issues and program areas were integrated where appropriate. It was concluded that the Extension system could significantly benefit from active integration of adult education into formal training and professional development opportunities.

An Analysis of High School Students’ Attitudes and Beliefs toward International Agricultural Concepts

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Stacie L. Domer, Agriculture Instructor, United High School

The primary purpose of this study was to examine the attitudes and beliefs of high school students toward international agricultural concepts. A total of 62 students participating in the 2002 PA Governor’s School for Agricultural Sciences completed a three-part survey instrument. Overall, high school students had very positive attitude and beliefs toward 37 of the 44 (84%) international agricultural concept statements. Students also agreed that they need instruction in a variety of topics to understand better international agricultural concepts. Prominent among these topics included understanding of the major regions in the world, major regions in the United States, interdependency of nations, and how were the United States’ relationships with other countries relative to political, economic, and humanitarian issues. Gender of students, school location, graduating class size, and family ancestry were related to attitudes and beliefs toward international agricultural concepts.

Several implications for further research were suggested. These included: 1) efforts should be continued to infuse international agricultural concepts into the curricula in our schools, colleges, and universities, 2) further research should be conducted beyond the scope of this study to provide additional insights into understanding international concepts, especially relationships between attitudes and involvement in international activities, and 3) a common framework should be developed to establish a research agenda for infusing international concepts into our curricula.
Relationships between Global Awareness and Understanding and Participation in International Activities
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Francisco C. Leite, Ph.D. Candidate, The Pennsylvania State University
Rebecca J. Hill, Agriculture Instructor, W. B. Saul High School

The primary purpose of this study was to assess global awareness and knowledge of high school students who participated in the 2002 PA Governor’s School for Agricultural Sciences. Additionally, relationships between global awareness and knowledge and participation in international activities were also examined. A total of 62 students participated in the study. The knowledge and awareness assessment included a 45-item test that included questions relative to agricultural products and policies, people and culture, world organizations, and world geography. Findings indicated that governor scholars possessed limited knowledge and awareness of international concepts. Overall, scholars could answer only 53 percent of test items correctly. A majority of scholars were not aware of various organizations involved in international agricultural development. Scholars, however, scored 70% of the items correctly in the world geography section. Significant relationships were found between knowledge, awareness, and participation in internationally related activities and experiences. Scholars who participated in a 4-H youth exchange program, who watched international news and programs on TV, and who had known a foreign student in the class had higher scores on the knowledge test than those who did not. What is the answer to the crisis of “global illiteracy” in American schools and colleges? The answer is more education and opportunities. That is, issues and topics relative to foreign affairs and world culture should be integrated into the curriculum.

Extension Re-Organizational Engineering Commensurate with Progresses in Technology
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The primary purpose of this study was to measure the perceptions of the extension professional staff toward the organization’s management systems (existing and desired). Four provincial extension organizations (representing each geographical region in the country) were randomly selected for the study. A total of 478 extension professional staff was selected by a complete randomized sampling technique. Likert’s instrument, the Profile of Organizational Characteristic (POC), which is based on Likert’s system-4 theory, was used to gather data on existing and desired management systems of extension organizations. The results indicated that Iran’s extension organization epitomizes a system-2, which is a benevolent authoritative organization. However, the organization has a great potential to become a participative management system because the great majority of the professional staff desire a participatory management system. The result showed a moderate association between the participants’ perceptions of management system and their level of professional satisfaction. This implies that improving the existing management system could enhance the staffs’ professional satisfaction. About 20% of the variation in management system could be explained by the respondents’ professional characteristics, their tenure, level of participation in team activities, and perception of being justly promoted and rewarded.
Rural Production Cooperative Approach and Farmers’ Professional Satisfaction
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The primary purpose of this study was to assess the professional satisfaction of Rural Production Cooperative members. The secondary purpose was to investigate professional characteristics of RPCs’ farmers, and determine the RPC members’ attitudes toward cooperative farming. The population of this study consisted of all 2,000 rice-growing members of four rural production cooperatives in rural Mazandaran, a northern province in Iran. By using a complete randomized sampling technique, 320 members of the population were selected for the study. A questionnaire consisting of three parts was designed to collect needed data for the study.

The results showed that cooperative farming substantially increased farmers’ crop yields and lowered their farm operational and maintenance costs. Members reported particular savings in the area of farm labor expenses. More than 90% of the farmers indicated that cooperatives enabled them to have more access to agricultural machinery, which resulted in efficient use of farm resources. About 64% of the farmers were considered to be practicing a “high” level of mechanization on their rice fields. The members generally had a positive and favorable attitude toward the cooperative and its activities. The mean score on staffs’ professional satisfaction was 2.4 (2= somewhat satisfied; 3=satisfied), with a standard deviation of 1.6. There was a statistically significant relationship between members’ professional satisfaction and their attitudes toward the cooperative (r=0.645). This is considered a “substantial association.” A Multivariate Linear Regression indicated that among the independent variables, farmers’ level of participation in coop’s activities, attitude toward the cooperative, and the amount of land owned by farmers could explain together 68.8% of the variability in members’ professional satisfaction. This implied that there are other factors that may have contributed substantially to variations in farmers’ professional satisfaction that were not investigated in this study.

Structural Change in Agriculture: Privatization of Information and the Role of Extension
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Andrew Sofranko, Professor of Rural Sociology, University of Illinois at Urbana-Champaign

A complement to the structural change in agriculture has been an increased use of sophisticated information and knowledge-based technology. Large-scale farmers are aggressively looking to a wider range of public and private information sources. The purpose of this study is to examine the effect of the growing number of large-scale farmers, a frequently used proxy for structural change, on the perceived importance of different public and private sources, and utilization of private information and technical services (PITS). Over 10,200 Illinois farmers completed a mail survey, representing 14.3 percent of farmers. Respondents were divided into five categories according to their farm size.

The findings show that the growing number of large-scale farmers are younger, have more resources, and are increasingly looking to location-specific, timely, and digitally formatted information. They considered seed dealers, agricultural extension, and the Internet their top information sources. Over 55 percent of them utilized PITS, including Farm Dayta, GPS soil mapping, and marketing advisory services. On the other hand, small-scale farmers are older, had limited farm resources, and 99 percent have off-farm employment. Less than 10% of them utilized PITS with the exception of GPS and FBFM services. All farm-size groups ranked Extension Service as their second most important information source. However, the results reveal a negative relationship between farm-size and the importance of agricultural extension and utilization of PITS. If agricultural extension is to stay relevant, it needs to provide each farm-size group with appropriate technical, management, and marketing information.

