Abstract

Texas A&M University of the United States and the Institute National Agronomique de Tunisie (INAT) of Tunisia established a collaborative relationship of mutual exchange of information and ideas for the further advancement of both universities. The researcher worked closely with these universities to conduct a qualitative study in Tunisia to determine the effectiveness of agricultural institutions working toward further development in that country. The emphasis of the study was on the transference of knowledge and innovations from the research level through extension to the farmers and other end users. The triangle of teaching, research, and extension provided a base perspective.

The researcher interviewed 37 respondents, including researchers, extension personnel, administration, professors, and farmers. From data that respondents provided, the researcher used a constant comparative method to organize results into the strengths, weaknesses, opportunities, and threats of the agricultural institutions as a system. Overarching themes included a pointed focus on meeting farmer needs, but this desire was hindered from being carried out fully due to flawed communication systems and an organizational culture that did not facilitate change and improvement. Hope did abound for Tunisian agriculturalists because the opportunities available through globalization and international collaboration far outweighed any possible threats to development, such as fierce competition in trade and lack of quality water.

The researcher also made specific recommendations based on the information ensuing from the study. These recommendations were based on the findings of the study, and they were directed to leaders within the Tunisian agriculture system and other agriculturalists wishing to further development in countries facing similar situations as Tunisia.
Introduction and Theoretical Framework

In the contemporary global market, it is imperative that nations work together to share information and technology. Thus, the Institute National Agronomique de Tunisie (INAT) and Texas A&M University have formed a cooperative relationship in order to explore opportunities for agricultural development. Rogers’ theory of the Innovation-Development Process was exemplified through Tunisia’s agricultural development. The researcher focused the study mainly on the adoption process because diffusion is integral to development (Rogers, 2003).

Essential to the Innovation-Development process were the organizations that facilitated movement of innovations through the various stages. Mwangi claimed, “to alleviate rural poverty by ensuring food security and sustainable improvement in people’s well-being, research-based technologies must reach and be widely adopted by farmers” (1998, p. 63). Tunisian research institutions such as INRAT focused on long-term, basic research. In addition, the Agence de Vulgarisation et Formacion Agricultura (AVFA) functioned as Tunisia’s extension organization to apply that research at the practical, producer level. INAT acted as both a short-term project research facility and an education institution to prepare its students for a career in agriculture (Clement, 2001). As in any agricultural education system, these institutions needed to work together to accomplish their shared goal of increased agricultural production and profitability for Tunisian farmers.

One critical characteristic shared between teaching, research, and extension institutions was a communication network to exchange information and ideas. Valente emphasized the importance of communication networks to diffusion of innovations: “social structure – who communicates with whom – determines the spread of influence, ideas and products” (1999, p. 1). Several concepts influenced communication networks between groups, and one especially important aspect was that of the weak tie (Valente, 1999). Individuals could use these weak ties to gain information from outside their usual sphere of communication. Rogers concurred, “These heterophilous interpersonal links in a system, called ‘bridges,’ are especially important in conveying information about innovations” (2003, p. 306). Valente agreed that these weak ties helped an organization keep from falling into mediocrity and ruts and were the secret to allowing new information to flow through the organization (1999).

Power structure also played a role in how communication networks functioned within and between organizations. Power structure determined who made decisions and how those decisions were made (Rogers, 2003). Change agents needed to maintain effective communication relationships with decisions makers as part of their job responsibilities (Beltran, 1974). Rogers defined a change agent as someone who attempted to influence the decisions of a specified clientele toward certain innovations (2003). For example, an extension educator (change agent) would try to influence farmers (clientele) to adopt no-till practices (innovation). Agricultural education institutions faced issues with the power of the national government agenda sometimes conflicting with what they knew the farmers need from them (van den Ban & Hawkins, 1996).

Not only did communication networks need to function effectively within and between the agricultural education institutions, but these networks also needed to extend to their clientele. Change agents needed knowledge of innovations as well as the communication skills to share that knowledge with their clientele (Mwangi, 1998). Zinnah suggested that researchers should have some kind of involvement in extension so that they could aid in the transfer of technology
(1994). Borlaug echoed this advice through his recollection of wheat research in Mexico. Extension was not necessarily his job, but he could not let their progress go to waste by refusing to fill the extension role as well (1995).

