Ministry of Agriculture and Agrarian Reform

NAPC

National Agricultural Policy Center

WORKING PAPER No. 2

Agricultural Research and Extension in Syria:

Present Situation and Policy Recommendations

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Ministry of Agriculture and Agrarian Reform

Foreword

The Working Paper series aims at supporting the Syrian development and modernization process by enriching public availability of documentation on agricultural economics and policy studies conducted at the National Agricultural Policy Center.

This paper was produced as result of the research activities carried out during the Individually Tailored Training phase conducted under the FAO Project GCP/SYR/006/ITA. “ASSISTANCE IN INSTITUTIONAL STRENGTHENING AND AGRICULTURAL POLICY” from September 2000 through April 2001 with the objective of letting trainees experiment how to prepare economic studies in the field of agricultural policy. This activity was the last phase of a three years long training program aiming at establishing a cadre of agricultural policy analysts for the NAPC and related institutions. In particular the paper on “Agricultural research and extension in Syria: present situation and policy recommendations” was produced by a team composed by Salah Eddin Saker, Saleh Othman, Walid Hamzeh, Abdul Hadi Al-Rifai and Ghassan Nassour working under the supervision of Mr F.M. Santucci, professor at the University of Perugia (Italy) and international consultant for FAO.

The NAPC decided to publish this research under the Working Papers series in consideration of its contribution to a better understanding of the role of extension services in Syrian agricultural development.

However, it is appropriate not to hide its limitations, which mainly stem from the prevalent training objective assumed for research activity, as well as from the lack of available statistical information and background literature specifically related to the subject of this study. Moreover, time and financial resources constrained the possibility of carrying out a statistically rigorous sample survey. However, we believe in the innovative value of this research within Syria as a methodology and stimulus for further analyses of the role of information in modern agriculture.

Individual contribution to text writing

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The surveys and basic data were collected and prepared by each team member individually, but analyzed jointly by all the team members.

This final version of the research report was finalized by Salah Eddin Saker during his internship at the Dipartimento di Scienze Economiche ed Estimative, Facoltà di Agraria, Università degli Studi di Perugia, Italy.

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List of abbreviations

ACSAD = Arab Center for Studies on Arid and Dry Areas.

AFTA = Arab Free Trade Area.

AKIS = Agricultural Knowledge and Innovation System.

CSO = Civil Society Organization.

FAO = Food and Agriculture Organization.

ICARDA = International Center for Agricultural Research in Dry Areas.

M&E = Monitoring and Evaluation.

MAAR = Ministry of Agriculture and Agrarian Reform.

NGO = Non-Governmental Organization.

WTO = World Trade Organization.

Executive Summary

1. This research bases its results on two pillars: a literature survey about the role of the State in the Agricultural Knowledge and Innovation System (AKIS) and a field survey that covered 11 Directors of Research Stations, 94 Heads of Extension Units and 69 farmers, randomly selected in five Governorates.

2. In many countries agricultural extension is an important policy instrument of the Ministry of Agriculture to help farmers to become more efficient producers, and to compete in the market. Extension is a very important agency in Syria because it provides farmers with information and the results of the research studies that allow them to run their own farm in an efficient way. Thus, the role of extension is to transfer information and results to farmer at their field level.

The present structure of the Ministry of Agriculture and Agrarian Reform has been designed before agricultural extension was one of the tasks of this Ministry. Now, as this has become an important task, some changes in this structure are necessary to make successful extension possible.

3. Not only the Government can provide extension services, but also private companies and farmers' associations. Right now, in Syria, extension services are mainly provided by the State and rarely by the private sector, which has a minimal role and seems to grow slowly. The private extension services are mainly concerned with serving their benefit, which is selling the companies commodities. Thus, farmers who need any information have at their disposal state extension service or their colleagues. Not only farmers benefit from extension services but also consumers since efficient agricultural production results in lower food prices. Thus, it seems fair to require the taxpayers to pay for agricultural extension services.

4. The Ministry of Agriculture and Agrarian Reform should stimulate agricultural development by using a number of different policy instruments, including investments in infrastructure and possibly increasing trade crediting in inputs and products. Most of these policy instruments will become more effective if they are combined with extension services.

5. Training extension program in Syria is new, therefore, all extension staff at the field, at the district and ministry level should be trained.

6. Since the extension agents are in direct contact with the farmers, their role is the most valuable at the field level. The major tasks of the district and ministry are to facilitate and enable the extension agents to perform their role effectively.

7. At the district level, there should be one extension section for agriculture and agrarian reform and another section for other tasks, mainly inspection. The extension section should have a chief supported by specialists in crop, livestock production and extension according to districts' needs. Definitely, the number of specialized staff could be increased according to budget availability. In small districts there is no need to have many specializations since it could be combined in one person/ or lesser staff.

8. An extension work plan should be based on information emerged from farmer's problems and experience, from different research institutes, markets and governmental policy. At the district

level the chief of extension's team and his specialists should aggregate this information, and according to this information fund allocation should be done.

9. Research should serve the extension's needs and requirements; therefore, researches should be linked to extension requirements in order to increase the competence of the specialists' staff at the district level and to motivate other researchers to find solutions for farmers' problems. Researchers perform their task with the coordination of heads of crop and animal production section in the Ministry.

10. The mentioned arrangements /structure can only be effective if all concerned people are involved to perform their new task. In order to be able to do this well, training is required.

Introduction

The ultimate goal of nation's policies should be to achieve the maximum sustainable welfare for present and future generations from available resources. This goal cannot be attained through a single overall policy. All policies and tools should ensure the economical and social aspects. Countries have to ensure two things: first, adopted policies should achieve social goals and specify the tools to be used. Secondly, policies should take into consideration the economic aspect.

Agriculture in Syria is a very important economic sector, because a large proportion of population depends on agriculture and related economic activities. Rural population account for 51% of the total, the agricultural sector share in GDP is around 30%, and labour force in agriculture is around 30% of the total employment.

Extension activities are managed centrally through Extension Directorate affiliated to the Ministry of Agriculture and Agrarian Reform (MAAR). At the Governorate level, each Agricultural Directorate has an Extension Division. At the *mantika* level there are extension sub-division which are called *dow'er*, and at *Nahia level (might contain one or more villages)* there are units; agricultural extension activities are implemented by 869 extension units which are responsible for programs field implementation. Thus, extension units may contain one or more villages according to village size and population.

The extension units contain agronomists, agricultural supervisors, veterinarians and veterinary supervisors. Responsibilities of extension staff include pest surveillance, implementation of agricultural plan, random surveys, and conducting field trials to estimate production, implementation of extension programs and oriented programs, carrying out special programs like land reclamation, rural women development and dealing with farmers' production problems.

In order to achieve the above-mentioned goals, extension should have a very good relationship with applied agricultural research, which is totally in public hands.

During the 70s and 80s, the Syrian economy was characterized by strong government intervention: central planning, state marketing, trade monopoly, state pricing of most commodities, subsidization of production inputs, fixing or subsidizing interest rates, various overvalued official exchange rates, etc. In addition, Syria used to depend on Eastern European countries for marketing its agricultural production as well as for technical assistance.

Since late 80s, Syria has started a gradual reform process to cope with the new domestic and international situation. Demographic growth and the need for satisfying the increasing demand due to higher incomes, require a fast economic development. In the meantime, the regional and international trend is towards liberalizing trade for all products. This was seen as a way for achieving economic integration and optimal allocation of resources. Syrian economy has a gradualist approach, which included involvement in bilateral and multilateral agreements such as those with Lebanon, Jordan, and AFTA. Moreover, cautiously exploring the implications of becoming a member of WTO is on Syrian political agenda. This caution is due to the consideration of opportunities and constraints derived from full participation of Syria in globalization process and trade liberalization.

In this context, a wide debate concerning the overall set of agricultural and trade policy is starting to take place at the national level, to identify and assess the changes needed to cope with the new domestic and international economic environment. Within the present economic and policy status, it is essential to understand the potential impacts of trade liberalization taking into consideration the changes it will impose on Syrian agricultural trade policies. The general Syrian sustainable agriculture development aims at: securing food self-sufficiency, increasing exports, improving living standard of rural population, curtailing rural migration and supplying necessary raw materials for agro-industries.

In the 21st century, Syrian agriculture will operate in a political and economic environment influenced by the outcomes of: the current peace process in the region, the new regional trade system, the reform programs, and WTO. These changes not only will bring opportunities but also lot of constraint on Syrian agriculture.

In fact, agricultural administration should change from a top-down and centrally planned approach to a more liberal situation with a room for private companies and Civil Society Organizations. An important component of agricultural administration is represented by the agricultural extension service of the Ministry of Agriculture and Agrarian Reform. Agricultural extension operates with more than 6,000 people, who are extremely important assets and a tool for helping and guiding farmers during the last decades. It has been the instrument used by the government for implementing its policy to develop agriculture. This act was considered monopolistic since almost no other suppliers of information were operating in the countryside.

Within changes expected to occur, state extension service has to modify some of its operational organization and approaches to allow farmer to access more information.

Despite this research, covers only 5 Governorates, it is a good start from a scientific perspective, because it investigates the current situation, elaborate and refines some ideas, and provides guidelines. This will foster the role of agriculture extension service in developing the Syrian agriculture in the short and long run.

Chapter 1 -The Role of Information in Modern Agriculture: a Public and Private Good

1.1 Background

The history of economic development shows that few countries have achieved sustained economic growth without developing their agricultural sector (Feder, 1986). In many developing countries, agriculture is the most important economic activity in providing income.

Without an efficient agricultural sector, a country is severely constrained in its ability to feed itself; otherwise, it needs to import foreign commodities for domestic consumption. Rapid technological development in agriculture has occurred since World War II. These technological development and the extension services were funded by the State. Public-sector role was to disseminate information and technology to farmers.

Effective agricultural extension can bridge the gap between laboratory's results and farmer practices at the filed level. In general, extension role is to transfer information on cropping techniques, optimal input use, high-yield varieties, prices, and to inform farmers about storage methods and assist them in improving their managerial skills, etc. Facilitating the transfer of efficient methods of production imparts faster growth of yields and rural incomes, which might not be attained with the absence of extension services.

In Syria, extension is the main source of farmer information, provided for free to all farmers. Public expenditure on extension services (new technology, large staff, etc) are cumbersome, therefore, farmer/ producers should be aware of these services since most of them are not aware of it and cannot estimate the related costs and benefits. If farmers were aware of the new technology and the real cost of provided services, the allocation of their resources would be optimally utilized.

Agricultural extension services not only transfer information from research centres to farmers, but also can ease a reverse flow of information. The public investment in agricultural research and extension depends on the gap between the current farm productivity and the potential productivity given the existing "best technology" and "best management" for farms. Effective agricultural extension can diminish the gap of both technology and different management. When these gaps become smaller, the marginal returns of agricultural extension diminish (marginal returns equal costs).

In the development process, it is conceivable that intensive public investment is justified in the early stages of agricultural growth.

Theoretically, society and farmers would gain from advanced and updated information. Both farmers and society should establish and access the information market. Theoretically, this means that agricultural information, guidelines and advises could also be sold and bought, like any other good/ commodity in a market economy.

On the other hand, in many cases, information on improved agricultural technology is a public good. The provider of the information cannot exclude other potential users from free access to information provided to one user, and the value of the information is not directly affected by the number of users (Haeuser and Evenson, 1991).

Market activities contain various aspects of agricultural information (e.g. specialized information on pest management, input-mainly chemical controller).

In many countries, extension services are provided by farmers` organizations (Unions or Co-operatives), that also express farmers` concerns, which are already designed to serve agriculture.

Specifying the role and responsibilities of agriculture extension agents started since World War II. Many developing countries established formal agricultural extension programs, in most of these services, agricultural extension agents not only had educational duties but also frequently supplied inputs and credit.

Many extension systems were built with insufficient attention to the skill level of field agents. In some systems, the bulk of the field staff had little scientific or technical training and virtually no farming experience. Budgetary instability often meant field staff received little logistic and transportation support.

Another problem was that most agricultural advice was given to the richest and largest farmers, ignoring the needs of the small ones. By the mid-1970s, many agricultural extension experts recognized that program effectiveness depended on these problems.

During the late 1970s, many governments began to restructure their traditional agricultural extension services. One of the most popular approaches was the training and visit (T&V) system, supported by the World Bank.

Currently, more than 40 countries have adopted this approach. Under the T&V system, agents meet with selected “contact” farmers or farmer groups and follow a regular schedule for visits. The agents also meet with their colleagues and supervisors at the regional level to discuss problems and their solutions.

The system requires agents to have two primary duties: first, to transfer agricultural information and, second, to report farmer’s problems. Management and education are a secondary objective.

The T&V approach leads to better communications between research and extension. On the other hand, many critics say that this T&V system is too much centralized, very costly and does not solve the problem of public-private relationships (Haeuser and Evenson, 1991).

In fact, in the last years, the debate has been about the different roles that can be covered in applied research and in extension activities, by the State, by the private sector and by Civil Society Organizations. This aspect will be covered in the next paragraph.

1.2 Public, Semi-Public and Private Sectors

Aggregate performance of the agricultural sector in terms of production growth and profitability is influenced by several factors. Some of them are: delivery system and facilities such as research, extension, credit, training and proper marketing services. This will encourage the farmers to make more use of technology.

Syrian agriculture has responded well over the last years to the rapidly increasing demand for food, but this is associated with slow growth of the effectiveness of extension effort to increase response and to promote productivity.

In Syria, the public sector is fully responsible for agricultural extension activities, and Government extension effort is functioning without private sector contribution in this field.

There is hardly any dialogue between the government and the private sector in coordinating development activities. Agricultural extension services and research activities greatly developed in the last decades, but they are considered not fully adequate (Rama, 2000).

During the last three decades, new ideas related to economic development have emerged. They focused on governance, roles of public institutions and their decentralization, the role of the different levels of the civil society in developing public policies and the relative roles of the public and private sectors (Abdalla, 2000).

It is important to clearly distinguish the different actors that may play a role in the production and delivery of information to farmers.

Also, there is a need to clarify who should be served by the public, private, and non-profit sectors, and how economic growth and equity goals can be effectively and efficiently promoted.

These questions concern allocation and include issues of governance and the types of programs likely to be required to meet the needs of selected audiences (Rivera and Gustafson, 1991).

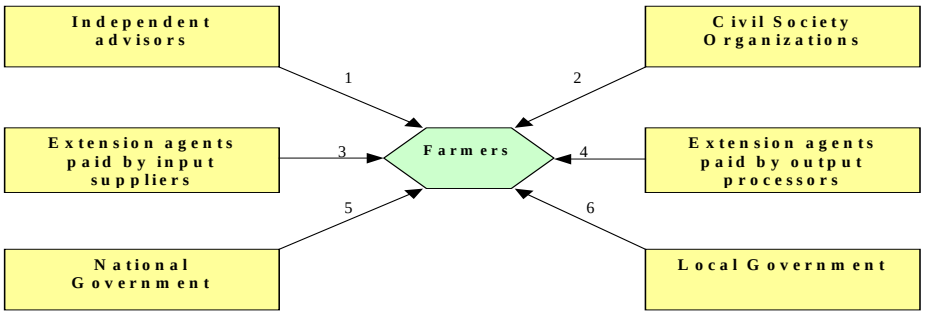
Finally, important questions regard how to achieve successful extension service, the general and specific services to be provided by the State or by the private sector, and what are the type of goods and services.

The **public sector** includes all organizations, which make up 'the Government' or are directly controlled by individuals empowered to act in the name of the government. The major characteristic of these organizations is seizing and exercising authority. Authority is the capacity to issue and enforce rules that all citizens have to respect. Government includes local administration and public agencies. The latter are not part of the administration and are governed by its own rules (i.e public agencies has its internal rules).

There are different levels of local administration, each has its own areas of competence, for example, there is a national level and other levels (regional, provincial, *Mantika* district, municipality). Public agencies, such as Research Institutes, have specified responsibilities, which cross the boundaries of local administration.

The term 'central government' refers to all the units of the public administration that are

Figure1.1 – Relation with farmers.



1. Independent advisors .
2. Civil Society Organizations.
3. Extension agents paid by input suppliers.
4. Extension agents paid by output processors.
5. National Government.
6. Local Government.

hierarchically dependent on the Cabinet, and the ministers in charge of the different sections of the central administration. These units may be located at the headquarters of the central government or in different parts of the territory and have different responsibilities, depending on whether they are operating at regional, provincial, district or at a lower level.

The term '**local governments'** refers to units of the public administration that do not depend hierarchically on central government administration for a number of public functions which they have the authority to exercise in an autonomous way. Typical examples are the district, but in some countries, important degrees of autonomy are granted at regional, provincial, or municipal levels as well. Municipal governments are often created only in urban areas over a certain size, whereas decentralization of responsibilities for rural areas often stops at the district level.

Agricultural research and agricultural extension are a common feature of the public administration: the first one can be found within universities and research centers, both funded and controlled by the State. In some cases, Universities and research centers are controlled at central level, while in other cases they are controlled at lower level, like the regions in Italy, the States in Nigeria, or the Autonomies in Spain. The same therefore happens to public agricultural extension: it can be managed with a centralized approach, or it can be decentralized to lower level of governance, with the central state that only holds the function of coordination and supervision (Santucci, 2000).

Commercial firms owned by the government (such as the State Tobacco Company, National Fertilizers Company, the Marketing Boards, etc.) are not part of government, but they belong to the public sector. Public sector organizations pursue objectives set by the central government with different degrees of autonomy, depending on their nature and on the authority granted them under the law.

The **private sector** is made up of companies owned, directly or indirectly, by private individuals. They may range in size from vast trans-national or multi-national corporations to single traders. Within the limits of the law, these firms are free to pursue their own, independently set, objectives and to create their own rules and regulations for the conduct of their business. The primary activity of private sector is the production of goods and services required by the market. Private firms serve the need of owners, clients and/or beneficiaries, but managers, owners, or trustees make decisions about how to conduct the business. However, private sector organizations may be for-profit (commercial firms engaged in production and sales), or non-profit (philanthropic) organizations (such as scientific or beneficial foundations, and many NGOs). Philanthropic organizations have benevolent objectives, irrespective of the motivations of their staff.

All private companies operating in the agro-food chain, at the international level, have set up their own research centers and they invest heavily for the development of new input and new technologies. Many private companies also support the investigations made by public research centers, with grants and scholarships. Companies operating in the input supply and in the food processing may also be very important for the diffusion of information to farmers, in order to have more clients and to ensure high quality products (Santucci, 2000).

The **semi-public sector** includes **civil society organizations** (CSOs) established by groups of private individuals to provide goods and services that satisfy the interests and needs of their members. CSOs include many types of modern organizations as well as traditional governance organizations that still play important roles in the developing countries, particularly in the rural areas. CSOs embrace:

- **Advocacy organizations** (political parties, opinion groups, trade unions, rural workers' associations, consumers' associations, associations of entrepreneurs, chambers of commerce and agriculture, professional associations, associations for the environment, etc).

- **Commercial organizations** (informal common interest groups, formal farmers' associations, cooperatives, community based associations, informal women groups, formal women associations, savings and loan associations, etc).
- **Philanthropic organizations** (such as research foundations, education foundations, Non Governmental Organizations -NGOs- engaged in development activities on a philanthropic basis, etc., and traditional society organizations established under customary law, such as chieftainships, pastoral groups, 'land masters', etc, as well as a variety of religious organizations, etc).

Many NGOs operate in fields that conventionally are government responsibility, such as research, education and agricultural extension.

Others aim at influencing government policy in certain scope, such as environmental conservation. NGOs have a comparative advantage in promoting policies and strategies that put people at the center of the development process and emphasize participatory approaches, poverty alleviation, social equity and cultural identity.

NGOs, in particular, have demonstrated a special aptitude for working at grassroots level. The share of the total international development resources channeled through NGOs has grown steadily over the last fifteen years and is now quite significant. A sizeable part of total resources handled by NGOs comes from private sources.

It has been seen in the previous paragraph that agricultural extension is one of those services whose economic character varies in different circumstances. It can be argued that general agricultural information designed to improve existing cultural and production practices is a good tool in the short run. That is, it is non-rivalries in the sense that one person's use of the information does not reduce its availability for others, but it is excludable, particularly if communications are not very effective.

In the long term it is difficult to prevent people from obtaining information and it thus tends to become a **public good** (Santucci, 2000).

Private sector is not interested in information dissemination. On the other hand, it is possible to make specialized information that relates to a particular farm business exclusive and then the private sector will have an incentive to provide it. In many countries, input suppliers (producers and distributors of seeds, pesticides, fertilizers, animal feeds, and veterinary medicines, machinery and irrigation equipment) employ technicians and agronomists for extension activities, aiming at promoting the sale of their goods.

In many places, output processors also employ advisors, who must guide the farmers, in order to respect the guidelines established by their contract (contract farming).

Another component of the private sector is represented by the free-lance advisors (agronomists, veterinarians, experts in marketing, etc.), who work independently and who sale their advice to farmers able to pay for their support.

The stage of economic development is a very important factor to consider in determining the economic character of extension services. For instance, there could be substantial positive externalities associated with extension advice in poor countries, where there is a need to expand food production and increase food security. This would then justify government provision, at least in financing extension advice. A review of the literature on this topic indicates that government has an important role to play, but this varies according to country and sector specific circumstances, which evolve over time.

To sum up, whereas in economies at first stages of development, the role of Government is prevailing and the other actors almost do not exist, with the economic growth the private and semi-public sectors develop their extension systems. This puts the farmers at the center of a very sophisticated information network.

1.3 Linkages between Applied Research and Farmers

It is necessary to look at extension agents not only in the traditional sense of technical activities carried out by an organization, but also as a long-term, multi-disciplinary activity implemented by country networks in different locations, whose objectives and impacts derive from indigenous policy choices (Brinkerhoff, 1991).

Also, there are important issues which are management, accountability, and allocation of responsibilities and resources among providers, the coordination of the components of the system, and accountability of these different parts (Rivera and Gustafson, 1991).

Often a good linkage between research and extension is crucial for successful extension. It is increasingly realized that the role of the extension service is not only to pass on research recommendations to farmers, but also valuable information for designing an extension program which comes from farmers due to their experiences, problems, the needs for information, and from the market and the government policy. However, the information about research findings remains quite important, also for an extension program, which tries to educate the farmers in deciding for themselves the best way to solve their problems.

In developing countries, during the 1980s, national policy makers and donor organization identified weak links between extension and research as a major factor limiting technological change (Crawford, 1982).

The development of the research process over the past few decades has seen a movement towards farm and farmers, but still there is a credibility gap between research and farmer caused by inadequate linkages and a lack of feedback from advisors (Harford, 1998).

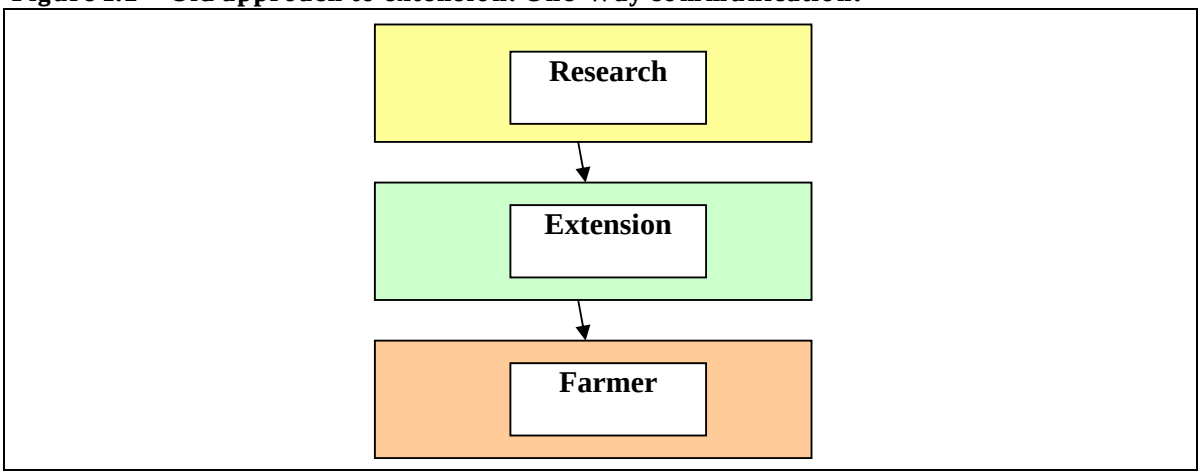
Therefore, there is a need to have a clear understanding of goals and tasks of extension to bridge the mentioned gap, between extension and research, and between extension and farmers, and to facilitate a two – way exchange as a helpful way to enable the farmer to change their behavior and solve their problem (Albrecht, 1986).

In order to achieve these purposes, Governments should be interested in spreading sustainable technical progress for the benefit of the entire economy and for the welfare of the rural poor. In addition, without effective links between the research outfits and the ultimate beneficiaries of useable innovations, technological progress is hard to achieve.

Many public extension services have failed to provide such links and have contributed to the inability of the research system to provide effective responses to farmers' problems.

In an aggregate sense, extension was seen as a link between research and farmers (Figure 1.2), with a one-way flow from the research to the farmers. This approach was called "top down", because the farmers was supposed only to receive. Many criticize this approach, as it is basically top – down because it gives little chance of real dealing with problems of rural poor (Coomb 1980, Rolling and Dezeeuw 1983).

Figure 1.2 – Old approach to extension: One-Way communication.

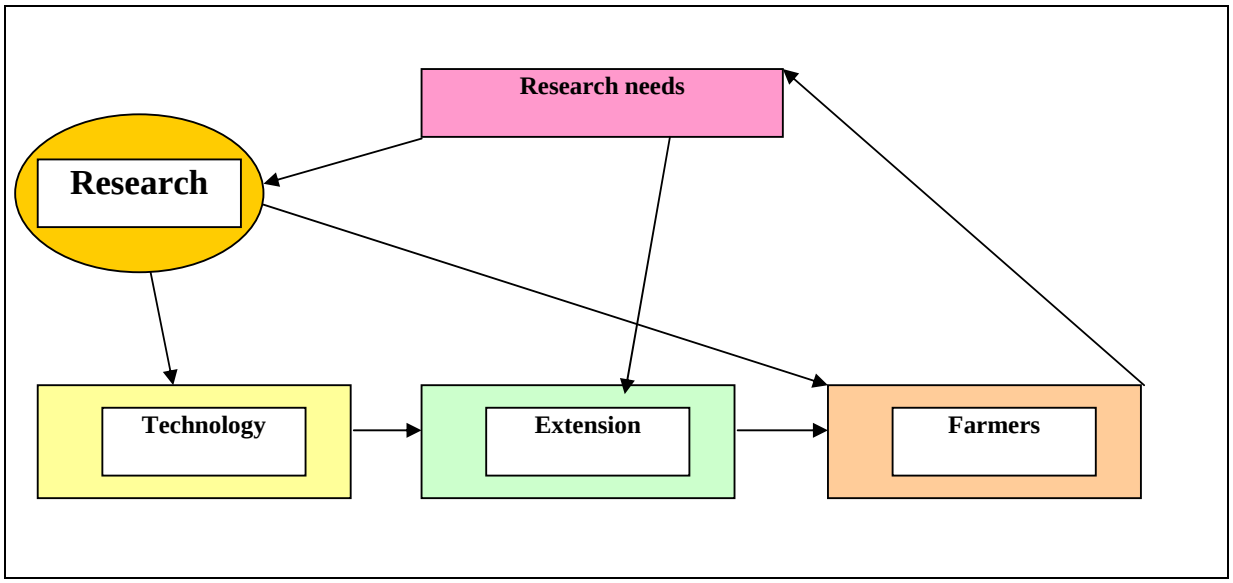


Extension workers can play different roles. Theoretically, they are expected to help farmers learn about new technological alternatives, and how to gain access to input, credit and marketing services, so that farm output and incomes can be increased (Swanson and Claar, 1991).

In order to increase extension workers accountability to their clients, farmers should be involved to a greater degree in the planning and designing of extension programs and there should be closer relationships between farmers and extension staff (Fyfe, 1986).

Figure 1.3 illustrates the flow of technology to farmers from research through extension in a more participatory approach: ideally there should be a return flow " feed – back " of research needs from farmers plus some direct farmer-to-researcher feed-back (Watts, 1988).

Figure 1.3 - New approach to research and extension.



Bridging extension system and increasing its usefulness in terms of capacity, staff motivation, facilities, monitoring systems, efficacy, strategy content and effectiveness are the present challenge for all public services.

1.4 Centralization and Decentralization of Extension

Centralization occurs when planning, decision making and the implementation of government activities at all levels are in the center: the capital town. Or when Ministries and General administrations move to the center.

In general, 'overcentralization' of government authority as a bureaucratic policy has contributed to the difficulties of investment and administrative policies in many countries world wide, causing a limitation of economic growth (Ostormand et al., 1993).

France has been the first example of centralization: under the king, who wanted to control everything, banks and ministries were in Paris. Centralization has several negative consequences: most people live in the same place, the Capital town, which has industries, universities, business, culture life prosperity and development. The capital town becomes larger and larger (with more problems, like pollution, crime, etc...) while the other parts of the country become poorer and poorer. Back to the 70s, the French government decided to stop this trend and it created the Regions, with local Parliaments. After decentralization several powers were delegated to those regions (Santucci, 2000).

