Sustainable Social Development 2024, 2(6), 2847.
https://doi.org/10.54517/ssd2847

Article

Agricultural extension in Turkey within the framework of central and local governments

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CITATION

Irmak E, Sarıoğlu M. Agricultural extension in Turkey within the framework of central and local governments. Sustainable Social Development. 2024; 2(6): 2847. https://doi.org/10.54517/ssd2847

ARTICLE INFO

Received: 12 August 2024
Accepted: 29 October 2024
Available online: 18 November 2024

Abstract: Agricultural extension and communication is a system that has been subject to very different management by many different institutions in Turkey. In this study, the issue was examined as the period when it was evaluated by local governments with village institutes and the years when it was handled by the central authority. Afterwards, the organizations responsible for agricultural extension today were specified, and their effectiveness was investigated with other studies conducted for the producer. It has been found that the period before 1960, when the desire for enlightenment of the rural area, the belief that one could make a living from agriculture and animal husbandry, and the government policies were based on agriculture, was the brightest period of agricultural extension. It has been determined through secondary data that the effectiveness of the central government's ministries, cooperatives, producer organizations, and private sector extension system is limited, insufficient to solve problems onsite and on time, or cannot be spread throughout Turkey. The aim of the study is to examine agricultural extension within the framework of rural area policies of governments in Turkey.

Keywords: agricultural extension; local government; village institutes

1. Introduction

According to the Turkish Language Association [1], 'central management' is a management style in which authority is concentrated in one place in terms of management, supervision, and operation. Local government, on the other hand, is a public legal entity that meets the common needs of the people of the province, municipality, or village there and whose general decision-making bodies are elected by the people there. It is the local administration. Considering the increasing importance of local governments after 1864, we see that local governments have started to take place in the administrative structure of Turkey [2]. It can be said that local governments in the modern sense emerged in the 19th century in Turkey. The emergence of local governments in western countries has taken place in the historical process starting in the 12th century and up to the present day [3].

In the 16th century and later, thinkers such as Jeremy Bentham and Turgot emphasized the importance of local governments. Socialists such as Webbler and Fabian, the autonomous municipalism movement that emerged in the USA, and French thinkers such as Alexis de Tocqueville, Proudhon, and Sieyes were also influential in the development of local governments in this process [4]. It coincides with the beginning and beyond of the 21st century when local governments generally become stronger and more functional all over the world and provide an ever-expanding service with different organizational structures [5]. In Turkey, on the other

hand, local governments generally have a central organizational structure. This situation causes steps to be taken to strengthen local governments from time to time, and from time to time, steps back to the contrary of this understanding [6]. Regarding the use and development of technology in local governments, there is an expectation that agricultural development will take place from the local [7].

The logic of agricultural extension lies in determining the problem of the producer locally and solving it within itself with the help of consultants. Agricultural policies developed in rural areas in Turkey are relative and vary on the basis of governments. The most successful period of agricultural extension with local governments and village institutes was experienced in the first years of the establishment of the Republic. Although the execution of agricultural extension by various institutions with the central government is relative in terms of situation assessment, there are problems in the system when the issue is handled in a producer-oriented manner. The aim of this study is to examine agricultural extension within the framework of rural area policies of governments in Turkey.

2. Materials and methods

The main material of the study consists of secondary data obtained from publications such as articles, magazines and newspapers.

In this type of research, in order to get to know the research universe and sample set closely, to make observations and to derive correct meanings from the observations, the researcher must enter that community and participate in every stage of their life for a sufficient period of time. The fact that researchers have been working within the provincial organization of the Ministry of Agriculture for more than 10 years provides some advantages such as knowing the socio-cultural structure of the villages they are researching and being aware of the economic situation in the region. Considering these advantages; it provides researchers with facilities such as making observations about the research subject in the field, reaching the source persons, and creating an environment of trust during the interviews. The environment of trust created in the research area enables the people involved in the research to give more accurate answers to the questions posed. All these are important factors that can positively affect the validity and reliability of the study [8]. The fact that the researcher has been working in this village for a long time is also important in this respect.

3. Findings and discussion

Agricultural extension in government programs

Agricultural extension activities until the 1960 Constitution: The Republic of Turkey, which was established on 29 October 1923, is a country that is still quite young, has just come out of the war and has to pay the debts from the Ottoman Period. Despite this, state institutions have started to work with all their strength in the field of agriculture, as in every field, in line with the mission of the founder leader Mustafa Kemal Atatürk, ‘The basis of the national economy is agriculture’.

With the adoption of the new alphabet on 1 November 1928, an educational

campaign was organized throughout the country. For this purpose, public schools have been opened all over the country. In these schools, it was aimed to teach those who could read and write with new letters, and with the establishment of public houses in 1932, educational mobilization became widespread. The purpose of the establishment of the community centers; to develop the people not only in literacy and basic knowledge but also in the field of cultural, social and fine arts, to process and enrich national values with modern methods, to spread and root Atatürk's revolution and principles [9].

The fact that young intellectuals worked completely devotedly in the public houses led to the development of the public houses in a short time [10]. Folklorists, historians and sociologists had the opportunity to examine the villages in the activities of the public houses. However, the successes achieved in the cities could not be achieved in the villages, which caused attention to be drawn to the villages.

