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Higher Agricultural Education in Turkey

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History shows us the importance of the role of agriculture in the economic activities developed by mankind. There is always a balance between the laws of nature, human knowledge and how it is put to use. Turkey is an agricultural country with a rural population of 26,200,000 mostly involved in agriculture. Our country has particular characteristics that are appropriate for agriculture from the climatic point of view. The rapid progress of industrialization has led part of the agricultural labour force toward other sectors such as industry and services. This is a phenomenon that has contributed to the country's development. Turkish agriculture was rapidly mechanized and is based on crops and livestock.

Despite the high rate of demographic growth, the country's potential for exporting is constantly increasing, in particular with such export products as raisins, figs and nuts. Turkey is one of the rare food self-sufficient countries in the world. Agricultural products have increased on average, for the period 1972 to 1983, by 3.1% per year. During the same period, high demand resulted in increased income and exporting was covered by domestic production without creating any problems. The agrarian structure also went through certain changes resulting from the evolution of the share of livestock farming in the sector as a whole.

Despite fluctuations that occurred in other sub-sectors, production from fisheries and livestock has consistently increased. During the period 1972 to 1983, exports of agricultural products rose by an average of 13.5% per year.

Soil is one of the most important factors in agricultural production. The agricultural surface used in Turkey is 28.5 million hectares out of a total surface of 77 million hectares. The rest is composed of 24.2 million hectares of prairie, 20.2 million hectares of forest, shrubs and land used for other purposes. Among investigations directed toward the use of the land, studies on the designation of irrigable land, drainage, salinity and alkalinity, have been completed. According to the figures for 1983, a surface of 3.05 million hectares is irrigated, and 25.45 million hectares of land are used for arid agriculture. This means that irrigated surfaces constitute 10.7% of all agricultural lands.

According to certain estimates, Turkey will number 75 million inhabitants in the year 2000. Because of this, agricultural production must increase within a short period. The country has the means of achieving full mechanization and increased production in terms of arable land and manpower. During the fifth five-year-plan, the demand for agricultural products will increase

parallel to income and to the development of the agricultural industry. Exports of agricultural products should increase by 9.1%. During the period of the fifth five-year plan (1985-1989), an increase of 3.6% in agricultural products is forecasted. In order to reach this level, technical progress and efforts toward modernization must be pursued.

Naturally, one of the main tasks in this phenomenon is to establish a training and extension service capable of improving technical knowledge of production, by training the necessary personnel. The model for such training consists of facing the need for labour. Goals are determined in accordance with this need, and elsewhere certain margins are fixed so as to cover the general objectives for training and for the society. The capacity of the establishments is generally measured according to the development objectives, both economic and social, in order to face the need for labour.

Available manpower in advanced agricultural training is shown in **Table 1** below, taking into account the present capacity of advanced training establishments.

Table 1: Available manpower in advanced training

Discipline	1984	1989 (thousands of persons)
Agronomic engineers	12.8	20.8
Forestry engineers	4.5	5.5
Veterinary surgeons	3.8	5.5

Source: D.P.T. (Organization for State Planning)

At each level, in order to increase the quality and adjustment possibilities of training, the programs are examined and revised for both their content and method.

At all levels of education, staff is trained in basic knowledge and culture, so that people can adapt to technological, economic and social change. Competency is the most important resource and national unity is the most precious; both are factors

that encourage development. The goal of education is to exploit this potential and make it available for development.

I - General perspectives

The objectives of general higher education and higher agricultural education are the following:

A. Training citizens

1. to depend on Atatürk's nationalism and his principles, and the radical reforms he implemented;
2. to be people that are proud and happy to be Turkish, supporting the national values of the Turkish nation, as well as its moral, humanitarian, spiritual and cultural values;
3. to consider the interest of the State to be a priority above their own family, and who love their family, their fatherland and the nation;
4. to know their duties and responsibilities toward the Turkish state and who apply them;
5. to have a broad, scientific and liberal view, who respect human rights;
6. to be well-developed, balanced and healthy physically, mentally, morally and emotionally;
7. to face the needs of the country and its development with their qualities and interests, who can both earn their living and achieve prosperity.