Another example of Centralization was Italy: during the Fascism, in the 30s, the Government controlled everything and therefore many private banks closed and merged into few public banks, controlled by the Ministry of Treasure. All agricultural cooperatives closed and all their assets were given to 92 Provincial Agricultural Centers, under the control of the Ministry of Agriculture. In addition, with regard to education, all universities were put under the control of the Ministry of Education, Agricultural research was controlled by the Ministry of Agriculture through 23 Research Stations and also agricultural extension was totally affiliated to the Ministry of Agriculture. So everything was decided in Rome. This had a positive impact, because it helped Italy get out of the economic crisis of the 1929, but then led to its entering into the II World War. After the War, most state-controlled assets were given back to the private sector and foreign investments were well accepted. In 1972, the Regional Governments were created and much power (including agricultural extension services) was given to these new local authorities.

According to Rivera, Zijp and Alex (2000), public agricultural extension services exhibit the following advantages and disadvantages:

Advantages

- More in tune with government policy.
- More development and social orientation and more focus on poor and poverty alleviation.
- Greater concern for environmental issues.
- Slow but sure career path for staff; greater security of employment.
- More linkages with mass media.
- Potential for stronger linkages with research, to enhance technical skills and knowledge.
- Better ability to coordinate programs.
- More attention to staff training and development.
- Better ability to articulate government policies and solicit outside support.
- Except for "political" influences, giving impartial advice not influenced by the need to "sell" a product.

Disadvantages

- Slow, comparatively cumbersome decision-making.
- Inertia of bureaucratic management system, administration, and culture.
- Often weak administration and financial management.

- Difficulty in attracting and retaining quality, innovative staff in a competitive environment.
- Comparatively unresponsive to client priorities and lack of customer-first focus.
- Management might not be willingly take note of or act on advice and experience of lower level staff.
- Little concern with costs of operation and management including cost of time.
- Commonly over managed with high administration and overhead costs.
- Tendency to focus on controlling inputs rather than achieving outputs and goals.
- Susceptibility to "politicization" of decision-making.
- Risk with little incentive to be innovative and try new approaches.

Several historical reviews of the term decentralization provide good accounts of how this word has been applied to rapidly expanding array of changes in institutional structure (Ostorm et al. 1993). Since the 1980s, big changes related to the divestment of the government's role have been occurring: privatisation, devolution and empowerment have become common words. Moreover, structural adjustment programs, associated to rapid advances in communication and information technologies have been implemented (Abdalla, 2000).

Decentralization is about governance. The word governance is often used with two meanings. One refers to 'the complex of institutions and organizations which regulate the life of society'. It includes rules (law, formal and customary, regulations internal to organizations, contractual obligations, etc.) and social aggregations (family, Church, Municipality, professional associations, political parties, banks, commercial enterprises, cooperatives, Government, Parliament).

The other meaning refers to 'the act of governing', that is the way institutions are established (for example how laws are proposed and enacted) and the way organizations behave, manage their affairs, and govern people (Santucci, 2000).

The awareness of the importance of good governance has been a key feature of the 1990s. "Good government, transparency, accountability, decentralization, participation and legal security" are the keywords of this emerging consensus.

Economic growth is necessary, but not a sufficient condition for development. Institutional and political matters must be taken into account in the attempt to enhance welfare over the long run. Legitimacy, consensus and sustainability are seen as preconditions for further welfare-enhancing change

The basic idea is that 'institutions matter'. Institutional reform is a priority, and a country's political, cultural, and bureaucratic frameworks must be analyzed and fully understood in order to appreciate the full range of the issues which reforms must face, and for which adequate reform policies and instruments must be designed. Decentralization reforms focus on the relationships between three major sectors of governance, namely, the public sector, private sector, and the civil society organizations. Within the public sector, decentralization focuses on the structure and processes of decision-making and on resource and responsibility allocation among different levels of government.

Decentralization transfers responsibility in planning, management, resource raising, and allocation from the central government to:

- Field units of central government ministries or agencies.
- Subordinate units or levels of government.
- Semi - autonomous public authorities or corporations.
- Area - wide regional or functional authorities.

- Organizations of the private sector and CSOs (Rondinella and Nellis 1986).

The first four types of decentralization take place within the public administration itself, and they aim at improving its efficiency, whereas the last type of decentralization gives more room to private action and to non-governmental organizations. It is important to stress that all these types of decentralization can coexist and that there is no fixed recipe for good decentralization.

1.5 Aims and Types of Decentralization

Effort of decentralization took many forms, all aiming at developing a new partnership between the human resources and energy of communities, and the existing political leadership of the national government (Ostorm et al. 1993).

When we refer to agricultural extension decentralization, we refer to a system that responds well to people preferences and requirements. In this context, people include farmers, technicians, the taxpayers and the government. By bridging the gap between suppliers and users of agricultural services, decentralization measures are expected to achieve three major objectives:

- Improved efficiency in service provision
- More transparency of service providers
- Better accountability to service users.

The supply or provision of any good or service can be into four components:

The funding of the service.

- Its physical production.
- The regulation of supply.
- The consumption of the good or service.

Theoretically, there is no necessity for these four components to be provided by the same sector or organization.

The transfer of responsibilities and resources involves different relationships between the central administration and the organizations. The nature of these relationships, and the objectives of the transfer, determine the form of decentralization (Santucci, 2000). It is useful to distinguish the following three major forms:

Deconcentration transfer of specific functions and tasks performed by the headquarters' staff of the central administrations to offices in periphery.

Devolution is a more advanced form of Deconcentration. Devolution turns local governments from being agents of the central administration into autonomous suppliers of goods and services. It involves the transfer of responsibilities, authority, assets and financial resources to lower levels of government, such as provincial or district governments in unitary states, in accordance to both the principle of subsidiarity and of specialization.

Delegation transfers responsibility for implementing specific tasks and delivering certain services from the public administration to independent organizations operating outside the public administration. The role that CSOs may play in decentralization can be considerable, given the size of their contribution to economic, social and human development, and this role can be particularly important in rural areas.

Such policies have some potential to decrease transaction costs associated with the highly centralized provision of public infrastructure (Ostorm et al.1993).

1.6 Impact of Different Forms of Decentralization

Since 1970s, decentralization in various forms has been recommended as a way to reduce the problems that might happen when highly centralized public agency is used to provide and produce services (Bell, 1977).

Deconcentration changes the balance of power within the system of governance. This is an essential feature to bear in mind in judging the chances of success of decentralization policies. Various forms of decentralization affect the balance of power differently. Deconcentration shifts the balance of the power within an organization in favor of front-line managers. This may unimproved efficiency. It also strengthens the position of top manager's vis-à-vis their external constituency. At local level, the higher efficiency of a deconcentrated but centrally controlled (as opposed to a centrally operated) administration, tends to increase the central government's hold over the territory, and correspondingly tends to decrease the scope for local autonomy. Bureaucrats of the central administration may try to turn devolution policies into administration Deconcentration policies conserve their power and influence.

Delegation means that some powers are given to somebody else. This can happen within a firm: the owner of the company delegates one director to represent him. This can also happen to institutions, whenever a Government decides to delegate one or more tasks to outside Institutions. The level of delegation varies from firm to firm, or from country to country. There are firms where the owner wants to control everything and he does not delegate anything. He is responsible for everything: buying inputs, supervising production, selling, keeping the administration, etc... This can be made in small companies. If the firm grows, this becomes impossible and the owner must delegate. The problem now becomes to find the right persons, to write clearly what is delegated, to organize system of communication, in order to be properly informed. The same is for governments and tasks like agricultural extension: we can have very centralized systems, where everything must be signed by the President, or by the Minister, or more decentralized Countries, where Ministers delegate responsibilities to the Director General. Then the Director General delegates responsibilities to lower level, etc... A delegation needs to establish a good system of communication, in order to avoid chaos.

Delegation involves transfer of responsibility and resources for specific functions from a central government authority to other agencies in the public sector or to an agency in the private or voluntary / philanthropic sectors. Under delegation, the task of the delegated agent and the resources required to implement the task are defined in advance. The delegated agent has considerable autonomy of decision in order to implement the tasks, has it own procedures, is accountable for the work performed, and must regularly report on the use of the financial resources. Delegation to public agencies other than the government shifts power outside the central administration. With proper accountability, transparency and hard budgets performance it becomes more visible. Agents are fully responsible for all aspects of the delegated activity and they cannot blame another department for their own weaknesses. Separate budgets and accounts mean that costs are more easily identified.

Devolution changes the balance of power to a much more significant extent, since it affects the very nature of the external and internal coalitions of government organizations along the full range of the system of public administrations. By increasing the power of local governments, devolution creates a plurality of external and internal coalitions, each local government having its own. Devolution mobilizes the local political pressure groups, and democratic representation gives a chance to different local groups to acquire representation and empowerment.

Effective devolution requires that politicians responsible for the lower levels of governments are elected, and that central authorities respect their priorities in the use of resources. Devolution policies are part of the system of checks and balances, which characterizes a democratic system of governance. Devolution is also referred to as democratic decentralization (Santucci, 2000).

Allowing more room to CSOs strengthens the process and further helps to mobilize more human and financial resources and improves participation and empowerment of local people. Partnerships with CSOs offer the advantage that, at the lowest level of CSOs, there is a much closer relationship with the beneficiaries.

They are in fact partners in development through their contribution to the cost of the services and participation in the decision-making process.

At the level of the intermediary organizations that consolidate the plans of the grassroots organizations and channel the funds, managers have a more cohesive constituency, particularly when common interest groups are members of the intermediary organization and have voting power in their Board. The role of the leaders of the grassroots organizations in the process of decision-making by the intermediary organization is actually an important indicator of its performance that can be monitored and evaluated.

Contracting the implementation of specific extension to farmers' associations of various types by the national extension is a form of delegation that is increasingly used.

The advantage of delegation is that inadequate service providers can be screened out, through pre-qualification procedures and through contractual arrangements making continuation of obligations dependent on performance indicators been satisfactorily fulfilled.

Normally, delegation is a more cost-effective way to perform tasks than department implementation, even if the contract costs may appear higher than departmental costs.

Encouraging farmers' organizations in the voluntary sector to assume an important role in agricultural technology transfer is an integral part of decentralization policies (Santucci, 2000). The need to develop strong grass-root level rural institutions at the receiving end of agricultural services has been recognized for a long time. Facilitating the growth of a network of rural people organizations on a voluntary basis is a major task. The fundamental importance of agriculture and rural development began to be appreciated by the end of the 1980s.

An important feature of government decentralization policy vis-à-vis the CSOs is that the nature of support and promotion must be devolved not delegated. Devolution is characterized by the freedom of the receiver of government support to decide how to use the authority and the resources obtained from the devolving agency.

Some people oppose devolution or delegation, because they think that farmer's organizations have limited technical knowledge; or they blame the illiteracy of most members; the lack of training of their officers in extension methods, and the absence of knowledge and vision about opportunities offered by technical progress.

The most important features of success, such as leadership, interrelationship, and deep understanding and knowledge of local conditions, are common features among even the poorest farmers' groups, whereas technical know-how is a relatively secondary factor that can be acquired by the groups.

Several challenges can be encountered (Santucci, 2000), whenever applied research and extension are decentralized and new actors increase their role in the information dissemination process. Their list is quite long, but this should not hamper the needed evolution towards greater decentralization.

In case of deconcentration and internal delegation, some local directors could be less active than others, achieving lower productivity from their subordinates.

In case of devolution to local governments, some local governments might decide that agricultural development is less important than other actions, and therefore might divert funds from agricultural extension and use these resources for other purposes.

Some crops and enterprises might receive more attention than others, increasing the gap between the farmers producing the first ones and the other parts of the rural society.

There could be a growing gap between the rich and fertile regions, where private companies tend to invest, and the poor and less fertile regions, where private companies normally do not like to invest.

It is therefore important to stress the relevance for a continuous monitoring and coordination, made by the central government, in order to counterbalance, with appropriate measures, the negative consequences that may arise with decentralization and liberalization.

1.7 Liberalization

Economic liberalization policies have been adopted at various degrees by several developing countries in the 1990s, including Syria. These policies have great influence on agricultural strategies, policies, research, extension, input marketing, agricultural services and natural resources management (Abdalla, 2000).

Liberalization means that social and economic actors are allowed to enter into the market of agricultural research and extension, on a fair level ground. Taking into consideration the political and economic reforms that many countries are experiencing, it is likely that an increasing number of national and international companies will start or expand their operations in Syria, as soon as the necessary reforms will be implemented.

In general, neo-liberalism has changed the fundamental nature of politics concentrating all its efforts on three main points:

- Free trade of goods and services
- Free circulation of capital
- Freedom of investment (George, 1999).

Liberalization is a very complex matter and often requires the modification of existing legislation and the introduction of new and clear rules. It needs a strong political commitment and very often the existing companies, which do not like the foreseeable incoming concurrence, oppose it. State monopolies and national bureaucracies also try to slow down the process of liberalization, because they fear to loose the rents guaranteed by present lack of competition. In other cases, nationalistic movements also oppose liberalization, because they accuse foreign companies to introduce wrong habits into the country, whereas other people fear that the land itself could be “sold” to foreigners.

As a matter of fact, economic liberalization, under proper Government control, allows the establishment of new companies, operating in a competitive environment, which obliges to offer good quality goods and good quality services to clients. For farmers, this could mean more and better information, offered by a greater number of advisors, employed by private companies.

1.8 General Remarks

Decentralization of agricultural extension services can be achieved through deconcentration, delegation, devolution and liberalization

Devolution to local government and partnerships with CSOs are strategies designed to identify people’s priorities more effectively and to respond to their effective demands. The central

government has to decide what share of central revenue is to be transferred to local governments and the criteria for allocating these resources geographically. Simple criteria have the advantage of greater transparency and smaller data needs and tend to give rise to fewer disputes than complex, sophisticated formulae. The jurisdictional responsibilities within the public administration should be very clearly defined by the domain of each organization in accordance with the principles of subsidiarity.

A major practical issue that needs to be addressed by devolution concerns whether local governments and CSOs have the administrative and technical skills to provide the services for which they have responsibility.

If decentralization is going to lead to improved planning and a better quality of social and economic services in rural areas then improved information flows concerning people's requirements and preferences and about defects and failures of service delivery mechanisms is required. Decentralization does appear to improve information collection but good planning is required to ensure that effective information exchange among all the partners in development works smoothly. It can prove difficult to get the necessary cooperation between partners to achieve this (Santucci, 2000).

1.9 Monitoring and Evaluation in Extension

In most countries agricultural extension is considered as an important policy tool of agriculture to help farmers and enable them to compete in the world market. However, monitoring and evaluation are not always properly performed. And the major purpose of monitoring and evaluation is to provide the management with information on how efficiently the extension organization is operating (Seepersad, Henderson, 1988).

Monitoring is a regular system, which detects, registers and analyzes all information on the process of a program or a certain project with the aim of solving the emerging problems and difficulties throughout the implementation. Also, monitoring is a management tool, which must control and use the planned inputs properly, in addition to strengthening the necessity of implementing resolutions and recommendations properly according to defined programs and plans.

Evaluation is one of the important tools of management, which helps to make the best use of activities throughout development and for future planning that helps in programs setting, decision making and process correction according to measurement results. Briefly, evaluation is a detection operation establishing whether a project or a program has achieved its goal or realized the planned objectives or not. It has two essential functions:

- Estimation, which is to give a value.
- Reformation, which is correction and modification towards the best.

Evaluation is an activity we engage in every day because we are always making judgement related to the value of things. Also, extension evaluation can be defined as a continuous and systematic assessment of the value of extension performance (Seepersad and Henderson, 1988).

The term "Monitoring function" encompasses all activities related to the coordination, analysis, interpretation and reporting to management of the data obtained through various sources, but the term "Evaluation function" should be kept separate from the monitoring function, since it differs from it in objectives, audience, and timing. Monitoring provides managers with feedback on the nature and extent of progress achieved to date in implementing development activities, compared with what had been planned. Whereas, an evaluation of a particular program will seek to explain and if possible measure the level of efficiency of its implementation in relation to costs and accrued benefits, to reassess the relevance of the objectives, and eventually to measure its contribution to overall development (Murphy and Marchant, 1987).

M&E help in detecting the advances realized by the activities by pointing out the deficiency and deviation so as to enable the management to take correction procedures in due time. M&E also support in verifying the adequacy and efficiency of the activities as well as their effect on the targeted persons regularly and objectively.

The key objective of physical and financial monitoring is to set up an internal, routine mechanism which will quickly identify any deviation from plans "in term of what is done, when, and at what cost", so the appropriate measures can be taken. Physical and financial monitoring covers the deployment and utilization of all types of resources (human and otherwise), realization disbursement, and legal and procedural requirements. The data will consist mostly of absolute numbers, and can be presented as percentage realized compared to expected, or on graphs.

There is a growing understanding of the importance of M&E as a tool for effective, objectives-oriented management of agricultural extension systems, particularly in agricultural and rural development projects.

First, given that rural development is complex and much of it is still "trial and error", monitoring and evaluation are now seen as an aid to learning about its dynamics. Since the late 1960s, it has been realized that extension efforts focused on "growth" per se have often failed to benefit – both in relative and absolute terms- the large masses who live below the poverty line and exceeds one-third of the world's population. To ensure that the benefits of development would reach the poor and socially disadvantaged groups, there was a clear need to reorient conventional development thinking and strategies to go beyond "growth" criteria and to focus on equity and other socio-economic objectives targeting the poor and other disadvantaged groups. At least three major shifts in thinking seem to have contributed to this new interest in M&E.

The second major impetus to the growing interest in M&E, based on development efforts over the past three decades, relates to an important cause of the failure of development efforts: weakness in implementing projects and programs. A tool has been needed both for effective implementation and for enabling planners and decision-makers to draw lessons for the future. The role of M&E as a tool of effective management of development activities in the short run is increasingly recognized (Bulletin, 1982).

Finally, the gradual worldwide reduction of resources for agricultural extension has forced governments to think of ways of making optimal use of limited resources and to lay greater emphasis on the quality of extension activities and their results.

There is then a growing appreciation of monitoring and evaluation as relevant to all stages of the management cycle. Together, these two related but distinct activities provide the means for managers, planners and decision-makers to do the following things:

- Track the progress of activities during implementation and remain alert, in case of shortfalls or deviations, for early corrective action.
- Determine systematically and objectively the relevance, efficiency and effectiveness of extension activities and their impact on the intended beneficiaries.
- Learn lessons for future planning, for formulation and implementation of projects and programs.

The shift in the focus of development thinking of "people", particularly the poor as the subject of development and to their quality of life as its ultimate goal rather than physical outputs, suggests that evaluation should also be concerned with the impact of development efforts on the intended beneficiaries.

Extension development efforts are undertaken, namely, at the country level, by both functionaries and beneficiary agencies who are realizing that a capacity for M&E as a tool of

development management should be built up.

However, monitoring and evaluation of extension can be done from a variety of perspectives with mixed results, first of all (Eveenson and Jha, 1973) by recognizing the dependence of extension on agricultural research. The combination of these two factors has shown a positive relationship between them and agricultural productivity. Other studies (Harker, 1973) have concentrated on estimating the effects of extension by comparing farmers who have contact with extension agents with those who do not.

Chambers and Wickremanayake (1977) concentrated on assessing extension performance by measuring the extent of farmer extension agent interaction. Leonard (1973) examined the extent to which extension agents visits to farmers are biased in favour of the rich and influential. Some evaluators as Hoeper (1983) see the internal efficiency of the extension system as a crucial parameter and study farmer to agent ratios and the quality and motivation of extension agents, or the location and mobility of extension workers as Rahim, (1966). And some investigators (Lockheed, 1980) sought to establish whether extension is a substitute for, or complement to, education.

Such studies have been undertaken in developed countries, but studies in developing countries have usually been less rigorous, evaluating extension through a sample before and after comparison of crop yields (Benor and Harrison, 1977). Such studies, however, do not identify, and hence evaluate, the contribution of extension to increases in output because they do not separate out the contributions of factors such as material inputs, soil quality, and other variables likely to influence outputs.

Interest and activities in developing a proper M&E system varied considerably during the 1960s and 1970s. Evaluation efforts, when undertaken in connection with development projects or technical assistance activities, were limited in concept and scope. They were concerned more with disbursement and delivery of physical inputs and outputs than with the nature and impact on beneficiaries. In recent years, however, this has been changing (ACC, 1985).

In order to determine and realize the effectiveness of agricultural extension services at the lowest cost, we have to compare the effectiveness of the methods we use. This comparison provides information for the managers and technical staff who plan, organize and implement activities within extension agencies.

Also, extension managers need constant feedback not only on their staff achievements but also on actions by the beneficiaries. So, timely information will help the extension managers and their staff to identify what methods will be most effective and to continuously provide managers with up- to – date answers to the following questions:

- Are extension activities being implemented as planned, on schedule and within budget?
- Are these activities leading to expected results?
- What is causing delays or unexpected results?

A monitoring system should combine descriptive and diagnostic data, and call for sociological as well as agro-economic and statistical skills.

There are many indicators for monitoring and for evaluation, as follows:

The traditional approach, during the late 1970s and early 1980s, for agricultural extension services was that improved practices lead to higher yields and hence to overall increases in agricultural production and farm income. In theory, such an approach allows for a relatively easy calculation of the program's economic rate of return. An evaluation of this approach shows that they were frequently deficient on three accounts:

- Failed to understand and take into account the motivations behind farmer's decision-making process.

- Attempted to show a causal relationship between extension services and yields
- Failed to appreciate the practical difficulties of data collection in rural areas.

"Adoption rates" is the newer approach which attempts to avoid the problems mentioned above, as well as to provide managers with useable, timely information adapted to needs, and now it is considered the preferred monitoring indicator because it provides immediate feedback directly linked to performance. This means that instead of making the measurement of changes in production levels the focus is on extension monitoring and evaluation. Thus, we use the measurement of adoption rates and find answers to the following questions:

- Is the extension service being offered as planned?
- Do the farmers use the extension service as planned?
- Why or Why not (the adoption)?

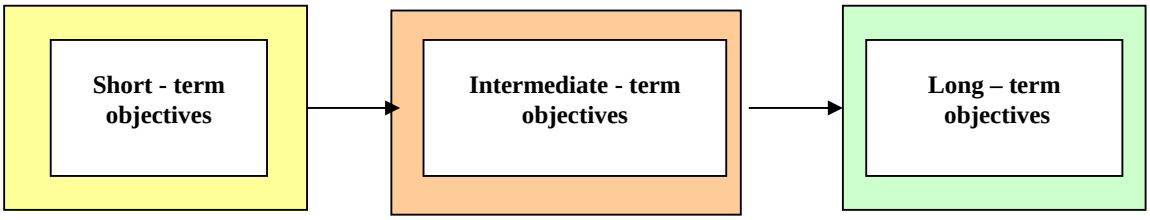
However, here is an equally important need for an efficient delivery system and good quality of message. The simplest and most direct way of assessing the quality of the message is to use the farmers' own value judgement of its benefits. The advantage of this approach is that. monitoring and evaluating extension activities provide relatively simple indicators of the success or failure of extension without having to collect data on yields and production. This approach moves away from trying to monitor agricultural results and concentrates on directly monitoring the provision and response to extension services.

1.10 Key Terms, Concepts and Purposes of Monitoring and Evaluation

Monitoring and Evaluating (M&E) are of critical importance for realizing the objectives of development programs and projects, particularly for rural development projects because of their anti-poverty and, frequently, multidimensional nature.

Objectives are the desired results of development programs and projects. Objectives can be arranged in a hierarchy of two or more levels, e.g., short-term, intermediate and long-range, or a lower level goal leading to a higher level, and so on. For example, the output (short-term objective) of the extension component of any agricultural development project is the realization of leaflets, demonstration plots, meetings, courses for farmers, with the intermediate objective of raising the production of various crops (effects), which will be expected to contribute to the objective of higher incomes and the well-being of the farmers (Figure 1.4).

Figure 1.4 -Monitoring and evaluation.



A Program is an organized set of activities, projects, processes or services, which is oriented toward the attainment of specific objectives (ACC, 1985).

A Project is a planned undertaking which is a set of interrelated and coordinated activities designed to achieve certain specific objectives within a given budget and period of time

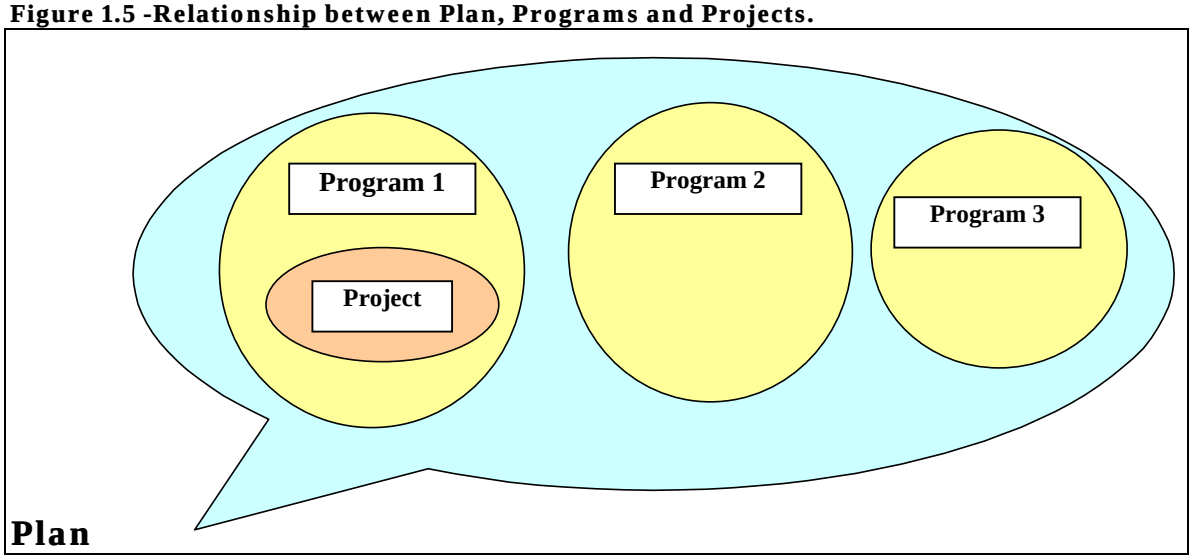
Projects are generally part of a sub-program or program. Several programs, in turn, form part of a Plan (e.g., Five-Year Plan, Annual Development Plan). Both projects and programs are

activities organized for achieving specific objectives, the difference being one of scope, magnitude and diversity.

The purpose of a program or a project is to convert a set of resources into desired results (objectives) through a set of activities or processes. The resources are called inputs. The result is divided into three broad categories:

Output, effects and impacts. The latter corresponds to a project's hierarchy of objectives, namely, short and intermediate and long term ones. These four and other key terms are defined below (Figure 1.5).

Figure 1.5 -Relationship between Plan, Programs and Projects.



Inputs are the goods, funds, services, manpower, technology and other resources provided for an activity with the expectation of producing outputs and achieving the objectives of a program /project.

Outputs are the specific products or services that the extension service is expected to produce from its inputs in order to achieve its objectives. Examples of outputs of an extension project are: (a) physical outcomes such as the leaflets printed, the videos produced, the radio programs emitted, etc, (b) services provided, as training courses, field visits, demonstration days, etc... It is important to note that an activity may have an intermediate output, that is, its output may serve as another activity input. For example, training of extension workers is an input for raising the quality of the extension service, but the extension service itself is an input for higher agricultural production.

Effects are the outcome of project outputs. Examples include agricultural yields- specifically, the incremental yields obtained from irrigated land, increases in fertilizer use as a result of improved credit services and supplies, increased use of health services or higher attendance at schools because of availability of additional facilities or improved services, and so on. Project effects will usually begin to emerge during the implementation period; however, full effects usually do not emerge until full development of a project, i e some years after project completion.

Impact is the outcome of extension activities. It is an expression of the results actually produced, usually at the level of broader, long-range objectives. Impact may also be defined as the ultimate change in the living conditions of beneficiaries resulting (wholly or partially) from a project/program. Examples: increased income, improved nutritional status, increased literacy rates, wider participation by target groups in development planning and decision-making, and increased capacity for self-sustained development of beneficiary groups.

Impact, thus, may be expected at both the individual or household level (changes in income, housing, nutrition, health status) or at community and national levels (altered socio-economic relationships, devolution of decision-making authority to local levels for effective beneficiary participation).

Some elements of impact may begin to emerge during implementation (increased employment, incomes and nutritional levels). Others such as improved literacy rates or capacity for self-sustained development will by their very nature evolve some years after a project's completion, i.e., at its full development.

It should be pointed out that the distinction between output, effects and impact depends on the nature, scope and size, and above all, the specific objectives of a project or program.

Monitoring is the continuous or periodic review and overseeing by management at every level of the hierarchy of the activity implementation to ensure that input deliveries, work schedules, targeted outputs and other required actions are proceeding according to the plan. The purpose of monitoring is to achieve efficient and effective project performance by providing feedback to project management at all levels.

