

## Extension Service in Nicaragua: Comparison of 1994 to Present

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### ABSTRACT

*Once considered one of the top agricultural producers in Central America, with rapid growth throughout the 1970's, Nicaragua suffered much damage due to the 12 years of war from 1979 through 1990. Much of the frustration for agriculturists in Nicaragua stemmed from the biggest problem facing the country after the war – resolving the land title issues. In 1994, the author visited, observed, and interviewed farmers and government agencies in Nicaragua, just after INTA (Nicaraguan Institute for Agricultural Technology) was established, and some of these experiences and the economic climate of the time are revealed. Farmers formed cooperatives with the help of extension agents within INTA, and the government and other agencies were working toward land reform and transferring land titles from previous owners to farmers who were living on and working the land. In the decade since the establishment of INTA, free extension service has had its limitations, and there are more efforts now for privatized or partnered extension service. INTA is gradually withdrawing from its traditional role as direct field provider of advisory services and strengthening a new role as provider of research, technical assistance, and agricultural technology. The relatively high cost recovery rates in Nicaragua and the economic performance of the paid programs show that even poor farmers are willing to pay for a service that improves their economic efficiency and ability to earn a living. Nicaragua's new system rewards good results and producers are clients instead of beneficiaries. Because the new system is still experimental, traditional (free) extension continues to be provided.*

## INTRODUCTION

Nicaragua began free market reforms in 1991 after 12 years of economic drops under the Sandinista regime. It has made dramatic progress, i.e., privatizing many state agencies, reducing inflation from 13,500% to 8%, and cutting the foreign debt in half. Even though Nicaragua has been labeled the second-poorest nation in the hemisphere with a per capita GDP of less than \$500--below the standing before the Sandinista takeover in 1979, unemployment is around 11%, and another 36% are underemployed. Nicaragua is primarily an agricultural country. One of the key bases of economic growth has been production for export (\$640 million in 2001). (U.S. Department of State, 2003)

The extension service in Nicaragua has been undergoing changes since the 1990's. A national agricultural technology institute (INTA) was created in 1993 to manage agricultural and livestock research and extension. (ISNAR, 2003) In 1995, Nicaragua initiated a process to develop a client-driven extension system. (ISNAR, 2003)

The Nicaraguan agricultural and livestock sector has experienced wide policy shifts over the last two decades. The turnaround of the state involvement in the agricultural sector characterizing the Sandinista period (1979-1990) was a key principle of later governments. (Piccioni & Santucci, 2002)

## PURPOSE

The purpose of this paper is to descriptively compare first-hand observations made and interviews that occurred in 1994 in Nicaragua of the then newly-formed national extension service -- Nicaraguan Institute for Agricultural Technology (INTA) -- to the co-financed and privatized extension service in Nicaragua of today.

## ISSUES – 1994 compared to Present

Many farmers in developing countries have low levels of technical knowledge about farming practices. They suffer from poor yields, after-harvest losses, and low-quality produce. Advice on sound farm practices would help farmers to make improvements in yields, quality, and income. (Keynan & Olin, 1996)

Once considered one of the top agricultural producers in Central America, with rapid growth throughout the 1970's, Nicaragua suffered much damage due to the 12 years of war from 1979 to 1990. Due to violence and lack of credit worthiness, rebuilding the economy was difficult. (U.S. Department of State, 1993) The country lost contact with the world during the war. Even with the efforts set forth with the establishment by the government of the economic stabilization program in 1991 with the International Monetary Fund, the World Bank, Inter-American Development Bank, and bilateral donors, Nicaragua's foreign debt in 1993 was seven times its GDP and about 40 times its exports. (U.S. Department of State, 2003)

Much of the frustration for agriculturists in Nicaragua stemmed from the biggest problem facing the country after the war – resolving land title issues. Land had been seized during the Sandinista period, property had been transferred, and there were efforts after the war to compensate land owners (former and current). (U.S. Department of State, 2003) The agricultural, including livestock and fisheries, sector was restructured in 1991. Properties

(some previously owned by U.S. citizens during the Sandinista period) were divided and distributed among property claimants. (U.S. Department of State, 2003) With agriculture as the most important economic segment, efforts were made to establish government assistance to farmers, and in 1993, INTA was formed.