Tunisia’s culture was unique, considering its rich Carthaginian history, the influence of the French for seventy-five years, and its more relaxed religious rules, compared to its Arab neighbors. The reaches of a society’s culture extended into every aspect of the way of life, and Tunisia’s agricultural education system was no exception. Cultural values affected the rate of adoption and how the change agent sought to encourage change (Rogers, 2003). Bairstow, Berry and Driscoll showed that because families are the center around which many cultures were focused, the change agent’s consideration of the family could determine whether or not clientele would participate in the program (2002). Cultural considerations played an integral role not only in the methods used by agricultural agencies, but also in the culture of the organization itself.

When considering the role of agricultural education and extension, it is important to consider a holistic, systematic approach. Multi-functional agriculture consists not only of production and distribution of food and fiber, but also social and cultural components. As a small, relatively young nation, Tunisia focused on building its strengths and diminishing its weaknesses in all areas of agriculture to gain prosperity in a global market. An integral part of this strategy was the agricultural foundation upon which the society rested, affecting every aspect of daily life. An examination of Tunisia’s agricultural extension and research organizations promoted an understanding needed to continue this journey. It also provided guiding principles to other countries facing similar situations or those nations wishing to help similar countries. Thus, much can be learned and used from an evaluation of the Tunisian agricultural system.

**Purpose and Research Questions**

The researcher sought to evaluate the strengths, weaknesses, opportunities, and threats of the Tunisian agricultural system. Specifically, the study focused on understanding the organization of and communication networks between government institutions and how these relationships determine the effectiveness of the diffusion of innovations, which leads to agricultural and economic development. The researcher developed three research questions to guide the study:

1. What are the strengths (positive internal influences) and opportunities (positive external influences) that encourage development in Tunisia within the context of agricultural institutions?
2. What are the weaknesses (negative internal influences) and threats (negative external influences) that inhibit development in Tunisia within the context of agricultural institutions?
3. How do communication networks function to promote the flow of knowledge from research and teaching, through extension, to the farmers and then from farmers to these institutions?

**Methods**

The researcher used naturalistic inquiry for the qualitative study (Lincoln & Guba, 1985), and this approach allowed the researcher to gain specific insight and details into the functions of the agricultural institutions. The researcher collected data through face-to-face interviews with a purposive sample of the population. Respondents were initially identified with the help of the president of INAT, who acted as a gatekeeper to help the researcher gain access to the first
respondents. Erlandson, et al. defined a gatekeeper as someone with the power to allow access to respondents or to keep the researcher from gaining access to certain respondents (1993).

In qualitative research, trustworthiness of data is of utmost importance so that the credibility of the study will be established (Erlandson, et al., 1993). Data from clientele, faculty interviews, and support documents triangulated, or verified, the data. The researcher collected data from respondents with multiple perspectives and viewpoints, from clientele to administration to extension agents to farmers. In addition to triangulation, the researcher collected support materials to give readers an understanding of Tunisian agriculture through more than just her own words (Erlandson, et al., 1993). For example, she took pictures of farming life and extension activities. She also collected teaching brochures and other documents to show the work of agricultural institutions.

The researcher employed member checking as another trustworthiness technique, which meant that she was able to ensure respondents really meant what they said (Erlandson, et al., 1993). The language barrier made member checking somewhat of a challenge, but the researcher simply asked questions in different ways to see if she would receive the same answer. She was able to return to certain respondents for clarification on some points, especially if they worked in or around INAT and spoke English.

The researcher collected data by taking hand-written notes during interviews. Sometimes, a translator was used (at least partially), and sometimes the respondent spoke sufficient English to speak directly with the researcher. The researcher then transcribed these transcripts into typed files. A coding system was used to identify respondents by agency while protecting their identity.

The researcher then used the constant comparative method to analyze the data. This method, as defined by Erlandson et al., consists of the researcher breaking information into basic units and grouping these units into categories and then overall themes (1993). She began by breaking transcripts down into small bits of data and used a colored highlighting system to divide these data “bits” into categories. She then grouped information in each category together to provide a big picture of the agricultural system from all sources of data. Information from these categories was then grouped into major themes to produce the findings in the study.

In order to adequately answer the research questions, the researcher conducted a SWOT analysis (strengths, weaknesses, opportunities, and threats) on the findings. She paired strengths and opportunities to show positive influences and characteristics, and she paired weaknesses and threats to emphasize detriments to development.