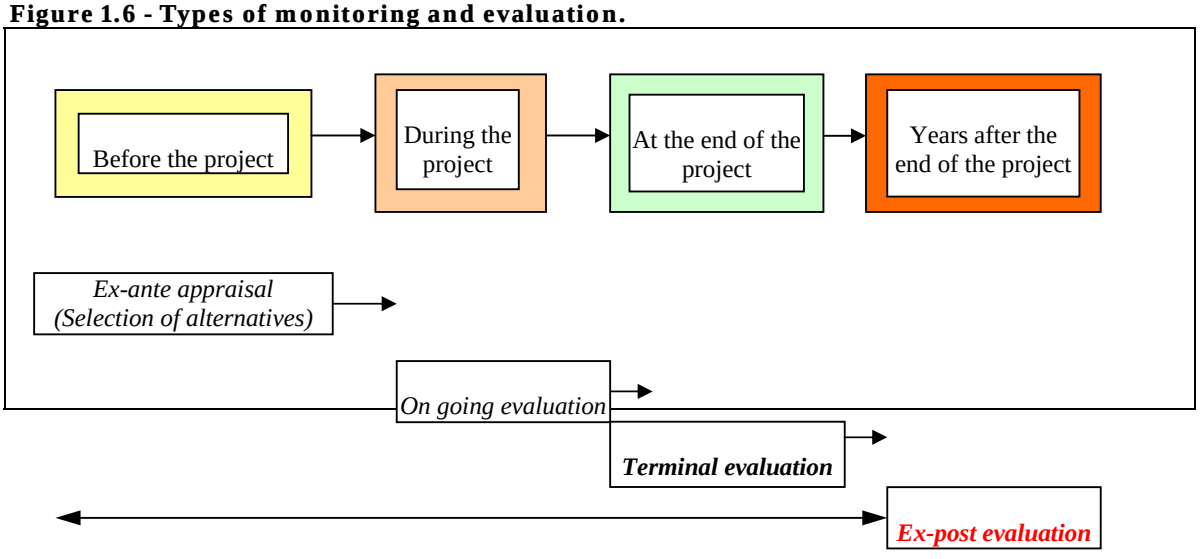
This enables management to improve operational plans and to take timely corrective action in case of shortfalls and constraints. Monitoring is thus a part of the management information system and is an internal activity. As an integral component of the management function, and hence essential part of good management practice, monitoring needs to be conducted by those responsible for project/program implementation at every level of the management hierarchy.

Appraisal is the *ex ante* critical assessment of the relevance, feasibility and potential effectiveness of an activity before a decision is made to undertake that activity or to approve assistance for it.

Evaluation is a process for determining systematically and objectively the relevance, efficiency, effectiveness and impact of activities in the light of their objectives. It is an organizational process for improving activities still in progress and for aiding management in future planning, programming and decision-making. Evaluation, in the context of agricultural extension projects, is concerned with assessment of effects-benefits and impact (long run objectives)-on the beneficiaries (Bulletin, 1982).

Monitoring is carried out only during implementation. Whereas, evaluation is carried out during implementation (on going evaluation); at completion (terminal evaluation); and some years after completion when the activity is expected to have reached its full development and the full impact (long-run objectives) of the activity is expected to have been realized (*ex post* evaluation).

Figure 1.6 - Types of monitoring and evaluation.



Ongoing evaluation is the analysis, during the implantation phase of an activity, of its continuing relevance, efficiency and effectiveness and present and likely future outputs, effects and impact. It can assist decision-makers by providing information about any need to adjust objectives, policies, implementation strategies, or other elements of the projects, as well as by providing information for future planning. Ongoing evaluation examines whether the assumptions or hypotheses made during the project formulation appraisal stage are still valid, or whether adjustment are required to ensure that the overall project objectives will be achieved. For example, in some cases the sum of the actions have been inappropriate; in other cases, unforeseen factors, external or internal, may require changes; and in other activities, the objectives themselves may require redefinition or sharpening of focus in light of the experience gained since the initiation of an activity.

Terminal evaluation is made at the end of the activity, either as a substitute for *ex post* evaluation of projects with short gestation periods or before initiating a follow-up phase of the project.

Ex post evaluation is undertaken at full project development, i.e., some years after project completion when full project benefits and impact are expected to have been realized.

The purpose of terminal and *ex post* evaluations is two-fold: to asses the achievement of overall results of the project in terms of efficiency, outputs, effects and impacts, to learn lessons for future planning, i.e., the design or formulation, appraisal, implementation, and monitoring and evaluation of extension activities.

Evaluation is therefore to be viewed as a learning process, the assumption learned about the dynamics of rural societies by both planners and decision markers. Both monitoring and evaluation are essential tools. The process of development is still largely an unexplored area and needs a lot of information for decision making. Administrative reports, supplemented by investigative studies or in-depth analyses of persistent problem areas, provide basic information for monitoring.

Monitoring analyses, supplemented by additional in-depth studies, provide the basic information for ongoing evaluation. In turn, the two processes together, supplemented by data about the socio-economic status and well being of the beneficiaries before and after the project, provide basic information for *ex post* evaluation. It is in this way that monitoring and evaluation are related and together form a unified system.

M&E are the most important management tool which help to reveal deviations and identify problems and difficulties which emerge throughout the process of implementing a certain program in order to be treated in due time. Also, they help to:

- Identify the necessary efforts and abilities to achieve the goal;
- Orient the operation of planning and implementation to reach the goal rapidly and at least costs;
- Create confidence between the implementing body and the targeted groups;
- Measure and display what was implemented and clarify the results;
- They are considered responsible for setting indicators and factors which clarify the development programs and provide justifications of their modification.

According to these tasks, the existence of a monitoring and evaluation system is an essential condition in all public and private bodies.

Since agricultural extension is a complicated operation which is still exposed to experiment, monitoring and evaluation should be viewed as assisting tools in understanding the dynamics of rural development, managing the activities on the short and medium term and supporting management capabilities on the long term. Consequently, evaluation is part of the management, which accompanies in planning, implementation, activity application and monitoring.

Indicators are quantitative variables selected by the management in order to provide meaningful information about the use of inputs, production of output, achievements of effects and impacts.

Indicators should be decided ex ante = before the beginning of activities and a proper system for data collection should be organized and implemented (the planning of evaluation). The main characteristics of the indicators are the following:

- Clear and fixed meaning
- Can be transformed into numeric values
- Precise and accurate
- Direct relation with the measured thing (measurement topic)
- Achieve the objective
- Practical and easily implemented

Monitoring and evaluation should not be confused with either **inspection** or **audit**, particularly by external agencies. Inspection and audit are forms of organizational review. They are made for control and check of higher levels of management by "external" staff or independent bodies, in order to investigate to what extent a process or performance conforms to established procedures or standards and to report on the extent of conformity or any irregularities (ACC, 1985).

Inspection and audit are important "senior management" functions. These are carried out for higher management and for control purposes. Management at all levels for effective extension activity implementation carries out monitoring, ongoing evaluation and *ex-post* evaluation. They are a learning and problem-solving exercise. It is essential, therefore, not to confuse

or combine M&E with inspection and audit.

1.11 Monitoring and Evaluation Unit

The place and role of the monitoring and evaluation unit must be clear and unrighteous to all cadres in the extension agency. It should not be seen as a simple data collection body set up to serve a wide range of unspecified information needs for unidentified users.

As a matter of fact, ineffective performance by monitoring units is often the result of a lack of a clear mandate, which should have been established at the time of its creation. However, monitoring and evaluation unit should be considered as a part of the management team.

In some organisations, the monitoring and evaluation unit is heavily involved and associated with the planning function, or writing completion reports.

Moreover, some difficulties result from the mixed overlapping functions as monitoring, supervision and collection of statistics. Other difficulties result from having the monitoring and evaluation unit tied into an inappropriate administrative structure, which generates discord rather than cooperation among the various parties.

However, essentially monitoring is a tool for meeting internal needs not those outside agencies. And sometimes we need to establish specialized unit for monitoring, depending on the size and complexity of the agency. But, for small agency or programs, it may be more efficient if the person who needs the information also organizes its collection and analysis.

However, the monitoring and evaluation unit should be responsible for measuring the indicators like adoption rates etc. Finally, the management information system relies on a set of activities carried out by all units within the agency, with the monitoring and evaluation unit playing a leading role of coordination and taking primary responsibility for the monitoring function and final analysis of findings.

Chapter 2 -Syrian Agriculture

This chapter presents an overview of Syrian agriculture, in order to facilitate the reader understanding of the various aspects of Syrian countryside and the relationships between agricultural production systems, agricultural research and extension. It covers ecological, agricultural, human and institutional aspects.

2.1 Farming Systems and Agricultural Productions

Syria is located in the eastern coast of the Mediterranean basin and its total area amounts to 18.517.971 hectares. It can be divided into four geographical areas (coastal, mountainous, internal and Al-Badiya) but, from an agricultural point of view (Table 2.1), Syria is normally divided into five zones:

Table 2.1 - Annual rainfall and main crops, by agro-ecological zones.

Zones	% of Total area	Annual rainfall	Main crops
- Zone 1	14,60	> 600 mm	Fruitful trees/ wide range of crops
		350-600 mm	Wheat/Legumes/ Summer crops
- Zone 2	13,30	250-350 mm	Wheat/Barley/Legumes/ Summer crops
- Zone 3	9,90	>= 250 mm	Mainly Barley/ grazing
- Zone 4 Marginal	20,00	<= 200 mm	Just for Barley or permanent grazing
- Zone 5 the Badia	42,20	almost no rainfall	Only for low density pastures

Source: MAAR, 2000

First zone

It includes the coastal area, the Golan Heights, the northern part of Aleppo Governorate, the borderline with Turkey, in addition to the mountainous area in Suweida, where rainfall exceeds 350 mm annually.

This zone can be divided into two sub-areas, according to the annual quantity of rain: more than 600-mm/ year and from 350 mm to 600 mm/ year. It constitutes nearly 15% of the total country area. The richest crops, which are planted in this area, are fruitful trees and early vegetables, accompanied by barley, wheat, corn, sugar beet, cotton, etc.

Second zone

This zone stretches next to the first zone and has nearly the same size. Rain ranges between 250-350 mm/ year. The main crops are barley and the summer crops.

Third zone

It constitutes 10% of the total country area. The annual rainfall is about 200-250mm/year and the main crop here is barley. It includes the southern area and passes through the northern and middle area to the Al-Jazira area. The fields in this third zone are also used as pasture for cattle and sheep.

Fourth zone

It constitutes about 20% of the total country area and is suitable only for pastures. It can be cultivated with barley only in good years, because the average annual rainfall is below 200 mm/year.

Fifth zone

It constitutes more than 40% of the total country area. The rainfall here is always less than 200 mm/year and it is not suitable for rain fed farming. It is used for free-range pastures, with low animal density and Bedouins who raise sheep and goats populate it.

In the above-mentioned agro-ecological zones, agricultural productions are very much dependant on rainfall and irrigation systems. The following systems can be described:

Rain fed systems

They depend on the quantity of rainfall and are concentrated in areas of at least 350 mm/year. These areas are suitable for different kinds of products, as these areas are directed towards increasing productivity and intensive agricultural production according to the government agricultural plan. In case of zones of less than 300 mmrainfall, the farmers choose their crops.

Irrigated farming systems

In Syria, the main system of irrigation is pumping from rivers and flood irrigation. In these areas, several irrigated crops are cultivated, such as the strategic crops of cotton, wheat and sugar beet. The fruit trees and early vegetables are also planted as in the Syrian coast.

All these crops with fruit trees included are irrigated. The irrigated area is about 1.186.000 hectares, and the cultivated area with fruit trees in the different zones, except for Al-Badiya, is about 3,355,000 ha, according to 1999 statistics.

Animal production systems

Animal husbandry (Table 2.2) can be divided into two different sub-systems: goats and sheep are concentrated in the free pasturing system in the Al-Badiya. There are 13 million heads of goats according to 1999 statistics.

As for cattle (800.0000 heads according to 1999 statistics), they are raised more intensively in villages and stables of farmers. In most cases, the number of cattle, cows included, kept by a peasant family, is less than three; only a handful of landowners has more than 100 animals.

Table 2.2 - Lactiferous Animals (000) & Milk Production (000t) in the cooperatives 1994-1995

Years	Sheep			Goats			Cattle			Cows		
	no.	Milked	Milk	no.	Milked	Milk	no.	Oxes	Calves	no.	Dairy	Milk
1995	9.661	6.325	370	717	490	45	599	17	146	436	273	656
1996	10.828	7.048	413	748	511	51	665	16	171	478	309	737
1997	11.389	7.422	431	759	513	52	683	17	175	491	323	820
1998	13.362	8.516	483	760	531	55	760	21	175	564	372	842
1999	12.341	7.859	431	754	532	48	829	26	214	589	381	932

Source: MAAR 2000.

Forests

The forests constitute only 3% of Syria. They are concentrated in the Governorates of Lattakia and Tartous.

The Government is very concerned about the natural forests and several efforts have been made to establish artificial forest areas. The last agricultural plan in 1995 included a forestry plan for the planting of new 24.000 hectares.

Land tenure

As for the ownership of agricultural lands, there are six types of farmers in Syria:

Non farmers owners: they constitute 40% of total owners

Farmers owners

Land tenants from private sector

Land tenants from public sector

Beneficiaries of agricultural reform law and public land distribution

Squatters of state land

Most farmers in the country are small owners. The average size of agricultural holding does not exceed 83 donum (8.3 hectares) according to the 1994 agricultural census.

Table 2.3 illustrates the number of holders and the average area grown by each family. In these farms, agricultural operations are mostly depending on family labour.

When we compare, at national level, the number of holders with the number of workers in the agricultural extension service, (Table 2.4), we find that the ratio is nearly 105 holdings per person. Actually, the personnel really in contact with farmers, in the Extension units, is much smaller: there are extension units that contain no more than one engineer or one agricultural supervisor, who is responsible for, at least, two villages with 300 holdings.

Table 2.3 - Agricultural holders and average area of holding by Mohafazat.

Mohafazat	No. of Agricultural Holders			Average Area per farm (donum)								
				Cultivable Lands			Uncultivable Lands			Total Area		
	1970	1981	1994	1970	1981	1994	1970	1981	1994	1970	1981	1994
Damascus City	4.512	5.047	7.367	66	64	29	4	5	1	69	69	30
Damascus Rural	44.392	32.371	41.492	36	36	33	2	3	1	39	39	34
Aleppo	95.401	85.927	96.832	137	102	122	5	8	1	142	110	123
Homs	45.828	40.107	50.370	113	76	81	13	4	1	126	83	84
Hama	52.706	51.063	65.909	88	66	66	12	7	2	100	73	69
Lattakia	44.803	36.525	48.208	22	16	20	1	1	0	25	47	20
Deir-Al-Zor	30.184	29.525	42.042	90	32	51	5	4	2	95	36	53
Idleb	44.602	46.985	55.654	63	48	54	4	1	1	67	52	55
Al-Hassakeh	50.540	55.162	61.089	357	185	182	12	6	1	369	191	183
Al-Rakka	26.815	21.598	27.824	214	216	278	7	5	2	122	80	76
Al-Sweida	16.820	15.792	23.286	115	75	73	7	5	2	122	80	76
Dar'a	27.355	20.857	30.432	126	89	69	6	11	1	132	100	70
Tartous	42.165	42.278	58.773	26	19	18	1	1	0	27	21	18
Quneitra	1.776	2.264	4.379	65	40	35	21	11	5	86	63	49
Total	527.899	485.501	613.657	112	76	83	6	6	1	118	85	85

Source: Central Statistical Office, Agricultural Census 1970, 1981, and 1994.

Figure 2.1 - Distribution of Extension Agents and agricultural holders (1999).

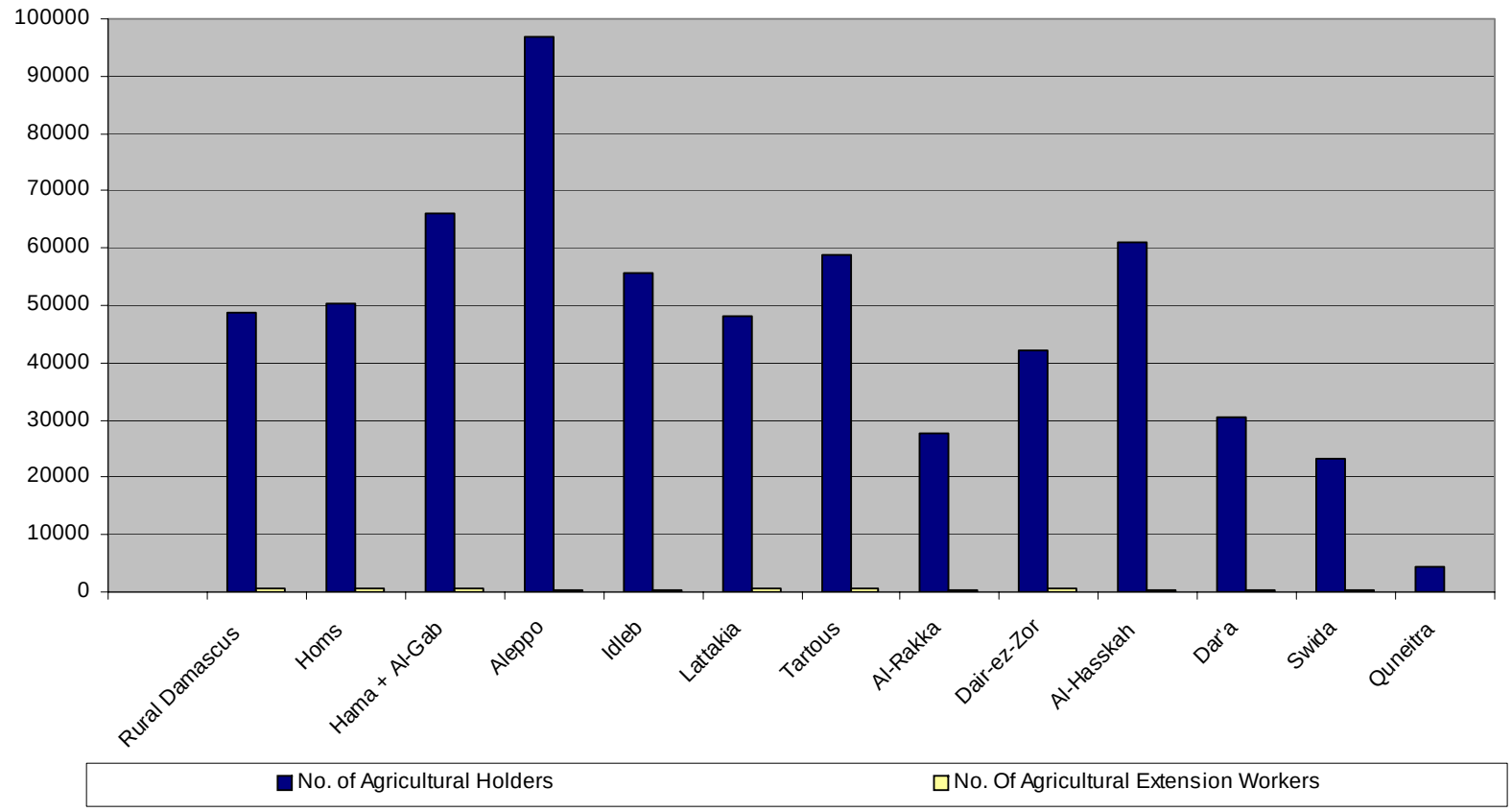


Figure 2.2 - Distribution of extension units and employment within the extention activities at MAAR,1999.

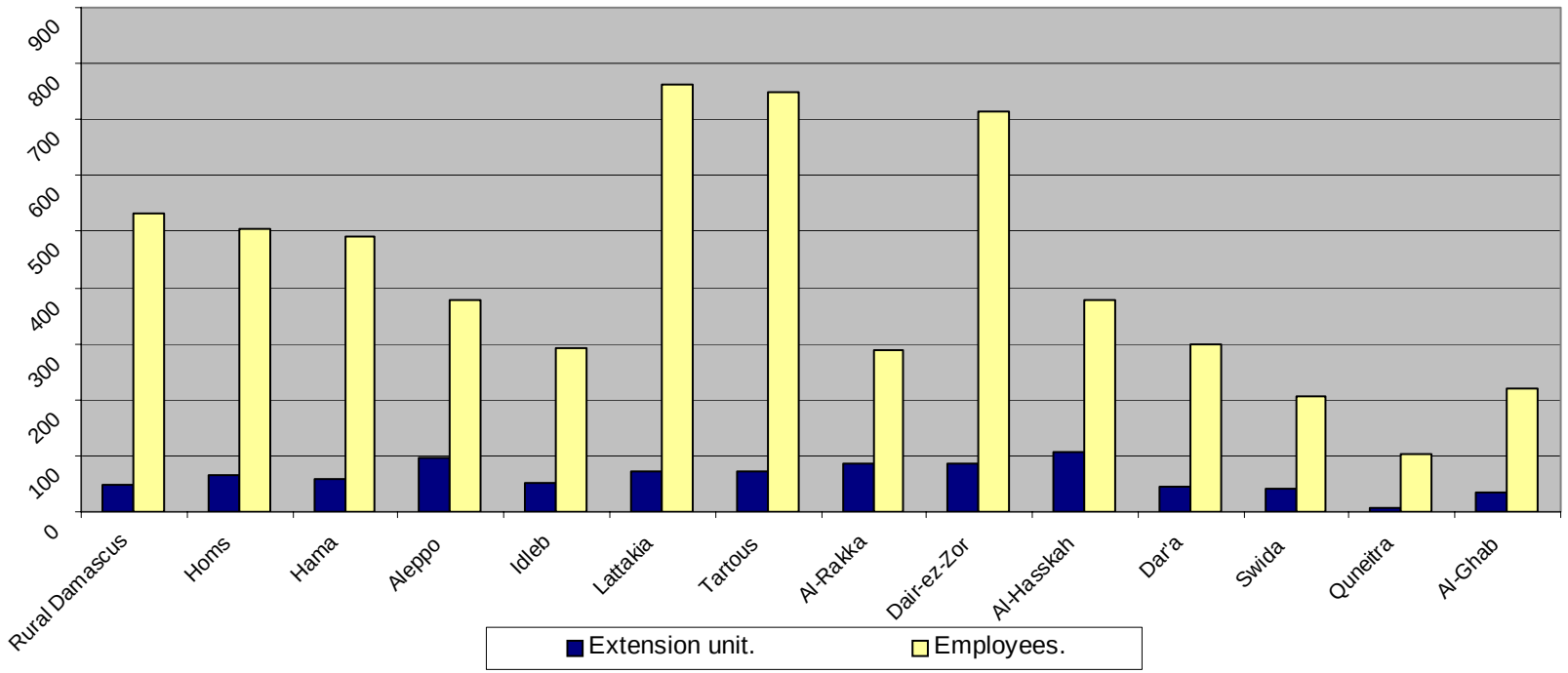


Table 2.4 - Distribution of extension units and personnel in the Mohafazats. 1998 1999.

Mohafazat	1998							1999						
	Extension Units (no.)	No. of Workers					Total	No. of Extension Units	No. of Workers					Total
		Agronomist male*	Agronomist female*	Agricultural Technicians	Veterinarian*	Veterinarian Assistants			Agronomist male	Agronomist female	Agricultural Technicians	Veterinarian	Veterinarian Assistants	
Rural Damascus	45	136	99	59	22	194	510	47	144	100	51	26	210	531
Homs	64	160	46	34	81	106	427	65	168	48	35	92	163	506
Hama	54	179	55	113	59	271	677	58	103	43	60	43	242	491
Aleppo	96	283	39	112	49	134	617	96	165	22	71	19	100	377
Idleb	52	97	5	58	10	82	252	53	120	8	62	11	91	292
Lattakia	70	410	266	58	26	48	808	71	386	247	61	18	51	763
Tartous	71	266	141	154	25	141	727	72	265	141	164	26	153	749
Al-Rakka	87	68	8	41	141	5	263	87	75	7	39	4	165	290
Dair-Al-Zor	85	99	61	102	28	344	634	86	105	51	97	30	431	714
Al-Hasskah	105	169	4	117	8	152	450	107	168	9	72	10	119	378
Dar'a	44	81	19	39	23	137	299	45	85	19	35	24	136	299
Al- Swida	40	51	12	80	9	60	212	40	45	11	78	10	61	205
Quneitra	6	22	4	9	4	65	104	6	20	4	10	4	64	102
Al-Ghab	34	62	12	48	21	71	214	36	65	10	55	15	74	219
Total	853	2.083	771	1.024	506	1.810	6.194	869	1.914	720	890	332	2.060	5.916

*Holders of University degree.

Source: MAAR, Extension Directorate 1999

As a matter of fact, for example, in the Governorate of Idleb (villages of Al-hbeet and Al-The), it was found that each extension unit supervises about 700 holdings and each contact extension agent is responsible for about 200 holdings, that means almost the double than the theoretical national average.

Agriculture is subject to a central agricultural plan elaborated by the MAAR, which includes the area of each crop, the strategic ones in particular. This plan is applied exactly in the first and second zones under the supervision of extension units in villages and Mantikas. These units are even authorized to punish the farmers who violate this plan.

Beside the private holdings, there are also farms owned by the State, which are run by a public company named Public Farms Establishment, subject to the Government plan. Employees who work in the farms implement the plan: engineers, supervisors and workers. The total area of public farms is 117.611 hectares, out of which 38.380 hectares are exploited lands, whereas the total cultivable area is 61.154 ha (Table 2.5).The most important crops in these farms (Tables 2.6) are fruit trees, industrial and fodder crops grains.

As for Al-Badiya and pastures, these areas are owned by the State and are populated by Bedouins, who mainly have sheep and goats. Since these animals graze freely, their behaviour has caused harm to the plant cover in the Al-Badiya and the disappearance of pastoral plants, in addition to years of drought. Therefore, the Government had to establish projects for protecting the pastures through regulating pasturing and for establishing nurseries, which produce shrubs to be planted in all this area.

2.2 Non-governmental Organizations

Peasants associations

They include the farmers as members and these unions work under the supervision of the General Union of Peasants. The peasants associations were established according to law no. 21/1974 with the aim of supporting the agricultural plan. There are several types of associations, such as:

- Associations of animals raising and pastures management
- Associations of marketing animal products
- Associations for several purposes
- Associations of marketing fruit and vegetables

These associations are semi public, because their main task is to implement the agricultural plan of the Government. In addition, they provide some services for the farmers such as fodder, fertilizers, pesticides, seeds and loans. According to the statistics of the General Union of Peasant for 1988, there were 5.223 associations all over the country. According to the Central Bureau of Statistics for 1999, there are now 5.395 associations. Table 2.7 illustrates the number and type of peasants associations distributed in the Syrian Governorates.

It is important to stress that although the peasants associations cooperate closely with the MAAR extension service, they do not provide at present any extension services.

Table 2.5 - Land uses (000ha) in State Farm for Plant Production 1999.

State Farm	Location or Mohafazat	Cultivable Lands				Uncultivable Lands				Steppe & pastures	Forests	Rented Area	Total Area
		Cultivated Lands		Uncultivated Lands	Total	Building & public roads	Marshes & Lakes	Rocky & sandy soils	Total				
		Irrigated	Rainfed										
Damascus	Damascus	204	24	-	228	32	-	18	50	-	-	18	296
Dejlel	Al-Hassakeh	690	2.544	-	3.234	34	-	13	47	10	-	-	3.291
Raselain	Al-Hassakeh	1.210	5.782	10.088	17.080	85	554	76	715	16.495	-	18.899	53.189
Al-plach	Al-Hassakeh	620	2.065	3.705	6.390	495	27	680	1.202	-	-	-	7.592
Al-manajeer	Al-Hassakeh	200	410	-	610	10	9	21	40	-	-	25	675
Al-kahtania	Al-Hassakeh	149	325	-	474	67	4	6	77	1	-	-	552
Salo	Deir-Al-Zor	340	400	257	997	50	176	125	351	4.500	-	50	5.898
Al-Rasheed	Al-Rakka	765	6.800	7.214	14.779	526	-	358	884	40	-	-	15.703
Hamadani	Aleppo	23	377	12	412	7	-	5	12	4	-	116	544
Al-Assad	Aleppo	14.891	-	950	15.841	2.732	5.546	1.250	9.528	1.101	-	2.070	28.540
Al-Hourieh	Lattakia	216	10	-	226	14	-	4	18	20	-	-	264
Headquarters	Dar'a Al-Suweida	43	101	548	692	-	-	136	136	-	-	-	828
Qunaeitra	Quneitra	120	71	-	191	29	-	19	48	-	-	-	239
Total		19.471	18.909	22.774	61.154	4.081	6.316	2.711	13.108	22.171	-	21.178	117.611

Source: Central Statistical Office, Statistical Abstract 2000.