### **Visits and Observations from 1994**

In 1994, the author traveled to Nicaragua with a group to study the agricultural development efforts in Nicaragua. Although there was a great deal of damage to the country and its people, there were efforts being made to boost agricultural production. The group visited numerous government offices as well as farms and cooperatives.

*INTA (Nicaraguan Institute for Agricultural Technology) – Arkangel Abaunza*  
*May 16, 1994*

We met with Arkangel Abaunza, an extension agent with INTA, and together we visited a cooperative and several small farms. Abaunza had been working with farmers for five years at the time of our visit. The cooperative system for communicating with farmers included a citizen/farmer elected to work with one extension agent. Each of elected citizens, in turn, worked with 10 farmers who in turn worked with 10 farmers each. There were about 400 elected citizens and about 250,000 small to medium-sized farms. Of earned income, about 75% was invested back into the farm while 25% was invested back into the coop. At the time of our visit, INTA was working toward setting up women extension agents since they had discovered that women accomplish about half of the agricultural work. A problem for the extension agent-approach was that extension agents only lasted two to three years due to low salaries and lack of government support. But, all acknowledged agreement that they must do a good job in order to save Nicaragua. There were seven priority agricultural programs that included the following: livestock, basic grains (corn, beans, rice, sorghum), nontraditional crops, horticulture, pasture, IPM, soil and water.

*USAID (U.S. Agency for International Development)*  
*May 16, 1994*

We met with Brian Rudert of USAID in Nicaragua. USAID returned to Nicaragua in 1990 after being out of the country for eight years, and brought a large program worth \$800 million for Nicaraguan aid. In September 1990, the rate of monetary exchange was C800,000 to \$1 and by March 1991, it had increased to C25,000,000 to \$1. Nicaragua started over with a new Cordoba of 5 to 1, and in 1994, the rate was about C6 to \$1. It was emphasized that the first thing to do in development is to stabilize the currency. Rudert noted that Nicaragua used to be the biggest producer in Central America but was now (1994) at the bottom, and that the primary goal was to reach the U.S. markets. In 1994, credit was very tight, and the country's production was still in the austerity phase of transition. A challenge for creditors was that farmers did not understand how loans worked and how to repay. Since beans were a popular crop, they were promoting it and not charging export taxes. Coffee production was also promoted, since it is such excellent coffee, but coffee beans are grown in the mountains where there was still armed conflict. The primary emphasis USAID

had for farmers was to promote broad-based sustainable economic growth in order to accomplish two goals for agriculture (1) increased economic opportunity and access, and (2) improved markets. USAID proposed that in order to accomplish this they would have to (1) improve private sector technology (help to complement, not compete) which will create efficient equitable economic system for agriculture sector and increased opportunity for employment, and (2) increase the role of private sector involvement in the market so as to improve the function of markets, stabilize pricing. At the time of our visit in 1994, after USAID had been back in Nicaragua for four years, things were improving. The overvalued exchange rate was the biggest problem and could not be devalued since salaries would have to go up. The Sandinistas had reformed 36% of the arable land in the 1980's. Since squatters were farming land that was still under the original owner's name, they could not get loans; consequently, this created a huge problem resulting in many efforts to transfer titles.

