

Full Length Research Paper

The agricultural extension system and practices in Turkey

Ferhan Savran¹, Kürşat Demiryürek², Orhan Özçatalbaş^{3*}, Ayşegül Akin⁴ and İsmet Boz⁵

¹Department of Agricultural Economics, Faculty of Agriculture, Çanakkale Onsekiz Mart University, Çanakkale, Turkey.

²Department of Agricultural Economics, Faculty of Agriculture, Ondokuz Mayıs University, 55139, Samsun, Turkey.

³Department of Agricultural Economics, Faculty of Agriculture, Akdeniz University, Antalya, Turkey.

⁴United Nations Food and Agricultural Organizations (UN FAO) Subregional Office for Central Asia, Ankara, Turkey.

⁵Department of Agricultural Economics, Faculty of Agriculture, Kahramanmaraş Sütcü İmam University, Kahramanmaraş, Turkey.

Accepted 10 March, 2011

This paper presents background information about the Agricultural Extension System (AES) in Turkey. It is concerned with the institutions, extension approaches and activities in the AES. In addition, some critical issues in public extension system are discussed. The AES, and the actors who provide extension and other services, are in both public institutions and private organizations. Agricultural extension activities are mainly performed by the Ministry of Agriculture and Rural Affairs (MARA). In addition, some farmers' associations, agricultural cooperatives, charities and several marketing firms have been involved in farmer training and extension activities. Mass media are also part of the AES. Overall, extension activities have been mainly organized and delivered by public institutions. The private sector's extension activities have only recently been developed, are limited in terms of coverage area, and are product specific.

Key words: Agricultural extension system, extension organizations, public extension, Turkey.

INTRODUCTION

This paper presents background information about the agricultural extension system (AES) in Turkey. It is concerned with the institutions, extension approaches and activities in the AES. In addition, some critical issues in public extension system are discussed. The agricultural extension system (AES) can be defined as an agricultural information exchange system which shows the actors, people and institutions, their interactions and communication networks between these actors to coordinate the information related processes (from generation to transfer, utilize and diffuse). The analysis of a national AES can provide the definition of stakeholders (actors) and structure of the system, the analysis of how different information sources use and support each actor, the relationships and interfaces between components, the understanding of how successfully the system works and on how to improve the system performance (that is

system management) (Demiryürek, 2000). The AES in Turkey, and the actors who provide extension and other services (that is training, education, advice, expertise etc.) are in both public institutions and private organizations. The AES can be represented as in Figure 1.

Agricultural extension activities are mainly performed by the Ministry of agriculture and rural affairs (MARA). In addition, some farmers' associations, agricultural cooperatives, charities, universities and several marketing firms have been involved in farmer training and extension activities. Mass media are also part of the AES.

THE AGRICULTURAL EXTENSION SYSTEM IN TURKEY: ACTORS IN THE SYSTEM AND THEIR EXTENSION APPROACHES

Public extension services

MARA is directly responsible for public extension activities in agriculture. These activities are performed by

*Corresponding author. E-mail: ozcatalbas@akdeniz.edu.tr.