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This descriptive-correlational study investigated Ohio State University Extension county agents’ perceptions of, and relationships between, organizational justice (including distributive, procedural, interactional, and systemic justice) and job satisfaction. The researchers used a census of O.S.U. Extension county agents and a mailed questionnaire to collect data from them in February 2002. The final response rate was 86%. The findings suggest that O.S.U. Extension county agents have a somewhat uncertain perception of organizational justice; agree with procedural and interactional justice; disagree with distributive and systemic justice; and are very satisfied with their employment. A low, positive association was found between O.S.U. Extension county agents’ perceptions of organizational justice and current level of job satisfaction. Positive relationships were found between job satisfaction and interactional justice, procedural justice, and systemic justice. The findings suggest that O.S.U. Extension administration should investigate and strengthen reward structures and continue to offer opportunities for employees to be engaged in dialogue and decision-making, while encouraging individual creativity in program development and implementation.

Enhancing Stakeholders’ Capacity to Manage Soil Resources Using Participatory Approaches in Uganda

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Declining soil productivity is a concern in Uganda. One of the major causes is nutrient depletion. Studies of root causes implicate lack of adequate capacities among stakeholders (farmers, extension staff and local leaders) to face the challenge. To this end, this study was conducted in Kachonga sub-county, Tororo District, Eastern Uganda with the objectives of showing how (i) Policy capacity to support and implement programs for improved soil management can be enhanced (ii). Farmers can be provided with an opportunity to manage their soil problems through use of available local knowledge on soil management, and sensitization on available scientific technologies, and (iii) Extension staff can be equipped with skills in use of soil management decision-aid guidelines. The approach was participatory, making use of such techniques as focus group discussions, mapping, time lines, and transect walks. Activities conducted included workshops for local leaders and farmer, training sessions for extension staff, and participatory meetings with farmers in the fields, at village levels. Findings indicate that local policy makers are committed to playing their roles in contributing to the solution of this problem but are constrained by lack of information for decision making, among other things; farmers are aware of the problem but only need empowerment to solve it and that there are gaps in the skills of staff, which need adequate filling. It is thus recommended that policy makers be routinely advised of their roles, that skills of staff are adequately updated, and that farmers are appropriately involved in programs that benefit them.
Attitude towards Backyard Gardening in Botswana
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A survey was conducted March 10-24, 2002 to find out the attitude of women towards backyard gardening in the Mochudi village of Botswana. The target population of the study was 42 women having backyard gardens. The formula developed by Krejcie and Morgan (1970) was used to select randomly 37 women engaged in backyard farming to constitute the sample size. A questionnaire was developed by the researchers and used to collect data. Respondents were asked to indicate their level of agreement on a five-point Likert-type scale used in the questionnaire. The statements in the domains were validated and the reliability estimate calculated and found to be between 0.71–0.77 for the attitude and factors influencing backyard gardening statements respectively.

Results revealed that majority of the respondents were 41 years and above, had more than three children, and were earning less than P500 per month (about $70 per month.). Results also showed that most women had a favorable attitude towards backyard gardening but lack skills, inputs, water, and encouragement from extension workers.

Toward a Sustainable Development in Agriculture: A Reflection on the Learning Experiences of NGOs in Thailand
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The purpose of this paper is to describe research into the experiences of Thai NGOs, in their work toward sustainable agriculture of small-holder farmers. The research objectives were: 1) to study the working philosophy of Thai NGOs, and their applications for sustainable development in agriculture; and 2) to synthesize the learning experiences of Thai NGOs, and the implications for policy on sustainable development in agriculture.

The study was approached by qualitative research, supplemented partly with quantitative method. Data were collected by: 1) documentary analysis; 2) field data collection with in-depth interviews, focus-group interviews, and case studies; and 3) opinion survey with questionnaires. The respondents were: 1) 87 Thai NGOs from the north, northeast, south and central parts of Thailand, 2) 32 farmer-leaders, and 3) 146 extension government officials. Qualitative data were analyzed by content analysis; quantitative data with basic descriptive statistics. A procedure of member check was used to validate the findings. The findings are summarized as follows:

1. The working philosophy underlying efforts towards sustainable development in agriculture of the Thai NGOs are rooted in the concept of community culture, focusing on human-centered development as the means, and self-sufficiency as the end. The emphasis is on community empowerment, building on local wisdom, and mobilized by community involvement. The goal is to shift the development paradigm from the traditional to an alternative.
2. During the early stage, work aiming at sustainable agriculture of the Thai NGOs focused on sustainable farming, in an effort to shift from mainstream agriculture to sustainable agriculture of small-holder farmers. Later, their activities had extended to alternative marketing to ensure continuity and economic sustainability of agricultural production. Along the way, active movements to secure supportive policies from the government were undertaken.
3. Internal and external factors limiting the success of Thai NGOs were identified. Internal factors were: 1) technical weakness of NGOs field workers, 2) lack of research-base and reflective accounts, 3) weak points in organizational structure of NGOs. External factors were: 1) unstable sources of funding, 2) lack of cooperative working channel with the government sector, and 3) lack of strong support from the middle-class sector.

Reflecting on the learning experiences of Thai NGOs, the researcher proposed a network of activities linking NGOs, major educational institution in agriculture, and Ministry of Agriculture, for mutual efforts in sustainable development.
Trends and Developments within the Chinese Agro-Technical Extension System
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This paper describes important developments undertaken to improve the performance of the Chinese extension system. During the early 1980s, 29 counties pilot tested a new organizational model whereby seven different county level stations were integrated into a County Agro-Technical Extension Center (CATEC). This new model greatly improved extension performance and is now being used in 80% of the counties. Also, this integrated system strengthened linkages between CATECs and Township Agro-Technical Extension Stations (TATES), which organize front-line extension activities. TATES work through village-level farmer technicians and demonstration farm households in organizing demonstrations and farmer training. During the 1990s, specialized farm households and farmer associations (higher value products) have become an important target group for extension.

Passage of “Extension Law” in 1993 fully decentralized the extension system, so most funding comes from the corresponding level of government. County and township governments provide partial funding for extension programs and operations, but CATECs and TATES are expected to generate an increasing share of funding for extension programs. Many different funding approaches have been field-tested; however, the “Prescription and Filling the Prescription” model has gained broad acceptance. This approach is similar to how private firms and cooperatives in North America and Europe fund technical advisory services. The cost of these “privatized” advisory services is recovered directly from farmers when they purchase inputs directly from the “commercial” side of the extension center. Farmers prefer this new approach and the number of technical advisory personnel funded by these “commercialized agricultural services” has been greatly expanded.