*Farmers' Cooperative - UNAG (Unión Nacional de Agricultores y Ganaderos, National Union of Farmers and Ranchers)*

*May 17, 1994*

The president of the coop met with us and told us how they had started the coop. They had officers, 38 families, and had contracted with the Sandinista government to build houses. Coop was viewed as an enterprise. Coop included administration, production, processing (or not), and market to internal market. They had monthly meetings to discuss production. The main problem was that they don't have credit for loans for development. They used 30% of the crop for applying for technological assistance. The small percentage remaining was used for infrastructure and long-term investment for future. Soil tests revealed that the best crop for the soil and climate was rice. They did not rotate the crops; instead, they allowed the market to decide what to grow except what *will* grow. They used chemical pesticides that cost 4500C/mz but the banks only loaned 3500C/mz. The coop subsidized each farmer 1000C. Rice was cultivated twice per year. The plant every month so crops overlap. Producers have 700C left after pay back bank and venders. But bank only finances short-term so they set aside 400,000C each month for own long-term financing. There are two kinds of capital: investment in the cooperative and then individuals. Coop pays for the school at the coop, insurance, and medical services. New memberships are given to extended family members. They do not accept any other new members since the number of acres is low -- 12 mz/family. Other areas of Nicaragua have 50 families. There is more of a political struggle than a legal one. In the last three years, they have been dealing with sensitive problems of farmers -- no title of land. But they are a powerful coop so will try to twist arms politically. The bank gives 70% of production for rice but only 50% for basic grains like corn or beans and have been giving 80% for export crops. So producers cannot improve quality of basic grains since they cannot get financing. They want to always be negotiating with the bank. The bank presumes a producer will have 50% profit, but they rarely have profit. Chemicals are expensive in Nicaragua (\$12 while \$7 in rest of Central America for urea). They are working on maybe the coop having their own chemicals or import chemicals and not buy them commercially.

*Concafe - Dr. Frank Bendana*  
*May 18, 1994*

Dr. Bendana has his Ph.D. in plant pathology and biochemistry, has worked in coffee since 1959, and went into great detail to explain how coffee is grown and processed.

Growing season here is late September (low) to late March (high), quality is proportionate to the elevation grown, and price is proportionate to quality. Coffee a high xchange commodity -- second only to petroleum. It is packaged in natural bags and on liners, not cargo ships, and hand stevedored, so the labor is high. In Nicaragua, 70-75% of net hard currency returned (3:1, 5:1). For agricultural development, social and political stability are more important than economy which is very important. Nicaragua needs to keep labor and sustain society and resources, unlike other countries.

*Concafe of National Coffee Commission - David Robleto, Executive, Board of Directors*  
*May 18, 1994*

The commission was founded in 1988 with a total of four commissions started then (most important producers of Nicaragua). Production in Nicaragua from 1979 to 1989 was \$350 million. The commission works as an advisor to the government and to get producers together for consolidation. Producers didn't want to because of political problems and confiscation. In 1990, with the new Chamorro government, the government talked with private owners to decide what to do with commissions. Producers have to give \$.25 for every 100 lb. Robleto became president of Concafe and talked to producers and planned for a year -- budget, projects for credits, extension, service. They wanted to help medium, small, and large producers. There are about 35,000 producers in Nicaragua and 55-60% are small producers, most not of coffee. The commission used USAID for analysis of coffee production. With the Revolution, Nicaragua lost contact with world. From 1981 to 1987, there many problems -- no money, lot of inflation, loss of statistics. Last statistic recorded was in 1979, and Nicaragua had 145,000 mzs then; now there are 78,000. Before 1989, there were two areas: agriculture and planning. There were problems that arose after the war: no land titles, no credit, violence in the fields, no coffee institution. So all producers had these in common, and 85% of their time was spent on agriculture while 15% of time on political issues. So the commission was transformed into a private institution, Concafe. The board decides the budget and money to be paid from producers. The commission is comprised of a board of directors, a president, a general manager, a legal advisor, a communication director, an administrator, three vice presidents for planning, extension and service, promotion for export, two experimental stations in extension (one on the Pacific and one in the north). Now there are 22 private centers that produce coffee to export. The other three commissions didn't make due to too many political problems and not being able to work together. Nicaragua is different from El Salvador because El Salvador had financial support for land and crops; Nicaragua did not (during the war). Nicaragua is open and welcomes everyone, not like Costa Rica. Now there is a debt of \$800 million. Inflation was 3500% but is now 9%. Theh Cordoba was overvalued against the US dollar, so the economy is distorted and needs financial service, but this is too high to afford.