In the villages where eighty percent of the country's population lives, the number of schools is almost non-existent. The educational needs of the village people are not limited to literacy, infectious diseases cannot be combated, production is carried out with primitive methods. The peasants, who bore the heavy burden of the War of National Independence, have not yet attained the qualification of citizens of the republic to keep democracy alive. Most importantly, it was difficult to provide services to the village between 1930 and 1940. The efforts to provide services to the village, which were undertaken with the Republic, were either incomplete because they did not meet the expectations of the villagers or could not be achieved. For success, a new type of intellectual who understands the language of the peasant is needed. These intellectuals will also be able to emerge from the peasant himself. The great educator İsmail Hakkı Tonguç, who understood the importance of the work and was also a peasant boy, started activities for the development of the village as both the theoretician and the founder of the Village Institute system. This task was appointed to him by the Minister of National Education, Saffet Arıkan, one of Atatürk's former staff, and the next minister, Hasan Ali Yücel, embraced his initiatives. It is possible to summarize İsmail Hakkı Tonguç's perspective on the village problem and the liberation of the peasant as follows: İsmail Hakkı Tonguç, who came from the village, first made a very serious village examination and created a 20-year plan draft. According to this plan, by 1954 there will be no village without teachers, protectors, agricultural technicians and health services. This plan is revolutionary in terms of the history of Turkish agricultural extension. Because, for the first time since the Ottoman Empire period, the people will determine their own needs and local solutions will be found for these needs.

Under the conditions of the period, it is a big problem to find literate, village children and students for the institutes to be opened in the villages. Despite the resistance of classical educators to this practice, Tonguç opened a 4-month course in Eskişehir in 1936 to assign a group of literate young people selected from literate young people as "temporary teachers" in the villages. The first 84 trainers who completed these courses and assigned them to Ankara villages were extremely successful and the trainer courses were opened and multiplied in other parts of the country in a short time.

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In 1937, with the "Village Trainers Law", teaching was made legally operative. Based on this law, a trainer course was opened in Eskişehir, Izmir and Edirne. However, considering that it would not be possible to continue education at the primary school level in the villages with instructor courses over time, it was envisaged that "village teacher schools" would be opened with the Law No. 3704. Kızılçullu, Çifteler and Gölköy Trainer Courses, which form the basis of village institutes, will be transformed into village teacher training schools.

However, it was decided that a teacher who only teaches the villagers to read and write would not be sufficient in the education of the villagers, and that the institutions that would train village teachers should train versatile personnel, and it was deemed appropriate to name the new institutions to be opened as "village institutes".

Students studying in village institutes were given authority and responsibility to develop their personalities, and they were told what they should do to eliminate the difficulties they may encounter when they go to the villages as officials. After gaining all these features, the graduates of the village institute, who went to the village as teachers, created an educational environment in the villages, starting from the students and reaching the family. With the courses organized in this educational environment, training was provided for literacy and gaining a profession.

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According to the official curriculum of the Village Institutes of 1943; culture courses are programmed as 22 h, agricultural courses and studies are 11 h, and technical courses and studies are 11 h. Agricultural courses; it consists of field agriculture, horticulture (nursery, fruit growing, viticulture, vegetable growing), industrial plants agriculture, animal science, poultry knowledge, beekeeping and silkworms, fisheries and aquaculture and agricultural arts courses. In technical courses and studies; village blacksmithing (farrier, motorwork), village dulger (carpentry), village construction (brick and tile maker, stonemasonry, lime making, masonry, plastering, concrete) while village and handicrafts (sewing, sawing, embroidery, knitting and weaving, agricultural arts) courses are available for female students [12]. When the program was examined, in addition to culture and vocational knowledge courses, agricultural and technical courses were taught in order for the villagers to contribute to the development of the village to carry out agricultural activities in accordance with scientific principles. Another remarkable lesson is the organization of the peasant in branches of production such as agricultural enterprises economy and cooperatives, and the introduction of a modern development approach such as cooperatives to teacher candidates.

In the programs of the Institute, the production and evaluation of elements such as fish, sponges and reeds in streams, rivers, lakes and seas are included according to scientific conditions. In addition to these; afforestation of lands, floriculture, drying of swamps, road construction, opening water channels, making barren areas productive, producing new plant varieties according to the environment are examples of other works in the program. In addition, protection measures from diseases that harm animals and plants were among the courses given to students. In the sixth article of the Law on Village Institutes, it is stated that the teachers will carry out all kinds of education and training works of the villagers in the villages where they are appointed, that they will guide the villagers with exemplary fields, vineyards, gardens and workshops for the implementation of agricultural works according to scientific methods, and that the villagers will benefit from these practices [13]. From this, it can be understood that the graduates of the Village Institute will be able to help not only the students with literacy, but also with the education needed by the villagers.

In 1947, with the laws numbered 4274 and 5210, it was accepted that the construction of teachers, health officers, and midwives houses of village schools would be undertaken by the state; all living and inanimate fixtures and equipment tools given to the institutes were taken back, and apart from these, the High Village Institute in Hasanoğlan and all instructor courses were closed. In other words, agricultural extension will be implemented by the central government. With Law No. 5541 enacted in 1949, the administration of admitting only village children to the institutes was abandoned. In 1950, the village institutes were completely closed. In other words, agricultural extension will be handled by the central government.

In 1950, the Democratic Party (DP) came to power. During the DP government, great importance was given to vocational and technical education. The most important reason for this; within the framework of foreign aid received from the USA, the need to train technical and main personnel for the use of many technical tools and machines, especially agricultural machinery, is felt. For this, a three-year development plan has been put into effect in cooperation with the Ministry of Agriculture and the Ministry of National Education (MEB). Within the framework of the plan, motor departments were opened in some art schools. Especially in line with the joint plan made with the Ministry of Agriculture, the foundations of 2 art institutes that will provide training on engines were laid by the Minister of National Education of the time, Tevfik İleri [14]. The first of DP's vocational and technical staff schools, which are based on training different professionals in different fields, is the motor machinery school opened in Izmir. Again, an independent motor and machinery school was opened in the 1953–1954 academic year within the Izmir Mithat Paşa Men's Art Institute. During this period, a different vocational school, the printing school, was established in Istanbul [15].

It can be said that public education studies during the DP government were too weak and weak to be compared with the Atatürk Period and İsmet İnönü Period. The draft law submitted by Manisa Deputy Refik Şevket İnce and 7 of his friends, who submitted the bill on the closure of public houses to the parliament, was passed by the constitutional commission and published in the official gazette. Since the public chambers are entirely the product of the labor of the citizens in the places where they are located, they were accepted as the property of the region and left to the legal entity of the village or the town municipalities depending on their location [14].