Table 2.6 - State Farms for Plant Production 1999 (Production in tons, area in hectares)

State Farm	Location or Mohafazat	Area & Production													
		Cereals		Legumes		Vegetables		Industrial Crops		Fodder Crops		Fruit Trees		Woods	
		Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.
Damascus	Damascus	-	-	-	-	-	-	-	-	-	-	214	630	13	-
Dejlel	Al-Hassakeh	1.829	1.127	400	7	-	-	212	920	400	80	-	-	-	-
Raselain	Al-Hassakeh	6.250	3.559	-	-	-	-	170	86	190	grazing	-	-	-	-
Al-plach	Al-Hassakeh	2.685	2.203	-	-	-	-	-	-	-	-	-	-	-	-
Al-manajeer	Al-Hassakeh	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Al-kahtania	Al-Hassakeh	330	196	25	4	31	342	50	89	35	grazing	-	-	-	-
Salo	Deir-Al-Zor	565	456	-	-	-	-	75	412	100	grazing	-	-	-	-
Al-Rasheed	Al-Rakka	7.250	3.190	-	-	-	-	305	1.981	-	-	-	-	-	-
Hamadani	Aleppo	133	136	14	3	-	-	17	38	60	14	127	-	-	-
Al-Assad	Aleppo	4.226	10.905	-	-	-	-	2.500	6.492	1.415	grazing	133	-	8.306	4.024
Al-Hourieh	Lattakia	-	-	-	-	4	113	-	-	-	-	218	-	-	-
Headquarters	Dar'a	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Suweida and Al-Quneitra	30	-	-	-	-	-	-	-	-	-	166	-	-	-
Total		23.698	21.961	439	14	35	455	3.329	10.018	2.200	94	858	630	8.319	4.024

Source: Central Statistical Office, Statistical abstract 2000.

Table 2.7 - Farmers` Co-operatives by type & Mohafazat, 1999

Mohafazat	Multi purpose	Production	Animal Breeding Cooperatives			Fattening Coop.			Poultry	Silk worms	Fisheries	Arab horses	Camels	Bees	Marketing		Total
			Sheep	Pastures improv.	Cows	Sheep	Calves	Camels							Veg & Fruit	Animals	
Damascus	225	1	10	35	21	5	1	2	11	-	-	2	-	5	1	1	320
Aleppo	319	-	78	22	3	7	-	-	-	-	4	1	-	-	1	1	436
Homs	344	-	71	127	27	34	2	-	12	-	3	1	1	3	1	1	627
Hama	373	-	8	31	-	11	-	-	1	1	1	1	-	-	1	1	429
Lattakia	421	1	-	-	62	-	-	-	1	-	-	-	-	1	1	1	488
Deir-ez-Zor	94	1	-	102	17	8	-	-	-	-	1	1	1	-	1	1	227
Idleb	406	-	27	8	3	24	3	-	-	-	-	-	-	3	1	1	476
Al-Hasakeh	522	-	60	40	-	3	-	-	-	-	2	3	-	-	1	1	632
Al-Rakka	212	-	73	117	1	1	-	-	-	-	6	-	1	-	1	1	413
Al- Suweida	115	-	33	21	-	-	-	-	-	-	-	-	-	1	1	1	172
Dar'a	104	-	44	2	-	-	-	-	1	-	-	1	-	3	1	1	157
Tartous	347	1	-	-	-	-	-	-	-	-	2	-	-	1	1	1	353
Quneitra	67	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	69
Total	3.549	5	404	505	134	93	6	2	26	1	19	10	3	17	13	12	4.799

Source: General Farmers Federation, Annual Statistics, 1999.

Agricultural Chambers

They were established according to law no.129/1958. They are considered establishments of common benefit with the aim of developing the country, improving agriculture, and improving the social, economic and medical conditions of the countryside. They aim also at improving the living standard of the farmers and helping them to present their needs and goals to the Authorities and defending their interests by implementing the following:

- establishing agricultural chemical laboratories, plant nurseries, testing centers, preparing improved seeds to be distributed to farmers;
- collecting statistics about the agricultural income and encouraging the cooperative movement;
- participating in the different extension operations such as issuing agricultural publications, establishing extension fields, preparing agricultural films.... etc;
- establishing temporary and permanent exhibitions, agricultural markets and typical farms;
- granting certificates of origins for agricultural crops;
- approving the signatures of farmers registered at these chambers;
- approving the guarantees offered by the farmers and the degree of guarantors and their financial adequacy according to the number of agricultural chambers in Syria which is related to the number of country Governorates.

Farmers can be members in the peasant association and in the agricultural chamber at the same time. The work of these chambers is restricted to office work, though it has an extension aspect (issuing publications, exhibitions, etc.). The relationship between these chambers and the Directorate of agricultural extension is limited to cooperation for annual agricultural exhibitions, both in Syria and abroad.

2.3 Inputs Suppliers and Output Processors

As it has been described by Rama (2000) most agricultural inputs are produced domestically by Public Bodies and/or are imported and distributed by Public Bodies. The presence of the national private sector is very limited, while international companies are totally absent.

Input supply

Most input supply is ensured by public establishments related to MAAR, but with an economic nature. They secure the agricultural needs of the state and private companies and the individuals (farmers). These establishments are:

- The General Establishment of Agricultural Mechanization
- The General Establishment of Seeds Improvement
- The General Establishment of Fodder: it provides fodder for animals
- The General Establishment of Cows: living cows, milk, meat and calves
- The General Establishment of Fish
- The General Establishment of Poultry: it produces chicks, hens and eggs
- Fertilizers Company in Homs, which belongs to the Ministry of Petroleum

All these establishments supply products and services to the public and private sector, but they do not offer any extension services nor do they have any relation with the Directorates of the agricultural extension.

According to the 1999 documents of the Ministry of Industry (Table 2.8), there are then 207 private companies, producing and marketing animal fodder, fat and different oils at an annual average production capability of 457.000 tones, in addition to one plant for producing veterinary

medicines. In addition, there are some industrial companies specialized in producing agricultural products.

Table 2.8 - Companies in the agro-food industry in Syria - Private sector

Industry	Number of companies			Production Capacity (000t)
	Law 10/91 provisions		Total	
	no.	>10 employees	no.	
Cereals processing	14	13	2.005	1.954
Fruit & vegetables processing	14	13	40	424
Meat & processed meat	1	1	18	19
Dairy	9	7	32	79
Sugar & sweets	1	1	391	134
Oils, fats & animal feeds	11	8	207	457
Alcoholic beverages	1	0	76	28
Non alcoholic beverages	2	2	126	183
Others	5	3	315	10.594
Total	**58**	**48**	**3.210**	

Source: Ministry of Industry, Private sector dept., Agro-food sector, personal information.

Animal fodder, fish fodder and the complementary mineral ingredients are imported and distributed by the private sector (the General establishment of fodder may import part of these fodder and it grants licenses for fodder import according to prior specifications).

Some private companies import the seeds and distribute them, whereas the other part is produced and imported by the General Establishment of Seeds Improvement.

Another important tool for farm management is credit that is managed in Syria by the Cooperative Agricultural Bank: it was established according to law no.141/1970 as a public establishment, with administrative and financial independence. It is considered a trader and carries out operations of lending to agricultural cooperative associations and to their unions, establishments of economic feature which deal with agricultural productions in addition to lending to individual producers. This agricultural bank had 106 branches in Syria, at the end of 1999. It offers agricultural loans classified according to the term of lending as follows:

- short term loans to be repaid during one year (one agricultural season)
- medium term loans to be repaid during five years
- long term loans to be repaid during ten years, but the interest of this loan should be repaid starting from the first year.

The interest rate of agricultural loans amounts to 3.5% for public sector and 4% for individuals or private sector. The bank offers loans for farmers after presenting papers approved from the Directorate of Agriculture to guarantee the years of ownership presented by the farmer as a proof of owning this agricultural holding.

The loan can be either in kind (fertilizers, pesticides, seeds) and these loans are short term loans or cash loans with the aim of preparing or reclaiming the land, planting trees; these are medium or long term loans. Loans are granted according to a priority list prepared by the cooperative

operations where the due time of repayment is determined according to the ownership unit (donum).

The Co-operative Agricultural Bank has no extension activity and does not offer any extension services or loans for financing and supporting the extension services.

Output marketing and processing

Marketing the agricultural production depends on different marketing channels except for the marketing of the strategic crops, which is restricted to State-controlled companies. These crops are cotton, wheat, sugar, tobacco and they are processed within public factories such as:

- Establishment of Cotton ginning and Marketing which takes the raw cotton from the farmers and separates the seeds from the fibers.
- Sugar factories.
- General Establishment of Tobacco, which takes the dried material ready for processing.
- General Establishment of Trading and Processing Cereals, which takes wheat, barely and legumes through its offices in the Governorates (cereals office) at encouraging prices. For example, wheat is bought at 10.5 SP, which exceeds the world price by 4 SP at least.

There are then other public companies, specialized in different products, that are not committed to a specific plan and that buy the farmers' output directly from the farmers.

These establishments are:

- Distilleries, which process grape into different products such as alcoholic drinks.
- Breweries, which buy barley from the Establishment of cereals trade and processing.
- Processors of vegetables and fruits to be canned such as tomato, beans, broad beans, chickpeas, apple, pear and apricot, etc.
- Dairies, slaughterhouses and meat processor.

There are also small private companies for processing agricultural products, which are traditional industries (mills, bakeries, and alcoholic drinks). These industries remained weak or not authorized till the issue of investment law no.10/1991, which encouraged the investors to set up industrial projects for agricultural products.

According to the information of investment office at the Prime Minister's Office, till June 1999, there were 3,210 companies active (Table 2.7) in the food sector. The Ministry of Industry licenses firms producing, processing or treating:

- grains (milling, husking and crushing)
- fruit and vegetables
- dairies
- candies and chocolate
- oils/ fat/ animal fodder
- alcoholic drinks
- soft drinks

None of these companies has any extension activity, nor has any relationship with the Directorate of extension at the MAAR.

2.4 Educational Profile of Farmers

The rural community forms 60% of total Syrian population. The Syrian national income depends on agricultural production, so the rural population is the pillar of operation. Accordingly, there was a need for plans developing the countryside in its different fields,

especially after 1970, with the aim of raising production efficiency, increasing the yields and the use of production factors.

Elementary schools were built in each village. In year 2000, it is not possible to find a village without an elementary school in addition to obligatory teaching law which lasts till the preparatory school. Also, preparatory and secondary schools became available in the countryside with availability of transport means. There are programs adopted by several public establishments such as the General Union of Peasants with its institutes.

The Ministry of Agriculture and Agrarian Reform has schools and agricultural secondary schools, in addition to programs of illiteracy eradication and rural woman development. In addition, the General Union of Peasants and the Ministry of Labor and Social Affairs organize income generation activities for the female rural population in order to tackle illiteracy.

Thanks to all these efforts, the illiteracy rate decreased enormously (Table 2.9). It was about 34% of total Syrian society (urban and rural) in 1970, with illiteracy rate in the countryside almost double than in towns. In 1981, illiteracy had decreased to 23%. In 1994, the rate decreased to 14% in the rural and urban community.

Despite the population growth between 1970 –1994, to almost 14 millions, the number of Illiterate persons in the countryside has decreased from 1.47 million to 1.26 million.

In 1970, the percentage of elementary pupils did not exceed 8% of total population, whereas in 1981 the percentage increased to 13% and to 15% in 1994. According to table 2.8, there has been a big increase in rural pupils in the elementary cycle, for both males and females.

Unfortunately, in the Bedouin community where people depend on raising livestock (sheep, goats and camels) and moving all the time seeking pastures, the rate of illiteracy exceeds 90%, due to the kind of Bedouin life and to the involvement of all family members in protecting and looking after the animals.

Table 2.9 - Syrian population (>10 years) by educational status and gender (urban & rural)

Education Status	1970			%	1981			%	1994			%
	Urban	Rural	Total		Urban	Rural	Total		Urban	Rural	Total	
M	220.974	488.124	709.098	17,6	219.057	419.365	638.422	11,3	220.040	343.340	563.380	6,6
Illiterate F	466.855	982.234	1.449.089	35,9	503.687	1.018.510	1.522.197	27,0	476.730	917.750	1.394.480	16,5
T	687.829	1.470.358	2.158.187	53,4	722.744	1.437.875	2.160.619	38,3	696.770	1.261.090	1.957.860	23,1
M	343.807	389.162	732.969	18,1	445.852	467.237	913.089	16,2	614.950	724.600	1.339.550	15,8
LiterateF	208.835	88.897	297.732	7,4	324.117	230.590	554.707	9,8	528.430	514.880	1.043.310	12,3
T	552.642	478.059	1.030.701	25,5	769.969	697.827	1.467.796	26,0	1.143.380	1.239.480	2.382.860	28,1
M	203.512	173.231	376.743	9,3	392.013	368.169	760.182	13,5	628.040	571.850	1.199.890	14,2
Primary F	120.475	33.332	153.807	3,8	258.472	154.716	413.188	7,3	510.830	422.360	933.190	11,0
T	323.987	206.563	530.550	13,1	650.485	522.885	1.173.370	20,8	1.138.870	994.210	2.133.080	25,2
M	72.038	45.659	117.697	2,9	147.112	118.954	266.066	4,7	315.010	240.450	555.460	6,6
Intermediate F	39.207	5.330	44.537	1,1	106.526	41.772	148.298	2,6	261.010	148.010	409.020	4,8
T	111.245	50.989	162.234	4,0	253.638	160.726	414.364	7,3	576.020	388.460	964.480	11,4
M	58.374	23.120	81.494	2,0	114.089	73.797	187.886	3,3	222.030	139.550	361.580	4,3
Secondary F	19.980	1.408	21.388	0,5	62.795	12.767	75.562	1,3	157.260	56.960	214.220	2,5
T	78.354	24.528	102.882	2,5	176.884	86.564	263.448	4,7	379.290	196.510	575.800	6,8
M	8.284	6.285	14.569	0,4	24.375	21.869	46.244	0,8	66.470	57.960	124.430	1,5
Vocational F	7.325	734	8.059	0,2	23.674	5.945	29.619	0,5	78.750	33.110	111.860	1,3
Certificate T	15.609	7.019	22.628	0,6	48.049	27.814	75.863	1,3	145.220	91.070	236.290	2,8
M	21.365	3.619	24.984	0,6	50.936	16.922	67.858	1,2	110.980	45.990	156.970	1,9
University & F	4.296	186	4.482	0,1	14.278	1.168	15.446	0,3	44.330	8.500	52.830	0,6
Master Degree T	25.661	3.805	29.466	0,7	65.214	18.090	83.304	1,5	155.310	54.490	209.800	2,5
M	1.836	149	1.985	0,0	2.353	252	2.605	0,0	3.830	810	4.640	0,1
Doctorate F	136	15	151	0,0	248	28	276	0,0	580	50	630	0,0
T	1.972	164	2.136	0,1	2.601	280	2.881	0,1	4.410	860	5.270	0,1
M	245	187	432	0,0	476	199	675	0,0	4.890	1.940	6.830	0,1
Not Stated F	142	104	246	0,0	276	438	714	0,0	3.470	1.330	4.800	0,1
T	387	291	678	0,0	752	637	1.389	0,0	8.360	3.270	11.630	0,1
M	930.435	1.129.536	2.059.971	51,0	1.396.263	1.486.764	2.883.027	51,1	2.186.240	2.126.490	4.312.730	50,9
Grand total F	867.251	1.112.240	1.979.491	49,0	1.294.073	1.465.934	2.760.007	48,9	2.061.390	2.102.950	4.164.340	49,1
T	1.797.686	2.241.776	4.039.462	100,0	2.690.336	2.952.698	5.643.034	100,0	4.247.630	4.229.440	8.477.070	100,0

Source: Central Statistical Office, Statistical Abstracts, 1999.

In the rural settled communities, where people depend on farming and animal raising in sheds, the rate of illiteracy is far lower than in the Bedouin community.

The members of the rural family can read and write, but very few of them complete high education, due to the fact that agricultural activities require many laborers. Therefore, all family members are involved in agricultural work instead of hiring non–family workers. Furthermore, poverty drives children to leave the school and work with the family.

Luckily, the Syrian farmer is open minded by nature and always seeks to extend his knowledge. All rural families own a radio and TV set. Rural dwellers watch different programs, especially news and weather forecast.

2.5 The Role of Women

The Syrian woman works side by side with the man. During the last 30 years, the government has been interested in the woman role in building and developing the community.

Accordingly, the government encouraged the emancipation of woman by enhancing her education and her involvement in the economic activities.

Now, Syrian women can be found at all level of private and public sectors, in all sectors of economy and they even constitute 10% of the Syrian parliament.

Women organizations such as the General Union of Women was born in 1967 to play a role in all activities, especially in rural villages. Now, there is a women club in each village, run by village women.

Still, the rural woman is a housewife first of all. Her main role is to take care of the household works, children, house animals, especially cows, sheep and poultry.

Throughout a field visit in the countryside of Idleb during Jan 2001[1], we detected the following tasks of the rural woman:

- Mother of many children, since the average number of family members is 5-7. There are even families of 12-14 persons. This is related to inherited costumes and the traditional need of the father for help in land work.
- Housekeeper responsible for all household works, including taking care of children and of the house animals.
- Worker with the husband, during the different agricultural seasons.
- Hired agricultural laborer as there are women laborers during agricultural seasons such as grassing, cotton picking, pulling and cutting off sugar beet, grain harvesting.

In this last case, employment is carried out through a boss who transports women who are willing to work on the fields with a truck.

A woman works from 7.00 in the morning till 3.00 p.m. for low wages (no more than 150 SP) minus the transport fee. When she comes back, she is supposed to do all her household tasks without any delay.

In the Bedouin community, the woman plays a similar role. She is a housekeeper and she takes care of children in addition to the cattle, after coming back from pastures. She milks the sheep and feeds them. Also, she gathers firewood and cooks. The Bedouin woman plays her role as a result of traditions and costumes.

Rural extension is trying to elevate the woman status and her production level through adopting modern devices in household affairs, literacy courses, food and rural industry courses, sewing

[1] The data were found during a survey organized by international consultant N.Forni, who is elaborating a study about land tenure in Syria, within the framework of the Project.

courses and baby nursing. For these purposes, there were 720 female engineers working in the agricultural extension in the year 1999 (Table 2.4).

Still, there are several obstacles which impede the development of the rural woman; some of them can be listed as follows:

- Traditions and costumes impose a certain type of behavior and make the woman unable to take independent decisions. Her fate is dependent on the decision of her father, husband or son, despite her acceptance of the messages proposed by the extension agents
- High rate of illiteracy among rural women, which is three times higher than male illiteracy, thing that complicates the extension process.
- The many responsibilities of rural women reduce their participation in literacy courses and extension lectures. This complicates the extension task, because it happens frequently that rural women must be contacted individually, with great consumption of time and energies.

2.6 Environmental Problems

Several factors are contributing to cause many environmental problems in Syria. To some extent, they are all due to human presence, but they are quite different by their nature and consequences.

On one side, population growth has increased the demand for houses, roads, factories and similar non-agricultural activities. For example, in Al-Gota the urbanization has reached the agricultural fields, which led to deterioration of plant cover and elimination of natural plants.

In the north west part of Syria the destruction of natural forests was due to urban development of wood production which led to progressive deterioration and even disappearance of forests.

Other problems are caused by poor agricultural and animal husbandry practices. In this second case, we can remind the efforts to cultivate the Al-Badiya and the over-grazing, especially in areas of poor plant coverage, that reduced greatly the fertility of soil and deteriorated natural pastures. Another problem is soil erosion in mountainous pastures, due to elimination of natural plants (trees and shrubs). This drives stones and deep rocks to the soil surface.

Transformation of forests in humid and semi humid areas into agricultural lands due to fires that cause decrease in plant cover area. For example, 2.440 ha became agricultural lands between 1985 and 1996. The affected area is about 18% of total country area in addition to 8000 ha affected by fires all over the years 1985-1996 (ACSAD 1996).

Soil salinization prevails greatly in first settlement zone (Al-Ghab, Kuneitra, Lattakia, Tartus, Akkar) and in Euphrates basin (irrigated areas). There are many reasons for this problem such as misuse of irrigation water and random irrigation in the Euphrates basin, in efficiency of water draining system, high rate of gyps in water, high temperature degrees and low rainfalls rates. In the first settlement zone, the soil salinization is due to irrigation by flooding and non-existence of draining system.

Erosion due to winds and sand hills formation: many Syrian areas are exposed to high speed winds (408.000 ha or 50% of Syrian soils are exposed to erosion by winds, ACSAD 1996) such as Al-Badia, north of Al-Jazira, Al-Bishri and Al-Rasafeh mountains, Al-Hammad hill and Damascus countryside. Erosion is due to total lack of trees and shrubs, cultivation of pastures, plucking of roots of pastoral shrubs, excessive grazing, and non-appropriateness of some agricultural techniques. In the Damascus countryside, the reason is due to high percentage of gyps.

Excessive and poor water use: all Syria suffers from excessive water use in irregular irrigation. 59% of irrigated lands are irrigated from underground water (ACSAD 1996). The areas, which

suffer from this problem, are the Euphrates dam areas, Al-Khabour, middle Area, Al-Asi river area, southern area (Daraa), which led to heavy shortage in natural water resources.

Erosion by water: the areas, which are mostly exposed to this effect, are dump and semi dump areas, mountainous areas and coastal hills. The reasons are different: weather conditions, forests elimination, fires, cutting plants, roots, firewood gathering, excessive pasturing, cultivation of forests and pastures, etc.

These factors make the surface of the soil weak against water floods, which leads to surface degradation, with soil carried by water to dams areas where it sinks to the bottom. This a) is detrimental to agricultural productivity of the affected areas, which risk becoming uncultivable and b) reduces the storage volume and leads to big water losses. The erosion due to water has been quantified as follows (ACSAD 1999):

- 20t/ha/y in the coastal hills
- 50-200t/ha/y in Homs
- 10-50t/ha/y in the coastal area
- 10-50t/ha/y in Al-Kalamoon mountains
- 10-50t/ha/y in Al-Ghab

Pollution is either produced by urban and industrial wastes and by bad farming techniques. In the first case, it is concentrated in urbanized areas around the big cities due to effects of building wastes, industrial and chemical effects that affects water through sewerage system.

In the latter case, it has been seen an excessive use of chemical fertilizers (NO3, No2, NH4, P), the use of hormones to increase productivity and pregnancy, excessive use of pesticides, especially in glass houses.

All these factors cause biological and morphological pollution of soil and water, which has negative impacts on environmental balance of microorganisms living in the soil. They also harm the farmers and the agricultural workers and may lead to unhealthy food.

2.7 Future Challenges

According to statistical indications population growth in Syria is among the highest in the word, 3% yearly. Thus, the agricultural resources won't be sufficient to cover the growing demand generated by the population growth. Therefore we must find other ways to satisfy these needs through expanding commercial exchange with other Arab countries and with Europe.

The future of Syrian farming must be seen within the framework of the present talks for the next adhesion of the country to the WTO. In order to be a WTO member, Syria must comply with many requirements, such as administrative, legal, financial, monetary, and bank system reforms, and reorganization of the administrations. It will be very important to improve the agricultural investment climate, to encourage exports by improving quality of commodities, and to move towards the production of crops in which Syria has a comparative advantage. That would let the country penetrate the global markets.

It is important to underline the importance of good management and protection of natural resources (water, soil, etc) from unwise usage. With particular regard to water it is necessary to implement new technologies of irrigation methods like drop irrigation. In addition, pure water is subjected to pollution due to its nearness to the sewage system and it is sometimes polluted by chemical fertilizers and pesticides. We can save water by substituting current crops, which need extensive irrigation, with new ones that need less water and dry weather.

In the El Badiya it is needed to

- Decrease the unorganised overgrazing through the adoption of pasturing, in addition to the creation of a network of roads, determining the course of vehicles

- Stop the deforestation and plant uprooting
- Adopt certain means to secure drinking water for animals such as water cultivation.

The agricultural ownership laws should also be reviewed, in order to reduce fragmentation and ensure effective usage of modern technologies.

All the above-mentioned problems require having farmers and landowners and even the Bedouins in Al Badiya properly motivated, well educated and continuously informed. Information dissemination on the prices of commodities in local, Arab and global markets and on supply and demand is ensured by the creation of a transportation network that facilitates access to remote areas, and thus allows farmers to benefit from agricultural extension.

Chapter 3 -Agricultural Extension in Syria

3.1 Historical Introduction

Development of agricultural extension (Khabaz 1999, Swanson and Claar 1984) began in the United States of America, when a first well-experienced farmer was paid to deliver lectures in the New York County. It began in Ireland in 1847, during the terrible famine caused by the potato blight. These two examples were so successful that other parts of USA and other European Countries followed their experience. In the successive decades, agricultural extension services were established almost in all countries: in Italy (1886), in Indonesia (1888), in Australia (1890), in Kenya (1898), in Japan (1898), in Canada (1907), in USA through the Smith Lever Act in 1914, in New Zealand (1910), in Sri Lanka (1921), in Uruguay (1925), in Nigeria (1930) anc in Iraq (1936). In other countries of the world, agricultural extension started after the II World War.

There were two main trends for developing the agricultural extension work (Khabaz 1999)

- Extension system becoming part of integrated developing operation until 1960.
- Extension system unique and specialized; increase of training staff and field extension.

In recent years, after 1980, several changes are taking place, all over the world, in order to have a better cooperation between research, extension and farmers. This is due to the changes taking place in the rural world and to the development of new communication technologies (Behrens and Evans 1984).

According to Darwish and Sharaf (1997) the establishment and development of extension in Syria started as following: in 1910 an Agricultural School was established in Salamia (Hama) which used its fields to educate the farmers. In 1930 two Agricultural Schools were established in Buka (Lattakia) and Al-Meselmia (Aleppo). In 1936 the High Agricultural Institute was established in Kharabo (Damascus), which after a few years became the Agricultural College and started to supply agricultural engineers who played an important role in the agricultural extension work, transmitting scientific knowledge and new technology to the peasants.

In 1947 the Ministry of Agriculture was established and within it a Department of Agricultural Extension.

In 1971, agricultural extension was part of the Agricultural Affairs Directorate and it produced some publications, cinema shows and extension fields.

In 1979, the Agricultural Extension Directorate as an independent directorate was established and started to provide extension services. In that year, a project for developing agricultural extension was started, within the general budget plan of the Ministry of Agriculture and Agrarian Reform. The aim of this project was to establish agricultural extension units in most

villages, as to facilitate the presence of both the engineer and the technician with the farmers in their fields.

This gives a chance to know and solve the actual problems of the farmers and to transfer new technologies to agriculture, so as to achieve best results with minor costs. Between 1980 and 1999, 869 extension units were established throughout the country and 301 apartments were built for extension staff.

Establishing new extension units will continue according to new requirements of agriculture and needs of Governorates in the light of annual investment plans by distributing these units on Governorates according to priorities. Apartments will be established in far areas, where technicians face difficulties in reaching the extension units.

3.2 The Missions of Agricultural Extension in Syria

The Agricultural Extension service of the MAAR has two main missions:

- Increasing agricultural production in quantity and quality, as to improve the living level of rural families through the general policy of comprehensive development of rural areas. This will be accomplished by transferring modern technologies and skills to farmers and training them on how to use these technologies.
- Cooperating with other services of the Ministry and with all other concerned Authorities and Organizations, for the elaboration of the Agricultural Plan and for its implementation.

3.3 Present Structure of Extension within the MAAR

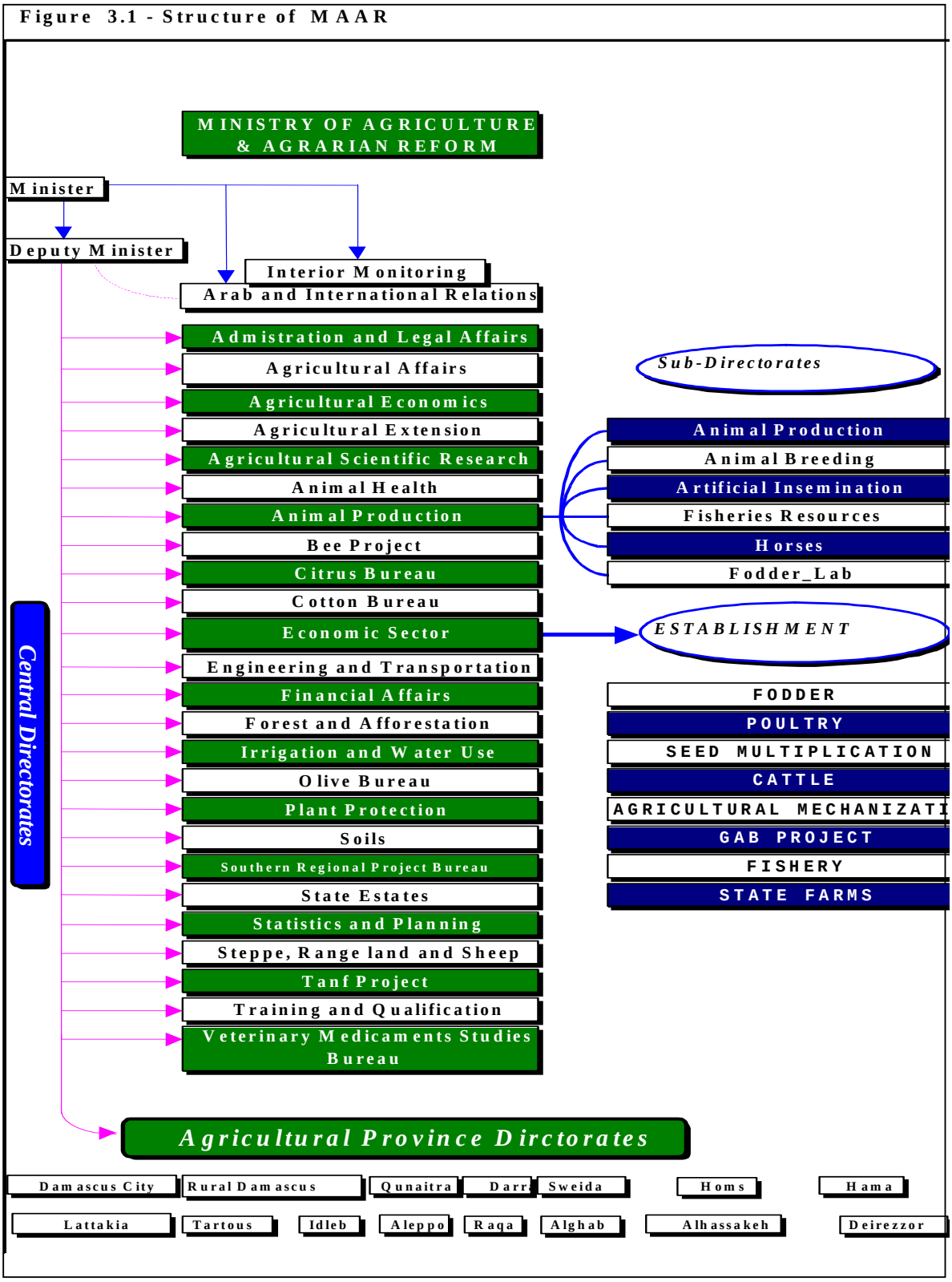
The MAAR is a very complex[1] and very big structure (Abdalla 2000). It includes the following 23 Directorates: Minister's office directorate, administrative affairs, financial affairs, Arab and international relations, statistics, planning, informatics, agricultural affairs, plant protection, animal production, animal health, Badia and pastures, engineering and transport, state properties, agricultural extension, training and qualifications, irrigation and water uses, soils, forest, scientific agricultural research, agricultural economics, internal control and economics.