B. Ensuring that the Turkish state, already considered to be indivisible as a nation and as a fatherland, becomes a constructive and distinguished member of contemporary civilization, by carrying out programs aiming to accelerate and the contribution to economic, social and cultural development for the prosperity of the country.

C. Producing technologies and technical information, whether in national or international cooperation, and become a distinguished member of the scientific world, as well as contributing to contemporary development.

The principle of uniformity is ensured, taking into account the branches and characteristics of higher

education establishments. The plans and programs of higher education continually evolve according to scientific and technological principles and according to the short and long term needs of the country and the region. In this context, higher agricultural education aims at modernizing agriculture, increasing production and training the personnel that the country needs.

The Historical Evolution of Higher Agricultural Education

The history of higher agricultural education in Turkey goes back to 1846, earlier than in some developed countries. Activities in this field began in 1858 in Denmark, in 1861 in Belgium and in 1888 in Canada. Existing documents show that the first school providing higher agricultural education was created on the farm of Ayamama (Yesilköy - Istanbul). This school was of the same type as the Advanced Agricultural School of Grignon, France but was only able to exist for two years. The second step in this field was the inauguration of the Advanced Agricultural School of Halkali which provided a four year training course and trained several agronomic engineers over a period of 37 years. This school was closed in 1928 after a law came into effect on the improvement of agricultural education. In 1930, the Higher School of Agriculture was founded, and in 1933, it merged with the Higher Institute of Agriculture thus becoming the Faculty of Agronomy. This Institute was composed of faculties of agronomy, forestry, veterinary studies, natural sciences and agricultural arts.

The agricultural faculty of Ankara was the only agricultural faculty in Turkey until 1955. The agricultural faculties were established at the Aegean University in 1955, Atatürk University in 1958, and Adana in 1967. There are now 12 agricultural faculties in Turkey.

II - Different types of advanced training

Agricultural training can be examined in two parts:

Higher agricultural education(1)

Professional schools (1a)
Advanced schools (1b)
Faculties of agronomy (1c)

Veterinary faculties (1d)
Forestry faculties (1e)
Doctorate in Sciences (1f)

Education in school (2a)

Schools attached to the Ministry of Agriculture, Forestry and Rural Affairs; these schools were instituted in the context of the main laws governing national education.

Training as a whole exclusive of schools, and continuing education (2b)

Until 1981, each university had establishments that were attached to it that had a general freedom and a legal status. When higher education became effective (N 2547), Councils for Higher Education (YÖK) were established. With the decree dated 20.7.1982 and N 41, all higher education establishments in Turkey were reorganized into 27 universities and faculties, institutes and advanced schools. The main law on education has been in force since 1973, setting forth the fundamental principles, the responsibilities and duties of the State for education and training.

1a - Two years after the baccalauréat

Professional schools at universities tied to the faculties and advanced schools.

In the field of agriculture, there are advanced schools that have recently been oriented to training intermediate personnel for a two year period. But the number of graduates is negligible, which is why this is not mentioned. There are two year higher professional schools that teach 12 disciplines and that are tied to seven universities. The names of the schools and disciplines are given in **Annex 1**.

1b - Four years after the baccalauréat: Schools attached to universities and faculties.

Fishery technology (1)
Water products (6)
Domestic economy (1)
Tobacco expertise (1)

The above fields are taught in advanced schools. The location of these schools are given in **Annex 2**.

In our country, the potential of fisheries products is not fully used. Despite this, production has increased in the past few years:

1972-1977	7.7%
1977-1982	11.4%
1982-1983	17.6%

During the fourth plan, fishing production progressed considerably, so that in 1980-81 Turkey was 30th out of 161 countries in the entire world, as compared with 48th in 1977. Our exports also increased. Considering the importance of research and training in fish production, the new schools in the field are justified.

There are six higher schools for water products (fishing). There are no graduates in most of these schools for the sole reason that they opened only recently. During the 1985-86 academic year, the number of students was 917, and there were 20 graduates in 1984-1985.