The New Agricultural Economy: Implications for Extension Programs
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A “new agriculture” is emerging, with great implications for Extension. Farmers are growing value-enhanced crops, exploring new ways of cooperating, searching out contracts, and making investments in business opportunities which utilize their grain. This characterization represents a vastly different agricultural system than the one to which Extension has related traditionally. This paper uses data from over 11,000 farmers in Illinois to explore topics related to the “new agriculture.” It, first, develops an index, which is used to differentiate farmers into three groups representing different levels of orientation to the “new agriculture.” The second part compares the three groups, and the third contrasts them on their expected income-enhancing strategies.

Analyses show that the “high interest” group is younger, large scale, and better educated. The “no interest” group is a reverse image: older, less educated, and less likely to have a side business, etc. On income improvement strategies, the “high interest” producers are pursuing all strategies. Producers are making complex decisions connected with the “new agriculture” and they have few sources of public information. The project from which the paper stems was designed to produce information on value-enhanced crops and diffuse it throughout areas of the state. There are many additional aspects of the “new agriculture” that require unbiased information. The survey revealed a lack of information on many aspects of the “new agriculture.” Information dissemination may well be Extension’s role, but information of a much different order than in the past.
The Future of Agricultural and Extension Education: Trends and Policies Worldwide
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The last decade witnessed an accelerated decline in the credibility of public sector extension. Unless extension grows beyond technology transfer, and clearly articulates its role in facilitating broader changes supportive of evolving rural livelihoods, its ability to remain relevant in the future is extremely doubtful. While the reform process is heading in this direction, planners need to face up to the need for considerable institutional change and learning if extension is to escape from the shackles of a technology dissemination role.

This paper is a summary of how extension can contribute to poverty reduction. The major concerns are how extension policies must be seen in a wider context of rural poverty reduction, the realities of livelihoods, and the existence of a range of public and private extension providers. The paper reflects the hypothesis that, when situations become increasingly complex and make higher demands on the knowledge and skills of farmers, the type of agricultural and extension education will shift. The study makes use of a variety of reference materials to elicit and reflect on the issues raised at hand and puts forward the future of agricultural and extension education trends and policies. It is important to look beyond agricultural and extension education to a more inclusive program of livelihoods extension. Recent changes in the funding of agricultural research, extension and education, and increasing institutional complexity necessitate the development of new approaches to prioritizing and targeting agricultural innovation.

Evaluating the Pecan and Sweet Potato Pilot Insurance Programs: A Case Study in the Application of Utilization-Focused Client-Based Methodology
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Benjamin Gray, Jr., Associate Director, North Carolina A&T State University

There exist two different purposes for this paper. First, it uses the theory of participatory action research and utilization-focused evaluation to explain and analyze the application of the qualitative listening session technique, and utilization-focused evaluation to evaluate the Pecan and Sweet Potato Pilot Insurance Programs. The analysis demonstrates the utility and application of the participatory action research and utilization-focused evaluation models in generating information for decision making in a complex technical socio-economic milieu.

The second purpose of the paper identifies the credibility of the comments collected in the listening sessions held in seven states by comparing them with quantitative data on actual performance of the programs relevant to the topic of each comment. These analyses provide a posteriori insight into the utility of these models as explanatory systems. The analyses demonstrate the use of multiple data sources to help clarify issues raised during the data collection. Further, the results of this study demonstrate that the application of qualitative technology can provide valuable information to decision makers.
Gender Roles and Participatory Delivery Strategies for Villagers in Northeast Mexico
Sabrina Tuttle, Graduate Student, Texas A&M University
Kim Dooley and James R. Lindner, Assistant Professors, Texas A&M University
Miguel Santiago Hernandez, Promoters for Sustainable Rural Development, SCRL, Nuevo León, México

The research study focused on exploring the relationships between gender roles and delivery strategies in two villages in northeastern Mexico. The researcher used qualitative research and participatory rural appraisal techniques to gather data over a three-month period in 2002. The researcher looked at the roles of men and women in agriculture and natural resources, and the level of importance of chosen delivery strategies according to gender and community. The roles of women in both communities are primarily related to household tasks, the processing of agricultural products, and childcare, while those of men in both communities are connected to production agriculture, as well as with marketing agricultural products. Both men and women in each community shared some roles in animal care. Men in the communities chose extension topics related to both production agriculture and marketing products, while women were mostly concerned with learning about value-added products; these topics are consistent with their roles in agricultural production and the processing of agricultural products. Men and women in both communities preferred hands-on delivery strategies that included a social component. Women preferred participatory activities, which dovetails with their roles in family care and in building community relationships. The results of this study cannot be generalized, as they varied according to gender and community, but participatory rural appraisal techniques employed in the study can be utilized in other communities to determine culturally appropriate delivery strategies and extension topics, fostering greater functional success in extension programs.

The Development and Implementation of an International Extension Training Program for County Extension Faculty
Pete Vergot III, Associate Professor, District Extension Director, University of Florida/IFAS Extension

University of Florida/IFAS Extension was proud to begin a new international extension professional development program for county faculty. The program goals were to provide an introduction, awareness, and first hand experiences to the many opportunities awaiting county extension faculty in international extension work. County faculty many times are discouraged by their clientele with concerns that they, “county agents,” would be “giving away” information and practices seen as advantages to production and marketing of crops, livestock, fruits, vegetables, and ornamentals.

The purpose of the paper is to enlighten other university extension administrators and faculty on the development, deployment, and results of the University of Florida / IFAS Extension international professional development program. The eight county faculties participating in the international extension training program were glad to share the benefits they felt they received from the participation in the successful professional development experience. Lessons learned and statements of an energized and enlightened county faculty are included in the results. All related information, developed, revised, and updated by the author for University of Florida / IFAS Extension International Programs, is posted at the web site: http://ded.ifas.ufl.edu/IET2001/index.htm.
A rationale and procedure for estimating agricultural productivity of private farmers in a USAID Extension Project in Ukraine are presented, and the estimated productivity for agricultural commodities grown by farmers participating in the Project in 2001 calculated as a benchmark measure. Crop and livestock production, farm input, and price data are presented to support the estimate. Analysis of the influence of personal, demographic, and farming characteristics on agricultural productivity using multiple regression showed farm size, land titling, and number of farming land locations to be significant.