There are also several Specialized Commodity Bureaus (cotton, citrus, apple, sugar beet, olive trees, veterinary drugs, and Arab horses), seven Public Agricultural Corporations and six Public Investment Projects.

At the province level, there are 14 directorates for agriculture (chart 3.1) divided into sections corresponding to the central directorates in MAAR headquarters.

[1] The structure of the MAAR does not stop to evolve and to expand: new Directorates have been added in the last years and some Directorates have been established after the splitting of previous ones. Projects of certain relevance are often named as Directorate. For example, it is worth mentioning the Coastal and Medium Area Reclamation Project, The Al Has project for rural development and reforestation in the southern part, the South Project for rural development, etc.. Also this project for the establishment of a Center for Policy Analysis is named as a Directorate.

Figure 3.1 - Structure of MAAR



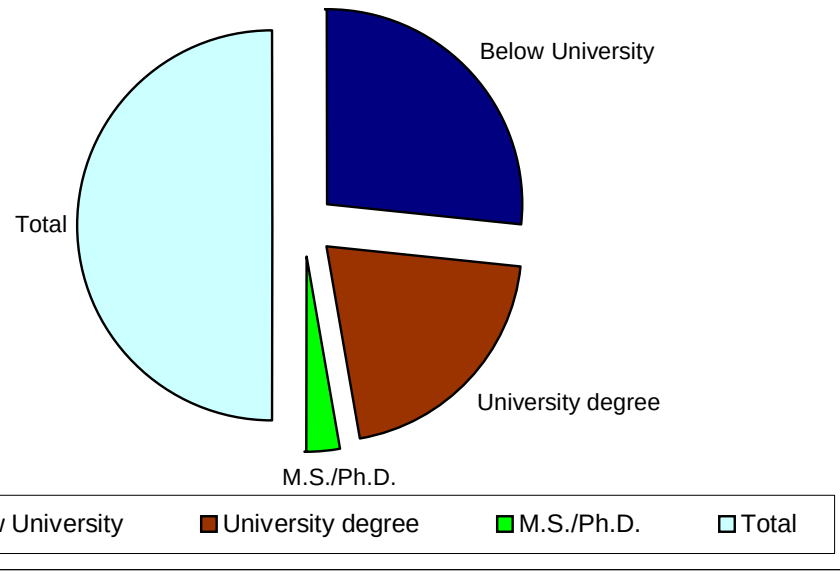
The total number of employees, within or under the umbrella of the MAAR, goes up to 49,757.

Table 3.1 - Number of employees (1999)

Structure	Below University	University degree	M.S./Ph.D.	Total
Headquarters	1.080	835	107	2.022
Governorates	28.845	9.442	166	38.453
Corporations	6.956	942	57	7.955
Projects	955	115	3	1.073
Makatib	154	93	7	254
Total	37.990	11.427	340	49.757

Source: Abdalla, 2000.

Figure 3.2 - Distribution of the Employees at MAAR,1999. according to the scientific degree



The Central Directorate of Agricultural Extension consists of the following Sections and Sub-sections:

1 - The Agricultural Technical Section including the subsections of: Programming, Field Activities and Technology Transfer.

2 - The Agricultural Education and Information Section that includes the subsections of: Programming, Production and Distribution, Moving Agricultural Theatre, Agricultural Exhibitions Information and Agricultural Museum.

3 - The Rural Household Economy Section that includes the subsections of Programming, Field Activities and Developing Rural Community.

4 - The Evaluation, Following up and Programs Section that includes the subsections of: Programming, Evaluation and Following up, Training, Extension Units and Extensions Affairs.

At the **Governorate** level there is an Agricultural Extension Division in the Directorate of Agriculture and Agrarian Reform, which consists of the following: Agricultural Technical sections, Agricultural Educational, Rural Household Economy, Evaluation, Following up and Programs

At the **Municipality** level, the Circle of Agricultural Extension in the Maslaha of Agriculture and Agrarian Reform consists of: Agricultural Technical Sub-Section, Agricultural Education Sub-Section, Rural Household Economy Sub-Section Evaluation, Following up and Programs Section

Figure 3.3 shows the different denominations, in order to facilitate the understanding of the present structural organization.

Figure 3.3 - Organizational chart of MAAR

Administrative Structures	Agricultural Administration	Extension organization
State	MAAR	General Directorate
Governorates	Agricultural Directorate	Division of extension (Qissim)
Municipalities " Mantika "	Agricultural Maslaha	Extension circle (Dayra)
Villages " Nahia "	Agricultural circle (Dayira)	Extension unit
Peasants` cooperatives		Group of farmers (majmoa falaheyea)

Sources: MAAR, 2000.

At village (*nahia)* level, the advisors are located within 869 Agricultural Extension Units, established since 1981.

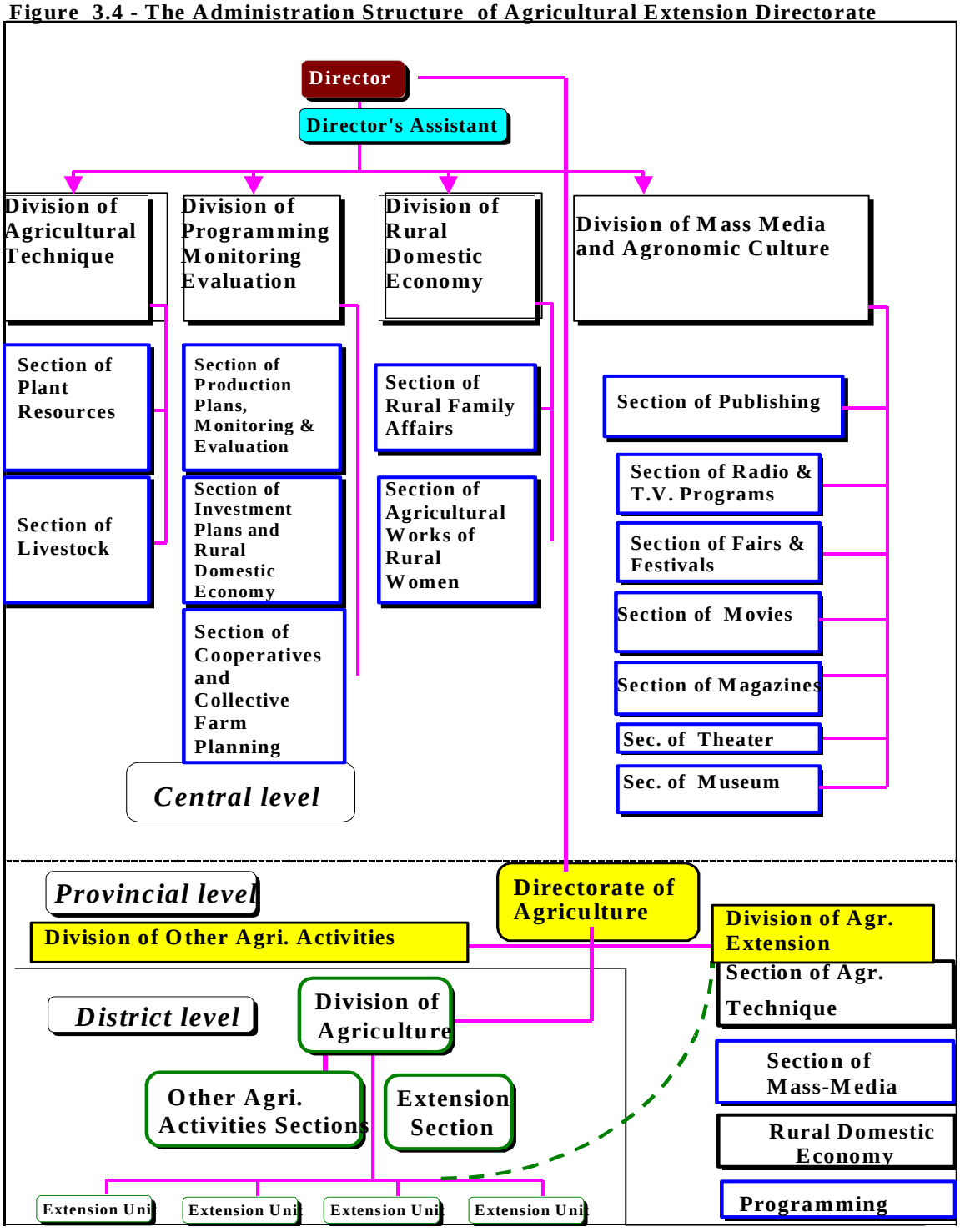
It can be seen that most units were established in the early 80s, a certain number in 1990 and that the development of extension service in the countryside is still going on, with some extension units being created almost every year. Each extension unit covers one or several villages, according to the size of the population to be served.

Since many extension agents are employed in areas different from their family areas, it was felt the need to build houses for this staff:

286 apartments were built before 1993 and some more have been added in recent years (Table 3.3) In order to reach the highest number of farmers, these ones are organized into groups of 15-25 farmers. Then resolution no.39 T dd. 25.04.1988 added new tasks to the extension units and thus had a positive impact on engineers' work in the extension units.

Agricultural engineers began to develop good relations with farmers and the body began to act effectively following a new methodology.

Figure 3.4 - The Administration Structure of Agricultural Extension Directorate



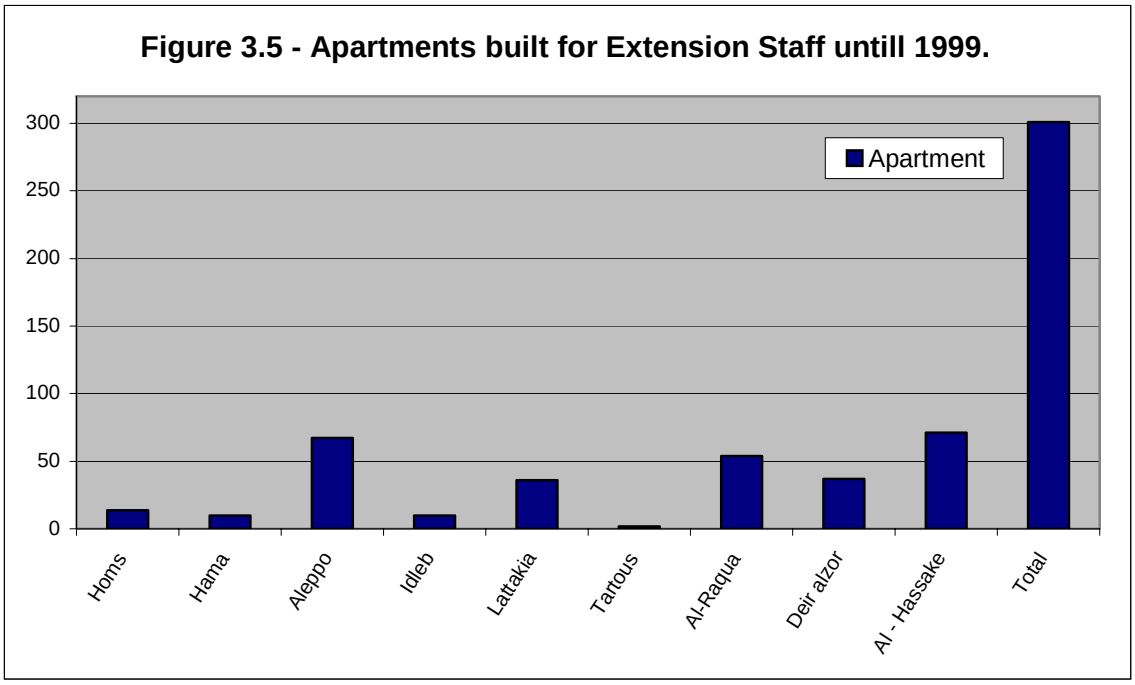
Then resolution no.9 T dd.19.06.1995 was issued to adjust article no. 139 and article no. 140 of resolution no. 110 T for 1986, which includes the internal regime of the Ministry of Agriculture and Agrarian Reform, regarding the tasks of agricultural extension directorates. The task of caring about animal resources was added to the tasks of the extension units.

Consequently, the extension unit became an essential unit of the ministry in the village. Accordingly, a new plan and a clear and identified method was prepared.

Table 3.3 - Number of apartments built for extension staff

Governorates	Till 1993	1995	1996	1998	Total
Homs	14				14
Hama	10				10
Aleppo	62		2	3	67
Idleb	10				10
Lattakia	36				36
Tartous	2				2
Al-Raqua	52		2		54
Deir alzor	34		2	1	37
Al - Hassake	66	2	2	1	71
Total	286	2	8	5	301

Source: Annual statistical abstract, MAAR, 1999.



The tasks of the extension unit were determined in cooperation with organized structures able to carry out the entrusted tasks and facilitate the evaluation of extension unit orders. The implementation of agricultural extension goals has been achieved by re-forming last tasks along with new additions such as:

- Adding agricultural moving theater as an extension activity
- Developing the preparation of training cadre to include male and female peasants and rural youth.

- Forming extension peasants groups to prepare extension plans at the level of village and extension unit
- Preparing programs for rural youth to train them on how to use modern technologies
- Contacting agricultural information sources such as international centers, national and Arab agricultural libraries, universities and colleges.
- Following up and evaluation of extension programs;
- Setting up and participation in international and local exhibitions to make Syrian products well known to importers and exporters;

Preparing field research centers to train technicians and farmers on modern technologies makes these techniques available to all farmers.

3.4 Main Quantitative Indicators

Table 3.4 illustrates the educational level of workers in agricultural extension. There were 3.075 workers in extension in 1990 and this number increased by 90.5% in 1999.

In this year, there were 1,928 male agricultural engineers, 748 female agricultural engineers, assisted by 871 technicians and 2,310 veterinary supervisors and veterinarians.

It is worth to comment the change in the composition of the personnel: male agronomists counted in 1990 for 56% of the total work force, whereas now they represent only 33%; women extension agents have increased their number by 84% and agricultural assistants by 116%. However, the highest growth is shown by the veterinarian sector that has expanded by 324% and now represents the 39% of the whole personnel, against the 18% in 1990.

Training advisors about agricultural extension methodology and methods of interacting with peasants is something vital and necessary for achieving the aims of the Service effectively, therefore it was decided to establish a training center in Damascus to train agricultural engineers on agricultural sciences and methods of agricultural extension. Two kinds of main courses have been carried out in this center:

- 76 courses, from 1990 to 1998, on field agricultural extension for 1,680 agricultural engineers.
- 30 courses from 1990 to 1998 for 528 female agricultural engineers on rural household economy.

Main courses are not restricted to male agricultural engineers and female extensionists can participate in these courses too.

Table 3.5 refers to courses on agricultural extension for agricultural engineers, while the courses on household economy are for female agricultural engineers.

Training courses for Technicians and Farmers in Governorates

The Directorate of Extension in cooperation with the Directorate of Training and Rehabilitation in the Ministry establishes technical training courses for extensionsits at field sites in Governorates. 1,028 training courses were held from 1982 to 1999 for 14,898 trainees. Table 3.6 illustrates the number of courses and of trainees, divided into several categories: technicians, male and female peasants in local training courses, both short and long, carried out in the Governorates.

Specialized Courses

The aim of these courses is to train agricultural extensionists on technical subjects through long courses (one to three months) held at centers of scientific research in the Governorates for complete season per each agricultural activity of crops, fruit trees and animal productions. 77

courses were held from 1988 to 1999 and 771 trainees participated in these courses. Those engineers form a link with Governorates and they work at extension departments in agricultural units in *Mantikas*. They supervise the field experiments agreed upon with ICARDA and other Institutions. Since 1999, specialized courses are being held in three stages during the season. Table 3.7 illustrates number of trainees and kind of special training in long specialized courses.

The distribution of extension units and of extension agents, according to different Governorates Table 3.8 indicates that the average number of farmers reached by each extension agent (all personnel included) is about 109 and that each extension agent is responsible for over 9,000 donum.

Anyhow, great differences can be seen, because the range varies from 43.8 farmers per agent in Quneitra to 406.2 in the Idleb Governorate. Similar heterogeneity can be found for the surface/agent ratio, varying from 1,217 donum in Latakia to 36,802 donum in Aleppo.

Such disparities can be partially explained with different farming systems, requiring different extension intensity, partially with non-proper distribution of personnel, but further research in this direction is needed.

3.5 The Role of Rural Woman in Agricultural Extension

Groups of peasant women are formed on the village level and they cooperate with the female engineers in conducting the requested study.

Problems and programs have been developed in order to cover the following aspects: food and nourishment, textiles and clothes, house management, home practices, rural industries, house gardening, house animals, childhood and maternity care, family regulations, illiteracy eradication and social care.

For the preparation of extension programs, the following points are considered:

- The educational, social and economic status of the rural families
- The problems and needs of rural families according to priority, in order to be listed within specific goals in the program, which is registered in a special record of the extension unit.
- The planning of the actions to be made: a) educational campaign in cooperation with Women Union and medical centers in and near the extension units; b) extension activities like lectures, house visits and data collection; c) training courses to spread new methods in food industries such as drying, freezing, pickling and manufacturing dairy products, in cooperation with research centers.

Table 3.4 - Employees of the Extension Service

Category	1990	%	1991	1992	1993	1994	1995	1996	1997	1998	1999	%	Evolution 1990-1999 %
Agronomist (male)	1.721	56,0	1.696	1.880	2.161	2.045	2.388	1.988	2.042	1.931	1.928	32,9	12,0
Agronomist (female)	406	13,2	418	438	522	514	599	597	718	722	748	12,8	84,2
Veterinary doctor or assistant	545	17,7	579	583	766	1.083	1.389	1.573	1.774	2.108	2.310	39,4	323,9
Agricultural assistant	403	13,1	430	509	586	865	883	952	932	932	871	14,9	116,1
Total	3.075	100,0	3.123	3.410	4.035	4.507	5.259	5.110	5.522	5.693	5.857	100,0	90,5

Sources: Annual statistical abstract, MAAR, 1999.

Figure 3.6 - Employees of the Extension Services at MAAR,1999. According to the scientific specialization.

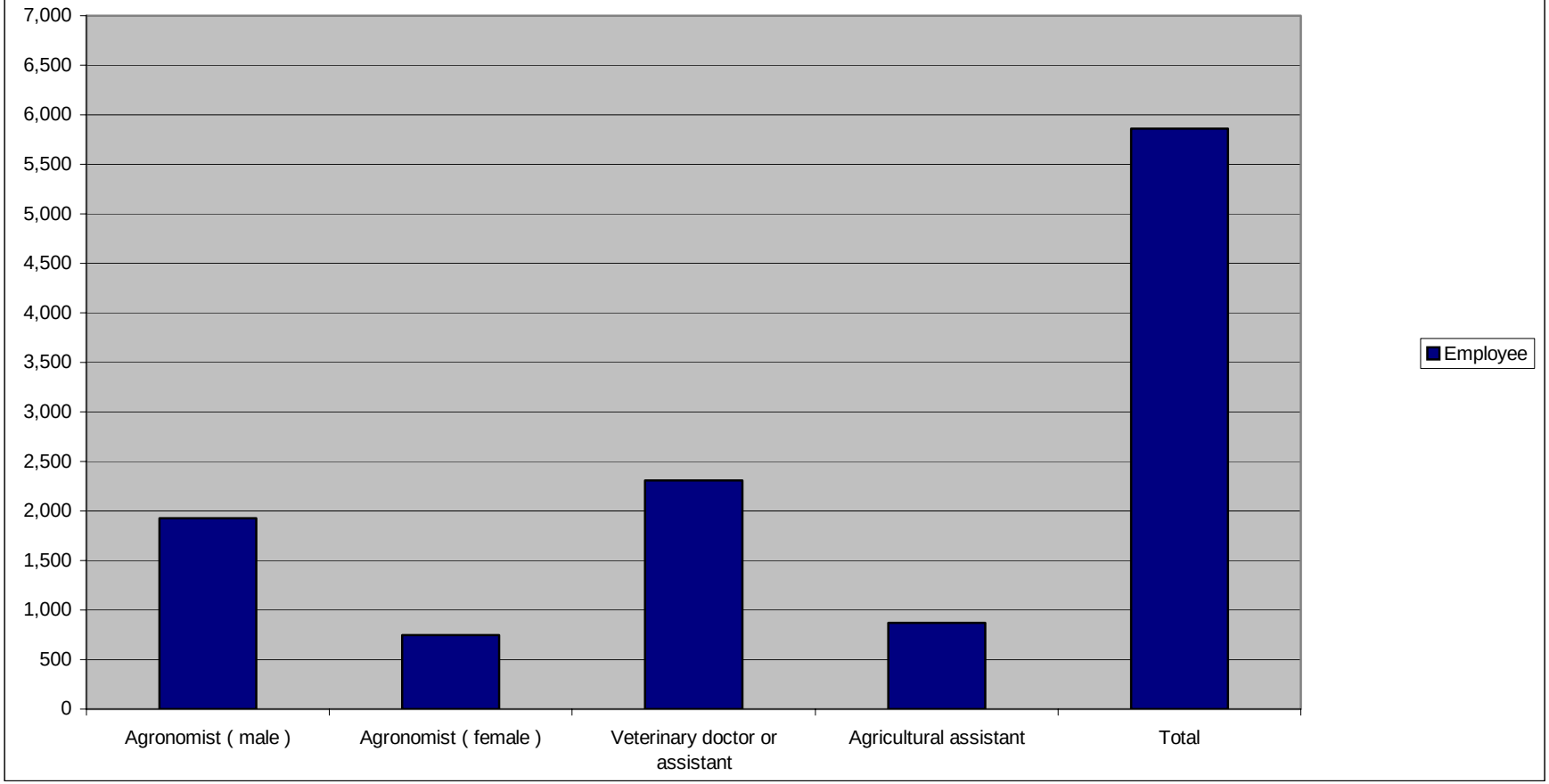


Table 3.5 Training courses for agronomists

Year	courses	male trainees	courses	female trainees	Total courses	Total trainees
1980	1	25	0	0	1	25
1981	2	52	1	26	3	78
1982	3	93	3	70	6	163
1983	3	80	2	36	5	116
1984	6	170	1	16	7	186
1985	6	173	1	23	7	196
1986	6	161	2	45	8	206
1987	9	194	2	30	11	224
1988	4	80	2	30	6	110
1989	5	104	2	27	7	131
1990	6	119	2	39	8	158
1991	6	118	2	34	8	152
1992	6	83	2	38	8	121
1993	3	51	1	15	4	66
1994	2	33	2	17	4	50
1995	2	37	2	31	4	68
1996	2	35	1	17	3	52
1997	2	34	1	16	3	50
1998	2	38	1	18	3	56
1999	1	20	1	28	2	48
total	77	1700	31	556	108	2.256

Source: Annual statistical abstract, MAAR, 1999.

Table 3.6 - Local training courses

Items	courses for technicians		courses for farmers		course for female farmers			
					short courses		long courses	
	no.	trainees	no.	trainees	no.	trainees	no.	trainees
1982	15	350	-	-	-	-	-	-
1983	32	588	-	-	-	-	-	-
1984	39	665	-	-	-	-	-	-
1985	28	484	-	-	-	-	-	-
1986	46	713	-	-	-	-	-	-
1987	47	685	43	767	-	-	-	-
1988	41	635	72	1.250	-	-	-	-
1989	49	672	85	1.510	20	383	-	-
1990	31	405	50	875	22	392	-	-
1991	32	467	99	2.026	27	543	-	-
1992	26	405	90	1.662	24	413	-	-
1993	39	537	96	1.640	29	524	68	1.485
1994	36	495	124	2.263	93	1.453	50	1.137
1995	33	525	93	1.649	68	1.123	51	1.066
1996	80	1.204	332	6.587	114	2.104	148	3.171
1997	86	1.220	351	5.971	126	2.197	133	2.716
1998	217	2.908	461	7.760	333	5.729	261	5.061
1999	151	1.940	363	6.653	231	3.936	303	5.570
Total	1.028	14.898	2.259	40.613	1.087	18.797	1.014	20.206

Source: Annual statistical abstract, MAAR, 1999.

Table 3.7 - Special long training courses.

Years	Courses no.	Trainees no.	Subject of training courses
1988	2	23	sugar beet - barley - wheat
	3	24	olive tree - citrus - apple
1989	4	48	cotton - maize
1990	2	25	sugar beet - barley - wheat
	4	36	olive tree - citrus - apple
1991	2	20	cotton - maize
1992	2	21	sugar beet - barley - wheat
	3	22	olive tree - citrus - apple
	1	9	cows
1993	2	15	cotton - maize
1994	5	49	sugar beet - barley - wheat - olive tree - citrus - apple
	1	12	cows
1995	2	17	cotton - maize
1996	5	46	sugar beet - barley - wheat - olive tree - citrus - apple
1997	3	41	cotton - maize - cows
1998	17	175	cotton - maize - cows - sugar beet - barley - wheat - olive tree citrus - apple
1999	19	188	cotton - maize - cows - sugar beet - barley - wheat - olive tree citrus - apple
Total	77	771	

Source: Annual statistical abstract, MAAR, 1999.

The extension unit follows up the main stages of the extension program and detects the improvement in achieving the program goals through the determination of rural families' response in addition to registering it in special record.

Information is recorded in details in a monthly report that is sent to extension department in the Mantika where reports are unified and sent to the directorate of agriculture – extension section.

Then the reports are gathered in one comprehensive report and sent to the Directorate of Extension in the Ministry.

Table 3.8 - Impact ratios

Mohafazat	1994			Extension agents no.	Farmers/agent no.	Area/agent donum
	Farmers no.	Farm size donum	Total area donum			
Damascus Rural	41.492	33	1.369.236	574	72,3	2.385,4
Aleppo	96.832	122	11.813.504	321	301,7	36.802,2
Homs	50.370	81	4.079.970	461	109,3	8.850,3
Hama	65.909	66	4.349.994	447	147,4	9.731,5
Lattakia	48.208	20	964.160	792	60,9	1.217,4
Deir-Al-Zor	42.042	51	2.144.142	817	51,5	2.624,4
dleb	55.654	54	3.005.316	137	406,2	21.936,6
Al-Hassakeh	61.089	182	11.118.198	402	152,0	27.657,2
Al-Rakka	27.824	278	7.735.072	221	125,9	35.000,3
Al-Sweida	23.286	73	1.699.878	270	86,2	6.295,8
Dar'a	30.432	69	2.099.808	309	98,5	6.795,5
Tartous	58.773	18	1.057.914	788	74,6	1.342,5
Quneitra	4.379	35	153.265	100	43,8	1.532,7
Total	613.657	83	50.933.531	5639	108,8	9.032,4

Source: Annual statistical abstract, MAAR, 1999.

At the end of the year the extension unit undertakes a final assessment of the implemented extension program to detect the success of it through its adoption by rural families and the positive changes which led to living standard improvement and income raise.

Consequently, reports are unified according to sequence and studied by Governorates and the Ministry to identify the indicators upon which household economic programs of extension units are modified or prepared.

3.6 Financial Resources of Extension

The needs of Extension Divisions in the Governorates are suggested annually in order to build new units, to buy machines and tools, to cover the operation costs, wages and bounces.

Then the budget is discussed and presented to the Directorate of Census and Planning at national level, to be analyzed taking into consideration the priorities and available means.

Then the issue is presented and discussed with the State Planning Commission, which approves it taking into account the available resources, and allocates credits of the Ministry of Agriculture for the current financial year.

In the investment plan for year 2000, 145 millions SP are allocated for development of agricultural extension project.