After the closure of the community centers, non-formal education functions were continued by the Public Education Bureaus established within the Ministry of National Education and the public chambers in the villages. After these dates, the main development in public education took place after the 1960s, and in 1960, the General Directorate of Public Education was established under the Ministry of National Education [16].

During the DP government, foreign experts were brought from abroad to consult their opinions and suggestions in the field of education in our country and reports were prepared. It is noteworthy that all the specialists who came during this period were from the United States. During the Democratic Party period, the influence of the USA in educational institutions is quite clear, as in all institutions of the state. During this period, Watson Dickerman was officially invited in the field of public education, Kate Wolferd for village primary schools and primary schools in

general, John Rufi and Ellswort Tompkins for secondary education institutions, Lester Beals for guidance, and John Rufi for teacher training problems [14].

After making the necessary preparations for village institutes, the DP government made the city primary teacher schools and village institutes a uniform first teacher training school with the law numbered 6234 dated 27.01.1954 and published on 04.02.1954 in line with the reports of foreign experts.

In the mid-1950s, there were 42 teacher training colleges across the country. By the late 1950s, this number had risen to 52. 21 of these schools are the continuation of village institutes and the education period is 6 years. These schools were established almost equally interspersed throughout the country as a requirement of the establishment purposes of the village institutes. The aim of this application is to provide equal opportunities in education to the rural children of the whole country and to enlighten all the villages of the country from the light of these schools.

The educational tradition in the first teacher training schools is very close to the environment of the village institute. Although the students were not directly involved in the production, they attended summer courses for one month during the summer term. In these courses, depending on the characteristics of the region, they were engaged in studies such as walling, beekeeping, fruit growing, poplar growing, and these studies were continued in the agricultural lessons throughout the year. In addition, all students cleaned their own classrooms and contributed to this service by keeping watch in units such as the cafeteria and laundry. In the 1958–1959 period, there were 19,835 students in 52 primary teacher training schools, 75% of whom were rural children. At that time, the first teacher training schools were the educational institutions with the widest range of free boarding opportunities, such as military schools [17].

The DP period, which covers the years 1950–1960, was a period of reproduction and continuity of the Turkish National Education Ideology, which was created and established during the single-party regime in the field of education. However, no significant momentum has been created in terms of the realization of the actions. The most important reasons for this situation are the lack of significant stability in education and the conflict between the traditional education system and the western education system in some ways [14].

As reported by Karakök [18]; When we look at the issue of education and culture collectively in the ten-year life of the Menderes Government, it is seen that the most importance is given to vocational and technical education. As a matter of fact, the 6th Congress, which was convened in 1957. The National Education Council focused only on “vocational technical education” and “public education”.

After the May 27 Coup, which took place as a reaction to the unplanned period between 1950 and 1960, a “planned development” policy was adopted [19]. With the 1961 Constitution, the preparation of development plans in Turkey has become a legal obligation. Since the First Plan, development plans in Turkey have been prepared as “macro”, “central” and “staged” within a “holistic” planning approach that covers the economic, social and cultural fields [20].

Within the framework of the planned development policy, education has taken its place in development plans as a “sector” that meets the “manpower needs of the economy” and contributes to social change by “raising the education level of the

people". Educational planning studies within the development plans have focused on the provision of the resources required to fulfill the tasks required by economic and social development on the one hand, and the distribution of the resources provided among the types and levels of the education system on the other.

Developments in Turkey's economic and social structure and planning approach (mixed economic policy, the new liberal economic policies after the September 12, 1980 coup d'état, agreements with the International Monetary Fund and the World Bank, the European Union membership process, etc.) have affected education planning and the development of the education system. Due to the fact that education is seen as one of the "tools" of economic and social development, this process of influence has reached a power that directly determines educational planning approaches.

In this period, instead of increasing the desire of individuals to study, it was aimed to establish secondary and general high school stages that would prepare the talented ones among those who want to study for higher education and to advance them in this direction. The focus is on directing those who are less talented to vocational-technical high school and non-formal vocational education that will prepare them for the profession [21].

(see **Figure 1**) As reported by Demirtürk [22]. After the 27 May 1960 operation, the issue of primary education became even more important by political circles. In 1962, the education programs implemented in 14 provinces of Turkey for trial purposes were applied to the whole country in 1968–1969 and progress was made in primary education. The period in which an important move was made in education after the 1960 Operation was the proposal of the Nihat Erim Government, which was established after the 12 March 1971 Intervention, to increase primary education to eight years.

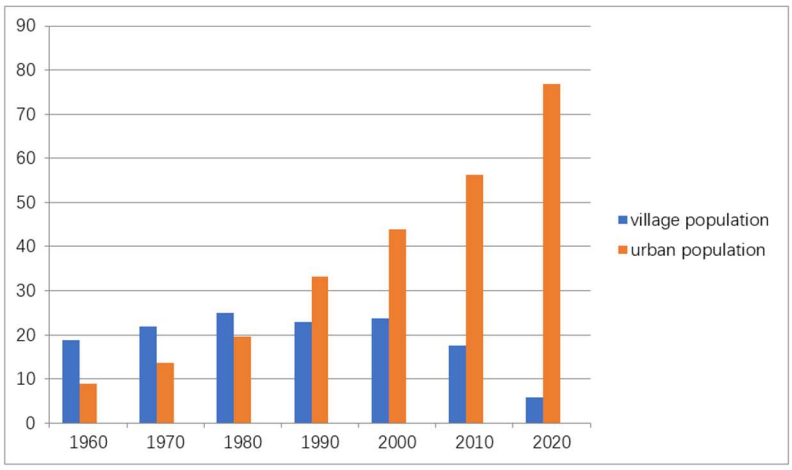

Figure 1. Changes of population in village and urban between 1960-2020

Between 1987 and 1994, there were 5 separate government periods. The most decisive of these is the abolition of the schools in the villages over time and the transition to mobile education. Because this decision, which was taken with the central authority, forced the people to migrate from the village to the city rapidly. This practice, which was carried out with 24,754 students in 29 provinces, 1394

villages, neighborhoods and hamlets in the 1991–1994 academic year, was expanded in 57 provinces in the 1993–1994 academic year. In these provinces, 4346 village primary schools with a small number of students and a total of 83,749 students continue their education and training by moving to 1654 centers on a daily basis [23].