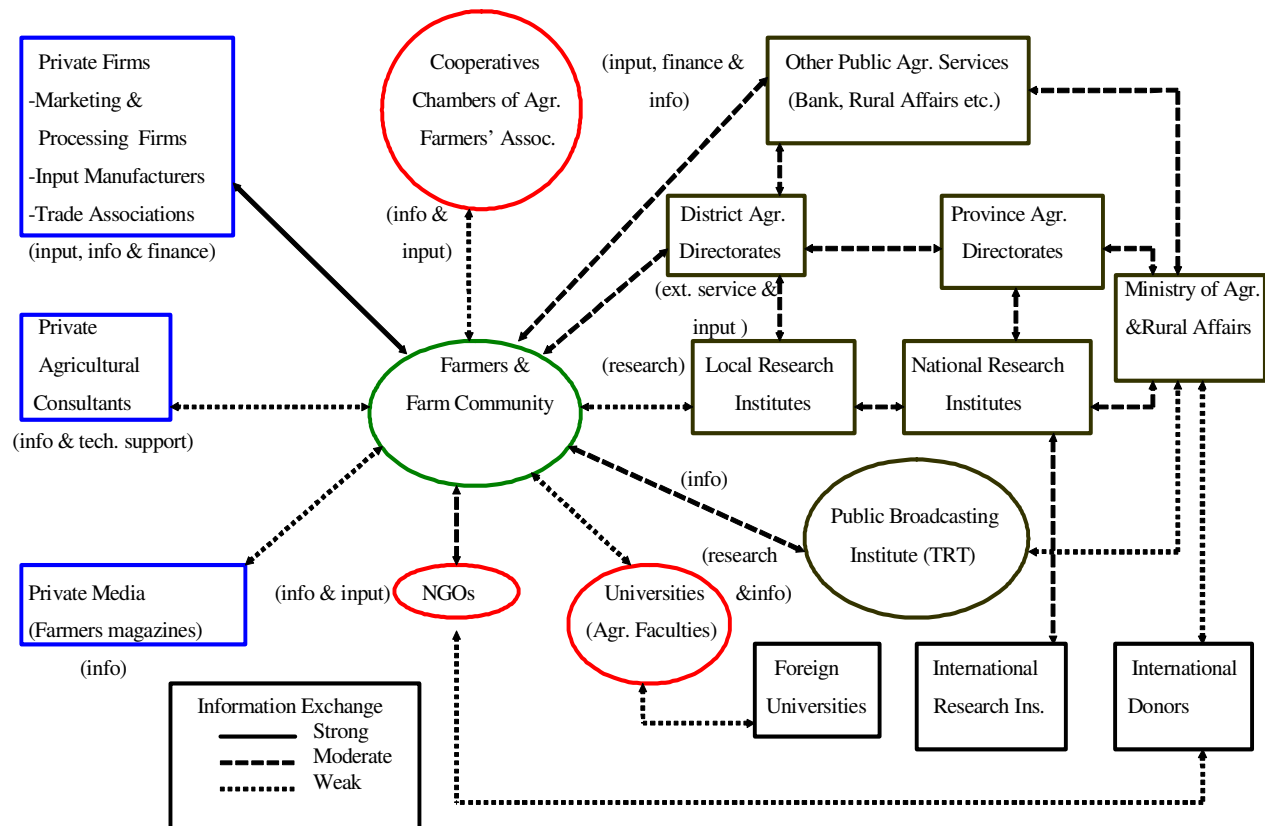


Figure 1. Major actors in the Agricultural Extension System in Turkey (Demiryurek, 2000).

the departments of MARA and at different levels. The General Directorate of Organization and Support (TEDGEM) and its Department of Agricultural Extension are primarily responsible for the planning and management of agricultural extension activities throughout Turkey on behalf of MARA. In addition, TEDGEM also contains Department of Women Farmers which serves the rural women in terms of providing information about agricultural production methods, home economics and handcraft courses. In service training, courses have also been organized and implemented by TEDGEM to all MARA staff. The responsibilities of the Department of Agricultural Extension can be summarized as follows:

1. Develop extension programmes in order to introduce new information and technologies about agriculture and cooperative organizations;
2. Examine and approve annual farmer training and extension programmes proposed by provincial agricultural services, and help them in practice;
3. Manage and monitor foreign financed and local agricultural projects;
4. Coordinate the departments of MARA, and other ministries, universities and organizations related to projects and extension activities;
5. Define and provide mass media materials for extension

activities.

Agricultural extension and related activities are implemented by agriculture directorates at 81 provinces, 803 districts (Özçatalbaş et al., 2004) and thousands of villages, and the organizational structures of these are shown in Figure 2. Each provincial agricultural directorate consists of six sections, and administrative and financial departments. Although the farmers' training and extension (FTE) Section is directly responsible for extension activities, other sections are involved in (and support) extension activities. FTEs focus on transferring information to and from farmers, and work with agricultural research institutes. FTEs organize the training programmes, seminars and extension services for farmers in the framework of the national support schemes whereas there is no scheme of extension services directly aiming at providing the extension services for a special national support scheme implemented by MARA. FTEs have also been supporting the farmers by giving information about the application rules and procedures of the support programmes, on interpretation of the handbooks and leaflets, the principles of the preparation of the business plans and documentation required.