3.7 The Relationships with Other MAAR Directorates

Beside the Agricultural Extension Directorate, there are several other Services, within and outside the MAAR, which implement some agricultural extension activities.

Obviously, the Agricultural Extension Directorate occupies the most important role and it uses all methods and available extension instruments to transmit the new technologies, skills, and information to the farmers. It aims at increasing the farmers` productivity and improving the production (quantitatively and qualitatively), as to improve the welfare of peasants and, more generally, the national income.

A very important role is palyed by the Agricultural Sciences Research Directorate, which cooperates with the Agricultural Extension Directorate for studying the technical problems of crops, animal wealth, designing suitable extension programs, and implementing the different extension activities.

The Cotton Office Directorate is specialized in all cotton affairs, including scientific research. The COD cooperates with other bodies for designing and implementing cotton planting plans and works with the Agricultural Extension Directorate for designing extension cotton programs, which include different activities, like seminars, field days, publications, extension fields, festivals, conferences, television and radio programs.

The Citrus Office Directorate is specialized in citrus and carries on some researches for their improvement. As we have seen for the COD, also the Citrus Office Directorate cooperates with the Agricultural Extension Directorate for implementing special extension activities related to citrus.

The Olive Office Directorate acts as seen before.

In addition, the Soil Directorate and the Irrigation Directorate have their own research stations in several Governorates and they work to create new agricultural techniques and technologies (soil analysis bags, new irrigation systems); they obviously cooperate with the Agricultural Extension Directorate for transferring their results into practice.

Also, the Ministry of Industry and the Ministry of Economy control agriculture related Companies, that have experimental stations and cooperate with the Agricultural Extension Directorate for implementing special extension activities. They are:

- General Establishment of Tobacco, that belongs to the Ministry of Foreign Trade and Economy, specialized in tobacco processing
- General Establishment of Sugar, which belongs to the Ministry of Industry, specialized in sugar beet.

The Ministry of Labor and Social Affairs works through its Directorates in the Governorates and its Rural Revival Centers to supply services and activities in the different domains of rural development.

The Agricultural Colleges are cooperating in the extension training and education, and they cooperate also with the Agricultural Extension Directorate for implementing some extension activities.

The Syndicate of agricultural engineers, with its local chambers, also develops several activities, some of which reserved to its members and other ones open to the general public.

Cooperation also exists with international agencies which promote research activities and training programs: it is worth to mention the Arab Organization for Agricultural Development (AOAD) in Damascus, that organizes training and conferences for farmers and technicians; the Arab Center for the Studies of Dry and Arid Land (ACSAD) also in Damascus, that makes both applied research and dissemination activities; the International Center for Dry Area (ICARDA) in Aleppo, mostly research-oriented.

3.8 Coordination with CSOs

The peasants associations, in all villages of Syria, work to promote the socio-economic condition of farmers. The general union of peasants cooperates with other parties in the rural areas to accomplish a comprehensive development through the following structures:

- General Union of Peasants at national level
- Peasants Union at governorates level
- Peasants group at *mantika* level
- Peasants Association at village level

Due to the success of extension peasants groups formation for cotton, new request for forming new extension peasants groups in villages were raised with the aim of effective participation of peasants in field extension work at village level, especially in planning and implementing extension programs.

A permanent extension peasant group is formed in each village, under the headship of the extension worker operating in that area. The number of members ranges between 15 and 25 peasants in each group.

This selection is done randomly in coordination with peasants unions in Governorates and *Mantikas*, and with the directorates of agricultural extension and people organizations.

Another very important association in Syria is the General Union of Women, which covers all the Country and cooperates with other parties, including the Extension Service, for the social and economic development of rural women.

Another common association is the *Al-Thawra* Youth Union that includes also non-farmers that can develop the abilities of youth into a productive mode.

Finally, the Union of Syrian agricultural chambers is an organization at national and Governorates level, which aim at developing techniques of farming and at improving the marketing of agricultural products. It provides some services and some extension activities, mostly to members.

3.9 Main Contents of the Extension Program

At present, extension programs are prepared for all main crops and animal production. Programs are elaborated at national and local levels.

At village level agricultural techniques problems are explored to identify the needs of the farming population. The extension program contains the following points:

- detailed information about the activity (crops or animal production) under study
- technical problems and relevance (percentages of farmers and the affected area)
- modern techniques existing and feasible improvements;
- plan of extension activities emerging from requirements of these programs, which can solve technical problems and spread modern techniques.

3.10 Main Objectives of the Extension Program

The most important goals for the Syrian Agricultural Extension are:

- Expanding agricultural activities in the field of crop and animal production
- Increasing the yield through modern agricultural techniques
- Improving the quality of agricultural products
- Assisting the farmers in solving technical problems at farm level

- Transferring new techniques and training the farmers to use them
- Enhancing the acquired experience of the farmers by providing them with new agricultural techniques
- Increasing and diversifying the income of the farmer's family
- Guiding families towards the improvement of their social, medical, educational and alimentary conditions.
- Detecting the reactions of farmers towards the new techniques and transferring these reactions to the agricultural scientific research centers, so as to develop proper techniques, appropriate for the farmer's situation.

3.11 Environmental Problems and Extension Activities

Agricultural extension activities include the following topics related to environmental protection:

- Biological pest control in order to minimize the use of chemicals,
- Reduction of crops wastes burning,
- Proper fertilization according to soil analysis
- Proper use of irrigation water
- Proper agricultural practices, as to avoid soil erosion
- Reforestation programs, through planting trees during the annual celebrations of the Tree Day.

3.12 Extension Methods and Media

There are several methods for collective and individual interaction, which the extensionists can choose to achieve the desired goals, within the extension programs. They are selected, by the individual advisor and by the Extension Service, according to: the number of target population, the topic itself, and relevance of the problem.

These methods and media can be summarized as follows:

A) Field, House and Office Visits

This entails individual meetings with farmers in their fields or homes to know the agricultural operations applied in the field along with existing technical problems through watching and direct talk. This is an effective method applied daily by the extensionists.

These meetings are currently planned in the light of technical problems resulting from the extension program prepared in cooperation with peasants groups upon which the specification of people, who suffer a non-random problem, is done.

This method will continue in the future due to availability of a big number of extensionsits in extension units and villages.

b) Extension Lectures

One of the collective methods of conveying skills and information to farmers is through planned meetings with specialists of the relevant lecture topic.

In these meetings, audio visual aids and moving theatres are used to increase the effectiveness of the lecture, which is held on the level of agricultural *maslaha* and the agricultural extension section.

c) Field Days

It is one of the collective extension devices to convey ideas through watching something that has been made successfully in a normal farm.

Field days and demonstrations for rural women are a very common activity (Table 3.9): 2.571 field days were made in the last 13 years and 6,249 demonstrations took place in the last seven years.

In the past, this method used to be implemented on extension fields, but after 1990 it was replaced by production contests.

The field days became a method to be implemented on fields of winning farmers at the level of *mantika* and governorates for main crops.

Nowadays, this method is accompanied by the presence of specialists to show the differences and reasons of production increase, through improved agricultural operations on these fields.

d) Production Contests

In the last ten years (Table 3.10), the total number of extension fields amounted to 2,070; there was a decline in the first half of the 90s and a new rise in the last three years. The farmers` fields have been growing very fast: especially in the last two years a great number of them have been organised.

Instead of extension fields, since the season of 1990-1991, farmers are called to participate according to special forms.

The farmers should comply with the instructions of the agricultural extensionsits and a mark scale is set for the agricultural operations suitable for problem volume.

Committees are formed on the level of *mantika* and Governorates.

The first three winners at the level of *mantika* and Governorates are prized. It is an effective method, due to pride of the farmer when he gets a reward for his efforts in front of other farmers.

Table 3.9 - Field days and demonstrations for rural women

Years	Field days		Demonstrations	
	no.	%	no.	%
1987	36	1,4		0
1988	21	0,8		0
1989	48	1,9		0
1990	30	1,2		0
1991	100	3,9		0
1992	194	7,5		0
1993	314	12,2	1377	22,0
1994	570	22,2	609	9,7
1995	310	12,1	861	13,8
1996	161	6,3	322	5,2
1997	223	8,7	632	10,1
1998	262	10,2	1186	19,0
1999	302	11,7	1262	20,2
Total	2571	100,0	6249	100,0

Source: Annual statistical abstract, MAAR, 1999.

Table (3.10) illustrates the number of extension fields and production contests on main crops

between 1990 and 1995.

As for extension fields, many of them were implemented in cooperation with local and international scientific research centres, with the aim of transferring modern technologies and kinds such as winter chickpeas technique, supplementary irrigation with ICARDA, techniques package in the project of rainy farming with AKSAD, experiments of *mashreq* project and fields of cotton and maize in cooperation with local researches.

Table 3.10 - Extension fields and production competitions

Years	extension fields		winning fields in production compitetions	
	no.	%	no.	%
1990	737	35,6	63	0,4
1991	469	22,7	367	2,2
1992	20	1,0	1321	7,8
1993	70	3,4	1572	9,3
1994	138	6,7	1472	8,7
1995	76	3,7	577	3,4
1996	84	4,1	1505	8,9
1997	118	5,7	833	4,9
1998	155	7,5	3606	21,2
1999	203	9,8	5676	33,4
Total	2.070	100,0	16.992	100,0

Source: Annual statistical abstract, MAAR, 1999.

e) Extension Publications

They include extension pamphlets, posters, extension messages, agricultural magazines, newspapers ... etc.

These publications aim at achieving certain extension goals and transferring technical information to farmers and workers in agriculture, as to add new expertise and modern agricultural styles through written words and photos.

The Agricultural Publicity Section published and distributed a large number of copies and editions as illustrated in table 3.11.

The average annual production of printed media is about 100,000 copies, with variability due to various reasons.

A very high production has been achieved in 1987 and 1988, when 459,000 and 287,000 copies respectively were printed.

f) Television

It includes the production and displaying of agricultural extension films illustrating images or texts with the aim of improving the scientific and practical capacity of farmers along with improving the agricultural production, plant and animal.

These TV films also aim at improving the capacity of women in rural household economy.

Also, these films are displayed in a brief and attractive way. Table 3.12 illustrates the number of produced and displayed films. From the table, we can conclude that the annual average of films was about 52 and the annual ratio of video rolls amounted to about 46.

g) Radio

Table 3.11 - Extension publications

Years	Publications		Copies	
	no.	%	no.	%
1987	30	18,6	459.000	30,5
1988	26	16,1	287.000	19,1
1989	15	9,3	88.000	5,8
1990	6	3,7	39.000	2,6
1991	10	6,2	98.500	6,5
1992	3	1,9	40.000	2,7
1993	10	6,2	50.000	3,3
1994	9	5,6	57.500	3,8
1995	11	6,8	100.000	6,6
1996	10	6,2	56.000	3,7
1997	10	6,2	72.200	4,8
1998	10	6,2	55.600	3,7
1999	11	6,8	103.000	6,8
Total	161	100,0	1.505.800	100,0

Source: Annual statistical abstract, MAAR, 1999.

The radio is considered an important mass media. It reaches a wide range of people, because it depends on easy and clear information conveyed in suitable language.

The audience of the radio can listen to the programs being broadcasted while working or while driving, without any effort to get the information.

Due to these advantages, an extension program called “Agricultural Extension with the farmers in their fields“ is broadcasted daily from Damascus Radio at 6:30 in the morning, for 10 minutes.

The program takes technical and scientific information from the Production and Distribution Department of the MAAR, which receives radio interviews from all Governorates on tapes.

This Department has already distributed special equipment for recording actual interviews with farmers.

This program started in 1991 and table 3.13 illustrates its development

From the table we can notice the development of radio utilization in extension work. The number of radio series broadcasted increased from 72 in 1991 to 365 in 1996 due to the good interaction of farmers with the program and their positive response towards the continuously

Table 3.12 - Extension TV activities

Years	Films		Video rolls	
	no.	%	no.	%
1987	2	0,6	48	9,2
1988	10	3,0	46	8,8
1989	19	5,6	44	8,4
1990	42	12,4	50	9,5
1991	6	1,8	61	11,6
1992	30	8,9	30	5,7
1993	20	5,9	52	9,9
1994	36	10,7	37	7,1
1995	40	11,8	47	9,0
1996	34	10,1	24	4,6
1997	39	11,5	33	6,3
1998	31	9,2	27	5,2
1999	29	8,6	25	4,8
Total	338	100,0	524	100,0

Source: Annual statistical abstract, MAAR, 1999.

renewed information delivered in an attractive and easy way.

According to the request of the farmers, it was decided to rebroadcast the series twice a day instead of once.

h) Agricultural Movies

It is one of the mass media that depends on sound and colored moving pictures.

It was a very important device due to its attractive and clear method of presenting agricultural information to farmers in their villages where agricultural movies were produced and showed (table 3.14).

Table 3.14 - Agricultural cinema shows

Years	Projections	
	no.	%
1986	1.724	22,4
1987	1.462	19,0
1988	1.185	15,4
1989	844	11,0
1990	851	11,1
1991	616	8,0
1992	512	6,7
1993	144	1,9
1994	144	1,9
1995	108	1,4
1996	107	1,4
Total	7.697	100,0

Source: Annual statistical abstract, MAAR, 1999.

From the table we can see that the annual average of these shows during the last eleven years from 1986 to 1996 is almost 700.

We can also see a decrease in cinema shows during the last six years compared with the previous years, due to the following reasons:

- The long period required for producing a film makes the films outdated
- High production costs compared with television films
- Availability of electricity and video sets at home makes farmers unwilling to attend cinema movies in their villages

j) Moving Agricultural Theatre

The idea of moving agricultural theatre emerged as a new device for collective contacting to convey the largest quantity of useful information to the farmers.

We can define the moving theatre as a method of agricultural extension that achieves entertainment and benefit. It is a simple popular theatre that does not depend so much on decoration, accessories, music, and sound effects without even depending on a stage.

It is a field theatre which can reach all rural areas and perform shows anywhere (a village square, a school courtyard, field, public garden or usual theatre).

This theatre was greatly welcomed by farmers and gave a relevant contribution with respect to tackling problems of soil, fertilizers, pesticides, plant disease, animals and tasks of rural woman. The importance of this theatre lies in its role as an attractive, educating device.

The first show took place in Hama in 1989 and in 1990 a regulating decision was issued to form a Department of Theatre in the Directorate of Agricultural Extension.

The band members were four. Now, the band is formed by six women and nine men. The performed shows are illustrated in table 3.15.

Table 3.15 - Theater shows

Years	Performances	
	no.	%
1989	11	1,3
1990	103	11,8
1991	98	11,3
1992	64	7,3
1993	86	9,9
1994	75	8,6
1995	74	8,5
1996	72	8,3
1997	77	8,8
1998	102	11,7
1999	109	12,5
Total	871	100,0

Source: Annual statistical abstract, MAAR, 1999.

k) Agricultural Exhibitions

Exhibitions play an important role (Table 3.16) in activating the expertise between the agricultural technicians and the farmers and in exchanging knowledge through direct dialogue between the researcher, the extensionist and the producer.

They also play a role in encouraging competitiveness among farmers through displaying the products of the first winners in the production contests, in addition to identifying the current status of farming in the country, the degree of its improvement and what are the required techniques to accomplish best results.

Table 3.16 - Exhibitions (no.)

Years	Local	National	Name of exhibition
1987	3	0	citrus , olive , grapes & apple
1988	3	0	citrus , olive , grape s& apple
1989	1	0	citrus
1990	1	0	olive
1991	0	1	national
1992	0	1	national
1993	0	1	national
1994	2	1	olive , grapes & apple , national
1995	0	1	national
1996	0	1	national
1997	0	1	national
Total	10	7	

There are local exhibitions such as the central agricultural exhibition, specialized exhibitions for citrus, olive, grapes, apples, the Damascus International Exhibition and the cotton festival.

Table 3.17 - Foreign exhibitions

Years	no.	Country
1990	-	
1991	1	Yemen
1992	-	
1993	-	
1994	3	Germany , Kuwait , Bahrain
1995	2	Germany , Bahrain
1996	4	Germany , Arab Emirates ,Kuwait , Bahrain
1997	4	Germany , Arab Emirates , Kuwait , Bahrain
Total	14	

Source: Annual statistical abstract, MAAR, 1999.

The exhibitions have a good impact on the farmers in improving their products and in providing chances for marketing the products.

Furthermore, the Department of Exhibitions also organizes the participation in foreign exhibitions such as the Green Berlin Exhibition, the Syrian Products Exhibition in Qatar, Bahrain, Kuwait and Saudi Arabia. Such events allow the expansion of the foreign market for Syrian products and benefit indirectly the income of farmers.

I) Museums

They contain objects and displays illustrating agricultural development. They may help in enhancing agricultural education, explicating the scientific, practical methods and technical devices, which lead to improving agriculture throughout the centuries. Museums are also like a school and an applicable explanation device for students.

The Department of Agricultural Museum manages the only agricultural museum in Syria, located in Damascus, which needs some investments.

Chapter 4 -Opinion of the Heads of Extension Units

4.1 Materials and Methods

In order to improve our knowledge about the present situation in Syria, it was decided to interview a sample of Heads of Agricultural Extension Units. They represent a very important part of the Administration and they have close contact with the farmers and with local research stations.

In the five selected Governorates[1], a sample of 94 persons has been randomly selected. They represent 11% of the total number of Heads of Extension Units and this amount attributes high meaningfulness to the results of the survey. Anyhow, since only five Governorates were covered by this study, its results can not be automatically extended to all Syria.

The interviews took place during the months of November and December 2000 and were made personally by the Authors of this research, using a structured questionnaire, elaborated in October. The questionnaire (see Attach 1) contains 22 questions that cover different aspects of the Extension Service Organization, the relationship with the Research Station and with the farmers and the suggestions for improvements.

Table 4.1 - Distribution of interviewed persons

Governatorate	Interviews		Total		%
	no.	%	no.	%	
Homs	20	21,3	65	21,0	30,8
Tartous	24	25,5	72	23,3	33,3
Al Ghab	10	10,6	36	11,7	27,8
Suweida	14	14,9	40	12,9	35,0
Aleppo	26	27,7	96	31,1	27,1
Total	94	100,0	309	100,0	

The collected data were transferred into a database and then processed with the SPSS 98, in order to elaborate the required tables.

Several questions were cross-analyzed, in order to verify the behavior of different strata of the interviewees, while for other variables a system of scoring and weighted averages has been elaborated, in order to allow the prioritization of some variables.

[1] It was not possible to cover all Syria, because of budgetary and time problems. A first research proposal, elaborated in October 2000, included also the Governorates of Rural Damascus and El Hassaka, which were in the end eliminated, again because of time and budget constraints

4.2 Characteristics of the Respondents

The respondents have various levels of experience in their position (Table 4.2): on one side, we find one third with less than 7 years, while on the other side there are people with long experience, up to a maximum of 22 years.

Table 4.2 - Years of experience

Years	no.	%
<7	29	30,9
8-14	44	46,8
> 14	21	22,3
Total	94	100,0

This group of persons shows a job satisfaction (Table 4.3) relatively good, because the elaboration of the weighted average gave a final result of 67%, but there is a heavy minority of people who are very unsatisfied. About one third has a medium level of job satisfaction, counterbalanced by a good number who declare to be happy or very happy in the current position.

Table 4.3 - Job satisfaction

Opinion	no.	%
1=very low	2	2,1
2	1	1,1
3	4	4,3
4	8	8,5
5	12	12,8
6	18	19,1
7	12	12,8
8	14	14,9
9	9	9,6
10=very satisfied	14	14,9

Job satisfaction is related with experience (Table 4.4), because it grows with the number of years in such position. It must be noted, anyhow, that younger staff members show a lower level of satisfaction: this could cause problems in the coming years and such attitude should be considered with great attention.

Table 4.4 - Relationship between experience and job satisfaction

Experience (classes)	Job satisfaction (score)
Low experience	0,62
Medium experience	0,70
High Experience	0,70

As a matter of fact, 37% of the interviewees have declared to have another job, in order to complement their income (Table 4.5). There is no clear indication about the relationship between experience, age and second job, but it is evident that this situation affects all classes of Heads of extension units.

Table 4.5 - Relationship between experience and second job

Experience (classes)	Second job (%)
Low experience	40,0
Medium Experience	36,7
High Experience	36,7
Total sample	37,2

46% of the respondents work in their home area. People working at home have a job satisfaction higher than those working in an area different from their home area: 46.9% against 53.1%.

Table 4.6 - Work in home area and job satisfaction

Job satisfaction	Work in home area (%)	
	yes	no
Low satisfaction	38,5	61,5
Medium satisfaction	40,0	60,0
High satisfaction	53,1	46,9
Total sample	45,7	54,3

4.3 Management of Extension Service

23.4% of the interviewees organized up to 50 visits to farmers per year and 7.4% organized more than 250 visits to farmers. This extreme variability might be due to the different number of extension agents in the surveyed units, or to different farming systems, or to different strategies to approach the farmers. More research is needed in order to better know this particular aspect.

Table 4.7 - Visits to farmers.

Visits this year	no.	%
up to 50	22	23,4
51-100	23	24,5
101-150	21	22,3
151-200	19	20,2
201-250	2	2,1
more than 250	7	7,4

79.8% of the interviewees organized up to 50 seminars for farmers, whereas 2.1% declare to have organized more than 250 seminars for farmers. Also here we see a wide distance between those who made small number of seminars and those who made a big number of seminars. Again, more research is needed in order to better know this particular aspect.

Table 4.8 - Seminars for farmers

Seminars (no.)	no.	%
up to 50	75	79,8
51-100	4	4,3
101-150	3	3,2
151-200	8	8,5
201-250	2	2,1
more than 250	2	2,1

As a matter of fact, 47.9% of the respondents declare that the best way to reach the farmers in an effective way is represented by the individual visit, followed at distance by group methods like meetings, field days or demonstrations.

Courses for farmers, which are a common activity in the countryside, receive a very low appreciation.

Table 4.9 - Preferred extension methods

Method	no.	%
Individual visit to the farmers	45	47,9
Meeting	21	22,3
Field day	10	10,6
Demonstration	13	13,8
Training course	5	5,3

The Heads of the extension units think that farmers like very much the mass media communication realized by the extension service. According to the interviewees, the weighted average for radio programs is 0.81 against 0.88 of TV programs.

Table 4.10 - Head of extension units' opinion of Radio Programs.

Answers of the Head of extension units	no.	%
1=farmers do not like it at all	3	3,2
2	1	1,1
3	3	3,2
4	3	3,2
5	7	7,4
6	6	6,4
7	7	7,4
8	12	12,8
9	3	3,2
10=farmers like it very much	49	52,1

As we have seen in Chapter 3, radio programs and TV programs for farmers have been used very much in recent years and this research confirms the validity of this decision.

Table 4.11 - Head of extension units' opinion of TV Programs.

Answers of the Head of extension units	no.	%
1=farmers do not like it at all	2	2,1
2	0	0,0
3	0	0,0
4	0	0,0
5	4	4,3
6	1	1,1
7	8	8,5
8	17	18,1
9	10	10,6
10=farmers like it very much	52	55,3

4.4 Relationship with Research Stations

The efficiency of agricultural extension, as far as technology transfer is concerned, depends very much on the quality of the applied research results. Without good, adapted and economically viable innovations, the extension agent cannot propose anything to farmers

Unfortunately, the efficiency of research is not so good, according to the opinion of the Heads of extension units, because the respondents who say the efficiency of research is very good are less than a third of the interviewees.

Table 4.12 - Opinion about research stations.

Efficiency of research	no.	%
1=very good	28	29,8
2	6	6,4
3	5	5,3
4	6	6,4
5	15	16,0
6	5	5,3
7	6	6,4
8	12	12,8
9	5	5,3
10=very poor	6	6,4

As a matter of fact, the weighted average of the sample is 0.45, indicating that something should be improved, in order to make the experimental stations` work more effective.

The relationship between farmers and research station is considered to be very poor, according to the Heads of the extension units, because the results show that few farmers go to research station for recommendations and most farmers do not go there at all.

It is also strange that more than half of our respondents cannot give their opinion.

Table 4.13 - Relationship between farmers and research stations

Opinion of Heads of extension units	**no.**	**%**
Many farmers go there	3	3,2
Few farmers go there	8	8,5
Farmers do not go to Research Stations	28	29,8
I do not know	55	58,5

According to the Heads of the extension units, most farmers do not go to research stations for different reasons. For example, about one third of respondents say that farmers do not go to research stations because they have a low level of education; even worse, about 18% of the respondents affirm that farmers do not go to research stations, because the research is not relevant to their problems. Again, it is strange that more than half of our respondents cannot give their opinion.As a general conclusion, most of the interviewees say that the relationship with research stations is very poor (Table 4.15). 2/3 of the respondents rate their relationship from 1 to 3, on a scale up to ten and consequently the weighted average of the total group is only0.31.

Table 4.14 - Why farmers do not go to research stations?

Opinion of Heads of extension units	no.	%
Because farmers have a low level of education	28	29,8
Because researchers do not like to speak with farmers	1	1,1
Because the research is not relevant to their problems	17	18,1
I do not know	48	51,1

Table 4.15 - Opinion about research stations.

Quality of relationship	no.	%
1=very poor	43	45,7
2	14	14,9
3	4	4,3
4	7	7,4
5	7	7,4
6	5	5,3
7	4	4,3
8	6	6,4
9	1	1,1
10=very good	3	3,2

This situation needs to change, because a proper relationship between extension service and research stations, based on institutional and human links, is a vital condition for efficient work. At present, it is not possible to know which side is responsible for this poor quality of the relationships between extension and research, but action should be taken to overcome this situation.

4.5 Suggestions for Improvement

Fortunately, it seem that most farmers continue to think that extension staff is supplying a good advice. The Heads of the extension units affirm that most farmers appreciate their work, with an overall weighted average that goes up to 0.70 (Table 4.16).

On the other hand, there are margins for improvement, because some respondents are aware that not all farmers are satisfied and also within those who give positive answers there are several respondents who admit results below the optimal level of 10.

Table 4.16 - Opinion about farmers' judgment.

Opinion	**no.**	**%**
1=Farmers do not appreciate our work	2	2,1
2	2	2,1
3	3	3,2
4	5	5,3
5	7	7,4
6	15	16,0
7	14	14,9
8	21	22,3
9	16	17,0
0=Farmers appreciate our work very much	9	9,6

In order to achieve such better service for rural people, most of the interviewees ask for better transportation means, more equipment (computers and telephones), and more extension tools, as important suggestions for improving extension performance. Table 4.17

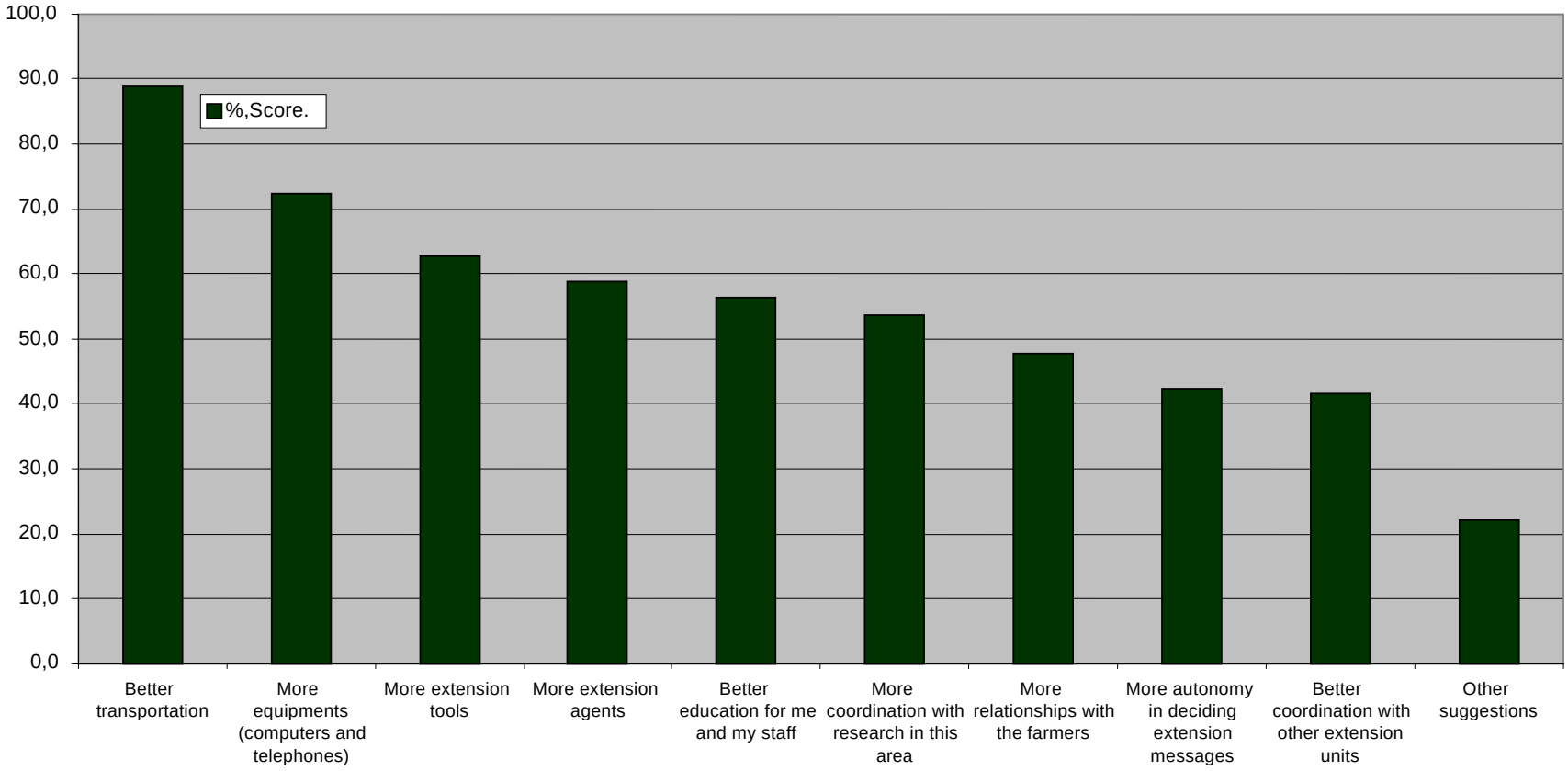
Also relevant is the demand for more extension personnel and for better coordination: this organizational change is required with regard to research stations (53.6%) and to other extension units (41.6%).