1c - Faculties of Agronomy

In the 27 universities, there are 12 faculties of agronomy where studies last four years. The faculties of agronomy constitute different branches and deliver a degree in agronomic engineering. 1,299 people graduated by 1955 in Ankara. But in the years 1960-1965, within five years, 2,037 students graduated from the Faculties of Ankara, Aegea and Atatürk. 3,365 students completed their studies in existing faculties up until 1965.

The breakdown of graduates over the past ten years appears as follows:

Years	Graduates
1976-1977	617
1977-1978	858
1978-1979	1,257
1982-1983	728
1983-1984	943
1984-1985	1,140

Source: State Institute of Statistics (D.T.E.)
 Organization of State Planning (D.P.T.)
 Council for Higher Education (YÖK)

The number of students at the B.A. level was 13,543 (4,113 women and 9,430 men) in 1985-

1986; the number of graduates was 1,140 (366 women and 774 men) in 1984-1985.

Annex 2 shows the location of the faculties of agronomy and their specializations.

1d - Veterinary faculties

These faculties require five years of studies after high school. There are seven veterinary faculties attached to the universities.

The Veterinary Faculty, which was part of the Faculty of Agronomy until 1948, was attached to the University of Ankara.

In the veterinary faculties - seven to this day - specialization begins after five years of study. Livestock farming made considerable progress in our country in 1984 and production in this field increased by 4.2%. The increasing share of livestock farming in agriculture burdens the job of veterinary faculties, as well as that of research institutes. That is why this field is granted particular attention.

For the academic year 1985-1986, there were 3,698 students in the veterinary faculties.

The breakdown of graduates over the past four years is as follows:

Years	Graduates
1981-1982	122
1982-1983	234
1983-1984	234
1984-1985	296

Source: Organization for State Planning (D.P.T.)
 Council for Higher Education (YÖK)

Graduates from the veterinary faculties are given a degree in veterinary medicine (detailed information in Annex 2).

1e - Forestry faculties

Four years of study are necessary. Forestry faculties are part of the universities and train forestry engineers.

The Forestry Faculty - which was associated with the Higher Institute for Agriculture until 1948 - was formerly attached to the University of Istanbul.

The number of students in the Forestry Faculty was 1,534 in 1985-1986.

The number of graduates over the past four years is given below:

Years	Graduates
1981-1982	180
1982-1983	170
1983-1984	149
1984-1985	186

Source: DPT - YÖK (See Annex 2).

1f - Scientific doctorates

Students wishing to pursue a doctor's degree or post-graduate studies are examined and selected according to the principles determined by the Council for Higher Education (YÖK) and the Inter-university Council. In order to pursue basic higher education or post-graduate studies in an institute or a university, one must have the authorization of the Council for Higher Education (YÖK) which will be based on the request of the Rector of the concerned university. This authorization makes it possible to establish the basic branch of the concerned institute.

Post-graduate programs include mandatory and voluntary courses, tests, examinations and applied work.

The minimum content of these programs and the degrees which will be granted, as well as their equivalency abroad, are prepared at the institute and approved by the university senate. In 1984-1985, the number of post-graduate students in each discipline is shown in **table 2** below.

The number of post-graduate students in 1984-1985 in each university and discipline is shown in **table 3** below.

This education is given in the faculties of agriculture, forestry and veterinary science attached to the universities. We had spoken earlier of water products. General biology and nutrition are subjects that are dealt with outside the agricultural faculties: they are essential sciences in the other universities.

Schools under the responsibility of the Ministry of Agriculture, Forestry and Rural Affairs: despite the essential theme of this seminar, there are

Table 2

Disciplines	Number of students		Total
	Women	Men	
Agriculture	389	685	1 074
Veterinary	50	118	168
Forestry	9	115	124

Source: DPT-YÖK

Table 3

University	Agri- culture	Vete- rinary	Forestry
Ankara	385	54	-
Atatürk	32	1	-
Cukurova	263	-	-
Ege	337	-	-
Firat	-	12	-
Istanbul	-	52	112
Karadeniz	-	-	12
Ondokuz Mayes	14	-	-
Trakya	8	-	-
Utudag	24	49	-

Source: YÖK

agricultural schools where teaching is at the high school level.