*Concafe of National Coffee Commission - Tomas Valdez, General Manager of Concafe  
May 18, 1994*

Coffee is the largest percent of agricultural production of exports from Nicaragua. Now the commission, not the government, sets the price. Production rates will go up although they'll be recuperating about 10-15% of land as they go. Nicaraguans cut trees to the ground and it takes two years to get production from the land again. Nicaragua still has traditional farmers. In 1995-96, the renovations should end, and 1996-97 will show increase of yield to 15.26 qq/mz (in 1991-92 was 8.91 qq/mz).

*Inter-American Development Bank - Jose V. Chibbaro, Sectoral Specialist, IDB  
May 19, 1994*

The IDB is an international financial institution who lends to Latin American and Caribbean countries in order to promote economical growth and improve living standards. From 1987 to 1991, there was no disbursement to Nicaragua. The IDB is now looking for multi-sector specialists. There is now an agricultural specialist here from El Salvador. Nicaragua also has a procurement specialist, and this category was established since procurement takes 30-40% of a specialist's time. Types of lending used for Nicaragua are (1) fund for special operations (FS): soft funds, low interest rates (1-4%), 5-10 year grace period, 25-40 year maturities, and (2) trust funds: bilateral sources from many countries.

*ConAgro host - Dr. Duty Greene  
Ausberto Narvaez, Advisor to Minister of Agriculture  
May 19, 1994*

The minister of agriculture responded to the last administration in a centralized way -- large production. Each producer was told what to produce and to whom to sell. All had to sell to the state. ConAgro inherited this from the past government and farmers thought they would continue this. But it's now completely a free market. They found farmers to be very behind in technology, and there were four basic productions: coffee, cotton, bananas, and livestock and sugar cane - for the entire economy. Cotton was the main producer. When cotton prices fell, the economy fell. Sandinistas had provided subsidies during the regime, so the dropped economy was not felt so much. Minister wants to upgrade technology and new crops. Cotton had low prices and affected the western part of the country. This zone is the best soil in the world but with low productivity. The new government separated the ministry functions and made one Minister of Agriculture, one Minister of Natural Resources and Environment, and one minister of land reform (temporary). Once land titles are legalized then the third ministry would be done away with. Many people from Ministry were laid off, and some formed INTA whose main task was to upgrade technology, orientation, quality control, and inspection service. ConAgro was formed from the World Bank where three ministers meet. A main objective is to bring together all parties to work together. Cost of the service is down and cost efficiency is better. Livestock are successful and now exporting cheese. All of this was done with their own efforts, with no funding. The three main problems are: (1) security (high unemployment caused), (2) lack of advanced technology, (3) funding for farmers. The problems stem from lack of land titles.

*ConAgro - Dr. Jaime Incer, Vice Minister of Natural Resources (MARENA)  
May 19, 1994*

MARENA controls natural resources management, quality control, water, and forestry. A purpose is to integrate agriculture, environment, and forestry into one coordinated entity. This is to be tried in one territory to coordinate then apply all over the country for sustainability. Each territory will have its own problems of social, natural resources management, to reach higher cause. This is the first time in history where three ministries and INTA come together to meet. Problems facing the ministry of natural resources are citizens cutting firewood, overfishing, water pollution, and biodiversity destruction.