Each province has a number of districts which have

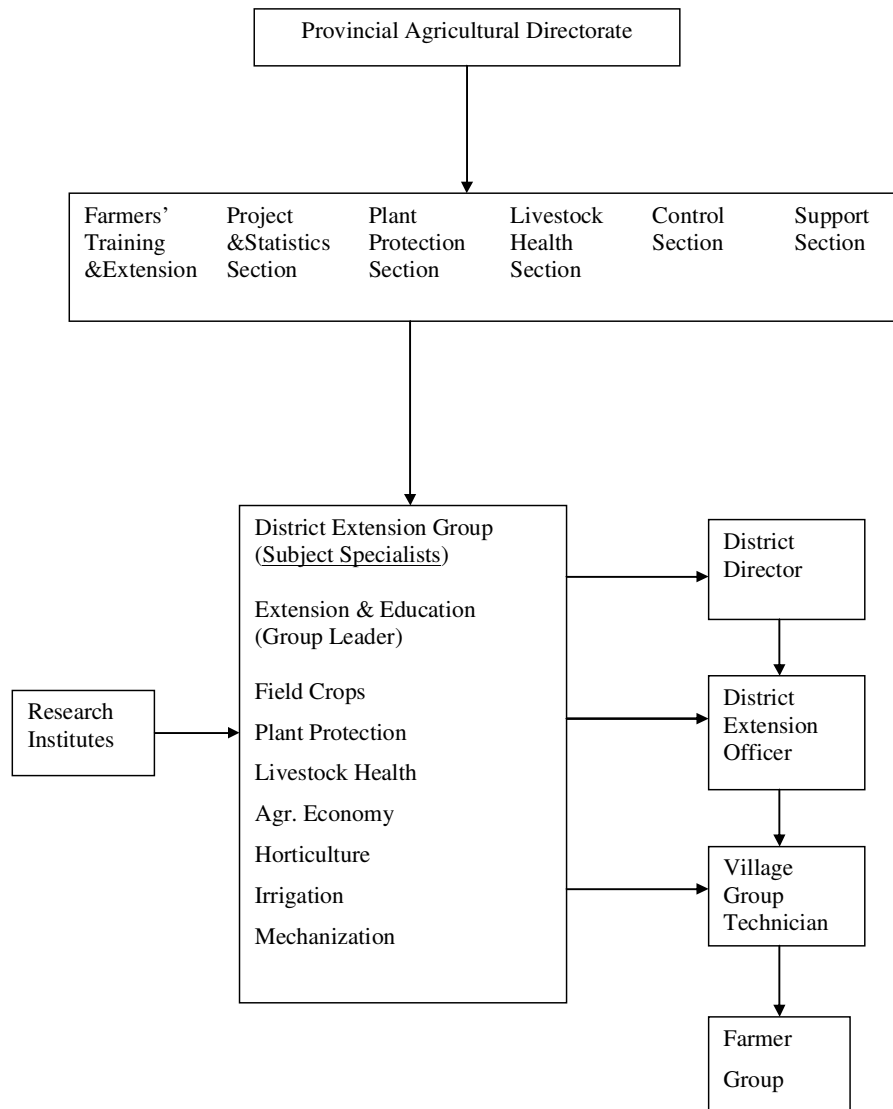


Figure 2. The organization structure of provincial agricultural directorates for information transfer (TKB, 1996).

also their own district directorate, responsible for agricultural and other services. The District Extension Officer (DEO) plans, organizes and monitors all extension activities and in-service training for Village Group Technicians (VGTs). Subject Matter Specialists (SMSs) are responsible for training VGTs regularly, assist DEOs and liaise with research staff. In selected villages, there are VGT centres. VGTs are intended to live in villages and be responsible for training farmer groups whose interests are the same. They also transfer farmers' problems to extension and research specialists. The extension system applied by MARA functions as a training and visit system. This started in 1983 in 18 provinces, as the First Agricultural Extension and Applied Research Project (AEARP 1). A second project (AEARP 2) was started in 1990 in 21 provinces. The aims of the

projects are broadly to strength agricultural extension organizations and research centers, and improve the relations between these institutions. In addition, they aimed to introduce and diffuse modern agricultural technologies, help farmers to apply them, and increase the yields and production levels in agriculture (TKB, 1991). These projects provided an infrastructure, supported financially by the World Bank, by means of which VGT centers have been constructed in some selected villages. Additional vehicles for DEO and SMS mobility were also provided. Extension and research programmes have been improved through diagnostic surveys and in-service training activities organized abroad and in Turkey (Yünlü, 1993). Outside the project (AEARP) areas, the organizational structure of agricultural and extension services is similar. However, only a limited number of