Teaching in schools or continuing education, technical and professional high schools are the means by which intermediate labour is trained. This type of education is preferred to classic high schools by those who would rather shorten their training time.

2a - Teaching in schools

After the reorganization of the Ministry of Agriculture, Forestry and Rural Affairs ordered by Decree N 3161, instituting the agricultural education system, teaching in schools or continuing education, and organizing courses are tasks entrusted to the Ministry's Directorate for Organization and Support.

The essential part of the agricultural education system is part of the general national Turkish educational system under law N 1739, called the basic law on national education.

In 1985-1986, 96 schools taught within the Ministry of Agriculture, Forestry and Rural Affairs.

Schools tied to this Ministry are as follows:

Branch of Education	Duration	Number of schools
Professional Agricultural High School	4 yrs	9
Professional High School Domestic Economy	4 yrs	3
Professional High School Veterinary health	3 yrs	3
Professional High School Laboratory Technicians	3 yrs	1

Kaynak: Ministry of Agriculture, Forestry and Rural Affairs

The total number of high schools and professional high schools is 2,741 of which 1,499 of these have been opened lately. According to these figures, agricultural high schools constitute 0.58% of the country's general high schools, and 1.1% of the professional high schools.

Agricultural education is an integral part of general agricultural policy: organization, research, extension services, production and evaluation. The existing 16 high schools are located in 13 cities.

Professional agricultural high schools, and those that teach domestic economy, propose a four-year educational program. Students graduate with a technician's diploma. As for veterinary and laboratory high schools, studies last three years.

In these schools, professional courses are given according to speciality, parallel with general courses.

At the Ministry of Agriculture, there are 2,062 students in professional high schools, 1,252 of whom are in agricultural schools, 383 in domestic economy, and 327 in veterinary high schools, and 100 in professional high schools for laboratory technicians.

In 1985-1986, the number of graduates from these schools was:

Agricultural high schools:	232
Domestic economy schools:	86
Veterinary schools:	144
Laboratory technician schools:	29
Total number of students:	491

Students pursuing their studies in agricultural high schools constitute 0.18% of the total number of students in general education and 39% of the total in professional education.

2b - Extended teaching consists of all educational activities that accompany teaching either in school or outside of school. In general, it is organized in the form of long and short term training by producers in mechanization courses that are held in the training center for manual arts.

For example, courses organized on familiarity with agricultural techniques lead to courses related to irrigation and fattening. As far as training for cooperatives is concerned, it consists of training technicians who work in cooperative enterprises, in accounting, management and the general cooperative.

Courses in manual arts consist of producing rugs, kilims, cloth, items in wood and stone as well as the treatment of leather. These courses are organized in the training center for manual arts, and itinerant courses are given for village dwellers.

III - Educational objectives

In general, those who teach in agricultural education do so in central or regional establishments that are partially or entirely managed by the State.

Progress in the agricultural sector has made it possible to obtain investments in the field of fruit juice, milk, and flour products. The growth of the

private sector increases the need for trained personnel in agricultural education establishments.

Demand for such people tends to increase parallel to the acceleration of the privatization of certain monopolies. Research establishments are organizing themselves generally, and are founded by the State. Programs and plans for higher education are based on the principles of science and technology according to the short and long term needs of the country and the region. They evolve continuously. The principles of Atatürk, the history of these radical changes, the Turkish language, and a foreign language are mandatory during this training course. Furthermore, physical education or arts education must be chosen and remain mandatory. In our country the areas of education are determined. This means that specialization begins with higher education except for veterinary faculties where specialization occurs only after the fifth year. The branches of specialization in the Faculties of Agriculture and Forestry are shown in **Annex 2**. Those of the veterinary and forestry faculties are mentioned in **Annexes 3 and 4**.

In the agricultural, forestry and veterinary faculties, basic scientific courses in physics, chemistry and biology are mandatory. Practical training sessions, visits to companies, as well as seminars are organized by these faculties. The specification and the number of practical sessions are determined according to the branches. The practical sessions take place during the summer, while agricultural production is abundant. In 12 existing faculties, teaching is homogeneous in the same fields. The specialized branches are applied according to regional specifications.