*IICA - Jose Alfonso Chirinos  
May 20, 1994*

IICA is conducting 18 projects in Nicaragua and the region. There is agricultural production in the Pacific north and coffee in the south, then the mountain areas in central Nicaragua have more coffee, the south central has cattle, and the Atlantic region is less populated and has timber and fishing. Issues that need to be addressed are the economy, getting the politics centralized, and statistics. Decisions were made through a centralized government. In rural areas, main issue is land titles. Some land has three to four owners claiming it. In 1990, Nicaragua was a broken country. El Salvador was also in a war but the two countries are different. In Nicaragua, the war took over businesses. When the government changed from a centralized government to not, people became confused and no decisions were being made.

The government consists of a political system, the army, a legislative system, and a judicial system, but there is not a good relationship among them. Sandinistas still control these, so the government has difficulty in making changes. Chirinos reiterated the same problems facing producers that other speakers has mentioned.

Chirinos noted that the government is working toward strengthening rural agricultural institutions, advancing legalization and titles of land, implementing INTA, establishing credit for producers, political reform, implementing a free market, deregulating prices and controls, promoting diversification, and creating MARENA.

*INTA - Ricardo Carsarez  
May 20, 1994*

INTA is trying to help production technology needed for Nicaragua and helping rural people in working with INCA, DICCAI, and World Bank. INTA is also trying to help the Ministry of Agriculture be more efficient. Carsarez works with coordination of the agriculture sector with ConAgro and works with a less centralized government (70% government control before war and 100% of exports). Nicaragua is moving to a free market system and has thrown out the old system. There have been many changes in moving to a new government, and it has not been easy or fast. Bureaucracy persists. So there are two phases of work: (1) in public sector, work with people in government (officials) to improve

operations to give better service to people, (2) in private sector, trying to coordinate the private sector to work with the public sector. The sugar industry was a state entity and is now private. Now producers have organized, and they have to negotiate with processors and with the state. IICA helps study, analyze, and support but does not do for them or make decisions. IICA is international and an outsider, so it can influence but not do. IICA is able to put at the disposal of the producers information to public and private sectors

External limitations of IICA:

- (1) Scarcity of human resources.
- (2) Scarcity of financial resources (no \$). Import \$700 million commodities and export \$270 million.
- (3) Instability of institutions.
- (4) Weak private sector -- lack expertise and people, not investing, waiting to see what happens.
- (5) Weakness of relationship between private and public sector -- they hate each other. Society fighting each other for 10 years and all through history (conservative and liberals fighting) -- friendly Nicaragua but fight each other about issues (extremes), so difficult to discuss.
- (6) Social sectors polarized.
- (7) War areas still exist.

IICA tries to coordinate all countries (Mexico to Chile and Caribbean 33 offices), and have a network to help others which is an advantage. They are in the process of trying to review a three programs for 1994-98 -- technology, commerce (to make exporting easier), animal health and crop diseases -- to ease exporting commodities. The plan has to be approved by the government ministers. The plan will be offered to the government then the government will decide what projects and technologies they want in country.

The extension service in Nicaragua is very weak. Few agents worked with farmers in the 1980's, so they are starting again. INTA began in January 1994. Training is scarce but it is supposed to be built into each project. At this time, people have to be sent out of country for training. There are a few courses now for rural producers but not programs; they may begin in the near future, and maybe IICA can address this training eventually.

*ConAgro - Dr. Duty Greene, Chief Technology Advisor  
May 20, 1994*

ATP Programa Agricola consists of ConAgro, IDB, and UNDP and formulates policies, programs, and projects for agriculture. The NPC (National Policy Advisor) is *Juan Rodriguez*, and his assistant is *Mario Gonzalez*. The CTA (Chief Technology Advisor) is Dr. Greene, he is assisted by an economist. The TAP (technology assistant) is *Mario Chenlatte*, who is assisted by *Orlando Sio*. Fosemag = support, receiving \$17 million by IDB now. INTA and INRA = \$70 million by economist. The four basic main institutions of public agriculture sector are: MAG, MARENA, INTA, INRA. The national development bank is BANADES. The administration is trying to get four main ministries together to decide common policies. The technology advisory committee has representatives from four institutions and primary donors (IICA, FAO, UNDP, USAID, RUTA (WB)) III, WID (women in development), NORAD (Norway), ASDI (Sweden), COSUDE (Swiss).