**Results**

Tunisian farmers were generally categorized into one of three groups, and these groups were often mentioned as specific target audiences (EI-7). Eighty percent of Tunisian farmers were considered “small,” and these farmers needed information and the opportunity to cooperate with each other (RI-3). The middle and large farmers made up the other twenty percent. Middle farmers owned slightly larger farms, and some had the opportunity to become large enterprises if they could receive the information they needed to expand their farms (EI-7). The very few large farms, or “societies,” used more advanced methods and technology (EI-7). There was a huge difference in the function and needs of the small verses large farmers.

The Ministry of Agriculture was the overarching authority in agriculture, and all agricultural institutions were connected in some way to the ministry. The country was divided into 24 govenaurats, similar to provinces. Within each govenaurat, an office called *Commissariat*
Regional Development Agricole (CRDA) was responsible for all government action concerning agriculture and acted as a “miniature” ministry of agriculture for that region. Under the Ministry of Agriculture, the Institution de le Recherché et de l’Enseipnement Supérieur Agricoles (IRESA) acted as the institution responsible for research and higher education for agriculture fields. In the past, agriculture universities and research were not linked under the same name, but in 1999, all nine universities and four research institutions were linked under IRESA.

Yet another institution under the direction of the Ministry of Agriculture was the Agence de Promotion des Investissements Agricoles (APIA), which helped farmers obtain funding. They coordinated loans for farmers from the Bank of Tunisia. Farmers could also come to APIA with new ideas; APIA professionals helped farmers determine the viability of the idea (AI-1). Groupements also worked to assist farmers, but they operated at an industry level. Groupements were organizations within the Ministry of Agriculture that promoted a specific commodity. The groupements worked to establish export markets and planned to expand international trade relationships. The Agence de la Vulgarisation et de la Formation Agricoles, or AVFA (The Agency of Extension and Training in Agriculture), was responsible for extending knowledge to farmers and fishermen and providing training (educational) opportunities for them.

In an effort to encourage practical, applied research, the Ministry of Agriculture created “centers” for specific agricultural commodities during the mid-1990’s. Unlike groupements, these centers focused on the farmer level and how to solve real and contemporary problems for farmers. According to one respondent, basic research was completed in research institutions, and it became applied research at the centers (CI-3). The center employees began with small test plots, moved the research to larger plots, and finally tested research results in farmers’ fields. The centers work with the various agricultural institutions to turn research into usable results (CI-4).

Somewhat separated from the administration of the ministry, UTAP was the professional agricultural organization for farmers. It was established in 1950 to act as a “spokesman for farmers” (PI-1). The organization claimed many objectives, including promoting agriculture, keeping farmers informed, and organizing national and international fairs, exhibitions, and partnerships (PI-1). There was a local union in each gouvernarat to act as a regional representative, and “federations” for specific commodities acted on behalf of farmer interests.

Together, these institutions make up the agricultural system that promotes agricultural development in Tunisia. Below are the strengths and opportunities, as well as the weaknesses and threats, which affect the success of this system in agricultural development and diffusion of innovations.

**Strengths**

Tunisian agricultural institutions possessed considerable strengths, specifically in regard to culture. Agriculture is central to Tunisian culture, and the government supported not only the economic aspects, but also the social issues in agriculture. For example, specific educational programs were tailored to women and their job on the family farm, especially in rural areas. Women had more freedom, education, and rights in Tunisia than almost any other Arabic country. Women could vote, and a Women’s Day was devoted to the celebration of women (RI-3).

Tunisia had a functioning agriculture system that has been integral to its progress in development from independence to the current situation. Considering Tunisia gained its independence only 50 years ago, this was a true accomplishment to be applauded. Other
countries who have shared similar histories to Tunisia have not experienced such success. For example, Libya had no ministry of agriculture to speak of and thus has no focused effort to increase agricultural productivity as a nation (TI-4). Tunisia avoided this problem by investment in an agriculture structure early on in its history (PR-1). The government also encouraged farming through monetary and other support (AI-1, AI-2, PR-1). Opinions varied on the effectiveness of this structure, but the fact remains that Tunisia had a system to work with in the first place.