According to the results of the address-based population registration system in 2020; The population of Turkey is 83 million 614 thousand 362 people. The proportion of people living in provincial and district centers in Turkey, which was 92.8% in 2019, increased to 93% in 2020. On the other hand, the proportion of people living in towns and villages decreased from 7.2% to 7% [24]. As in the world, there is a continuous migration trend from the village to the city in Turkey. In addition, the village population is getting older. In the study titled "Partnership structure and evaluation of cooperative activities in agricultural cooperatives in Edirne", Başaran and Irmak [25] determined the average age of farmers as 52.16 years. In a study conducted by Cengiz [26] in Antalya Province, it was determined that the majority of producers (91.2%) were male, primary school graduates, and more than half of the surveyed producers were over 51.1 years old. In other words, the population engaged in agriculture in today's Turkey constitutes 7% of the Turkish population. The majority of this group is over 54 years old and is predominantly a primary school graduate. Education is all social processes that are effective in helping individuals acquire society's standards, beliefs and ways of life [27]. Education level is accepted as an indicator of social development [28].

The concept of agricultural extension has changed considerably according to the conditions of the current period, the expectations, wishes and goals of producers and governments. For example, Mounter introduced the concept of agricultural extension in 1973. According to Mounter, agricultural extension is defined as "a service or system that helps farmers improve agricultural production methods and techniques through training, increase productivity in production and agricultural income, improve living standards, and raise the social and educational level of rural life." [29].

While creating the concept of publication here, the importance of income and information was emphasized. Russell [30] defines the concept of agricultural extension as: "Increasing the productivity of farmers' products and raising their living standards; it is defined as "providing the necessary knowledge and skills for the adoption of new agricultural production methods". With the influence of the green revolution, the element of efficiency has come to the fore in this concept.

Van den Ban and Hawkins [31] define it as "an education system for the planned use of information communication methods to help farmers form ideas and make the right decisions on every subject". In 1996, the communication element of agricultural extension became decisive.

UN Commission; he thinks that the agenda of the 21st century will be to achieve the desired production increase by reducing negative environmental conditions. "This can only be possible by applying sustainable methods and permanent solutions in agriculture," he says. The aim of the United Nations Environment and Development Commission here is undoubtedly to make available to future generations the elements that ensure the continuity of life, such as a clean

environment, clean soil and clean water, and to ensure their continuity. According to an article in Tarlasera magazine, the European Union is working on making a series of new decisions in order to protect food security and increase the health of the soil, which is negatively affected by agricultural activities and climate change. If approved by the EU Agriculture Commission, it is aimed to make all soils within the EU borders healthy by 2050 [32].

Today, many different institutions and organizations such as the Ministry of Agriculture and Forestry, Chambers of Agriculture, Agricultural Cooperatives, and Continuous Learning Directorates affiliated to the Directorate of National Education are officially responsible for farmer training. Yurttaş [33] classified the extension systems in terms of responsible institutions as public extension, farmer organization extension, private sector extension and cooperative extension. Of these, the organization that carries out the most comprehensive publication work in Turkey is the ministry.

Public extension: Ministry of Agriculture and Forestry is the main institution in extension services. The regulation of the Farmer Training Services has been prepared by the General Directorate of Agricultural Reform of the Ministry and, the services have been made official. The aim of the regulation is to inform farmers about agricultural technologies and to increase their educational and cultural levels, to regulate the issues related to educational activities. In addition, a cooperation protocol has been signed with many institutions of the Ministry of Agriculture and Forestry of the Republic of Turkey. Some of these signed protocols are as follows:

Cooperation Protocol between the General Directorate of the Turkish Employment Agency and the Ministry of Agriculture and Forestry and the Union of Chambers of Agriculture of Turkey on Active Labor Market Programs,

Cooperation Protocol between the Ministry of Agriculture and Forestry and the Central Union of Agricultural Milk Producers of Turkey in the Field of Education,

Cooperation Protocol between the Ministry of National Education General Directorate of Lifelong Learning and the Ministry of Agriculture and Forestry Education and Publication Department,

Cooperation Protocol between our Ministry and GAP Regional Development Administration in the Field of Agricultural Education and Extension in the Southeastern Anatolia Region,

Agricultural Extension and Education Cooperation Protocol between our Ministry and the Union of Chambers of Agriculture of Turkey,

Our Ministry, the Ministry of National Education, the General Directorate of State Hydraulic Works and the Konya Plain Project Regional Development Administration Agricultural Education and Extension Cooperation Protocol in the KOP Region,

Cooperation Protocol on Occupational Health and Safety in Agriculture:

According to the definition made by Özçatalbaş and Gürgen [34], agricultural extension; It is an activity or service that aims to help rural residents in an educational process. The trainings applied to farmers by the Ministry of Agriculture and Forestry are mainly carried out with traditional extension approaches. The basic idea in this approach is; that the information and technology to be offered to the farmer exists in the central government. In addition, extension agencies are usually

established under the Ministry of Agriculture, so they are increasingly responsible for carrying out all forms of official activities at the local level. According to the traditional agricultural approach, the real information is dominated by the researcher, the farmer is passive, and the initiative in the dissemination of knowledge is with the publisher. The most important criterion of development in agriculture is the increase in production, the needs of the farmer are not related to his living system, but are limited only to the results of technical research [35]. In a study conducted by Irmak [36]; it has been found that the farmer trainings carried out by public institutions differ with the training subjects needed by the farmers. For example, education on the cause and prevention of stubble fires is compulsorily included in the training subject by the ministry every year. However, it has been found that there is no stubble burning in the Thrace Region. In the research, each of the producers for Lalapaşa District was asked about the publication subject they needed with multiple choice topics. The most needed agricultural extension issues were diseases and pests with a rate of 65.39%, seeds with a rate of 62.18%, being aware of innovations with a rate of 58.33%, fertilization with 47.44%, agricultural mechanization with 41.66%, irrigation with a rate of 30.13% and other issues. However, among the training subjects required by the Ministry, which we can describe as the central government, to the provincial organization, the training subjects required by the producers are almost non-existent. This negatively affects agricultural extension and also prevents the producer from growing a productive and quality product. According to a worldwide study by Gebremedhin et al., [37] while approximately 800,000 publishers serve 1.2 billion producers, most public extension services can only serve 10% of potential beneficiaries. This research is important in terms of the lack of similar public extension studies in Turkey. Public boadcasting activities carried out in 2021, 2022 and 2023 are given in **Tables 1** and **2** [38].

Table 1. Public broadcasting activities-1.

Publication activities carried out in 2021–2022–2023		
Type of activity	**Total activity (piece)**	**Total participants (farmers)**
Farmer study tours, incentive competitions, exhibitions, conferences, panels and other similar activities	25.913	365.234
farmer courses	1.224	308.027
farmer meetings	36.548	791.994
Demonstrations	1.757	20.752
field days	319	14.862
2021 total	65.761	1.500.869
2022 total	70.078	1.261.824
2023 total	55.010	1.552.250

Table 2. Public broadcasting activities-2.

Innovation Dissemination Projects			
Publishing and broadcast activities	**Realized in 2021–2022–2023**		
	Number of activities	**Number of participants**	**Number of publications**
Opening introductory meeting	18	434	
Demonstration	72	206	
Field day	13	1062	
Farmers meeting	97	1598	
Inspection trip	26	133	
Business visit	687	687	
Fair	1	500	
In-service training	26	425	
Closing evaluation meeting	12	299	
Print publications	38	0	18743
Video broadcasts	12	0	12
2021 total	1002	5344	18755
2022 total	824	5547	8820
2023 total	537	4.285	6.472

The fact that producers do not request information about cooperatives and organization presents a negative situation in terms of cooperatives and organization. When the finding is examined in terms of traditional agricultural extension approaches; It has been found that the extension subjects given by the institutions and the extension subjects requested or needed by the manufacturer differ. This situation presents a negative situation in terms of agricultural extension, rural entrepreneurship and rural development.

Table 3. Number of documents issued as a result of training for farmers.

Performance Indicators	**Unit of Measurement**	**2020**	**2021 Planned**	**2121 Year-End Realization Forecast**	**2022 Aim**	**2023 Forecast**	**2024 Forecast**
Number of documents issued as a result of training for farmers	Number	6.725	9.000	17.890	16.500	17.500	18.500

In 2020, by the Ministry of National Education (MEB) General Directorate of Lifelong Learning and the Ministry of Agriculture and Forestry, the population is rejuvenating, herd management personnel, milk and milking hygiene, initiated irrigation systems, effective and efficient irrigation systems in order to contribute to socioeconomic developments in rural areas. trainings were organized. 6725 certificates were given to farmers within the scope of farmer courses (**Table 3**). According to TÜİK data, the number of people living in the village in 2020 is 5,878,321. According to Euronews 2021, the number of people employed in agriculture in Turkey was 4 million 974 thousand in September 2021. In other words, the trainings planned to contribute to socioeconomic developments in rural areas in 2021 correspond to only 0.18% of the total farmers [38].

Table 4. Number of courses opened in handicrafts training center directorates.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of courses opened in handicrafts training center directorates (cumulative)	Number	408	520	533	650	770	890

In the Handicrafts Training Center Directorates located in Bilecik, Düzce, Elazığ, Silifke-Mersin, Kastamonu and Sivas, wood carving, stone and silver embroidery, carpet-rug and cloth weaving and ready-made garments, etc. It is aimed to increase welfare in rural areas, increase income and employment opportunities, and diversify the economy in rural areas. For these purposes, 408 courses were opened in 2020. Although these courses aim to improve one's manual skills and provide individual benefits, they cannot be said to contribute to the village in a commercial sense (**Table 4**) [38].

Table 5. Number of agriculture-based specialized organized industrial zones in operation.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of agriculture-based specialized organized industrial zones in operation	Number	1	2	1	1	2	2

In order to contribute to the development of agricultural industry integration, it is aimed to support clustering activities and to popularize Agriculture-Based Specialized Organized Industrial Zones (ABSOIZ) and to prepare suitable and sufficiently large investment areas with completed infrastructure for investors. When ABSOIZ becomes operational; regional farmers, real investors and legal entities may be positively affected. The number of ABSOIZ's in the table is the number of ABSOIZ's that have completed their infrastructure construction and are at the stage of allocating parcels to investors, according to the General Directorate of Agricultural Reform data system. The development of industry based on agriculture and animal husbandry is very important for the country's economy (**Table 5**) [38].

Table 6. Number of projects carried out for women farmers.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of projects carried out for women farmers (cumulative)	Number	123	160	168	200	235	270

(**Table 6)** The indicator in the table expresses the number of projects that directly benefit women farmers in the provinces. When determining projects, care is taken to ensure that the project topic is innovative for women farmers and that the number of women farmers who will benefit from the project is high [38]. In these

projects whose target audience is women farmers; Subjects such as mushroom cultivation, silkworm breeding, honey production and packaging, and production of local products generally cover medium or small-scale businesses [39].