Better further education and more autonomy are demanded, respectively, by 56.3% and by 42.4% of the respondents

Table 4.17 - Suggestions of extension staff to improve performance.

Suggestions	Level of priority										Score
	1	2	3	4	5	6	7	8	9	10	
- Better transportation	55	18	6	2	6	2	3	0	1	1	88,8
- More equipments (computers and telephones)	9	17	24	15	16	4	3	3	1	2	72,4
- More extension tools	1	31	18	8	9	5	8	9	5	0	62,8
- More extension agents	13	11	6	18	1	12	6	9	15	3	58,8
- Better education for me and my staff	5	2	15	13	12	15	16	8	7	1	56,3
- More coordination with research in this area	2	6	10	8	19	17	12	11	5	4	53,6
- More relationships with the farmers	0	3	6	15	12	12	13	20	11	2	47,7
- More autonomy in deciding extension messages	3	4	3	7	11	6	17	13	27	3	42,4
- Better coordination with other extension units	1	0	6	4	8	20	16	18	18	3	41,6
- Other suggestions	6	2	1	3	1	1	0	3	3	74	22,0

Figure 4.1 - Suggestions of the interviewed extension staff to improve performance.



Chapter 5 -Opinion of the Research Stations Directors

Agricultural extension cannot work properly without a good level of agricultural research (Lampe 2001), as it was described in Chapter 1. On the other hand, agricultural research needs a good agricultural extension service to spread the results of its investigations and to be informed about farmers` needs and problems.

Of greatest relevance is therefore the relationship, at institutional level and at human level, between the agricultural extension service and the research service. In the Syrian case, as seen in Chapter 3, many Research Centres are within the General Directorate for Agricultural Research, within the MAAR and consequently the institutional relationship with Extension Service should be relatively good. Other Research Centres belong to other structures under the MAAR umbrella, and the institutional relationship should theoretically be good.

In order to improve the quality and the coordination of applied research in agriculture, an agricultural scientific research commission, which is independent of MAAR, has been recently established in Syria. It will propose adequate measures in order to improve the performance of the system.

5.1 Materials and Methods

Still, in order to know the opinion of the Research Stations Directors in Syria, a group of 11 Directors of different Research Centres in five Governorates have been interviewed (Table 5.1). The first five Centres in the list below belong to the Directorate for Research and the remaining six to different branches of the Ministry:

- El Gahab Agricultural Research Center.
- Homs Agricultural Research Center.
- Tartous Agricultural Research Center.
- Aleppo Agricultural Research Centre.
- El Suweida Agricultural Research Centre.
- Gousia Al-khrap.
- Irrigation Station.
- Central Research Centre.
- Appeals Research Station.
- Goats Research Centre.
- Citrus Research Centre.

The persons interviewed in each Governorate are shown in Table 5.1: the smallest percentage is in Aleppo and in El Ghab (9.1%) where only one Center was investigated and the highest in Suweida (36.4%), where four Centers were covered. Taking into account the small number of interviews, this study does not pretend to have any statistical meaningfulness, but its outcomes

are equally interesting, because they express the situation and the feelings of a small, but representative group of conscious and well-informed people.

Table 5.1 - Distribution of interviewed persons

Governorate	no.	%
Homs	3	27,3
Tartous	2	18,2
Al Ghab	1	9,1
Suweida	4	36,4
Aleppo	1	9,1
Total	11	100,0

All interviews took place during the months of November and December 2000 and were conducted personally by the Authors of this research, using a structured questionnaire, elaborated in October. The questionnaire (see Attach 2) contains 22 questions that can be grouped as follows:

- questions 1,2 and 4 : personal characteristics
- questions 5, 7 - 10, 13 and 14 : size and production of research station
- questions 6, 11,12 and 15 : internal and external coordination (research)
- questions 3 and 21 : relationship with farmers
- questions 16 - 20 : relationship with and opinion about extension service

The last question 22 asked the Directors to propose suggestions about improvements to be introduced for research and extension services.

All collected data were transferred into a database and then processed with the SPSS9.2, in order to elaborate the required tables. Several cross analysis have been also made, in order to explain better some answers. In some cases, the answers have been further elaborated in order to establish some ranking or scoring. The methods used are explained in the text.

5.2 Personal Characteristics

The years of experience of research centers` directors range between 5 and 15 years. One person only has more than 10 years of experience. This means that almost half of the respondents has less than five years of experience in this position (Table 5.2).

Table 5.2 - Years of experience

Years	no.	%
Up to 5	5	45,5
6-10	5	45,5
> 10	1	9,1
Total	11	100,0

Most research centers directors have an agricultural engineering degree (Table 5.3), one person has a Master degree and three have a Ph.D. degree.

Table 5.3 - Educational level

Title	no.	%
Agricultural engineer	7	63,6
Master degree	1	9,1
Ph.D. degree	3	27,3
Total	11	100,0

Most respondents think that farmers appreciate their work, although the score they give to this opinion is relatively low: altogether, they recognize a global level of appreciation of 62% (Table 5.4). As a matter of fact, beside some directors who express a good optimism, there are also those who admit that peasants do not recognize their work very much and two who express a much harder judgment.

Table 5.4 - Opinion about farmers' judgment.

Opinion	no.	%
1=Farmers do not appreciate our work	2	18,2
2	0	0,0
3	0	0,0
4	0	0,0
5	1	9,1
6	1	9,1
7	4	36,4
8	1	9,1
9	1	9,1
10=Farmers appreciate our work very much	1	9,1

Anyhow, interviewees declare a job satisfaction (Table 5.5) level quite positive: 87%, with only one respondent that declares a medium level satisfaction.

Table 5.5 - Job satisfaction

Opinion	no.	%
1=not at all	0	0,0
2	0	0,0
3	0	0,0
4	0	0,0
5	1	9,1
6	0	0,0
7	0	0,0
8	3	27,3
9	3	27,3
10=very satisfied	4	36,4

Experience does not appear to be linked with job satisfaction, since respondents of the different categories (Table 5.6) express similar levels.

Table 5.6: Relationship between experience and job satisfaction.

Experience	Score
- Low experience (up to five years)	0,92
- Medium (from six to ten years)	0,82
- High experience (more than ten years)	0,9
Total	0,87

5.3 Size and Production of Research Stations

The size of most research stations is relatively small (Table 5.7), because the number of researchers at work is below nine persons in 27% of the cases and only in one case we have more than 30 scientist.

Table 5.7 - Researchers at the station

Size (no.)	no.	%
<9	3	27,3
9 -- 10	3	27,3
11 -- 30	4	36,4
>31	1	9,1
Total	11	100,0

This small number of personnel, anyhow, is not easy to coordinate (Table 5.8**)** and most respondents declare to have many problems of coordination, with only two (18%) in much better position, since they declare to have no problems at all.

Table 5.8 - Coordination problems at station

Opinion	no.	%
1=no problems at all	2	18,2
2	0	0,0
3	0	0,0
4	0	0,0
5	0	0,0
6	0	0,0
7	1	9,1
8	3	27,3
9	0	0,0
10=very many problems	5	45,5

A general complaint is about available resources, in terms of money and personnel: this group of research directors declares a level of fulfilment that is only 29% (Table 5.9). As a matter of fact, this is a common situation that characterizes all categories, without distinction amongst the different dimensions (Table 5.10).

Table 5.9 - Available resources

Answers	no.	%
1= We do not have enough	0	0,0
2	5	45,5
3	2	18,2
4	4	36,4
5	0	0,0
6	0	0,0
7	0	0,0
8	0	0,0
9	0	0,0
10 = We have enough resources	0	0,0

Table 5.10 - Size and resources

Stations` size	no.	Level of resources
Small (below 9 scientists)	3	0,26
Medium (9-10)	3	0,26
Large (11-30)	4	0,32
Very large (> 30)	1	0,30
Total	11	0,29

Another confirmation about the small size and the limited resources of these research centres comes from the next tables: the number of available books in the libraries of these stations is generally very small (Table 5.11), with only one station having more than 100 volumes. Even more concerning is the situation described in Table 5.12, where it can be seen that 73% of the centres did not buy any book during the entire 2000. It is therefore obvious that foreign scientific journals are almost absent: in 64% of cases no foreign journal is available, whereas in the remaining 36% their number is below 10 (Table 5.13).

Table 5.11 - Books in the Station's library

Books	no.	%
Less than 10	3	27,3
11-50	5	45,5
51-100	2	18,2
more than 100	1	9,1
Total	11	100,0

Table 5.12 - Books purchased during 2000

Books	no.	%
none	8	72,7
less than 10	2	18,2
11-50	1	9,1
51-100	0	0,0
more than 100	0	0,0
Total	11	100,0

Table 5.13 - International scientific journals at Station

Journals	no.	%
no journal available	7	63,6
up to 10	4	36,4
11-50	0	0,0
51-100	0	0,0
more than 100	0	0,0
Total	11	100,0

Coordination with other research centres within the same Directorate (Table 5.14) is considered relatively good, with a total score that is 75%, with only 18% of respondents on more critical positions.

Table 5.14 - Coordination with other Research Station within Directorate

Opinion	**no.**	**%**
1 = coordination is very weak	2	18,2
2	0	0,0
3	0	0,0
4	0	0,0
5	0	0,0
6	0	0,0
7	1	9,1
8	3	27,3
9	0	0,0
10 = coordination is very good	5	45,5

Coordination with research centres belonging to other Directorates is little and it needs more development because these centres are specialized in one field of agricultural scientific research only and most of their experiments are carried out on one kind of plants (Table 5.15).

Table 5.15 - Coordination with Research Stations out of the Directorate

Opinion	no.	%
1 = coordination is very weak	**1**	**9,1**
2	**0**	**0,0**
3	**1**	**9,1**
4	**1**	**9,1**
5	**2**	**18,2**
6	**3**	**27,3**
7	**0**	**0,0**
8	**0**	**0,0**
9	**2**	**18,2**
10 = coordination is very good	**1**	**9,1**

During the year 2000, research work has been very intense (Table 5.16), but obviously the number of activities depends very much on the size of the research centres. Table 5.17 proposes an elaboration of the researchers` productivity: as average, each researcher has made 2.6 researches, with the highest productivity in the medium size research centres and the lowest one in the very large research centre.

Table 5.16 - Researches made in year 2000

Number of researches	no.	%
none	0	0,0
up to 10	7	63,6
11-50	1	9,1
51-100	0	0,0
more than 100	3	27,3
Total	11	100,0

Anyhow, taking into account the different scientific requirements of the different scientific fields, this type of analysis is not meaningful by itself, but it must be enriched with a deeper study and further investigation.

Table 5.17 - Researchers` productivity

Stations` size	no.	Researches in 2000 no.	Researchers no.	Researches/Researcher no.
Small (below 9 scientists)	3	10	10	1,0
Medium (9-10)	3	141	29	4,9
Large (11-30)	4	322	106	3,0
Very large (> 30)	1	8	40	0,2
Total	11	481	185	2,6

About future research activities, once again we find a very high variability (Table 5.18), with some research centres which are planning more than 100 researches each, whereas at the other

side we found one centre that had planned no activity at all. In 64% of cases, the decisions about research activities are taken at the Ministry (Table 5.19) and Directors only execute research programs decided in Damascus, but a small number of respondents also declare a good level of autonomy. Only in one case (9%) the interviewee said that he was waiting for "suggestions from the farmers".

Table 5.18 - Investigations planned for 2001

Number of investigations	no.	%
none	1	9,1
up to 10	6	54,5
11-50	1	9,1
51-100	0	0,0
more than 100	3	27,3
Total	11	100,0

Table 5.19 - Decision about future research

Answers	no.	%
I wait for the decision from the Ministry	7	63,6
I wait for the suggestions from the farmers	1	9,1
I decide by myself, because I know the needs of the farmers	3	27,3
Total	11	100,0

Autonomy seems to grow with experience as illustrated in table 5.20.

Table 5.20 - Relationship between experience and autonomy

Experience (years)	Decision making (%)		
	From above	With farmers	By myself
up to 5	80	0	20
6 -10	60	20	20
> 10	0	0	100
Total	64	9	27

5.4 Relationship with Extension Agents and with Farmers

There is no much direct relation between agricultural scientific stations and the extension service (Table 5.21), with an overall score being 66%. According to our respondents, in three case (27% of observations), there is no direct contact at all between the research station and the extension agents at work in the area, with all other respondents in better position. In four cases (36%) the Directors declare to work very much in order to transfer scientific results to extension agents.

Table 5.21 - Transmission of results to extension agents

Opinion	no.	%
1= we do not transfer at all	3	27,3
2	0	0,0
3	0	0,0
4	0	0,0
5	0	0,0
6	1	9,1
7	1	9,1
8	1	9,1
9	1	9,1
10=Yes, we transfer very much	4	36,4

As a matter of fact, the communication from extension to research seems to be even worse (Table 5.22), because many respondents declare that they do not receive any suggestions, or very few, from the local extension agents. Only in a few cases, local advisors seem to be able to build a two ways communication channel, as already seen in Chapter 1.

Table 5.22 - Suggestions for research from local extension service

Opinion	no.	%
1= we do not receive any suggestions	4	36,4
2	1	9,1
3	0	0,0
4	0	0,0
5	1	9,1
6	1	9,1
7	1	9,1
8	2	18,2
9	0	0,0
10=Yes, we receive many	1	9,1

This lack of communication is evident also from the next Table 5.23, with half of the respondents affirming that they have no communication at all with the local extension service. Even worse appear the position of the two research directors who affirm that they “do not need any suggestion”.

While it is at least doubtful the position of another respondent who says, “farmers in this area do not have any problem”.

Table 5.23 - Motivations of poor communication with extension (n=6)

Answers	no.	%
I do not need any suggestion	2	33,3
We do not have good communication	3	50,0
Farmers of this area do not have problems	1	16,7
Total	6	100,0

This group of Research Stations Directors was also interviewed about the relationships between farmers and agricultural advisors (Table 5.24). Their response is quite clear: the majority of the extension agents have a good relationship with farmers.

Table 5.24 - Relationship between advisors and farmers

Opinion of Research Station Directors	**no.**	**%**
Very good	0	0,0
Good	3	27,3
Poor	7	63,6
Very poor	1	9,1
Total	11	100,0

The causes of such situations were also investigated (Table 5.25): farmers do not believe in what is transmitted by the extension agents (50% of respondents) or extension agents cannot communicate (38%).

Clearly, these are opinions expressed by the Directors of a few research centres, acting as third party, sometimes biased or likely to be biased, but still they reveal a situation far to be optimal.

Table 5.25 - Reasons for poor relationship between farmers and advisors (n=8)

Opinion of Research Station Directors	**no.**	**%**
Farmers have a very low level of education	1	12,5
Extension agents can not communicate with farmers	3	37,5
Farmers do not believe in what is said by the agents	4	50,0
Other reason	0	0,0
Total	8	100,0

The responses of research directors, with respect to the relation with farmers and their estimation of the scientific research results, reveal (Table 5.26) that in many cases only few farmers have visited the research centers, compensated by other centers, which receive many visitors. Once again, it is the medium size research centers (Table 5.27) that declare the highest visitors/ scientist's ratio: 29 per year in 2000, per qualified technician, against an average of 8.5.

Table 5.26 - Farmers looking for advice at Research Station

Tentative number	no.	%
None	2	18,2
Less than 10	2	18,2
Between 10 and 50	3	27,3
From 50 to 100	2	18,2
More than 100	2	18,2
Total	11	100,0

Table 5.27 - Farmers visiting the station

Stations` size	no.	Farmers in 2000 no.	Researchers no.	Visitors/ Researcher no.
Small (below 9 scientists)	3	85	10	8,5
Medium (9-10)	3	854	29	29,4
Large (11-30)	4	135	106	1,3
Very large (> 30)	1	500	40	12,5
Total	11	1.574	185	8,5

5.5 Suggestions for Improvement

Finally, the suggestions for development of agricultural scientific research are illustrated in table 5.28 according to the following sequence

- More international relationships
- More funds
- More equipment
- Better coordination with extension
- More autonomy in deciding research themes
- More researchers
- More relationship with the farmers
- More coordination with research in directorates
- More coordination with research in other directorates

Table 5.28 - Suggestions to improve performance of resarch station

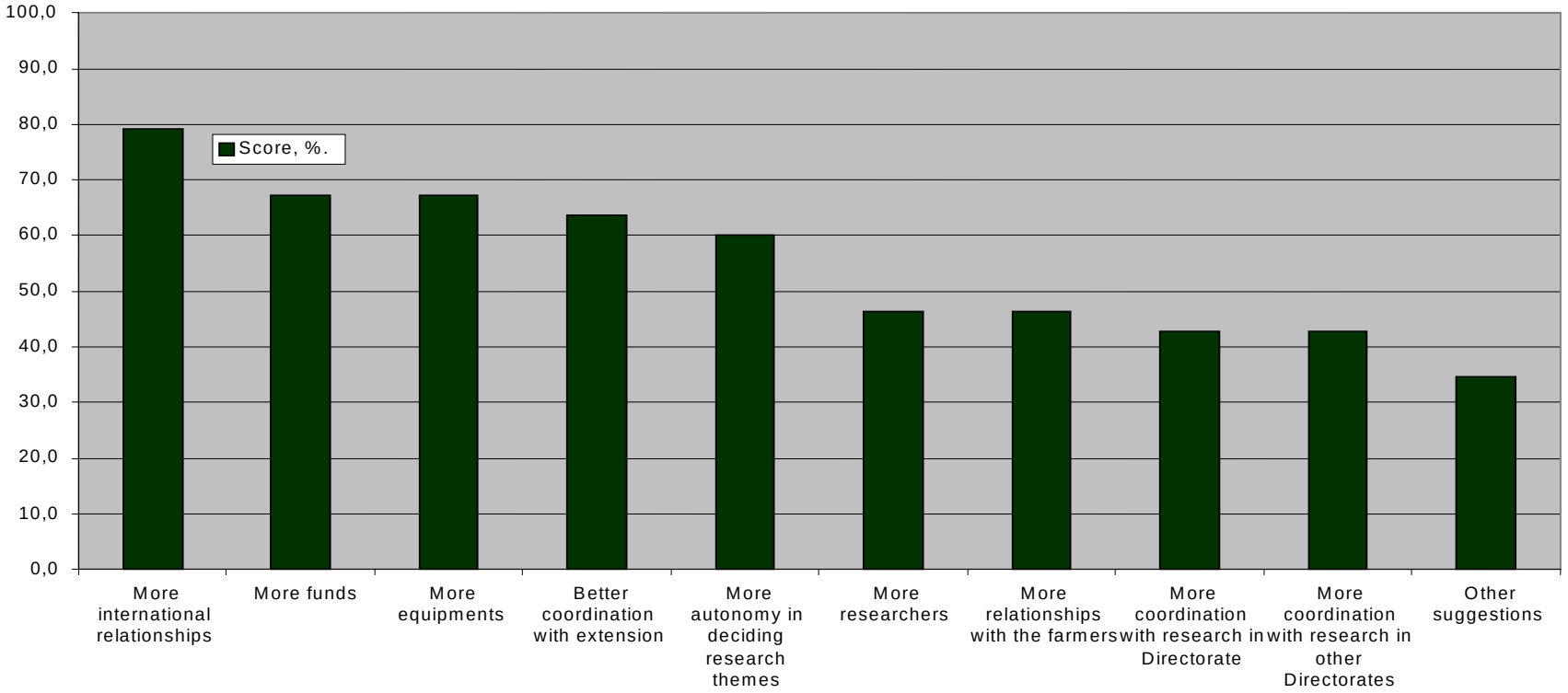
Suggestions	Level of priority										Scoring
	1	2	3	4	5	6	7	8	9	10	
- More international relationships	0	5	2	3	0	1	0	0	0	0	79.1
- More funds	1	2	3	0	2	0	1	2	0	0	67.3
- More equipments	2	1	1	1	2	2	2	0	0	0	67.3
- Better coordination with extension	0	3	0	2	3	1	0	2	0	0	63.6
- More autonomy in deciding research themes	5	0	0	0	0	1	1	0	3	1	60.0
- More researchers	0	0	0	2	1	3	3	0	2	0	46.4
- More relationships with the farmers	0	0	3	1	1	0	1	1	3	1	46.4
- More coordination with research in Directorate	0	0	0	2	2	1	2	1	2	1	42.7
- More coordination with research in other Directorates	0	0	2	0	0	2	1	5	1	0	42.7
- Other suggestions	3	0	0	0	0	0	0	0	0	8	34.5

As a matter of fact, most interviewees expressed their need for information and access to modern databank. Agricultural scientific research needs updated Information Technology (IT) in order to use it as a tool for exchanging information with other scientific parties, both local and

international. It can also help very much in spreading research results, informing fast and at a low cost all extension units, farmers, association and other interested stakeholders.

Also evident is the need for better coordination with the extension service, required with a final score of 63.6%, and for more autonomy in research planning, demanded by 60% of the people.

Figure 5.1 - Suggestions of the researchers to improve the performance of research stations.



Chapter 6 -Opinion of the farmers

6.1 Materials and methods

In order to know the opinion of the farmers about agricultural extension and research in Syria, a group of 69 farmers in five Governorates have been interviewed. They have been selected randomly, from the lists available at the local extension units, or simply met on the road. Great care has been put in the effort to cover a wide area in each Governorate and to select farmers living at various distances from the extension unit.

The farmers interviewed in each Governorate are shown in Table 6.1: the smallest percentage of interviewees was in Homs (15.9%) and the highest in Tartous (24.6%). The distribution of the interviews does not reflect the 1994 statistical data. Taking into account the small number of interviews and the difference with the real distribution of holdings, the data shown do not pretend to have any statistical meaningfulness.

Table 6.1 - Distribution of interviewed farmers

Governorate	Interviews		Census in 1994	
	no.	%	no.	%
Homs	11	15,9	40.107	14,1
Tartous	17	24,6	92.268	32,4
Hama - Al Ghab	11	15,9	51.063	17,9
Suweida	14	20,3	15.792	5,5
Aleppo	16	23,2	85.927	30,1
Total	69	100,0	285.157	100,0

All interviews took place during the months of November and December 2000 and were made personally by the Authors of this research, using a structured questionnaire, elaborated in October. The questionnaire (see Attach 3) contains 21 questions, all closed, that can be grouped as follows:

- questions 1-7 : description of the farm
- questions 8-19 : relationship with extension service
- questions 20 : relationship with research stations

Question 21 invited the farmers to propose suggestions about improvements to be introduced in research and extension services.

The collected data were transferred into a database and then processed with the SPSS98, in order to elaborate the required tables.

6.2 Characteristics of the respondents

The distribution of the interviewed farmers reflects the average size of the Syrian farms (FAO 1999): 75% are below 100 donum (10 hectares). Only a few people have farms relatively big (Table 6.2) and none in the sample is over 1,000 donum.

Table 6.2 - Cultivated land (donum)

Size	no.	%
up to 10	12	17,4
11-20	9	13,0
21-50	19	27,5
51-100	13	18,8
101-200	11	15,9
201-500	4	5,8
>500	1	1,4
Total	69	100,0

Most farmers are full owners of their holding (Table 6.3), while only 4.3% are cultivate land that is totally leased.

Table 6.3 – Tenancy

Type	no.	%
Total property	59	85,5
Partial property and lease	7	10,1
Total lease	3	4,3
Total	69	100,0

The dimension of labor force (Table 6.4) shows that most farmers run small scale operations, with less than five people per farm and only 3% of the interviewed farmers employ more than 20 persons. This result is similar to the one found by a previous research carried out in the Governorates of Homs, Hama and Tartous in 1994 (MAAR 1994).

Table 6.4 - Labour force

Size of labour force	no.	%
up to 5 people	46	66,7
6 - 10	12	17,4
11 - 20	9	13,0
over 20	2	2,9
Total	69	100,0

This group of farmers has different levels of education (Table 6.5), since more than one third declare only a few years of schooling, whereas a similar share has more than 10. A few farmers

also have more than 15 years of education. These respondents have therefore an educational level that is slightly better than the one found by MAAR (1994).

Table 6.5 - Educational level of respondents

Years of schooling	no.	%
Up to 5	25	36,2
6 - 10	25	36,2
11 - 15	14	20,3
over 15	5	7,2
Total	69	100,0

The income of their agricultural activity (Table 6.6) has evolved positively, according to 32% of the respondents, whereas a higher percentage affirms that its income has worsened. A minority of 21% believes that its income is more or less the same as ten years ago.

Table 6.6 - Evolution of farm income

Opinion of farmers	no.	%
Better than ten years ago	22	31,9
like ten years ago	15	21,7
worth than ten years ago	32	46,4
Total	69	100,0

Relationship between size of the farm and income evolution (Table 6.7) shows that, 87.5 % of large farmers believe that their income has decreased, while 12.5 of them affirm that their income has increased

On the other side, 27.5 % of small farmers answer that their income has remained constant and the rest of the respondents are divided equally into two groups of the same ratio with diverging opinions.

Table 6.7 - Relationship between size and opinion about income

Size of farms	Opinion about income evolution		
	Increased	The same	Decreased
Small (50 donum)	35,0	27,5	37,5
Medium (51-100 donum)	46,2	30,8	23,1
Big (>100 donum)	12,5	0,0	87,5
Total sample	31,9	21,7	46,4

Still, most (64%) interviewed farmers think to have an income similar to the majority of the farmers in their area (Table 6.8), while only a minority affirms to be in a better position. As we have seen before, one forth of our respondents feels to have an income which is lower than the average.

Table 6.8 - Level of farm income, compared with other farmers

Opinion of farmers	no.	%
My agricultural income is higher than other farmers	8	11,6
My agricultural income is like other farmers	44	63,8
My agricultural income is lower than other farmers	17	24,6
Total	69	100,0

As a matter of fact, most farmers believe to have the same yields like the people in surrounding holdings (Table 6.9), while the other ones split into two groups of the same size, with diverging opinions.

Table 6.9 - Level of yields, compared with other farmers

Opinion of farmers	no.	%
My yields are higher than other farmers	10	14,5
My yields are like other farmers	47	68,1
My yields are lower than other farmers	12	17,4
Total	69	100,0

6.3 Extension Methods

The most common method of advice in Syria is the **individual visit** of the extension agent **to the farmer**. This is confirmed by our respondents, most of whom affirm to have been visited quite recently (Table 6.10). On the other hand, about one fourth of the farmers complain that they were visited long time ago.

Table 6.10 - Last visit of extension agent

Timing	no.	%
Last week	26	37,7
Last month	17	24,6
Three months ago	7	10,1
Six months ago	2	2,9
More than six months ago	9	13,0
I do not remember	8	11,6
Total	69	100,0

Cross-checking this answer with the size of the farm and with the number of farm visits (Table 6.11), let us affirm that small and big farmers received equally the same ratio of field visits during the week before the interview, whereas a higher percentage of medium size owners had received the advisor's visit during the previous week.

Anyhow, the continuous presence of extension agents is quite evident, if we consider that almost one fourth of farmers in all categories had been visited during the previous month.

Table 6.11 - Relationship between size and farm visits

Size of farms	Visits	
	Last week	Last month
Small (50 donum)	35,0	25,0
Medium (51-100 donum)	46,2	23,1
Big (>100 donum)	37,5	25,0

The close relationship between many farmers and the local extension agents is proved also by the next answer (Table 6.12**),** with 42% of interviewees who have visited the Office of Extension during the week before the interview and 17.4% who visited it in the last month.

Table 6.12 - Last visit to local extension office

Timing	no.	%
Last week	29	42,0
Last month	12	17,4
Three months ago	13	18,8
Six months ago	1	1,4
More than six months ago	3	4,3
I do not remember	11	15,9
Total	69	100,0

As we have seen before, Table 6.13 shows clearly that medium size owners are those with the closest relationship with the extension service:

69% of them had paid a **visit to the extension agents** the week before the interview, against 37% of the small farmers and 3.3% of the bigger farmers. Anyhow, 37.5% of the bigger farmers declared to have gone to the advisor's office during the previous month.