In order to preserve a certain particularity, they benefit from limited freedom. The number of students and graduates of agricultural and veterinary faculties is shown according to branches in **Annex 5**.

IV - Organization

Higher schools, faculties and institutes are higher education establishments. All universities are establishments that have faculties, institutes, higher schools and other analogous establishments that carry out research and provide scientific education, publish and act as

consultants, while enjoying scientific freedom and public legal status.

Curricula

Each faculty council determines the timetable, the curriculum and the teaching plan as well as training in its faculty in matters of scientific research and publication. The faculty's Board of Directors sees to it that these plans and curricula are applied. The Faculty Council always asks the Board of Directors and the University Senate for their opinion about curriculum content. The higher education establishment defines the minimum quantity of courses and their duration in the educational and training program by requesting the opinion of the Inter-university Council. In preparing curricula, the national educational policy and the principles and objectives of development plans are taken into account. Programs are thus planned so as to respond to the needs of the country, the environment and the fields of application. In addition to general subjects in the agricultural field, all faculties give courses in each speciality.

Research work is conducted in the educational establishments by post-graduate and doctoral students, by those in charge of research, lecturers and professors who work there. Through their research, they contribute to scientific and technical progress, and at the same time improve the quality of teaching and increase the knowledge of students.

It is possible to generate funds for research within the university with the authorization of the Council for Higher Education (YÖK). Furthermore, allocations for research, donations and aid can contribute to financing research. Scientific activities aim at responding to economic and social needs; the opinions of establishments concerned with development are taken into account in these activities.

Teaching staff

Apart from permanent staff, there are also foreign teachers and visiting teachers with a one year contract. The contract for a foreign teacher is concluded by the Rector following a proposal by the Board of Directors of the concerned faculties, institutes and higher schools. Regulations apply to both local and foreign teachers. The number of

existing teachers is indicated, according to degree and faculty, in Annex 6.

All teachers of a same level in all the universities have the same rights, whatever their speciality may be.

The age of retirement is 67 years for teachers (65 years for government employees). However, in both categories, women may retire after 20 years of work, whereas men must complete 25 years of work. The earliest age is 45 years for women and 55 years for men.

In order to obtain a vacant position of lecturer, assistant lecturer or professor, certain specifications are required, including an examination, a foreign language, a doctorate and a *curriculum vitae*. In order to be appointed to a position as professor, a candidate must have five years of experience in the same discipline, after having obtained the title of lecturer and having published original works of an international level.

Students

Students are admitted to higher education establishments after having taken examinations approved by the Council for Higher Education (YÖK). During the evaluation of results, the student's success in secondary school is also taken into consideration.

The student selection and accommodation center prepares and delivers the examinations, the principles of which are determined by the Council. Following this, the center accommodates students having obtained the right to register in higher education establishments.

Educational expenditures

Every year, the Council of Ministers determines the level of participation in school expenses, following a proposal by the Council for Higher Education and taking into account the specifications of higher education establishments. Students are requested to pay one fifth of the cost of each course, including preparatory classes in a foreign language.

Expenditures for the buildings, equipment, salaries and management are covered by the State.

The resources of higher educational establishments and attached units are given as follows:

- a) allocations within the annual budget
- b) aid given by the establishments
- c) participation in school expenses and salaries
- d) income from publications and sales
- e) income from transferable and fixed assets
- f) profit resulting from management
- g) donations, testaments and other income.

The establishments in question enjoy certain privileges and financial facilities.

Distribution of students according to discipline in higher education (1984-1985)

Science	Total	%
Philosophy and literature	10,785	2.7
Natural sciences	21,252	5.3
Social sciences	3,838	8.2
Applied social sciences	152,809	38.4
Law	18,818	4.7
Science and health	38,446	9.7
Engineering, and architecture	61,189	15.4
Agronomy-Forestry	13,149	3.3
Arts	3,296	0.83
DEUG Level (Degree in general university studies)	45,605	11.83
Total	398,185	100.0

Source : DPT-YÖK

V - Conclusions

The teaching model used in Turkey was developed to respond to the needs of the labour force. Furthermore, margins are established in order to respond to the general educational objectives of the society. The capacity of the establishments is sufficient to cover the need for labour, calculated according to social and economic objectives.