VGTs have been employed at village level, and their financial resources are lower. In addition, the relations between extension staff and researchers are more limited compared to those in the project areas (Yünlü, 1993).

In addition to group extension techniques, MARA used television in farmer education through a Widespread Farmers' Training Project by Television (YAYÇEP) between 1991 and 1995. Around 63 000 farmers throughout Turkey participated in this project. After the project was completed, the video cassettes of the programmes were sent to the provincial directorates to be used in training activities. This project depended on three important services, namely television programmes, printed materials and advisory support at the field level. The success of the project depended on these services being carried out simultaneously. However, some critical difficulties appeared. For example, the training books were sent to the participant farmers after the related television programmes had finished. Advisory and technical services at the field level had not been organized adequately to respond to questions and queries. The pilot application, monitoring and evaluation of the project had not been carried out. Hence, the problems related to the project stages could not be identified, and solved (Demiryürek, 1993, 2006).

In 2004, MARA implemented a new extension project in 1000 selected villages from 81 provinces. Project name was "1000 agricultural consultants for 1000 villages". Project was financed by voluntary organizations, institutions, private sector and individual persons. Voluntary agricultural consultants worked under this project lived in the villages, in order to serve and transfer required information to farmers on time. Although there were many problems during implementation of this project, It has been important role by addressing private consultant' role in agriculture extension system. "Legislation on Regulating of Agricultural Extension and Advisory Services" was issued in 08/09/2006 for systematizing extension services and regulating public and non-public extension activities after implementation of this project. Also, Agricultural Extension Development Project (TARGEL) has been started by MARA using gained experiences of it. TARGEL has just been implemented since 2007 in order to provide required information and training on timely, at the field level to the farmers by means of newly employed 2500 agricultural engineers and veterinary surgeons in the villages throughout Turkey (Çadirci, 2009).

The project of "Organic Agriculture for Turkey" was funded by the EU and implemented by an international consortium for MARA between June 2006 and November 2007. The project was concerned with policy development, capacity and institutional building, and training. The overall objective was to enhance sustainable development of organic agriculture and related sectors in accordance with the EU requirement. Specifically, the project had five tasks:

- 1) The alignment of Turkish organic agriculture legislation with EU;
- 2) Strengthening the capacity of MARA as regards supervision;
- 3) Promotion and extension of organic agriculture;
- 4) Implementation of an efficient control and certification system and
- 5) Exchange of organic farming information between farmers and other related stakeholders.

One of the important tasks of this project was to set up Farmer Field Schools in five pilot project areas which can be used as a model to replicate this work in other parts of the country in the future. The project contributed to the institutional support and the development and promotion of the organic sector in Turkey (Demiryürek et al., 2008). Young Farmers Training Project targeted 15 to 24 years old farmers who live in rural areas has also just been put into practice, in order to use young farmers voluntary staffs of agricultural extension system by providing them necessary information and training. These trained young, dynamic and open minded farmers will be contact farmers. In summary, recently implemented public extension projects (TEDGEM, 2009) are as follows:

1. Farmers Training Project by Television
2. Agricultural Mechanization Training Centre for Irrigation Areas Project
3. Agricultural Extension Services Support Project
4. Controlling and Development of Organic Farming Project.
5. Agricultural Extension Development Project
6. Young Farmers Training Project
7. Cooperative Trading System Trainings
8. Training of Rankers on Agricultural Issues