Table 7. Number of facilities established within the scope of rural development supports.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of facilities established within the scope of rural development supports	Number	1.365	1.000	2.810	2.000	2.000	2.000

The indicator given in the table above measures the number of facilities established in rural areas. Farmers and agricultural investors (real and legal entities) are the target audience of the projects. These projects aim to increase income in rural areas, financial development, employment and increase the market share of products produced through agricultural industry integration. Target figures have been updated regarding the decision to start implementing the "Expert Hands in Rural Development Project" in 81 provinces within the scope of rural development supports. The data in the table is the number of businesses established by people who are eligible to implement the project within the scope of this project (**Table 7**) [38].

Table 8. Employment provided by agricultural consultancy support.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Employment provided by agricultural consultancy support	Number	1.123	1.200	1.170	1.250	1.300	1.350

It is aimed to increase the number of agricultural consultants providing consultancy services to farmers by supporting the agricultural extension and consultancy services being implemented. Data on the subject is provided annually. The table above was created by taking into account the data entered into the Agricultural Extension Consultancy Information System by the provincial and district directorates of Agriculture and Forestry regarding the subject (**Table 8**) [38].

Table 9. Number of enterprises receiving agricultural consultancy services.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of enterprises receiving agricultural consultancy services (cumulative)	Number	126.178	196.178	194.848	271.178	356.178	451.178

The number of agricultural enterprises receiving consultancy services from authorized persons and organizations for the purpose of meeting the information needs of farmers and teaching modern agricultural techniques is given in the table above. The data in the table; it was compiled from the data created by the Department of Education and Extension within the scope of supporting agricultural

extension and consultancy services (**Table 9**) [38].

Table 10. Number of producer organizations that provide agricultural consultancy.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of producer organizations that provide agricultural consultancy	Number	371	390	388	400	420	440

In the table above; the number of producer organizations that are authorized to provide agricultural extension and consultancy services to their members and employ consultants for this purpose is given. The data in the table; it was compiled from the data created by the Department of Education and Publication within the scope of supporting agricultural extension and consultancy services (**Table 10**) [38].

Table 11. Number of TV programs with agricultural content.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of TV programs with agricultural content (cumulative)	Number	615	830	830	1.050	1.275	1.505

The number of television programs prepared with agricultural content is given in the table above. Numbers of programs in the table; It consists of internet broadcasting, news, cinemas, educational films to be broadcast on national and local channels, spot (short) films and documentaries. In programs; it includes issues related to agriculture and forestry, technological developments, and changes reflected in the agenda. It is aimed to use the programs in farmer trainings through Provincial Directorates, as well as other broadcasting channels, to inform producers and consumers. The data in the table 11; it consists of the number of television programs with agricultural content prepared in line with the requests from the Ministry's service units and affiliated and related institutions and organizations. Although these trainings are important in terms of mass education; a different product is grown in each region of Turkey. Since the system works with a one-way communication channel, it is seen that producers cannot benefit sufficiently in terms of agricultural extension (**Table 11**) [38].

Table 12. Number of women trained in agriculture and home economics.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of women trained in agriculture and home economics (cumulative)	Number	792.602	928.602	1.193.862	1.429.602	1.669.602	1.909.602

The number of women farmers who received training in education extension activities on agriculture and home economics and the number of women farmers who

received training in the programs carried out in the provinces within the scope of the "Women Farmers Agricultural Extension Project" are shown in the table above. In creating the table; the number of women farmers receiving training on agriculture and home economics from the Department of Education and Publication was taken into account (**Table 12**) [38].

Table 13. Number of people trained on hunting.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of people trained on hunting (cumulative)	1.000	164,34	174	179,97	194,97	209,97	224,97

It is aimed to determine the number of potential hunters in Turkey, to increase the number of documented hunters, to ensure that illegal hunters are registered and hunted according to the rules, and to carry out training and certification activities within a certain system. Based on the data collected for this purpose, the table above has been created according to the number of people who attended the hunter training courses opened in cooperation with the provincial organizations of the Ministry of Agriculture and Forestry and public education centers and received certificates. The data in the table; it was obtained from the General Directorate of Nature Conservation and National Parks under the Ministry of Agriculture and Forestry, the General Directorate of Lifelong Learning and the General Directorate of Private Educational Institutions under the Ministry of National Education (**Table 13**) [38].

Table 14. Number of provinces where traditional knowledge based on biodiversity has been determined.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of provinces where traditional knowledge based on biodiversity has been determined (cumulative)	Number	21	41	41	61	81	0

Within the scope of the "Recording of Traditional Knowledge Based on Biological Diversity Project", information on traditional products such as medicines, yeasts and dyes developed by the public using biological resources is compiled and recorded through field and literature studies. By compiling the information in question, patenting of products developed using traditional knowledge based on our country's biodiversity can be prevented by foreigners. Besides; it may be the subject of research and development activities aimed at the development of new products with high added value in various sectors, especially food, agriculture and pharmaceuticals. Following the completion of the "Traditional Information Management System" project, it is planned to regulate the principles of access and benefit sharing to the necessary genetic resources and related traditional knowledge. Data for the provinces where field work was completed within the scope of recording traditional knowledge based on biodiversity were taken from the General Directorate of Nature Conservation and National Parks and tabulated above. This

practice is a very important study in terms of the country's economy and recording biodiversity, and much more work needs to be done locally (**Table 14**) [38].

Table 15. Number of trainings held in schools on biodiversity.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of trainings held in schools on biodiversity (cumulative)	Number	6.602	8.052	8.373	9.873	11.423	13.023

In order to inform and raise awareness of future generations on nature conservation and biodiversity issues, nature trainings are organized for primary school students in cooperation with Provincial National Education Directorates affiliated with the Ministry of National Education. The data in the table above was taken from the database of the General Directorate of Nature Conservation and National Parks and shows the number of nature trainings organized in schools. According to the Ministry of National Education data for 2021, the total number of primary school students in Turkey is 5,328,391 [40]. Considering that the number of students planned to be educated in 2021 is 8,052, this number corresponds to 15% of the total number of students. In a world where global warming is rapidly felt, it is thought that it is necessary to bring nature awareness to all primary school students (**Table 15**) [38].