A strength of the agriculture system was the focus on meeting farmer needs, at least in theory. Many respondents mentioned meeting farmer needs as a main goal of their institution (EI-1, EI-2, EI-5, EI-6). These respondents focused on starting with an assessment of farmer needs at the local level and moving up the chain through the regional level and finally to national policy (EI-1, EI-3, EI-5). One respondent emphasized developing appropriate programs for farmers (PI-1). Another respondent concurred that the difference between farmers and researchers was that farmers faced real risks, and research used controlled conditions (PI-2).

Farmer needs included more than just financial help. Agriculture was one of the main pillars upon which the Tunisian society was based. Agriculture was more than just another industry; it was the focal point around which many of Tunisians’ daily lives rotate (RI-3). The government encouraged farming as much from a social point of view as an economic one (PR-1, RI-3).

One specific action taken to meet farmer needs was the creation of the research and extension centers to address the issues of specific industries. These centers were the most effective agencies to integrate teaching, research, and extension. They worked directly with farmers to identify needs as well as to educate them. This direct link to the farmers guided the success of the centers. For example, the Potato Center employees convinced a volunteer farmer to plant rows of different potato varieties. Periodically, the local farmers would gather to study the progress. The researcher traveled with Potato Center personnel to meet with the farmers for the last field day of the season. About twenty people gathered at the field, including commercial representatives, researchers, extension agents, and, of course, the farmers themselves. The center employees dug up the plots to reveal the yields of the different varieties. They also used posters to explain the differences in varieties as well as the advantages and disadvantages of each. The farmers listened to their advice, and they could make informed decisions from what they heard and saw for themselves (O-1). In addition to field days, the centers also hosted workshops where farmers could come to their facilities for several days. The centers even built small dormitories, a cafeteria, and classrooms to support educational programs (CI-1).

The centers also collaborated with researchers to obtain effective results from applied research. The Wheat Center transformed preliminary results into useful information. For example, center personnel planted new varieties first into small test plots and then into larger fields so that they could be tested under real conditions. The centers were the only example the researcher found in Tunisia where teaching, research, and extension all played an active role in the function and purpose of the organization. The centers even worked with university students to help them learn in real-life situations (CI-3).

Education was a definite strength of Tunisia as a whole, as well as specifically in agriculture. The majority of children attended school, even in the rural areas. University education was practically free, and the universities work hand in hand with researchers (TI-1).

**Opportunities**
Tunisia did have the potential for numerous opportunities. The most obvious, was availability of information through international collaboration. Globalization allowed the free-flow of ideas throughout the world, and Tunisia is no exception. Through developing relationships with other nations, Tunisian researchers, educators and farmers could take advantage of the strides others have made in agricultural development so that they could focus their efforts on how that information could be directly applied to their own country.

Tunisia made a step in the right direction with regard to developing relationships with other countries. Almost every respondent mentioned some contact with other countries. The main country of contact was obviously France, followed by other European countries. The fishing industry built relationships with Italy and Japan, and these countries exchanged ideas and experts (EI-6, Trl-1, AI-2). The groupements strove to increase exports and profitability through international collaboration (GI-2, GI-3, GI-1), and UTAP also helped farmers develop international partnerships (GI-1). APIA encouraged development of relationships between Tunisian farmers and private industry in other countries (AI-2). The breeding and genetics station at Sidi Thabet imported semen from the US and Europe to improve the genetic quality of Tunisian cattle breeds (CI-4). Many respondents mentioned attending international shows to learn about worldwide action and innovations concerning their field of study (GI-4, GI-5). UTAP even hosted an international show every two years (PI-1). Surprisingly, few respondents spoke of working with African or other Arabic countries in trade or the exchange of ideas.

Another opportunity for Tunisian agriculture was to take advantage of their proximity to Europe in conjunction with their earlier growing seasons. Tunisia’s fruit ripen earlier than in Europe, so Tunisia could take advantage of the better prices before the full season begins (AI-2).

Weaknesses

Although Tunisia made amazing progress since its independence in 1957, the agriculture sector still struggled with some weaknesses. An overarching issue was a lack of communication. Information did not flow through institutions to reach its intended audience. For example, a researcher may have spent his entire career developing a better technique for pruning peach trees, but his work was placed on a shelf and never practically used or continued after he retired (TI-1). This lack of communication resulted in the loss of countless human resources.