The development of farmer training and agricultural extension programmes are presented in Table 1. They include demonstrations, farmers' meetings, on-farm trials, home economics programmes, farmer training courses in different subjects, exhibitions and contests and field days. In order to support extension activities, printed materials such as books, newsletters, brochures and magazines were prepared and distributed to the farmers. In addition, slides and videos were used as audio-visual materials in extension activities. The numbers of activities organized and farmers involved have been increasing quantitatively. However, the quality and degree of impacts can be easily speculated due to coverage, distribution of regions, lack of staff, finance and materials used in these activities. "Legislation on Regulating of Agricultural Extension and Advisory Services" issued in 08/09/2006 for systematizing extension services and regulating public and non-public extension activities. This legislation was put into practice in order to provide farmers' needs regarding information, experience and technical methods adequately and timely at the field level. This was also introduced in

Table 1. Farmers training and extension activities organized by MARA, Turkey.

Years	Demonstrations		Field days		Farmer meetings		Courses		Farmer visits		Competitions		Conferences	
	No	Farmers	No	Farmers	No	Farmers	No.	Farmers	No	Farmers	No	Farmers	No	Farmers
2002	-	22.709	1.102	33.977	35.980	667.606	4.506	137.093	-	-	150	54.273	-	-
2003	6.255	28.462	892	27.000	20.642	415.950	1.026	22.825	208	9.994	143	144.886	51	6.695
2004	9.327	35.723	1.188	33.505	27.822	559.079	1.360	33.037	184	5.385	155	140.599	63	7.942
2005	9.627	36.090	1.166	38.134	38.224	769.561	2.059	39.838	181	21.326	180	173.759	53	6.194
2006	7.654	38.403	1.269	36.830	47.105	849.434	1.228	30.767	244	8.406	204	199.708	69	8.088
2007	5.503	27.414	554	18.763	30.935	579.423	653	18.976	143	37.627	97	64.143	29	3.304
2008	9.340	44.000	890	32.660	56.500	1.010.550	1.065	24.900	250	25.750	135	143.500	69	6.660
Total	47.706	232.800	7.060	220.860	257.208	4.851.600	11.890	307.430	1.210	108.480	1.064	920.860	334	38.880

Source: TEDGEM (2009).

order to integrate agricultural extension and advisory systems compliance with EU standards.

This new legal framework is expected to contribute to the public extension system by means of training and certifying private advisors. Train agricultural advisers by extension scientists and/or extension professionals in universities or in chambers of agricultural engineers and giving them certificates of competency. They will then work independently or in private extension organizations to support public extension system and help farmers to be informed about public agricultural support policies and benefited from agricultural supports. This system will initially provide financial support to the farmers who receive private advisory services, and then to private advisors. This will also contribute employment to certified advisors, because thousands of agricultural graduates are unemployed in Turkey (Çadirci, 2009). Evaluation of extension approaches and activities of MARA identify some critical issues exist in public extension. These can be summarized as follows (Demiryürek, 2000, 2002). First, the public extension approach has (to

a large extent) been organized centrally, with a lack of farmer participation in extension activities from planning to implementation. Second, is the lack of coordination between the departments of MARA which manage extension activities.

Arguably, the general extension strategy of the country should (third) be changed from agricultural production to human resource development (Taluğ et al., 1990), and the tasks and responsibilities of the extension staff be more clearly defined (Yünlü, 1993). Research conducted by Cinemre et al. (1995) suggests that, the Ministry lacks technical staff, and that the distribution of staff throughout Turkey has not been balanced; some provinces lack staff and others, especially in the west, are over-staffed. The numbers of training and extension activities performed, training materials used and farmers participating in these activities have decreased year by year. The finance given to extension activities has also decreased. Much of the investment has been in the establishment of a physical infrastructure such as facilities and equipment, and human development in agriculture has not been effectively

considered. In addition, due to the lack of finance, some planned investments and activities have not been realised in AEARP (Yünlü, 1993; Cinemre et al., 1995; Demiryürek, 2000, 2002). Extension activities and farmer training have mainly focused on production techniques aimed to increase farm production. Hence, farmers' preferences, their other requests and problems have been insufficiently considered. Finally, the provision of education for women and youth in agriculture has not been widespread (Taluğ et al., 1990, Cinemre et al., 1995, TKB, 1996).