Since the beginning of the planned periods, the tendency has been to reduce long term dependency on technical aid given by international

organizations and through bilateral projects. In general, Turkey is able to participate actively in technical cooperation programs.

Some of our national organizations are organizing agricultural training programs and are providing specialists able to work in assistance programs, in the context of technical assistance activities. These projects, which provide financing parallel to technical assistance, are applied with the cooperation of the World Bank, UNDP and the FAO.

Our country is reaching a level of development which is sufficient to provide technical assistance, in several fields, to developing countries. One important factor is that more and more international scientific and technical meetings are held in Turkey.

With the cooperation of ICAMAS, more seminars, conferences and courses on agricultural training could be organized in our country. In the area of training, an exchange of experts could take place, with a transfer of adjustable technology.

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Annex: Tables

University	Faculty	Location	Subject matter	Length of studies	Capacity for 1986-1987
Akdeniz	Professional Faculty of Isparta	Higher Professional School of Burdur	Milk and milk products	2	30
Atatürk	Higher Professional School of Erzinçan		Land protection and improvement Garden crops	2	30
Ege	Higher Professional School of Ege	Izmir	Food quality and sanitary control Milk and milk products Greenhouse crops	2 2 2	20 20 20
Istanbul Teknik Üniversitesi	Professional Faculty of Sakarya	Higher Professional School of Duzce	Forestry products	2	30
Karadeniz Teknik Üniversitesi		Higher Prof. School of Sakarya	Agricultural mechanization	2	30
Trakya	Agronomic Faculty of Tekirdag	Higher Prof. School of Rize	Expertise on tea production	2	60
Uludag		Higher Prof. School of Bursa	Mechanization Fermentation Pruning and grafting Slaughtering and meat	2 2 2	30 20 25 25

Annex 1 : Higher professional schools

Source: Council for Higher Education

University	Faculty or Higher School	Specialized programs	Duration (years)
AKDENIZ (ANTALYA)	1. Faculty of Agronomy 2. High School for Water Products of EGRIDIR 3. Higher Professional School of BURDUR	1. Garden crops 1. Milk and milk products	4 4 2
ANKARA	1. Faculty of Agronomy	1. Garden crops 2. Plant protection 3. Rural engineering 4. Landscaping 5. Water products 6. Agricultural economy 7. Agricultural mechanization 8. Food science and technology 9. Milk technology 10. Open-air crops 11. Earth sciences 12. Zootechnology	4 4 4 4 4 4 4 4 4 4 4 4
ATATURK	2. Faculty of Agronomy, Higher School of Domestic Economy 3. Veterinary Faculty (Specialization begins after the end of the 5th year) 1. Faculty of Agronomy	1. Garden crops 2. Plant protection 3. Rural engineering 4. Agricultural economy 5. Agricultural mechanization 6. Food science and technology 7. Open-air crops 8. Earth sciences 9. Zootechnology	4 4 4 4 4 4 4 4 4 4 4 4 4 5 4 4 4 4 4 4 4 4