Both limitations and positive aspects of the estimate as an indicator of agricultural productivity are indicated. A refinement of the measure during the course of the Project is anticipated as additional economic data are gathered. The authors believe that the estimate is a practical and simple means of documenting an economic indicator of performance at the benchmark stage of the Project, and, despite its limitations, suggest its review and use by extension educators who have to document economic impact of education programs.

The purpose was to determine agricultural education undergraduates’ knowledge and perceptions about international agricultural issues. A purposive sample of 293 students responded to the study. More than 40% of the respondents cited watching international news stories on television as the source used most often to develop their perceptions about international agricultural issues. Least identified sources included actual participation in a Work Experience Abroad program (10%) or International Foreign Youth Exchange (7%).

Only 3% (n = 9) achieved a passing score in the pretest knowledge assessment, indicating a gross lack of knowledge about international agricultural issues; posttest results improved slightly, where 5.1% (n = 15) had a passing score. Respondents perceived that they should be instructed on other countries’ agricultural production processes and they should know more about agriculture and its importance to the world economy. Also, they believed more strongly that they could learn about international agricultural issues by taking a vacation in another country or by watching selected television programs than they could by interacting with international agricultural exchange students at Texas A&M University.

The results present mixed evidence of the impacts of formal education on students’ beliefs about international agricultural issues. Students’ knowledge about international agricultural issues can be advanced through experiential learning via out-of-country learning experiences, increasing the variety of media and Internet use in teaching students about global issues, encouraging students to take foreign language courses, and persuading them to participate in study abroad classes.
International Agriculture Centre: A Feasibility Study
Grant Wood, Extension Division, University of Saskatchewan
Roy M.K. Wagner, Candle Lake, Canada
Bruce Hobin, Extension Division, University of Saskatchewan

Internationalization has increasingly become an integral part of the University of Saskatchewan — a leading agricultural university in Canada, partly because of the agricultural prominence on campus, and partly because of the expanding number of partnership requests from agricultural, continuing, and higher education institutions / research centres around the world. Accordingly, the U of S is considering the establishment of an international centre for agricultural training. A feasibility study was conducted in 2001. Data were collected from four international sectors: China, Central and Eastern Europe (CEE), Iran, and Mexico.

Five themes emerged from the results. They are: methodology and content; location of training; certification; external funding; and marketing of the centre to client groups. The results from each of these themes are reported in this paper. Some challenges were also identified during the feasibility study. Many of these came from local faculty and staff. Other authors in other papers identified many of the challenges reported in this paper.

The data collected in this study will prove useful in strengthening the experience of individuals involved in projects in China, Russia, Ukraine, Poland, Iran, and Mexico. The challenges raised by local faculty, research scientists, and administrators will prove useful for any institution considering the establishment or expansion of an international training centre.
Pre-Conference Leadership Team Meeting Minutes (Unofficial)
Raleigh, North Carolina, USA
April 8, 2003

Attendance: Gustav Düvel, Steve Jones, Frank Brewer, John Richardson, James Christiansen, Jimmy Lindner, Michelle Owens, Wade Miller, Nick Place, Dermot Ruane, Jim Phelan, Wayne Ganpat

The meeting was called to order by President Düvel.
- Minutes of July 2002 Summer Board Meeting were approved as presented.
  - The Raleigh Conference was reviewed.
  - Steve Jones reviewed the program, times, location and changes.
  - Marsha Parrish from the Sheraton met with the Leadership Committee to review the mechanics of the Conference.
  - John Richardson reviewed the tour schedule, and Frank Brewer discussed the spouse tours and barbeque.
- James Christiansen reported on the Scholarly Activities.
  - 101 Papers were received from 32 countries.
  - Difficult to get international graduate students to participate. Good international involvement in chair/discussant roles.
  - Fall out of participants from Iran, Thailand, Ethiopia, and difficulties by other international participants to obtain visas for the United States at this time.

Posters and Carousals
- 15 posters and 13 carousals were submitted.
- Almost all posters accepted.
- Committee of seven at Texas A&M screened poster proposals.
- Carousals had blind review; four rejected and two due to double presentations.
- Carousals will rotate every 15 minutes.
- This year was the first time that rejected paper proposals did not request to do a poster or carousel.

Research Papers
- Papers that came in this year were in the worst format ever and required a good deal of formatting and time to clean up and restructure. How to solve the problem?
  - Check, If not acceptable format – send it back. Should be implemented by person in-charge next year. May need to include a note in newsletter that format and spelling, etc. is the responsibility of the authors.
  - Gustav suggested that we may need more than one chair for this important committee, but James has another approach. He has developed a survey this year to find individuals who might be interested in some of the activities of the committee. Did not get volunteers for same request last year, therefore, may need to make more directed requests for assistance in this committee work.
  - James also reassured the Leadership Team that people responsible for organizing scholarly activities do not need to come from a single institution.
- Did not get enough people to volunteer to review papers so had to recruit 8-9 doctoral students to get enough reviewers.

Journal
- Lindner – need to look for next editor for journal – Wingenbach is open to continue but bylaws don’t allow it. Much is now done electronically.
  - May increase numbers of words in abstracts up from 150 to 250.
  - May need to change high gloss cover to matte type finish (non gloss).
AIAEE Logo

- It was moved by John Richardson that the AIAEE logo be corrected to be geographically correct. Motion seconded by Steve Jones. **Motion passed.**
- Michelle Owens moved that we obtain input from AIAEE membership for possible permanent changes in the AIAEE logo at this Conference and in the next edition of the Informer, on the Web, and vote upon these findings at the 2004 conference. **Motion Passed.**

Awards

- Wade Miller reported on the Awards Committee.

2003 Conference

- Nick Place reported 136 people registered for the Conference. Life Memberships were discussed. A financial report was presented by Nick.

Membership

- Gustav appointed Michelle Owens to Chair the Membership Committee and to review the issues and constraints to the current life membership policy of the Association.

Associate Chapters

- The RAIAEE Chapter Report was presented by Wayne Ganpat.
- Gustav reported on the Pan Africa Chapter.

2004 Conference

- The 2004 Conference Progress Report was presented by Jim Phelan and Dermot Ruane.
- Dermont indicated that the location for the Conference will be near University College Dublin at the Stillorgan Park Hotel.

Respectfully submitted

Frank L. Brewer
Secretary
President Gustav Düvel called the meeting to order. He thanked the leadership team and committee chairs for their contribution to this conference. He indicated that he was personally very pleased with the level of volunteerism and spirit of camaraderie within the membership. He specifically pointed out the Scholarly Activities Committee and thanked James Christiansen for his leadership, along with the contribution of Jimmy Lindner for the outstanding job that he has done in putting together the electronic proceedings and Gary Wingenbach, for improvements in the Journal. President Düvel also expressed his appreciation to Jack Elliot for his work on the Association’s Web Site and James Knight for his editorship of the Association’s Newsletter.