There were some achievements, evaluation of AEARP in 1990, conducted by MARA, concluded that research-extension-farmer relations had been developed and strengthened, and infrastructural investment such as in the establishment of VGT centres and their equipment had been completed. In addition, the yields of some crops had increased, input use in agriculture had intensified, and the land which was left uncultivated had decreased in the project areas (TKB, 1994). Overall however, evaluations suggest that, MARA had been more interested in physical

development than in human development in agriculture, support farmers through farmers organizations and facilitate the development of private sectors and advisors to contribute to the AES in Turkey.

Private extension activities

Actors in the private sector which have an extension function in the AES are the farmers' associations, cooperatives and charities, and profit-oriented private marketing firms, exporters, private consultants, mass media and universities.

The Chamber of Agriculture (TZOB) is the biggest farmers' association in Turkey, with more than two million members (TKB, 1996). Its effectiveness is limited to advocating farmers' rights (lobby activities), and providing services to its members. The government gives financial support to the TZOB budget, and so it is not independent administratively. Farmers have to be members in order to get credit from The Bank of Agriculture and some other credit cooperatives. Thus, membership tends to be perceived as obligatory. During the fieldwork, many of the respondents stated that, the only function of TZOB was the collection of membership fees, and complained about the insufficiency of its activities.

However, TZOB had carried out a Leader Farmer Project (ÖÇP) in four districts of Tekirdağ province since 1987, planned and implemented with the support of the German Agriculture Union (DLG) and the Association of German Technical Cooperation (GTZ) (TZOB, 1987). This facilitated the farmers' active participation in extension activities, supported the cost of services, and aimed to solve the farmers' own problems with the help of advisors. Actors in the private sector which have an extension function in the AES are the farmers' associations, cooperatives and charities, and profit-oriented private marketing firms, exporters, private consultants, mass media and universities. The Chamber of Agriculture (TZOB) is the biggest farmers' association in Turkey, with more than two million members (TKB, 1996). Its effectiveness is limited to advocating farmers' rights (lobby activities), and providing services to its members. The government gives financial support to the TZOB budget, and so it is not independent administratively. Farmers have to be members in order to get credit from The Bank of Agriculture and some other credit he project established close relations between farmers and advisors in extension and other activities (TZOB, 1987). The development of an evaluated private advisory system was the overall aim. A group of between 80 and 100 farmers established a working group in their district and employed an advisor. Members of the group elected an administrative committee consisting of 3 or 4 farmers to plan and manage an annual programme according to the priorities and problems of the working group. The cost was met by membership fees and diminishing financial

support from TZOB (Kirmizi, 1991; TZOB, 1993). Cooperation between the working groups, the local university, public and private agricultural organizations developed. Common machine use had been promoted. In addition, private marketing companies (seed, machine, fertilizer and pesticide) had organized introduction meetings (TZOB, 1993).

After the sponsors decreased their contributions to the total cost, the working groups faced collapse; they had not achieved financial self-sufficiency and administrative independence in the planned time. Another problem was that the number of farmers in a group was more than an advisor could service; the advisors were also responsible for keeping farmers' records, providing inputs and so on. Some advisors left their jobs, and transferred to local private marketing firms (Demiryürek, 1996). Farmers in Turkey are also members of cooperatives (selling, credit or rural development) which gave market guarantees to their members, and provided credit and subsidized inputs. However, most of the agricultural cooperatives were financially supported and managed by government, and not totally farmers' associations. They provided some advisory services, limited to technical subjects and the special agricultural products they marketed. For example, the Agricultural Credit Cooperative (TKK) and Agricultural Selling Cooperatives (such as FİSKOBİRLİK, TARİŞ, ÇUKOBİRLİK and so on) have branches, mainly to provide credit and inputs and to process and market their members' products. Their functions of extension and information support were limited (Demiryürek, 2000, 2002).