*Women in Development - Vicki Belli*  
*May 20, 1994*

The program started four years ago with technology assistance for women because the government found that women do 60% of the work on farms. Information about how much women contribute to the income of family was not known. The program is working to change the views of women in agriculture. Programs need to include women in training, planning, and titles of land. They are trying to group methods in working with women. Together, they can make proposals for land, credit, technology transfer, and commercialization. There has been recent work with INTA, and much research is disbursed so that producers can make informed decisions. The program is trying to train families in keeping records of each family member, how the income came in, and who did the work. They will train technicians this year to train women. They are teaching families/producers to diversify so that they will have income all year for family. They are teaching the correct way to use credit, as well as how to borrow to get seed and then invest. There are discussions on how to institutionalize into government and into INTA. Women who are trained will go out to train other women and exchange ideas. The program is funded by Norway. IDB and the WB both support women's projects now. Literacy will be addressed next. They will have a census at end of 1994, and new statistics are needed to plan. The drop-out rate of primary (5th and 6th) children is at a high rate. Statistics look as though there are nuclear families but, men do not stay with one woman, and women are head of household and keep the farm and children, so they need to have land title too. Technicians from INTA select families to be trained, and INTA is now short on technicians.

*INCAE (Instituto Centroamericano de Administración de Empresas) - Mario de Franco*  
*May 16, 1994*

Nicaragua campus emphasizes administration, women, and executive training. Faculty are Ph.D.'s from 12 universities in the USA; started with Harvard, now more. There are seven permanent faculty here; most others travel back and forth. They use case studies and how to apply work, not texts, and develop problem-solving. Students study individually and in groups; bring their own backgrounds to the table, and participate in simulations. INCAE first offered an MBA then masters of economics in 1981 then began a masters in natural resource management one year ago. They added a masters of engineering industry and technology in 1993. Tuition and room and board are about \$10,000 for the year. Many fellowships are available through sources such as USAID and Ford. When asked what he'd change, Mario de Franco said he would add to INCAE an emphasis on agriculture production and business and how important it is. At this time, graduates of INCAE are generalists as in the USA but need to be specialists too in Latin America so they can manage. They have discovered that 60% of production on farms is by women. Maize and beans are big production by campesinos but 40-45% goes to market for cash. Women perform the other 55-60% for living (livestock, vegetables, fruit), but there is no cash control. In Central America, Guatemala is the highest producer, then El Salvador, Nicaragua, Costa Rica, and Honduras.

*INCAE - Roberto Atha*  
*May 16, 1994*

The economy in Nicaragua is hurting with so much debt. Nicaragua has been asking for foreign support and loans (options 3 & 4 for a country). Option 2 is to cut the budget. Option 1 is to use one's own resources. Nicaragua is in transition and not normal country, after 12 years of war and trying to rebuild. There has been a lack of public/private sector technology transfer, poor incentives to adopt or improve technology, limited research and development, policies that distort market signals, with bias in allocation of resources. Nicaragua is three years behind in fulfilling promises on technological assistance. Also, people who fought 12 years did not learn about farming. Moving from war to peace, they cannot get to development until one of three things happen: reconciliation and rehabilitation, demobilize fighters and reinsertion, government established development. There are also challenges in going from a dictatorship to democracy and from a centralized economy to a market economy. The population growth is 4% now and economic growth negative. The President had promised to get economic growth to 3.4%. So, under the Sandinistas, Nicaragua went back to the 1940's. Population growth is now the highest in *world*.