President Düvel pointed out that the progress towards greater internationalization of the Association has been slow. President Düvel indicated that he would meet with the Pan African Initiative (Tanzanian Association) in May 2003, and that the biggest constraint to a greater internationalization of the Association seems to be funding. However, he did indicate that there have been some positive signs, and pointed out a successful linkage between Uganda and Australia.

President Düvel thanked John Richardson for his work on increasing membership in the Association. President Düvel pointed out that there has been a problem in the past with the Association granting Lifetime Memberships to some individuals who did not qualify. Lifetime Membership should only be granted on sustained regular membership and one’s contribution over the years.

Matt Baker then read the minutes for Secretary Frank Brewer. The minutes were approved with slight modifications. Treasurer Nick Place reported that 130 individuals had registered for the Raleigh Conference. Treasurer Place reported the following financial information:

- Certificate of Deposit Balance $20,124.66
- Checking Account Balance $26,733.07
- Balance Transferred to Bank of America in Gainesville (8/15/02) $27,639.72
- Total Expenses (8/15/02 – 4/4/03) $9,879.15
- Total Income (8/15/02 – 4/4/03) $26,525.52

Graduate Student Representative Jean-Claude Bizimana reported that $266 was raised from the wine tasting event and silent auction. He expressed a desire that more graduate students would become active in the Association.

James Christiansen, Chair of the Scholarly Activities Committee gave his report. Christiansen closed his report by thanking all of the volunteers who worked unselfishly in making the Conference a success.

Jack Elliot, Chair of the Publications Committee reported to the Association. Elliot thanked the committee membership for their dedicated service on the Web page, list serve, and Newsletter.

Dave Giltrow reported on the Constitution and By-Laws Committee chaired by Barbara Ludwig. Dave discussed the issue of Lifetime Membership and term of the journal editor.

Mary Lou Carlson and Pete Vergot reported on the Resolutions Committee. They recommended that a link be added to the Association’s web site for the historical preservation of resolutions. They read 11 resolutions.

Jim Diamond gave a report on the Membership Committee. He reported a current membership of 215, which is down two percent from last year. He pointed out two issues to the association. The first had to do with difficulties in transferring funds for membership dues between countries. The second issue centered upon an outdated brochure.

Wade Miller reported on the Outstanding Member Awards process. This year only three awards will be given: (1) Outstanding Service Award (Recipient – Jack Elliot); (2) Outstanding Leadership Award (Recipient – James Christiansen); and (3) Outstanding Young Member Award (Recipient – Moses Zinnah).
Steve Jones gave a Conference Planning Report. He indicated that the theme for the 2004 Conference in Dublin would be “Education and Extension for a Multifunctional Agriculture.” He reported that the conference would be either the week of May 17 or May 24 with a university setting. The 2005 Conference will be held in San Antonio, Texas and discussions are underway for the 2006 conference with a location yet to be decided.

James Christiansen gave a Journal report for Gary Wingenbach. Christiansen indicated that the spring 2002 issue had been placed on-line, that 68 individuals from 16 countries had served as blind reviewers for the Journal, and that that the translation of articles from English to Spanish and French is on-going, and that some of the articles are available.

Wayne Ganpat gave a Caribbean Regional Report. Ganpat indicated that the Association sponsored a third activity during the year that was well received. He thanked the Association for its continued support of the Caribbean Regional Chapter.

The floor was opened for new business. President Düvel extended greetings to the Association from the South African Board. Jim Phelan then reported on the 2004 Conference. He indicated that there were plans to accommodate greater diversity. The conference meetings will take place on the University College – Dublin campus. A variety of lodging arrangements were discussed. The structure of the conference will include a three-day period in Dublin (Monday – Wednesday), with the second evening dedicated as cultural night. On the fourth day, the group will leave Dublin and head south, with an eventual departure from Shannon Airport.

Potential dates for the 2005 Conference were discussed. The week of April 4 (week after Easter) was specifically mentioned as a good time for the San Antonio meeting. It was pointed out that members who are also members of the American Association for Agricultural Education (AAAE) might have a conflict with AAAE’s National Agricultural Education Research Conference (NAERC) in 2004. The 2004 NAERC would be during the week of May 26. The 2003-2004 Leadership Team was then introduced.

- President – Steve Jones
- President Elect - James Phelan
- Treasurer – Nick Place
- Secretary – Matt Baker
- Member at Large – Michelle Owens
- Graduate Student Member – Courtney Stewart

President Steve Jones then concluded the meeting with a call for the membership to think big thoughts, dream big dreams, and put those new ideas into action. The meeting was then adjourned.

Respectfully submitted,

Matt Baker
Secretary
Conference Review

President Steve Jones asked for input on the conference. James Christiansen indicated that there might be an increase in coherence if the scholarly activities (papers, carousel, & posters) were grouped more closely together, and if all papers were presented prior to the final day of the conference. He indicated that it is difficult to shift gears mentally if these activities are spread out. Michelle Owens requested a list of participants. Nick Place indicated that the list would be provided. Michelle also pointed out an issue with diet sensitivity, and suggested that future conference planners consider this. Gustav Düvel indicated that the conference was too long in duration, and recommended that the papers be presented within a shorter period.

Vision

Gustav Düvel led a discussion regarding the Association’s vision and direction. Matt Baker indicated that what attracted him to the organization during his first AIAEE conference was a casual, camp-like atmosphere at the National 4-H Center. He recommended that we return to our roots when planning subsequent conferences, and suggested that this would go along way in holding down costs. Michelle Owens suggested that a good strategy would be to have committees to address the questions on vision and direction. Michele then discussed membership, and strategies to use in getting the word out about the organization. James Christiansen indicated that Gary Wingenbach should be asked to send extra journals to universities who are not well represented. In addition, he suggested that copies be sent to Consultative Group on International Agricultural Research (CGIAR) affiliated centers. Michelle indicated that she could get information out to the international agriculture subgroups within CGIAR. Wade Miller suggested that we also get word out to the American Society for Training and Development members in the Agribusiness Training and Development Special Interest Group. James Christiansen suggested that the Association encourage the development of regional chapters, similar to the ones in Botswana and Swaziland in South Africa. It was also suggested that the association make efforts to invite luminaries (influential persons) to give keynote addresses.