Turkish Development Foundation (TKV) is a charity which provides farmer training and undertakes rural development activities. The aim is to improve the socio-economic conditions of small farmers. TKV had several development and production projects throughout Turkey with foreign funds from international development foundations, focused on human resource development, poor farmers, rural women and youth. TKV also promoted the establishment of rural organizations, and organized education and extension activities in home economics, family planning and health, and agricultural courses in beekeeping, poultry and carpet weaving (Gülsoy, 1990; Cinemre et al., 1995; TKB, 1996). Recently, a similar foundation, SÜRKAL (Sustainable Development Association) has implement several sustainable rural and urban development project at micro scale adopting sustainable, human centered and participatory approaches. Private companies, profit oriented and focused on marketing products such as seeds, machines, fertilizers and pesticides, were active especially in the west and south parts of Turkey where the agriculture and agribusiness sectors are relatively developed. They organized village meetings to introduce their products. The extension activities of these firms were limited to their service area and products, but they had informed farmers about developing technologies and inputs.

Private consultants provided information support to their clients, mainly in developed areas such as in the west and south of Turkey. The wealthier farmers had generally hired these advisors. Agricultural companies such as canning factories and exporters have commonly applied a contract farming model. Information, technical support, and inputs are given to their contract farmers in order to obtain high quality products related to demand. Contracts are especially used in west Turkey, and places where traditional agricultural export products are grown. In particular, some private firms have organic production projects to export these products.

Recently, the bread factory (Istanbul Halk Ekmek, IHE) of Istanbul Municipality has organized and implemented Organic Agriculture Project which is a comprehensive social responsibility project which aims to reach small and poor farmers in Eastern Turkey. In 2006, IHE contracted those farmers to produce organic wheat, make bread and sell it to the relatively wealthier consumers in Istanbul in the hope and expectation that it would create significant impact on poverty alleviation and rural development but the potential benefits are multi dimensional. Farmers in the project area adopt organic agricultural practices for their incomes which are increased through market guarantees and premium prices. Thus, the project may limit the drift from the land, help the development of domestic markets and hence persuade other producers to farm organically (Demiryurek et al., 2008).

RESULTS

Public and private organizations which are responsible for farmer training and extension activities constitute the AES in Turkey. Public extension activities are mainly provided by MARA and their directorates at province, district and village levels. The organizational structure of MARA is top-down, and their extension activities are managed through the Training and Visit System. Public extension lacks technical staff and finance, which has decreased the number of activities organized and the training materials used for farmers since the beginning of the 1990s. The lack of participation evident in the system is the consequence of centre-planned public extension programmes. The number of people in the rural areas mainly involved in agriculture (about 4 millions farm holdings, mainly small and over-fragmented) is beyond the sources (finance, staff and infrastructure) of public extension services (that is MARA) and they are mainly of a low level of education and lack farmers' organizations (Demiryürek, 2002; Özçatalbaş et al., 2004).

Widespread Farmers' Training Project by Television (YAYÇEP) was very successful in widening the context of the extension work and reaching more rural people, especially making them aware of various innovations on agricultural, social, cultural and health subjects. However, some issues were emerged related to the project. The

lack of monitoring and evaluation at every stage, to spot these insufficiencies and the failure to do necessary adjustments are some of the critical weaknesses of this project. In parallel with the previous research on distance education in the world, limited empirical research on YAYÇEP shows that, the television programmes were very effective in increasing the awareness about agricultural techniques. However, their effectiveness was limited as to the process of adoption and field applications. This was mainly due to the lack of suitable advisory services and demonstrations at the field level necessary to support television programmes.

Farmers' associations and cooperatives mainly focus on input and credit supply, and the marketing of agricultural products. However, they are involved in some farmer training and extension activities. Their financial support by government limits their independence and effectiveness in advocating their members' rights, and providing services. Turkish Development Foundation has directed activities to special groups which have been partly neglected by MARA such as poor farmers, rural women and youth. However, its coverage area is limited. This charity fosters organization and participation in its rural development and extension activities. Agricultural input suppliers have organized meetings in villages in order to introduce their products. Private consultants and their services are limited to high income farmers. Some agricultural processors and exporters have recently introduced contract farming. The organic marketing company is one such firm. In addition to credit and input supply, these processors provide information and technical support to their clients, and give market guarantee to their contract farmers. This fosters the farmers' involvement in the project, and increases the rate of adoption of techniques introduced by the company.

Conclusion

Overall, extension activities have been mainly organized and delivered by public institutions. There is a lack of effective communication between agricultural information providers. The private sector's extension activities have only recently been developed, are limited in terms of coverage area, and are product specific. Thus, there is a need for effective coordination of the information dissemination in the system.