The culture of the society itself also denied its citizens the right to speak freely and express their opinions without fear. Most government officials hung a picture of Tunisia’s current president on the wall of their office (O-7). Some had other decor as well, but even if they did not have anything else on the wall, they had a picture of Zine el-Abidine ben Ali. The researcher never heard one negative comment about the head government officials or disagreement with the opinions of top administration (O-8). Ben Ali had the power to veto any legislation, and he kept a tight reign over every aspect of government. This closed fist might have been the result of how much effort was required to keep a second world, Arabic nation peaceful. Also, if Ben Ali wished to stay in power, he must make sure that no single official could gain enough support to overtake him, which is exactly what Ben Ali did to Borguiba in 1987.

This tight fist was partly to blame for the biggest weakness of the Tunisian agriculture system – excessive government involvement. Ironically, this involvement benefited Tunisia the most after independence in the 1950’s. Tunisian farmers needed government involvement from the beginning as a jumpstart and because they had a low level of technical knowledge for innovations (EI-2). However, as the country developed, the government held too tightly to its
control and did not let farmers take more ownership of their industry. Just as most NGO and international aid projects pulled out of Tunisia during the mid-1990’s due to the self-sufficiency of the agriculture sector, Tunisia’s own government needed to do the same (EI-1). The government was over-involved, and it could not be all things to all people (EI-9). The Ministry of Agriculture decided how to set prices (GI-1), financed the professional organization (PI-1), and supervised all extension efforts (EI-2). One respondent concluded, “The U.S. government attempts to limit agricultural productivity by paying farmers not to produce, but the U.S. continued to have surpluses. In developing countries, the government works to increase production, but their people still go hungry. What is the conclusion? Governments can’t farm” (TI-4).

Some respondents felt farmers had a “passive” attitude and would just wait for the government to help (EI-2). Other respondents felt that farmers would, indeed, help themselves if given the opportunity (RI-1, PR-1). The national administration was already enlightened to this fact, as proved by the attempt to involve the “professional” organization in decisions and activities. However, the national professional organization, UTAP, was still funded (at least in part) by the government (PI-1). UTAP’s local federations were actually farmer-led, but they were the only such organizations in the entire country. However, through their connection to UTAP, these federations were still linked to government control (PI-1). In addition, even when a federation attempted to address an issue, the government still maintained authority. For example, a federation was created to deal with water issues for a certain community, but the national government still maintained control of water resources (EI-9).

**Threats**

Sufficient water was a continued threat to Tunisian agriculture. Although Tunisia has experienced exponential economic growth since its independence, this country still struggled to increase it per capita GDP and become more profitable, as is the goal of most countries. As Tunisia also joined the ranks of countries struggling to be profitable in this global market, its people realized that as they grew, so did other countries (AI-2). The competition was very tight, and it was difficult to pull ahead in any arena.

European import policies were also a detriment to agricultural development, especially as the global economic downturn affected even the smallest of exports. Europe wanted to protect its own markets, so it placed more restrictions and higher taxes on Tunisian fruit and other exports (FI-1). Farmers felt that it may be more profitable to give up on the global market and simply sell their product within Tunisia (FI-1).

Water was also a threat to continued efforts in agricultural development. In this arid climate (and desert in the south), water was a treasured and scarce resource. Most agricultural production required irrigation, and drip irrigation systems were extremely popular. Dams were built to help store and transport water, but these reservoirs were largely under capacity without any hope of filling up, due to water seeping slowly into the ground (TI-1). Although Tunisia had miles of coastline, water was also a problem because the quality was poor in many places (CI-1). High levels of salt was a problem because before policies were created to regulate water use, farmers dug deep wells and used excessive amount of fresh water (PI-1, FI-1). Salt water displaced the fresh water, and crops were not adapted to this condition (CI-1). Efforts were made to alleviate both quantity and quality issues, but the problem persisted.
Conclusions and Importance of Study

Tunisia’s agricultural institutions and the people that make up these organizations must be applauded for the efforts they make to encourage agricultural development and the diffusion of innovations in their country. Tunisia has been pulled out of the poverty trap and continues the trend upward in increasing the quality of life of its people. The researcher was impressed by the passion of the people working in agriculture and the pride they took in their country and their work. Agricultural institutions strived to meet the needs of farmers and other agriculturalists on individual as well as national levels. They struggled to continue to improve the system and services offered to farmers, and they should capitalize on the strengths and opportunities of the system.