The idea of Joint Conferences was also discussed. Suggested partners might include the Indian Association of Agricultural Extension and the European Society for Agricultural and Extension Education. Dave Giltrow voiced a concern about encroachment, and indicated that many AIAEE members may feel uncomfortable with some traditional groups. An example was given related to the privatization of extension and people who have come into extension from a nontraditional background.

Gustav Düvel asked the question of what affiliate membership means. It was concluded that an affiliate member would probably have an interest in part of the broader association. The need for an overarching body was also discussed. Jim Phelan warned that when you try to be all things to all people, you lose identity. Michelle Owens pointed out that many papers have educational importance as opposed to extension importance. Dr. Christiansen suggested that we have not communicated well what educational importance means.

Committee Reports

Publications – Jack Elliot and Jim Knight

Jack Elliot reported that one year ago the University of Arizona proposed a request for more funding to enhance the Newsletter and this proposal was not approved. Due to the university’s budget situation, they are in need of financial assistance. He indicated that the majority of the Newsletter expense was to mail the Newsletter to 170 members, some of whom reside outside of the U.S. When asked, he was unable to present actual Newsletter costs. Elliot indicated that they typically print 500 copies of the Newsletter. Michelle Owens said that the Membership Committee discussed translating the Newsletter and mailing it from different regions of the world. There was a subsequent discussion on the pros and cons of web-based distribution of the Newsletter. Michelle Owens approached the graduate students about taking the responsibility of the Newsletter after the conference. Randall Andreasen will be new Web
Master. The motion to accept the report and related budget passed. Elliot concluded by indicating that he received interest from several people to become the Web Master and he recommended Randall Andreasen.

Scholarly Activities – James Christiansen

James Christiansen reported that a number of individuals volunteered to chair the Scholarly Activities Committee. This list included Margaret Kroma (Cornell), Scott Mickelsen (Iowa Lakes College), and Pete Vergot (UF). He also indicated that Anna Toness was considering the possibility. Both Artur Cristóvão (Portugal) and Margaret Mangheni (Uganda) volunteered to coordinate the Call for Papers.

Jim Connors (Ohio State) and Ryan Schmiesing (Ohio State) volunteered to organize and prepare the electronic conference proceedings. Nicole Webster (Penn State) and Ernesto Restaino (Uruguay) volunteered to coordinate the poster and carousel sessions, while Marta Hartmann (UF) and Marta Kroma (Cornell) indicated a willingness to coordinate the concurrent sessions.

James Christiansen indicated that he would like to survey the profession for Chair within the next two weeks. A discussion followed on the urgent need to name a chair. A motion naming Pete Vergot as Chair and Margaret Kroma as Vice-Chair passed. The group also agreed that Artur Cristóvão should be asked to coordinate the Call for Papers, Marta Hartmann should be asked to organize the Concurrent Sessions, Jim Connors should be asked to develop the electronic proceedings, and Nicole Webster the posters and carousels.

Michelle Owens indicated that some folks wanted to purchase extra CD’s of the conference proceedings. James Christiansen suggested that Jim Phelan, Dermot Ruane take eight copies of the CD-ROM home with them, Nick Place take ten copies, and Matt Baker take five copies.

Membership – Michelle Owens

Michelle Owens reported that in an effort to encourage more engagement (and hopefully more interest) of field practitioners, a Newsletter standing feature article called “Notes from the Field” has been added. Owens then discussed the issue of Lifetime Membership, and asked if the Association should revoke the Lifetime Memberships of individuals who were granted this type of membership without the proper qualifications. The Board thought that this would be a bad idea, and that Association should move forward. The subsequent conversation focused upon the need for a screening process prior to granting any new Lifetime Memberships. It was recommended that the Membership Committee suggest future names to the Board for action, and that the Treasurer would need to clear the nomination prior to action. David Giltrow indicated that some organizations treat Lifetime Membership as an award.

Steve Jones then transitioned the discussion to the length of appointment for Standing Committee Chairs. The group then discussed the possibility of Michelle Owens replacing Jim Diamond as Chair of the Membership Committee.

Conference Planning – Steve Jones and Jim Phelan

Jim Phelan reported that with considerable input from the membership after arriving to Raleigh, a number of previous plans for the 2004 Conference have changed. The membership voiced two major themes, one regarding the need to reduce the costs of attending the conference, and the second of offering a variety of housing options to make the conference more accessible to the entire range of Association members. Phelan indicated that dates could not be determined until he arrived back to Ireland, and said that it may be a month until plans become final. Phelan suggested that they would have the Conference meetings on the University College of Dublin campus in an effort to hold down costs. He said that rooms will be in close proximity to the auditorium, hotels, and eating establishments. He also indicated that there is a Staff Restaurant on campus that would be accessible for meals, and that the food quality is excellent. He was looking at a number of lodging options, which would keep the core group of conference attendees together. Phelan thought that he could arrange for student accommodations at a nearby bed and breakfast, with family accommodations at a sister hotel next to the main entrance hotel (a 20 to 25 minute walk).

In terms of the conference schedule, Phelan proposed that the group spend the first three days in Dublin (Monday through Wednesday), and depart Thursday for Clare (near Shannon Airport). He was looking at scheduling stops at National Stud, Japanese Gardens, and Limerick in route to Claire. He
recommended that the group then stay two nights at the Claire Inn. Phelan then discussed the topography and landscape in the region, particularly around Burren. He suggested while in Claire that we could have a workshop on Extension Issues in Ireland, while concluding the conference on Saturday.

Two cultural nights would be planned, with the first in Dublin, probably at Johnny Fox’s (fish restaurant) with singing, dancing, music, old agricultural machinery. The second cultural night in Claire would feature more traditional Irish music. A pre-conference planning meeting was set for July 31 – August 1, 2003 in Ireland.

*Awards – Wade Miller*

Wade Miller gave a brief report on the Awards Committee. The same budget as last year was approved.

*Resolutions – Mary Lou Carlson*

The committee was commended upon the excellent job that they did this year. Mary Lou Carlson was asked and agreed to continue to chair this committee.

**Officer Reports**

*Treasurer’s Report – Steve Jones for Nick Place*

President Steve Jones reported that the treasurer's report had been given at the business meeting and had not changed much since that time. The total income from the conference was reported at $26,437.14 and the expenses to date are reported at $26,622.64 with a $185 deficit for the conference. However, there may be a couple of checks waiting for Nick Place in Florida and may still be a few outstanding expenses. This small deficit is probably due to the large number of graduate students at this conference. However, this is okay as the organization wants to continue to support the graduate student involvement.