Annex 2: Location and duration of specialized programs

University	Faculty or Higher School	Specialized programs	Duration (years)
	2. Higher Professional School of Erzinçan	1. Land protection and improvement 2. Garden crops	2 2
Cumhuriyet (Sivas)	3. Veterinary Faculty of Kars	(Specialization begins after the end of the fifth year)	5
	1. Faculty of Agronomy of Tokat	1. Garden crops 2. Agricultural economy 3. Open-air crops	4 4 4
Çukurova (Adana)	1. Faculty of Agronomy	1. Garden culture 2. Plant protection 3. Rural engineering 4. Landscaping 5. Agricultural economy 6. Agricultural mechanization 7. Food science and technology 8. Open-air crops 9. Earth sciences 10. Zootechnology	4 4 4 4 4 4 4 4 4 4
Dicle (Diyarbakir)	1. Faculty of Agronomy of Saniurfa	1. Garden crops 2. Plant protection 3. Rural engineering 4. Landscaping 5. Agricultural economy 6. Agricultural mechanization 7. Leather and wood fiber technology 8. Open-air crops 9. Earth sciences 10. Zootechnology	4 4 4 4 4 4 4 4 4 4
Ege (Izmir)	1. Faculty of Agronomy	1. Garden crops 2. Plant protection 3. Rural engineering 4. Landscaping 5. Agricultural economy 6. Agricultural mechanization 7. Leather and wood fiber technology 8. Open-air crops 9. Earth sciences 10. Zootechnology	4 4 4 4 4 4 4 4 4 4

Annex 2a: Location and duration of specialized programs

University	Faculty or Higher School	Specialized programs	Duration (years)
	2. Higher School for Water Products 3. Higher Professional School of Ege	1. Food quality and sanitary control 2. Milk and milk products 3. Greenhouse crops	4 2 2 2
Firat (Elazig)	1. Veterinary Faculty (specialization begins after the end of the 5th year) 2. Higher School for Water Products		5
Istanbul	1. Forestry Faculty 2. Higher School for Tobacco Expertise 3. Veterinary Faculty (specialization begins after end of the fifth year) 4. Higher School for Water products 5. Higher Professional School of Istanbul	1. Forest industry engineering 2. Forestry engineering 3. Landscaping	4 4 4 4 5 4
Istanbul - Teknik	1. Higher Professional School of Duzce 2. Higher Professional School of Sakarya	1. Leather industry 1. Forest products 1. Agricultural mechanization	2 2 2
Karadeniz (Trabzon)	1. Forestry Faculty 2. Higher School for Science and Technology of the Sea of Surmene 3. Higher Professional School of Rize	1. Forest industry engineering 2. Forest engineering 1. Fishing technology engineering 1. Expertise on tea production	4 4 4 2

Annex 2b: Location and duration of specialized programs

University	Faculty or Higher School	Specialized programs	Duration (years)
Ondokuz Mayıs (Samsun)	1. Faculty of Agronomy	1. Garden crops 2. Technology of agricultural products 3. Open-air crops 4. Zootechnology	4 4 4 3
Selçuk (Konya)	2. Higher School for Water Products of SINOP 1. Faculty of Agronomy	1. Agricultural mechanization 2. Open-air crops 3. Earth sciences 4. Zootechnology	4 4 4 4
Trakya (Edirne)	2. Veterinary Faculty (specialization begins after the end of the fifth year) 1. Faculty of Agronomy of Tekirdag	1. Garden crops 2. Technology of agricultural products 3. Open-air crops 4. Zootechnology	5 4 4 4 4
Uludag (Bursa)	2. Higher Professional School of Tekirdag 1. Faculty of Agronomy	1. Agricultural mechanization 2. Fermentation 1. Garden crops 2. Technology of agricultural products 3. Open-air crops 4. Zootechnology	2 2 4 4 4 4 5
Yüzüncü Yil (Van)	2. Veterinary Faculty (specialization begins after the end of the fifth year) 1. Faculty of Agronomy	1. Pruning and grafting 2. Slaughtering and meat 1. Plant protection 2. Zootechnology	2 2 4 4 5

Annex 2c: Location and duration of specialized programs

Source: Organization for State Planification (D.P.T.) - Council for Higher Education (YÖK)

Annex 3: Departments of the veterinary and forestry faculties

Veterinary Faculty

Division of Basic Sciences in Veterinary Medicine

- Department of Morphology
- Department of Anatomy
- Department of Histology-Embryology
- Department of Biology-Physiology

Division of Diseases and Various Clinics

- Department of Microbiology
- Department of Bacteriology
- Department of Virology
- Department of Parasitology
- Department of Pathology
- Department of Internal Diseases and Pharmacology - Internal Diseases - Pharmacology - Toxicology
- Department of Reproduction and Drooping Disorders
- Department of Reproduction Disorders
- Department of Reproduction and Artificial Fertility
- Department of Surgery, Food Technology and Hygiene