These results are very satisfactory because they show a relationship between extension agents and farmers much closer than another MAAR study made in 1998: in that research, only 19% of farmers had visited the Extension office.

Table 6.13 - Relationship between size and visits to office

Size of farms	Visits	
	Last week	Last month
Small (50 donum)	37,5	15,0
Medium (51-100 donum)	69,2	0,0
Big (>100 donum)	31,3	37,5

Another very common method, as stated in Chapter 3, is the **field day**, when farmers can meet on the fields of the best farmers, in order to get informed on the results of improved technologies. This type of event is appreciated by 88% of the farmers (Table 6.14), whereas only a very small minority does not like the field days.

Table 6.14 - Opinion about field days

Farmers' opinion	no.	%
I like them	61	88,4
I liked them	2	2,9
I did not go	6	8,7
Total	69	100,0

The majority of the farmers also use to attend the **meetings** organized at village level by the extension agent, for spreading information about technical issues or economic problems. Many of these events are organized together with the Farmers` Unions or with the Cooperatives and they allow sharing opinions with technicians and other farmers too.

Meetings are appreciated and considered useful by 65% of respondents, whereas only 1.4% found the participation useless (Table 6.15). Yet, more than one third does not participate, for a variety of motivations and this gives room for improvement.

Table 6.15 - Participation and opinion about extension meetings

Farmers' opinion	no.	%
I attended and it was useful	45	65,2
I attended, but it was not useful	1	1,4
I did not go, because I had other things to do	13	18,8
I did not go, because I do not need any information	10	14,5
Total	69	100,0

Contacting the farmers, with proper timing, about a forthcoming group event, can be a very difficult task, especially in places where telephone is not available in all houses, but it seems that the information network established by the extension service works quite well.

Almost 2/3 of the group of our farmers was contacted directly by the extension agent himself (Table 6.16), supported by written communication and by farmers themselves spreading the news of a next meeting.

Table 6.16 - Information about extension meetings

Channel	no.	%
By a friend	8	11,6
By an extension agent	45	65,2
With a letter	16	23,2
Total	69	100,0

6.4 General Comments

In general terms, farmers believe that extension agents can answer to most of their questions. Table 6.17 shows that 70 % of the farmers with a low-level education and 73 % of those with high level education believe so. While 80 % of the respondents with a medium level of education ensure that they prefer the extension agent's help to other kind of help.

Table 6.17 - Relationship between educational level and opinion about extension agents

Suggestions	Opinion (1 = very poor; 10 = very good)										Final score
	1	2	3	4	5	6	7	8	9	10	
Low level of education (up to 5 years)	3	0	0	1	1	1	6	5	5	3	0,70
Intermediate level (from 5 to 10 years)	1	0	0	0	0	3	5	5	5	6	0,80
High level of education (more than 10 years)	0	0	0	1	2	2	6	4	2	2	0,73
Total	4	0	0	2	3	6	17	14	12	11	

The information method most appreciated by the farmers is obviously the visit of the advisor to their farm, when they are at home (Table 6.18), followed at long distance by the group meeting (16%) and by the field day (10%). Training courses and visits to the office receive the lowest score.

Table 6.18 - Preferred relationship with advisor

Method	no.	%
Visits of the advisor	42	60,9
Visit to advisor's office	3	4,3
Group meetings	11	15,9
Field days	7	10,1
- Training course	6	8,7
Total	69	100,0

In most cases, farmers are satisfied with the suggestions provided by the extension agents. The relationship between educational level and satisfaction of the extension agent's job (Table 6.19) indicates that the degree of satisfaction is fairly good, with the same ratio for the three levels of the respondents, accounting to 74 %.

Table 6.19 - Relationship between educational level and satisfaction

Suggestions	Opinion (1 = very poor; 10 = very good)										Final score
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
Low level of education (up to 5 years)	3	0	0	0	1	0	4	5	6	5	0,72
Intermediate level (from 5 to 10 years)	0	0	2	0	0	3	3	6	6	5	0,79
High level of education (more than 10 years)	1	0	0	0	5	1	2	5	2	3	0,71
Total	4	0	2	0	6	4	9	16	14	13	**0,74**

Finally, in case of problems, 75% of farmers go to the extension agent for support, with a minority who refers to a friend and very few going to members of the family or to the owner of the agricultural store (Table 6.20).

Table 6.20 - Information in case of problems

Farmers' answer	no.	%
A farmer friend, who knows more than me	11	15,9
The extension area of this area, who is very good	52	75,4
A member of my family, who knos more than me	3	4,3
The owner of the agricultural store, who is well informed	3	4,3
Total	69	100,0

There is a clear indication that educational level also affects the farmer's behavior. From Table 6.21 we can see that all respondents go first to the extension agent asking for help, but the highest ratio is in the intermediate educational level (92 %).

The table indicates that the storeowners are the last resorts for the low and intermediate educational level, but it is not the case for the high education level, and the minority of farmers prefers family members and other farmers help.

Table 6.21 - Relationship between educational level and first source of information

Educational level	First source				Total
	Other farmer	Extension agent	Family member	Store Owner	
Low (up to 5 years)	24,0	76,0	0,0	0,0	100,0
Intermediate (from 5 to 10 years)	0,0	92,0	8,0	0,0	100,0
High (more than 10 years)	26,3	52,6	5,3	15,8	100,0

6.5 Extension Media

In general, the Radio programs provided by the government have satisfied the farmers. Table 6.22 indicates a high degree of satisfaction, with around 90 % of farmers who like it and 10% who do not. Altogether, the total score received by the radio programs for farmers is 82.7/100 that means a very high level of appreciation.

In most cases, also the television programs provided by the Government have satisfied the farmers. Table 6.23 shows that 85 % of the farmers like television programs very much, while 15 % have a lower opinion on them.

The final score achieved by the TV programs for farmers are a bit higher than the one attained by the radio: 84.8/100.

Another research made by MAAR (1998) supplies more detailed information about the farmers' appreciation of radio and TV programs.

TV programs were watched always or sometimes by 77% of respondents, whereas radio emissions were followed regularly only by 69% of them.

Table 6.22 - Radio programs for farmer

Farmers' opinion	no.	%
1=I do not like them at all	3	4,3
2	1	1,4
3	0	0,0
4	2	2,9
5	1	1,4
6	2	2,9
7	9	13,0
8	9	13,0
9	14	20,3
10=I like them very much	28	40,6

Table 6.23 - TV programs for farmer

Farmers' opinion	no.	%
1=I do not like them at all	3	4,3
2	0	0,0
3	0	0,0
4	2	2,9
5	3	4,3
6	2	2,9
7	6	8,7
8	7	10,1
9	11	15,9
10=I like them very much	35	50,7

The majority of respondents are appreciating the good effects of these media.

From Table 6.24 it seems that the publications produced and distributed for free by the extension service of the MAAR are appreciated by 80 % of the farmers, 10% do not like them and 10% have an intermediate opinion. As a matter of fact, the overall score attributed by all respondents is 79/100, lower than the previous score attributed to television and radio.

Similar results were found also by MAAR (1998) that reports a low diffusion of printed materials amongst the interviewees: only 11%.

This media has been investigated by MAAR (1998), together with the other methods and media.

It was found that only 4% of the farmers had seen any performance of the Agricultural theater, a percentage similar to other methods and media.

Table 6.24 - Publications for farmers

Farmers' opinion	no.	%
1=I do not like them at all	5	7,2
2	0	0,0
3	0	0,0
4	2	2,9
5	6	8,7
6	2	2,9
7	5	7,2
8	11	15,9
9	13	18,8
10=I like them very much	25	36,2

6.6 Relationship with Research Station

As any other country, direct relationship between farmers and researchers is limited to few cases (Table 6.25).

Anyhow, almost 15% of the interviewed farmers affirm to have found solution to their technical problems, thanks to a visit to the local research station. Unfortunately, most farmers declare to live too far from the research station and therefore they miss this opportunity.

On the other hand, it is to some extent worrisome to see that many farmers think that the research stations are doing experiments on subjects that are not useful for them.

Table 6.25 - Visits to research stations

Farmers' answer	no.	%
I did not go, because there is no research station here	40	58,0
I did not go, because their work is not useful to me	11	15,9
I went but they had no good suggestion for my problems	8	11,6
I went and I found a good solution for my problems	10	14,5
Total	**69**	**100,0**

6.7 Suggestions to Improve Efficiency

The respondents express a clear need for a closer relationship with the advisors, who “should spend less time in the office and more with us”.

This demand gets a total score of 74/100, followed by a precise demand for more market-oriented advice.

Farmers also wish to have extension agents more open to listening (score 66/100) and with more practical experience.

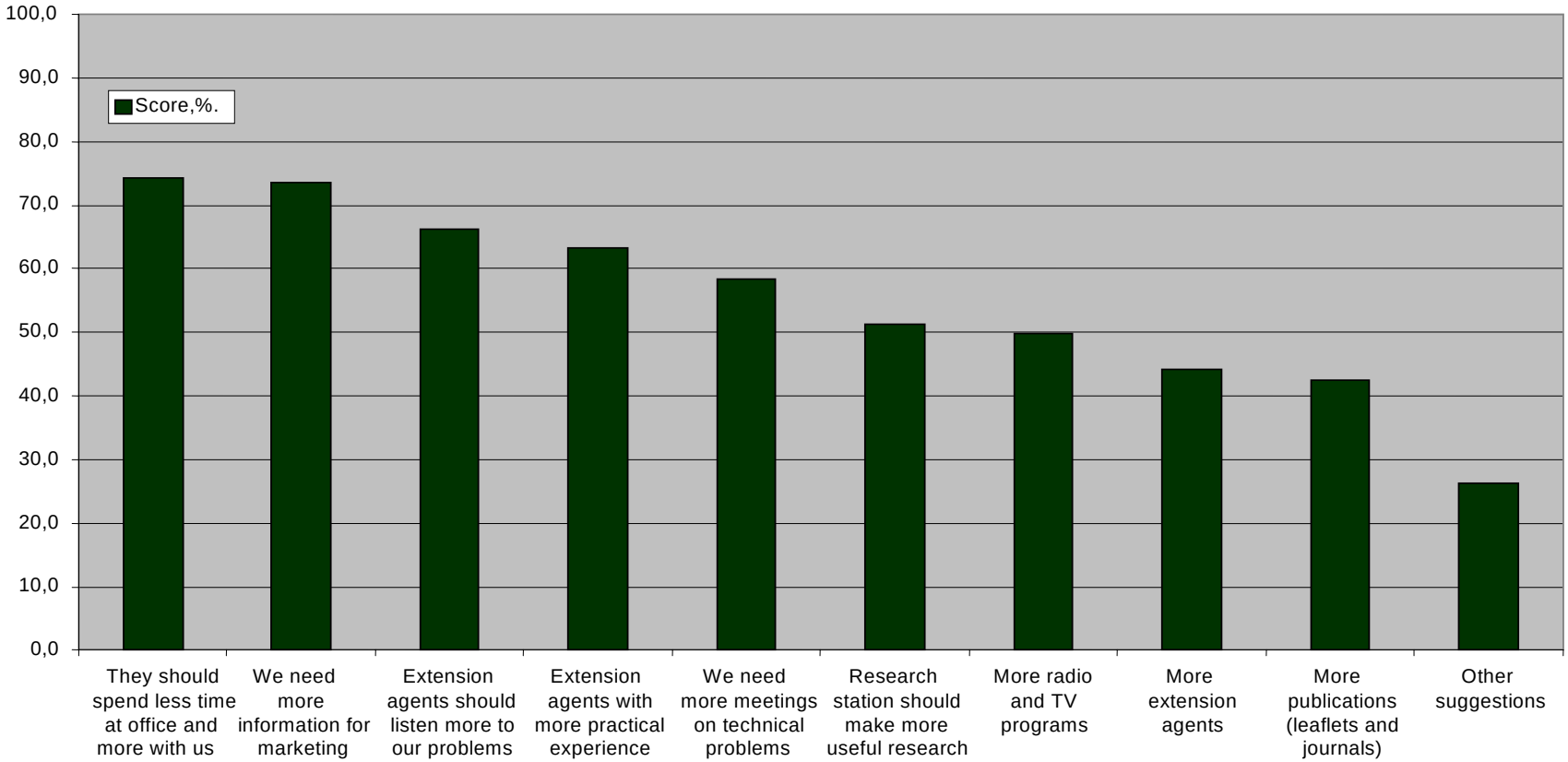
The need for more useful research is expressed quite strongly, with a general score of 51/100.

Table 6.26 - Suggestions to improve performance of extension service

Suggestions	Level of priority										Score
	1	2	3	4	5	6	7	8	9	10	
- They should spend less time at office and more with us	14	17	7	10	4	8	5	2	2	0	0.74
- We need more information for marketing	17	8	14	9	4	10	1	2	2	2	0.73
- Extension agents should listen more to our problems	3	11	18	10	5	5	10	5	2	0	0.66
- Extension agents with more practical experience	10	2	9	12	17	2	6	7	2	2	0.63
- We need more meetings on technical problems	5	6	6	9	13	8	11	5	5	1	0.58
- Research station should make more useful research	4	8	3	6	4	11	9	14	9	1	0.51
- More radio and TV programs	1	6	5	3	17	7	10	6	10	4	0.50
- More extension agents	6	8	0	3	3	7	5	11	20	6	0.44
- More publications (leaflets and journals)	1	0	7	6	2	10	11	16	15	1	0.42
- Other suggestions	8	3	0	1	0	1	1	1	2	52	0.26

About extension methods and media, we have seen already that Syrian farmers like the direct interpersonal contact, but they also call for more meetings, more radio and TV programs and also for more printed information.

Figure 6.1 - Suggestions of the farmers to improve performance of extension services



Conclusion and Recommendations

At present, according to this research, it seems that no other agency, either public or private, other than the MAAR, is able to provide the farmers with extension services (both information and advice) and introduce agricultural innovations suitable for the Syrian agro-ecological conditions.

The input suppliers and the credit system are still almost totally State-controlled and they do not provide any advice. These companies often operate in semi monopolistic situation that does not need to use information as a competitive device. Private national companies are too small for running even a small agricultural research station, whereas large international companies do not operate in Syria, probably because of the lack of patents, rights legislation or because the Syrian market is considered too small.

The same happens in the post-harvest activities (output processors and marketers): most commodities are purchased by State-controlled companies, without competition, and they seem to be satisfied with the quality of the products they receive. Private national operators are small in number and in size and they do not seem able to produce any information or advice. International food companies do not operate yet in the country.

Civil society organizations, like unions and chambers of commerce, mostly co-operate with MAAR and they lack the financial resources for providing their own advisory service.

Consequently, the MAAR still has a practically monopolistic control on agricultural knowledge creation and about information and advisory service. Add to this the pivotal role that the MAAR extension service plays in policy design and implementation, linked with credit and inputs` distribution. For the years to come, it is likely that the MAAR will continue to be the major agent in the Agricultural Knowledge and Information System (AKIS) and it is absolutely necessary to improve its performance, in both research and extension.

If the Government introduces further liberalization and gradual privatization of existing State companies, some adaptive research and some extension activities could gradually be set up by private profit-oriented companies, either national or international.

The overall outcome of the surveys made for this research has shown that public research extension and public advisory service can be rated at a good level, but that there are wide margins for improvement.

In the following paragraphs suggestions will be presented, as proposed by interviewed people and on the basis of our readings of the most updated literature in this field. The proposals will cover separately the improvement of research activities and of advisory activities, but some common remarks are here anticipated.

A good linkage between research and extension is crucial for proper agricultural development. The research reveals that in some cases relationship between extension service and research stations is poor: extension staff does not trust researchers, and scientists think that advisors` work is useless. These attitudes should be modified and greater co-operation should be established.

For The Improvement of Agricultural Applied Research

1. At present, research stations are scattered institutionally amongst many different Directorates and Ministries and this does not favor good links amongst them and between research and extension service; a structural re-organization could therefore be made, putting all research stations under one Directorate.
2. The recent creation of the supreme scientific commission is a first move towards a better co-ordination, at top level, but coordination should be created also at a lower level, at Governorate and Mantika Level.
3. At central and lower level, these coordination committees should be open to representatives of extension service and of the farmers association, in order to facilitate communication between all three parties involved (producers, advisors and scientists). It could be wise, in due time, to open these committees to representatives of the private sectors (input suppliers and output processors), as to have an integrated food chain approach to research activities.
4. Several research stations appear to have too small dimensions and they lack the necessary tools for modern experimentation activities. It is important to review the distribution of funding allocations and to increase the expenditure for agricultural research, in order to develop the necessary innovations enhancing competitiveness of Syrian products .
5. Scientists need research facilities such as laboratories, computers, publications and external contacts with national and international research centers. They access to Internet and the creation of an intranet system could greatly facilitate the circulation of scientific information, in real time.
6. Researchers should follow pre-service training courses before starting their career and attend national and international courses, seminars and conferences during their career, as to remain always at the edge of their scientific field.
7. Once research centers are properly staffed and well equipped, it is important that they make research useful for the needs of the farmers. For this purpose, adequate decision-making procedures should be put into practice. A simple instrument could be to organize, in each research station, some regular meetings attended by the Heads of extension units, heads of research centers, directorates of agriculture, representatives of peasants unions and heads of chambers of agriculture.
8. Research stations should be more open to farmers and extension agents, providing, whenever possible, the information required. In order to promote a better mutual knowledge, the research stations could annually organize an Open Day (lasting one or two days), with demonstrations, competitions, workshops, etc...
9. Research activities should be properly monitored and evaluated, in order to reward the scientists who work more and better and in order to allocate properly the next funds.

For The Improvement of Agricultural Extension Activities

1. In order to improve the present coverage of all Syrian farming systems, which require different extension pressure, there is a need for a better distribution of extension units and of extension field staff. The number of employees in the extension units should be properly calculated, as to fulfill the requirements of different farming systems and provide better response to the farmers.
2. A proper move could be that of assigning present and new staff to the original villages, thing that may have a positive effect on their job satisfaction.
3. Extension offices and extension agents should be properly equipped, as to facilitate their work: better transportation means, more teaching aids, better communication lines. As we have seen before, modern extension services need rapid access to information and effective links with research and with other sectors of the Administration. The implementation of information technology could help greatly agricultural development in Syria.
4. Extension offices could be located close to agricultural shops, or the agricultural shops could be located in the same building of the extension office, as to establish a close relationship between local suppliers and extension agents and to have more frequent meetings with the farmers.
5. The daily work of the extension employees is very much concentrated on controlling agricultural legislation, with less care in contacting research stations and farmers. Extension agents have additional tasks such as surveying the holdings, running statistical work, and disease control missions at their sites, which hinder the worker to do his extension works. We suggest assigning additional personnel from the directorates of agriculture to assist in carrying out these tasks.
6. The Rural Women Department and the female advisors at the extension units should be more supported to reach a greater number of rural women and have a bigger impact.
7. Extension plans and programs should be based on information from farmers about their problems. Farmers should be more involved, true *ad hoc* committees, in the planning and evaluation of extension activities, at all levels. Continuous coordination with the peasant unions should be fostered, for delivering lectures, carrying out field days and exhibitions. Villagers could participate in choosing the topics to be developed by the extension unit.
8. Some authority should be delegated to the Heads of extension units, to identify topics of field days and lectures, due to the differentiation of country districts, of the local farming systems and to the very heterogeneous nature of technical problems;
9. Extension agents (agronomists and veterinarians) and extension managers should be properly trained in communication skills with pre-service courses and their technical knowledge should be continuously updated, both in Syria and abroad.
10. Taking into account the small number of field advisors, and the great number of farmers asking for support, individual contacts should be limited and greater emphasis should be given to group activities (field days, courses, demonstrations, etc.).
11. Mass media utilization should also be increased, with a higher use of agricultural TV and radio programs, pamphlets, brochures and leaflets (printed media).
12. More attention should be paid to themes like farm management and product marketing. Farmers should be trained in market economics, export, marketing, packaging, in order to encourage their competitiveness in the local, Arab and world markets.

13. Monitoring and evaluation activities should be improved, as to ensure a regular flow of information to the management, at all levels. M&E should be properly planned and executed and their results should be used for improving the next activities and for the continuing education of extension staff.
14. More research is needed in order to acquire a better knowledge of the behavior of Syrian farmers, of the impact of different methods and media, and of the relationships between communication, adoption and impact of the innovations.
15. In the medium - long term, as further liberalization will be introduced in Syrian agriculture and in Syrian agro-industries, it is likely that information delivery becomes a tool for market competition used by private companies. In this context, it is also likely that Civil Society Organizations (Cooperatives, Associations and Chambers of Agriculture) will be more active in this field, for the benefit of their members.

In due time, the necessary steps will be therefore needed, in order to re-evaluate the role of the State in the production of innovations and in the supply of information, as to establish a fair level ground where all actors can play a role for the benefit of the country.

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ANNEXES

Annex 1 Questionnaire for Farmers

Dear Respondent

The following questionnaire has been developed within the context of a training program. The identity of the respondent is ignored and all data will be used in an aggregated form. Anonymity is ensured. Please feel free to answer what you really think being the truth, for the improvement of Syrian agriculture.

1. How many donum do you grow? No. ___.

2. Under which title you manage this farm? 0 100% property

0 partial property, part under lease

0 100% lease

3. How many years of school attendance do you have? ___.

4. How do you judge the income from the farm? (mark only one)

0 Today it is better than 10 years ago

0 Today is like 10 years ago

0 Today is worst than 10 years ago

5. How do you judge your income from the farm? (mark only one)

0 My agricultural income is higher than other farmers'

0 My agricultural income is like the other farmers'

0 My agricultural income is lower than other farmers'

6. How many people work with you in this farm? no. _____

7. How do you judge the yields of the crops grown in your farm? (mark only one)

0 My yields are higher than in other farms

0 My yields are like in the other farms

0 My yields are lower than in other farms

8. When did you receive the last visit of the extension agent? (mark only one)

0 last week 0 last month

0 three months ago 0 six months ago

0 more than six months ago 0 I do not remember

9. When did you go for the last time to the office of the extension agent? (mark only one)

0 last week 0 last month

0 three months ago 0 six months ago

0 more than six months ago 0 I do not remember

10. Did you like the Field Day organized by the extension agent in your area?

(mark only one)

0 Yes 0 No 0 I did not go

11. Did you attend any meeting organized by the extension agents, during the last months? (mark only one)

0 Yes, and it was very useful 0 Yes, but it was not useful

0 No, because I had other things to do 0 No, because I do not need any information

12. How were you informed about the meetings or about the Field day? (mark only one)

0 from a friend 0 from the extension agent 0 with a letter

13. Do you think that extension agents are able to answer the farmers' questions ? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

14. Which type of relationship do you prefer to have with the extension agent? (mark only one)

0..I like when the agent comes to my fields

0 I like to meet him at his office

0 I like the group meeting, with other farmers

0 I like the field day, when I can see real things

0 I like the training course, because they give more time to learn

15. In general terms, are you satisfied with the suggestions provided by the extension agents? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

16. Do you like the Radio program for farmers? (circle only one number)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

17. Do you like the TV program for farmers? (circle only one number)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

18. Do you like the publications of the Extension service? (circle only one number)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

19. Do you like the Agricultural Theater? (circle only one number)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

20. During the last year, did you visit the Research Station in your area? (mark only one)

0 No, because there is none

0 No, because what they do is not useful for me

0 Yes, but they had no good suggestion for my problems

0 Yes, and there I found a good solution for my problems

21. If you have a problem in your farm, where do you go first? (mark only one)

0 To a farmer friend, who knows more than me

0 To the extension agent of my area, who is very good

0 To a member of my family, who knows more than me

0 To the agricultural store, where the owner is well informed

22. In order to have a better extension service, what do you suggest? (please rank from 1 = top priority, to 10 = lowest priority; two suggestions cannot have the same number)

We need more extension agents

Extension agents should have more practical experience

Extension agents should listen more to our problems

Extension agents should spend more time with us and less at office

Research stations should make more useful research

We need more meetings on technical problems

We need more information for marketing our products

We need more Radio and TV programs

We need more publications (leaflets and journals)

Other (please specify)_____..

Annex 2 Questionnaires for Heads of Extension Units

Dear Respondent

The following questionnaire has been developed within the context of a training programme. The identity of the respondent is ignored and all data will be used in an aggregated form. Anonymity is ensured. Please feel free to answer what you really think being the truth, for the improvement of Syrian agriculture.

1. How many years have you occupied this position? no. .....

2. Do you think that farmers appreciate your work? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

3. Are you satisfied with your job? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

4. Are there problems in coordinating the work of the other people in your Unit ? (circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

5. Do you receive sufficient support from above? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

6. Do you also have another job? 0 yes 0 not

7. Do you work in your home area? 0 yes 0 not

8. How many times per month do you visit the Sub-directorate? No. .....

9. How many visits to farms did you make this year? No .....

10. How many seminars for farmers did you organize this year? No .....

11. Are you able to answer to the questions of the farmers? (circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

12. Are the other people in your Unit also able to answer to the questions of the farmers?

(circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

13. Which extension method do you prefer to use with the farmers? (mark only one)

0 Individual visit to the farmer

0 Meeting

0 Field day

0 Demonstration

0 Training course

14. Do you think that the farmers in your area like the Radio program? (mark only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

15. Do you think that the farmers in your area like the TV program for them? (circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

16. How do you rate your relationship with the Research Stations in your area?

(circle only one)

Very poor 1 2 3 4 5 6 7 8 9 10 Very good

17. How you and the other staff in your Unit make most visits to farmers? (mark only one)

0 by car

0 by bike

0 by motorbike

0 riding a donkey

0 walking

18. What do you think about your own continuing education? Do you think that you are properly updated with the most recent results of the research? (circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

19. What do you think about the efficiency of research stations in this area? (circle only one)

Very good 1 2 3 4 5 6 7 8 9 10 Very poor

20. Do you know if farmers go directly to research stations to receive information? (mark only one)

0 yes, many farmers go

0 yes, few farmers go

0 no, farmers do not go

0 I do not know

21. If you know that farmers do not go to Research Stations, can you tell why? (only one)

0 Because farmers have a low level of education

0 Because researchers do not like to speak with farmers

0 Because the research is not relevant to the problems of the farmers

0 I do not know.

22. In order to improve the results of this Unit, what do you suggest? (please rank from 1 = top priority, to 10 = lowest priority; two suggestions can not have the same number)

- More extension agents
- Better education for me and other staff
- More equipment (computers and telephones)
- Better coordination with other extension units
- More coordination with research stations in my area
- Better transportation
- More extension tools
- More relationships with the farmers
- More autonomy in deciding the extension messages
- Other (please specify).....

Annex 3 Questionnaires for Directors of Research Stations

Dear Respondent

The following questionnaire has been developed within the context of a training program. The identity of the respondent is ignored and all data will be used in an aggregated form. Anonymity is ensured. Please feel free to answer what you really think being the truth, for the improvement of Syrian agriculture.

1. For how many years have you occupied this position? no. ___.

2. Which is your level of education? (please mark only the highest)

0 Engineer degree

0 Master degree

0 PhD Degree

3. Do you think that farmers appreciate the work of this station? (circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

3. Are you satisfied with your job? ((circle one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

4. How many qualified researchers are at work in this station? no. _____

5. Are there problems in coordinating the work of the other people in this station?

(circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

6. Do you have enough resources (people and money) ?

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

7. How many books has this Station in its library? no. _____

8. How many books were purchased this year 2000? no. _____

9. How many foreign (international) scientific journals does this station receive? no. _____

10. How do you rate the coordination with other Research Stations of this Directorate? (circle only one)

Very weak 1 2 3 4 5 6 7 8 9 10 Very good

11. How do you rate the coordination with other Research Stations of other Directorates? (circle only one)

Very weak 1 2 3 4 5 6 7 8 9 10 Very good

12. How many researches did you make this year? no. _____

13. How many researches do you plan for next year? no. _____.

14. How do you decide the research themes? (mark only one)

0 I wait for the decision of the Ministry

0 I wait for the suggestions of the farmers

0 I decide by myself, because I know the needs of the farmers

15. Do you refer the results of the researches to the extension agents of this area?

(Circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

16. Do you receive suggestions for research from local Extension Units? (circle only one)

Not at all 1 2 3 4 5 6 7 8 9 10 Yes very much

17. If not, why? (Please, mark only one)

0 I do not need any suggestion, because I know already

0 We do not have good communication

0 Farmers of this area have no problems

0 I do not know

18. How do you rate the relationship between the farmers and the extension agents?

(Please, mark only one)

0 Very good

0 Good

0 Poor

0 Very poor

19. If you gave a negative answer, can you tell the main reason? (please, only ONE answer)

0 Farmers have a very low level of education

0 Extension agents cannot communicate with farmers

0 Farmers do not believe in what is said by extension agents

0 Other reason (please write)_____

0 I do not know

20. How many farmers came directly to this Research Station, this year, looking for advice from you or from other researchers? Please, give a tentative number ___

21. In order to improve the research work in this station, what do you suggest? (please rank from 1 = top priority, to 10 = lowest priority; two suggestions can not have the same number)

- More researchers
- More funds
- More equipment
- Better coordination with extension service
- More coordination with other research stations within this Directorate
- More coordination with other research stations of other Directorates
- More international relationships
- More relationships with the farmers
- More autonomy in deciding the research themes
- Other (please specify).