*Graduate Student Representative – Courtney Stewart and Michelle Owens*

Courtney Stewart reported a need to revise the Graduate Student Website. There is a need to reach more graduate programs that do not have graduate student members in AIAEE. The graduate students also want to look for funding grants. The graduate students developed their own membership team, and have a desire to make a constitution for the graduate students to increase interaction. They would also like to establish a graduate student list serve, and schedule a graduate meeting and social on the first night of the conference. Owens concluded by stating that this is one of the largest and most diverse groups that she had seen attend an AIAEE Conference, and that the group as a whole is very enthusiastic.

**Issues**

*Life Membership*

The issue of Lifetime Membership was discussed. It was concluded that the criteria for Lifetime Membership is established in the constitution and should be followed for subsequent life membership applications.

*Journal Editor*

Gary Wingenbach has volunteered to continue as Journal Editor. A discussion then followed related to the term of the position, since many assumed that this was a three-year term. After checking the constitution, it was discovered that the length of the term is not stated in the constitution, but was a general impression of the leadership. As Gary is doing such a great job with the position, the board proposed to support him in continuing in this position. Steve will need to raise the issue at the business meeting next year for a vote.
Other

Steve Jones has officially requested that John Richardson continue to serve on the administrative team as a Senior Advisor to the executive board and as the Caribbean liaison.

The next discussion focused upon the need to have an external audit to review the accounts. This is usually done on an annual basis. The final issue was raised due to the Newsletter budget being used to support graduate students when all other committees operate on a volunteer basis. It was concluded that this issue needs to be explored and discussed at the next meeting.

Respectfully submitted,

Matt Baker
Secretary
Association for International Agricultural and Extension Education
19th Annual Conference

Raleigh, North Carolina, USA
April 8-12, 2003

2003 AIAEE Award Winners

Outstanding Service Award

Dr. Jack Elliot, Professor
The University of Arizona
Department of Agricultural Education
224 Forbes, PO Box 210036
Tucson, AZ 85721-0036

Outstanding Leadership Award

Dr. James E. Christiansen, Professor
Texas A&M University
Department of Agricultural Education
College Station, Texas 77843-2116

Outstanding Young Professional

Dr. Moses Zinnah, Program Coordinator for West Africa
Winrock International
c/o SG 2000 PMB Airport
Accra, Ghana
ASSOCIATION FOR INTERNATIONAL AGRICULTURAL AND EXTENSION EDUCATION

ANNOUNCES A CALL FOR PROFESSIONAL PAPERS

to be presented at the

20th Annual Conference of AIAEE
Dublin, Ireland
May 24-27, 2004

AIAEE will accept summaries of proposals for professional papers to be presented at the 20th annual conference that relate to issues in international agricultural and extension education. Topics related to the 2004 conference theme of “Education and Extension for Multi-Functional Agriculture” are encouraged, but all submissions will be given full consideration. Research, theoretical/philosophical theme-based, or application-oriented papers will be considered. In order to submit a proposal, at least one author must be an AIAEE member. Contact Dr. Nick Place, AIAEE Treasurer, Department of Agricultural Education and Communication, 219 Rolfs Hall, University of Florida, Gainesville, FL 32611-0540 USA, for membership information (e-mail: nplace@mail.ifas.ufl.edu; phone: 352-392-0502, ext. 227; fax: 352-392-9585; or download membership information from the web site at http://www.aiaee.org/).

New members are invited. For additional information on AIAEE, please view our web site at http://www.aiaee.org. Please tell your professional colleagues, whether at home or in other countries, about the opportunity to submit a proposal. Each proposal is limited to no more than four pages (title page and three pages of text) and requires the following information:

1. Separate title page with names and addresses of author(s) (full contact information, including position and/or title, mailing address, fax number, telephone number, and e-mail address of the author responsible for receiving communications from AIAEE). **E-mail address is especially important.** As a footnote on the title page, please indicate if you are willing to have your proposal considered for a poster session, should it not be possible to accept it for one of the paper sessions.

2. The summary should not exceed three double-spaced pages of text (1-inch margins, 12-point, Times New Roman font).

3. Please follow the prescribed format when submitting proposals: (a) Introduction, (b) Purpose of the paper, (c) Methods and/or data sources; OR theoretical/philosophical themes (the problem or issues, with attention to the reasoning used), (d) Results, products, and/or conclusions, and (e) Educational importance, implications, and application.

4. Please submit your proposal electronically as a Rich Text File (.rtf extension) attached to an e-mail message. Please use Microsoft Word 1997 or a later version when preparing the proposal.

5. In the event an author does not have access to a computer with e-mail capability to be able to submit electronically, please send four paper copies of the proposal to the address below.

6. More than one proposal may be submitted.

The deadline for submitting proposals for papers is **October 1, 2003.** Please send proposals to Dr. Don Breazeale, University of Nevada Cooperative Extension, P.O. Box 239, Lovelock, Nevada 89419, USA. E-mail is breazealed@unce.unr.edu. Each proposal will be peer reviewed by three respected agricultural and extension educators. Authors of paper proposals will be notified in December 2003 and paper specifications will be given to those accepted for presentation. The paper limit has been increased to 12 pages. Presenters will be required to register for and pay the conference registration fee.

**WE ALSO ISSUE A CALL FOR SUBMISSIONS TO A POSTER SESSION AND TO A REFEREED CAROUSEL ROUNDTABLE DISCUSSION.**
ASSOCIATION FOR INTERNATIONAL AGRICULTURAL AND EXTENSION EDUCATION

Announces a CALL FOR POSTERS for the 20th Annual Conference of AIAEE in Dublin, Ireland May 24-27, 2004

Education and Extension for Multi-Functional Agriculture

AIAEE is accepting proposals for refereed abstracts (to be presented as posters) relating to issues in international agricultural and extension education. Topics relating to the 2004 conference theme “Education and Extension for Multi-Functional Agriculture” are encouraged, but all submissions will be given full consideration.

Purpose
To present visually a concept or idea that reflects innovative models of research, educational programming, or evaluation.

Poster guidelines
• Posters should be printed on one continuous sheet of paper.
• Posters will be displayed on a flat wall service.
• Maximum size 4’ x 6’ (120 cm x 180 cm).
• Posters will be on display one entire day of the conference; presenters are expected to be present during the evening reception.
• Must be an AIAEE member to submit a proposal—see below for membership information. New members and graduate students are encouraged to submit proposals.

Each poster proposal requires the following:
1. Title page with name(s) of authors including complete contact information (addresses, telephone number and fax numbers, and e-mail addresses).
2. A one-page abstract that includes introduction, purpose of poster, major points or information to be shared, conclusions, and educational importance.