#### **Since 1994**

In 1995, a three-tiered agricultural extension system was established: basic technical assistance, co-financed technical assistance, and public-private technical assistance. (ISNAR, 2003) By 1997, only 12% of INTA's budget was allocated to activities that provide extension service to more than half of the producers approached by INTA. (ISNAR, 2003) But, in 1997, the Inter-American Development Bank loaned \$40 million in a 40-year loan to Nicaragua to help contribute to competitiveness in the agriculture sector and increase productivity for small farmers, with farmers having a role in identifying projects. The money was to assist the INTA efforts in technology transfer. (IDB, 1997)

INTA is being supported so as to improve its ability for use of public resources and to ensure the general availability, diffusion and quality of agricultural knowledge and services. INTA is gradually withdrawing from its traditional role as direct field provider of advisory services while strengthening a new, higher level role as main provider of strategic research, technical assistance, agricultural technology, basic and registered seed, and second-tier services to other agricultural service providers. (Piccioni & Santucci, 2002)

One study tested the feasibility of an extension service that had clear objectives, motivated workers accountable to their clients, and consumers interested in obtaining quality service. The study was designed to assure that its service be demand-driven. (Keynan & Olin, 1996)

The Nicaraguan government is promoting INTA to be a more efficient, demand-driven system of delivering agricultural technology, knowledge, and innovation, and responding to farmers' needs. The institutional reform efforts include focusing on public-good research, serving as a knowledge bank for issues for technology issues, then diffusing those technologies, as well as developing linkages and establishing regional research centers. (Piccioni & Santucci, 2002)

The World Council of Credit Unions, Inc. reported in 2003 that member-client outreach in Nicaragua had increased 508% from 3,967 to 24,123 from June 1999 to March 2003, and more than half of all member-clients are women. (WOCCU, 2003)

INTA established the Gender Unit in order to introduce gender oriented approaches to development and technology transfer. The main objectives were to appoint more women to technical and professional posts, train the staff in gender issues, establish statistical information database by gender, and conduct research on alternative technologies to improve women's output. (International Labour Organization, 2002)

## CONCLUSIONS

INTA was established to help producers receive the technical assistance to build the agriculture sector back up after the war. INTA was used as a conduit for dissemination technology transfer, integrated pest management, soil and water conservation, and research results. Through the difficulties resolving land titles and with the weak economy, as well as difficulties in keeping good (and enough) extension agents working for the government run INTA, the effectiveness of the agency has not been as successful as planned.

The relatively high cost recovery rates in Nicaragua and the economic performance of the paid programs show that even poor farmers are willing to pay for a service that improves their economic efficiency and ability to earn a living. To the surprise of those involved, Nicaragua's producers understood that without cost-sharing, the system would not endure. (Dinar & Keynan, 1998) Linking extensionists directly to their clients helps ensure that services are accountable and achieve the expected results. Nicaragua's new system rewards good results and producers are clients instead of beneficiaries. They value the information and knowledge that extension services provide. The system has also seen an increase in numbers of extensionists. (ISNAR, 2003)

## IMPLICATIONS

It appears that the costs of providing extension are lower and have been decreasing over the past decade. This has a direct bearing on both the quality of the extension agency services and the willingness of farmers to pay (ISNAR, 2003)

INTA is also showing signs of renovated vitality, with a long list of already validated innovations, more training activities for its staff, more publications for staff and producers. Yet, it still needs to reorganize its internal structure, making it more flexible, less costly, and more demand-oriented. (Piccioni & Santucci, 2002)

Because the new system is still experimental, traditional (free) extension continues to be provided. The free service has suffered since it competes for the extensionist's time. The extensionist is more committed to his paying clients, as was originally intended. (Keynan, 1998) Free extension service will play an important role in agricultural politics. Of the agricultural producers, only 20-25% are served by the co-financed or private programs. In order to reach the remainder of the producer population, policy makers need to build and diversify the free extension service. (Dinar & Keynan, 1998)

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