Table 16. Number of species and areas monitored according to monitoring criteria.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of species and areas monitored according to monitoring criteria (cumulative)	Number	2.220	2.984	3.058	3.908	4.768	5.638

Within the scope of the National Biological Diversity Inventory and Monitoring Project (NBDIMP), endangered species subject to monitoring and areas of importance in terms of biodiversity have been determined, and monitoring studies are carried out in the provinces where inventory studies have been completed. Species and specific areas are constantly monitored in order to protect and ensure the sustainability of our biodiversity. The data obtained as a result of the monitoring study is reported and can be shared with all public institutions/organizations, universities and NGOs that monitor biodiversity. In the table above; As a result of the field studies carried out by the General Directorate of Nature Conservation and National Parks within the scope of the NBDIMP between 2020 and 2024, the total number of species and special areas monitored by the provincial organization is given (**Table 16**) [38].

Table 17. Number of awareness raising activities on adaptation to climate change.

Performance Indicators	Unit of Measurement	2020	2021 Planned	2121 Year-End Realization Forecast	2022 Aim	2023 Forecast	2024 Forecast
Number of awareness raising activities on adaptation to climate change	Number	1	1	2	1	2	2

The table above; it shows the number of awareness activities carried out within the scope of the aim of increasing the knowledge and capacity of Ministry personnel on climate change. The data in the table was created from the number of awareness trainings conducted by the General Directorate of Agricultural Reform on adaptation to climate change. All personnel of the Ministry of Agriculture and Forestry need to be trained and raised awareness about combating climate change. It is very important that this awareness created after the training given be addressed at the farmer level with a problem-solution focus (**Table 17**) [38].

Agricultural chambers: The duties and powers of the chambers are defined in Article 3 of the Law No. 6964 on Chambers of Agriculture and the Union of Chambers of Agriculture. Article 3.d of this law states that "to carry out all kinds of training, extension, and consultancy activities for the development of agriculture and rural areas, to cooperate with relevant institutions and organizations, to make contributions and suggestions." In Turkey, the cooperation between publishing organizations and producers varies between regions. For example, in Cengiz's study [26] titled A Research on the Effectiveness of Agricultural Extension and Consultancy Services: Antalya Province Example, it was determined that more than half of the producers (51.1%) received consultancy services from chambers of agriculture on agricultural extension without paying any fee.

The most effective institution in Turkey regarding farmer education is the Ministry of Agriculture and Forestry. Training, extension and publication activities have been organized within the scope of the agricultural innovation and information system created to inform producers and other stakeholders about agricultural innovations, to strengthen research dissemination and farmer ties, and to deliver R&D results to farmers and other beneficiaries through electronic sharing systems. Within the scope of this project, new varieties registered in cooperation with agricultural research institutes and provincial directorates (wheat, corn, triticale, oats, poppy, safflower, peanut, forage plant varieties), biological control methods, planning and operation of irrigation systems, milk and milking hygiene, Publication activities were also organized on topics such as economical water use in agriculture. Although these activities are beneficial for the producers, they have been submitted to the information of the producers in line with the request of the Ministry. When the issue is considered in terms of publication, it does not cover all of the specific issues that farmers, that is, the base, need, in other words, see as a problem, but the ceiling especially introduces new varieties. In this case, it presents a negative situation in terms of the effectiveness and efficiency of agricultural extension.

In the purpose part of the Regulation on Farmer and Cooperative Promotion, Training and Rewarding Fund, "This Regulation is to provide all kinds of training of farmers through various extension methods given to the Ministry by Decree Law No.

441, for cooperatives established in accordance with the Cooperatives Law No. 1163 and specified in Article 2 of the Regulation, and their higher institutions, the introduction of cooperatives, the training of cooperative managers and partners, cooperatives, the way in their organizations. It has been prepared in order to make in-kind and cash payments such as awards and bonuses to be given to the trained farmers and cooperatives within the principles to be determined, if necessary, for the execution of services such as showing, assisting in their management and activities. With this point of view; the necessity of training cooperative partner farmers has been legalized.

According to the principle of "education, training and information", cooperatives carry out education and training activities for their partners, managers and personnel for the development of cooperatives. In addition, in order to explain the structure of the cooperative, it has to organize education and training activities for those who are not partners in the cooperative.

Private sector extension: Private sector extension can be divided into 2 groups. The first is freelance agricultural consultants. Freelance agricultural consultants continue their activities with the regulation regarding the regulation of Agricultural Extension and consultancy services. Duties of freelance agricultural consultants are mentioned below:

a) To provide agricultural business owners or other units they serve with the necessary knowledge and skills on matters related to their duties at every stage of production, and to carry out agricultural practices in accordance with the relevant legislation when necessary,

b) To ensure that all kinds of information and new technologies on sustainable production techniques for plant and animal production are delivered to the target audience,

c) To inform agricultural business owners and the target audience for the protection of the environment, natural resources and biological diversity,

c) Contributing to providing agricultural enterprises with a more competitive structure and orienting them towards the product and service market effectively,

d) To provide business economics publication/consultancy and to make necessary recommendations,

e) (Amended: OG-8/11/2012-28461) (2) Publications/publications on economic analysis of enterprises, development planning, improvement of labor and capital efficiency and problems specific to family businesses, home economics, mechanization and plant propagation materials and seed production. consultancy,

f) To provide necessary personal development and entrepreneurship training for agricultural workers to do their jobs better,

g) Participating in trainings to be organized regarding the subjects in which he/she is responsible,

ğ) To benefit from printed, audio and video mass publication tools in publishing/consultancy activities and to prepare and contribute to their preparation,

h) Collecting data and keeping records regarding agricultural extension and consultancy activities,

i) To ensure the issuance of documents that will record and control agricultural production,

i) To carry out studies on producer organization.

j) (Added: OG-8/11/2012-28461) (2) To carry out information activities regarding safe food supply,

k) (Added: OG-8/11/2012-28461) (2) To fulfill the duties assigned by the Ministry regarding the execution of agricultural consultancy services.