Awards are presented to the top four poster presentations. Criteria for judging include technical content or information; originality or innovativeness; creativity of presentation or ideas; conveys message (easily understood); importance of topic; and general appearance (well-planned design, easily read, neat and well constructed). Each proposal will be peer reviewed by three respected agricultural and extension educators. Authors of proposals will be notified in December 2003 and specifications will be given to those accepted for presentation.

Deadline for submissions is October 1, 2003

Submit an electronic copy of the proposal to:
Dr. Nicole Webster
Department of Agricultural & Extension Education
Pennsylvania State University
University Park, PA 16802 USA
E-mail: nsw10@psu.edu
Phone: 814-863-2695; Fax: 814-863-4753

For membership information, contact:
Dr. Nick Place, AIAEE Treasurer
219-A Rolfs Hall, PO Box 110540
Gainesville, Florida 32611 USA
E-mail: nplace@mail.ifas.ufl.edu
Phone: (352) 392-0502; Fax (352) 392-9585

Summer 2003
ASSOCIATION FOR INTERNATIONAL AGRICULTURAL AND EXTENSION EDUCATION

Announces a CALL FOR CAROUSEL ROUNDTABLE DISCUSSIONS for the 20th Annual Conference of AIAEE in Dublin, Ireland May 24-27, 2004

Education and Extension for Multi-Functional Agriculture

AIAEE is accepting proposals for refereed abstracts (to be presented as carousel roundtable discussions) relating to issues in international agricultural and extension education. Topics relating to the 2004 conference theme “Education and Extension for Multi-Functional Agriculture” are encouraged, but all submissions will be given full consideration.

Purpose
To present, using written and oral formats, abstracts of research, theoretical advances, or explanations of issues for discussion.

Parameters
- Carousel roundtables are small group presentations of abstracts.
- Each presentation is allotted 15 minutes; presenters will lead the carousel roundtable discussion three times to rotating groups.
- Copies of the one-page abstract should be available at the presentation.
- Presenters must be AIAEE members to submit a proposal—see below for membership information. New members and graduate students are encouraged to submit proposals.

Each carousel roundtable proposal requires the following:
1. Title page with name(s) of author(s) including complete contact information (addresses, telephone and fax numbers, and e-mail addresses).
2. A one-page abstract that includes introduction, method, major points or information to be shared, conclusions or lessons learned, and educational importance.

Awards are presented to the top four carousel presentations. Criteria for judging include: effective communication of materials, logical rationale for major points, knowledgeable response to questions, skill in orchestrating discussion, contribution to knowledge base, management of time, and quality of abstract. Each proposal will be peer reviewed by three respected agricultural and extension educators. Authors of proposals will be notified in December 2003 and specifications will be given to those accepted for presentation.

Deadline for submissions is October 1, 2003

Submit an electronic copy of the proposal to:
Dr. Nicole Webster
Department of Agricultural & Extension Education
Pennsylvania State University
University Park, PA 16802 USA
E-mail: nsw10@psu.edu
Phone: 814-863-2695; Fax: 814-863-4753

For membership information, contact:
Dr. Nick Place, AIAEE Treasurer
219-A Rolfs Hall, PO Box 110540
Gainesville, Florida 32611 USA
E-mail: nplace@mail.ifas.ufl.edu
Phone: (352) 392-0502; Fax (352) 392-9585
Journal Article of Year Awards for 2002

The Editor requested JIAEE Board Members to review all articles published in Volume 9 (2002) and nominate articles for the first-ever Article of the Year Award. The nomination period occurred between March and April 2003. Criteria for article selection and nomination were the article’s capacity for “enhancing the research and knowledge base of agricultural and extension education worldwide…” Four truly outstanding papers were nominated. The Editor, Associate Editors, and Past Editor reviewed and ranked the overall excellence of each paper. Following are the results of this exercise to promote the scholarship and recognition of authors who contribute to enhancing the research and knowledge base of agricultural and extension education worldwide. Congratulations to all the authors on their scholarly achievements; note that a tie occurred between two articles for second place. Please take a moment to send your congratulations to these authors for their achievements and for helping all AIAEE members achieve prominence in the research publication process. The Editor and JIAEE Board Members look forward to repeating this task on an annual basis.

Outstanding JIAEE Article of the Year for 2002


Runner-Up JIAEE Articles of the Year for 2002


Subscription Form

The Journal of International Agricultural and Extension Education is a publication of the Association of International Agricultural and Extension Education. It is published three times per year in the spring, summer and fall. The summer issue is the Conference Issue which contains keynote addresses, panel discussions, meeting minutes, awards, and the outstanding papers presented at the annual AIAEE conference.

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General Requirements

All manuscripts should indicate the type of article—Feature; Commentary; Tools of the Profession—on the first page of the manuscript in the upper right-hand corner. All manuscripts should be submitted online at http://www.aged.tamu.edu/aiaee/jiae/jiae/submit.htm

Manuscripts should not have been published or be under current consideration for publication by another journal.

The Journal follows the standards set forth in the latest Publication Manual of the American Psychology Association (APA). The Journal of International Agricultural and Extension Education is a publication of the Association for International Agricultural and Extension Education (AIAEE).

Feature Articles

Manuscripts of Feature Articles are submitted to the Editor. Microsoft Word files only may be uploaded online. A title page with manuscript title, authors’ names, institutions, complete addresses, telephone and fax numbers, and email addresses is required. The article must include an Abstract (a succinct gist of the article’s content) not exceeding 250 words, followed by individual sections for the Introduction, Theoretical Framework, Purpose and Objectives, Methods, Findings/Results, Conclusion, Recommendations/Implications, and References, or similar appropriate headings. There is no submission fee charged for submitting a feature article. Feature Articles should be no longer than 12 double-spaced (11 point font) pages (not including the title page) with one-inch margins on all sides. A $10.00/page (actual pages in the Journal) publication fee will be charged to the lead author upon acceptance to the Journal.

Commentary Articles

Manuscripts of Commentary Articles are submitted to the Associate Editor. Microsoft Word files only may be uploaded online. A title page with manuscript title, authors’ names, institutions, complete addresses, telephone and fax numbers, and email addresses is required. The article must include an Abstract not exceeding 250 words. There is no submission charge for the manuscript, but there will be a $10.00/page (actual pages in the Journal) publication fee assessed to the lead author upon acceptance to the Journal. Commentary Articles should be no longer than eight double-spaced (11 point font) pages (not including the title page) with one-inch margins on all sides.

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