ACKNOWLEDGEMENTS

This paper was supported by the Scientific Research Projects Administration Unit of Akdeniz University.

REFERENCES

- Cinemre HA, Demiryürek K, Kiliç O, Bozoğlu M, Ceyhan V (1995). Farmers' Training in Agriculture in Turkey. Turkish Chambers of

- Agricultural Engineers, 3rd Technical Congress, Turkish Agricultural Bank Cultural Publications, Volume II, Ankara, Turkey. pp. 1279-1299.
- Çadırcı H (2009). Extension in Turkey. Workshop on cross-compliance and farm advisory system (AGR 32710), The EU- TAIEX ve DPT, Ankara, Turkey, pp. 1-3.
- Demiryürek K (2006). Distance Education for Rural People in Developing Countries: Turkish Experience, *J. Ext. Syst.*, 22(2): 83-94.
- Demiryürek K (2002). The Agricultural Extension System in Turkey: the Related Institutions, their Extension Activities and Issues, *Ondokuz Mayıs Üniversitesi (OMÜ) Ziraat Fakültesi Dergisi.*, 17(1): 92-98.
- Demiryürek K (2000). The Analysis of Information Systems for Organic and Conventional Hazelnut Producers in Three Villages of the Black Sea Region, Turkey, The University of Reading, Published PhD Thesis, pp. 372+ xvii, Reading, UK, p. 372.
- Demiryürek K (1996). Leader Farmer Project Implemented by TZOB and German Agricultural Union in Tekirdağ Province of Turkey. PhD Seminar (Unpublished), Ankara University Institute of Natural and Applied Sciences, Department of Agricultural Economics, Ankara, Turkey, pp. 1-13.
- Demiryürek K (1993). A Research on the Farmer Participation to Widespread Farmers' Training Project by Television in Gölbaşı District of Ankara, Turkey. MSc Thesis (Unpublished), Ankara University Institute of Natural and Applied Sciences, Department of Agricultural Economics, Ankara, Turkey, p. 268.
- Demiryürek K, Stopes C, Güzel A (2008) Organic Agriculture: The Case of Turkey, *Outlook on Agr.*, 37(4): 7-13.
- Gülsoy A (1990). Agricultural Extension Activities Implemented by Turkish Development Foundation, MSc Seminar (Unpublished), Ankara University Institute of Natural and Applied Sciences, Department of Agricultural Economics, Ankara, Turkey, pp. 1-20.
- Kirmizi U (1991). The Principle Project of Agricultural Advisory Services, TZOB, *J. Farmer Village World*, 82: 13-16.
- Özçatalbaş O, Brumfield RG, Özkan B (2004). The Agricultural Information System for Farmers in Turkey. *Info. Dev.*, 20(2): 97-104.
- Taluğ C, Tatlıdil H, Kumuk T, Ceylan IC (1990). Agricultural Extension Services, Issues and Suggestions for Turkey, TMMOB Ziraat Mühendisleri Odası Türkiye Ziraat Mühendisliği III. Teknik Kongresi. Ankara. pp. 694-698
- TEDGEM (2009). The records of TEDGEM, MARA, Turkey <http://www.tedgem.gov.tr/>
- TKB (1996). Workshop Report on Agricultural Extension Policy and Strategy Alternatives in Turkey (Unpublished), MARA, Ankara, Turkey.
- TKB (1994). Turkish Model of Agricultural Extension (Unpublished), TEDGEM MARA, Ankara, Turkey.
- TKB (1991). Briefing Report of Department of Agricultural Extension of TEDGEM, MARA, Turkey (Unpublished), MARA, Ankara, Turkey.
- TZOB (1987). Leader Farmer Project (Unpublished), TZOB Ankara, Turkey.
- TZOB (1993). Leader Farmer Project, TZOB Çiftçi ve Köy Dünyası. pp. 105: 10.
- Yünlü R (1993). Agricultural Extension in Turkey: Existing Conditions, Problems, and Proposals (Unpublished). FAO Regional Expert Consultation on Strengthening the Agricultural Extension Systems in the Near East Countries. pp. 6-10. Ankara, Turkey.