Cooperative extension: Law on cooperatives no. 1163, farmer and cooperative promotion, training and reward fund regulation Chapter 1, Article 1. This regulation provides for all kinds of training of farmers given to the Ministry by Decree Law No. 441 through various publication methods and established in accordance with the Cooperatives Law No. 1163. For the cooperatives and their parent organizations specified in Article 2 of the Regulation, the reward will be given to the farmers and cooperatives who are trained, if necessary, for the execution of services such as introducing cooperatives, training cooperative managers and partners, guiding cooperatives, and assisting with their management and activities, within the principles to be determined separately. It was written that 'it was prepared for the purpose of making in-kind and cash payments such as bonuses,' and the necessity of training cooperative partner farmers was legalized.

According to the principle of "education, training, and information," cooperatives carry out training and education activities for their partners, managers, and staff for the development of cooperatives. In addition, it must organize training and education activities for those who are not members of the cooperative in order to explain the cooperative structure.

With the Cooperative Training Regulation published in the Official Gazette No. 31719 of the Ministry of Commerce dated 14 January 2022, it has been made mandatory for the principal and substitute members of the Board of Directors and Supervisory Boards of Cooperatives and their Parent Organizations to receive Cooperative Training. In the survey conducted with 100 people in the Devrek District of Zonguldak Province, the rate of women who know the cooperative legislation is 16%, and the rate of men is 28%. 84% of women and 72% of men either do not know the legislation or have no idea. 24% of women and 46% of men attend cooperative meetings. 68% of women and 34% of men participate in the decisions taken in the cooperative. While 76% of women and 40% of men had positive opinions about cooperative management, 24% of men made negative evaluations, and 36% did not express an opinion [39]. In research conducted on the growth of the identity and freedoms of the people and the cooperation partners in Balıkesir, it emerges with 724 people. In the study, 55.7% of the respondents showed a positive tendency about the cooperative; it was determined that only 14.6% wanted to be a founding partner or manager of a cooperative [41]. According to the study, education or information expectations from cooperatives were found to be 36.3%. The fact that producers do not demand information about cooperatives and organization presents a negative situation in terms of cooperatives and organization. When the finding is examined in terms of traditional agricultural extension approaches, it has been found that the publication topics given by the institutions differ from the publication topics requested or needed by the manufacturer. This situation presents a negative situation in terms of agricultural extension, rural entrepreneurship, and rural development.

Although agricultural extension systems are grouped into these four groups, it is thought by some researchers that the producer can also develop a mixed system of all these institutions. Çukur and Karaturhan [42] claim that as a result of all these agricultural extension systems, the pluralistic agricultural extension system will be adopted in the future. According to researchers, the pluralistic agricultural extension system is defined as a system in which public extension services, as well as other stakeholders such as farmer organizations, non-governmental organizations, private agricultural consultancy companies, etc., take an active role in extension activities.

4. Conclusion

The concept of agricultural extension will always evolve according to developing and changing agricultural technologies, communication systems, and expectations of producers and authorities. However, the demographic structure in Turkey is aging rapidly. The next generation does not want to engage in agriculture or perceives agricultural activity as a second additional job with increasing mechanization. The number of people who have completed their agricultural activities by selling their land is also considerable. The fact that agricultural extension is carried out mainly by the central authority is far from being able to respond even unilaterally to the expectations and needs of the producers. This indicates that very negative conditions await the agricultural sector in the future.

In the past, village institutes solved the problems of producers with agricultural publishers, village institute teachers, and students, and it became a trend that swept the whole country for a while. Nowadays, it would be much better for local governments such as municipalities, non-governmental organizations, headmen's offices, farmers' organizations, producer organizations, and cooperatives to determine their common problems locally, produce solutions, and get support from the central authority in financial problems. In order to benefit more from grant support programs such as IPARD during the EU harmonization process, the central authority needs to develop policies that will provide solution-oriented technical support.

Although many public institutions and private sectors are active in agricultural extension, it is clear that the desired level has not been reached in terms of extension. If agricultural extension activities are carried out jointly by the public-private sector or separately by each of these institutions and organizations, priority should be given to issues that can bring solutions to the problems of the target audience. Taking into account the educational status of those who will participate in agricultural extension studies, not entering into too many theoretical subjects in the trainings and giving priority to the practical trainings to be held in the field will ensure that the trainings reach their purpose. Supporting extension trainings with visual materials, not only trainers taking part in applied trainings, and participating in the practices of the participants will ensure that the training is more efficient. In order to achieve success in extension trainings, importance should be given to organizations that grow and market a certain product organized in the form of cooperatives. Since the participants who grow different products with different agricultural practices in their enterprises will have high expectations from the trainings, the slope issues will also be more

than this expectation. It is important to organize the trainings on certain subjects with the idea that this will enable many subject experts to take part in the training and cause the different information given not to be assimilated by the participants. Whether the trainings have achieved their purpose should be monitored and recorded for certain periods, and the data obtained should be included in the subjects of the trainings to be organized in the future. It would not be a fanciful perspective to expect that what the Village Institutes achieved in the past, the cooperatives in the rural areas today will implement a long-term participatory plan and carry out successful practices in agricultural extension.

Author contributions: Conceptualization, EI; methodology, MS; software, MS; validation, EI; formal analysis, MS; resources, EI; data curation, MS; writing—original draft preparation, EI; writing—review and editing, MS; visualization, EI; supervision, MS; project administration, EI; funding acquisition, EI. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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