Also, an organization must have a culture that encourages people to admit and overcome weaknesses so that the unit will become stronger as a whole. If problems are ignored, they will never be fixed; they will only grow until they break through that outer shell to become a big, obvious problem. If an organization hangs on too tightly to its own power, it will never be able to let go of any of its responsibilities. These conclusions, as well as findings concerning the inept communication system, show that aspects of the organizational culture were detrimental to the government as well as the farmers.

Tunisian agriculturalists faced many challenges; as agricultural institutions strive to meet needs of the agricultural sector, they face some of the same challenges. Potential obstacles come from outside as well as within. If leaders in agriculture are aware of these weaknesses and threats, they can be better prepared to find solutions and alternative directions. The following recommendations are aimed at helping Tunisian agricultural institutions improve their efficiency and effectiveness on an organizational level.

Recommendations and Implications

The following recommendations are designed to help further the development of agriculture in Tunisia. The researcher suggests the following statements based on her findings in the study and from conversations with the various respondents.

1. Government control should be released from the farmers. If the Ministry of Agriculture truly believes that private extension agents will help, then step back slowly and let them become completely private.

2. The Ministry of Agriculture should release all control of UTAP and allow it to be a truly professional organization. It will have to receive funding from the farmers, but UTAP can make a membership fee to pay for expenses. Scholarships could be offered for those farmers too poor to pay the fee, but the benefits of joining UTAP could be made evident so that farmers are encouraged to join.

3. AVFA should be placed under the leadership of IRESA so that research, teaching, and extension can be fully united. Hire some researchers with a 50% extension appointment so that extension and research can be more closely linked. Base salaries and promotions on employees’ research AND extension activities.

4. Create a specialization at INAT for teaching and extension to prepare the next generation for the challenges that agriculturalists will face in the future. Technical information is good, but if no one is trained how to disseminate that information (on individual and national levels), then all the technical information will be wasted. Students could have a
secondary specialization in order to gain experience in a hard science area, but their main focus would be agricultural education. The social science of agriculture is just as important, if not more, than the non-human aspects. Without people, agriculture would never have existed.

5. Each organization as well as the Ministry of Agriculture should develop clear and definite mission statements so that all employees and clientele will know the purpose of the organization and where that organization is headed. Each organization should create a committee (with representatives of all perspectives within the organization) that will develop the mission statement as well as specific short- and long-term goals that organization wishes to accomplish. A mission statement is not only a definition of the organization, but it is a morale builder for the employees. The goals will help define the direction the organization wishes to take and a plan of how they will meet their mission statement.

6. Agricultural development efforts should be decentralized, specifically extension. The Ministry of Agriculture has attempted this in the past, but more effort should be put into this reorganization. Decentralization (not just privatization) will help decisions to be made at the local level where they will have the most impact.

7. Continue efforts in international trade. Take advantage of globalization, and continue to develop relationships with other countries. Encourage those organizations that may not have this emphasis to explore options that may be available to them.

The Tunisian agriculture system is an excellent example to follow for agricultural development. This study has educational implications to encourage development in other countries. Those wishing to assist development in a country facing similar conditions as Tunisia will do well to consider this study and the recommendations below.

1. Develop a national plan for research and extension and create specific institutions within the Ministry of Agriculture to accomplish this plan. Institutions should have formal communication channels so that farmer and industry needs can reach the ears of researchers and the agriculturalists can receive the applicable benefits of the research. Without research results to teach farmers, extension is useless; without extension to link farmers to applied results, research is useless.

2. Examine the country’s relationships between teaching, research, and extension. Each of these aspects of agricultural development must be linked, not with weak ties, but strong and obvious linkages. All three aspects must be included in an agriculture system for development to occur. Keep in mind the triangle and that no branch can be left out.

3. Emphasize the equality of women and all ethnic groups and insist on equal educational opportunities for every citizen. Those countries that do not encourage or even allow women the same educational opportunities as men are doing themselves a great disfavor and losing half of their brainpower. Especially in this information age, no country can afford to lose its greatest asset – the people. Not only should women and minorities be offered equal education, but they should also be afforded equal access to jobs in the private and government sectors. The Ministry of Agriculture can set the example by hiring competent women and minorities into all levels of their institutions as well as encourage them to continue their education.

4. Tunisia’s extension service is also making specific efforts to target women with agricultural education programs. In every country, women and men have specific and
often separate roles on the farm. The extension service should study gender roles in agriculture and create programs to meet their specific needs.

References