Division of Zootechnology and Breeding

- Department of Zootechnology
- Department of Breeding and Nutritional Diseases

Forestry Faculty

Division of Forest Engineering

- Department of Forest Protection
- Department of Forest Entomology
- Department of Forest Planning
- Department of Forest Construction
- Department of Surveying and Photogrammetry
- Department of Earth Science and Ecology
- Department of Forest Economy

Division of Engineering of the Forest Industry

- Department of Technology and Chemistry of Forest Products
- Department of Wood Technology and Mechanics
- Department of Forest Industry, Mechanization and Management
- Department of Forest Biology and Technology of Wood Protection

Subject matter	Number of universities	Capacity
Milk and milk products	2	50
Agricultural mechanization	2	60
Garden crops	1	30
Fermentation	1	20
Expertise on tea production	1	60
Greenhouse production	1	20
Food quality and sanitary control	1	20
Forest products	1	30
Land protection and improvement	1	30
Pruning and grafting	1	25
Slaughtering and meat	1	25

Annex 4: Number of places available by program

Source: Council for Higher Education

Subject matter	Number of universities	Total number (1985 - 1986)			Graduates (1984-1985)		
		Women	Men	Total	Women	Men	Total
General agronomic studies	2	32	257	289	2	18	20
Plant protection	5	314	748	1062	44	46	90
Garden crops	9	512	1003	1515	52	60	112
Rural engineering	4	225	610	835	17	73	90
Landscaping	4	514	192	706	52	10	62
Water protection	6	215	702	917	4	16	20
Agricultural economy	5	361	761	1122	39	63	102
Agricultural mechanization	5	128	844	972	5	59	64
Open air plantation	9	332	1309	1641	51	149	200
Earth sciences	5	328	788	1116	34	87	121
Zootechnology	9	245	1203	1448	14	102	116
Agricultural prod. and technology	2	620	787	1407	52	45	97
Food science and technology	4	370	380	756	28	19	47
Milk technology	1	126	106	232	13	12	25
Leather and wood fiber technology	1	59	144	203	13	12	25
Expertise on tea production	1	-	226	226	-	46	46
Domestic economy	1	287	-	287	-	-	-
Forestry studies	2	66	950	1016	4	143	147
Forest industry	2	57	461	518	1	28	29

Annex 5: Number of students per program

University	Faculty or Higher School	City	Professor	Lecturer	Assistant	Other (1)	Total
1. Akdeniz	Faculty of Agronomy	Antalya	4	1	3	4	12
2. Ankara	"	Ankara	55	46	12	124	237
3. Atatürk	"	Erzurum	19	35	10	46	110
4. Cumhuriyet	"	Tokla	2	1	1	25	29
5. Cukurova	"	Adana	17	40	18	81	156
6. Dicle	"	Sanliurfa	1	-	1	13	15
7. Ege	"	Izmir	30	37	34	89	190
8. Ondokuzmayis	"	Samsun	6	10	5	7	28
9. Selçuk	"	Konya	5	3	1	11	20
10. Trakya	"	Tekirdag	6	8	7	1	22
11. Uludag	"	Bursa	6	10	5	15	36
12. Yüzüncü Yil	"	Van	1	2	-	3	6
1. Ankara	Veterinary Faculty.	Ankara	28	19	17	69	133
2. Atatürk	"	Kars	1	-	-	10	11
3. Firat	"	Elazig	3	11	9	26	49
4. Istanbul	"	Istanbul	10	11	11	22	54
5. Selçuk	"	Konya	4	7	2	19	47
6. Uludag	"	Bursa	6	8	1	8	35
7. Yüzüncü Yil	"	Van	2	-	-	-	11
1. Istanbul	Forestry Faculty	Istanbul	20	23	8	27	78
2. Karadeniz	"	Trabzon	3	12	8	22	45

Annex 6: Number of teaching staff by degree and faculty

Source: Data from the Council for Higher Education in 1986

(1) Teaching staff, Expert Researchers

Department	Professor	Lecturer	Assistant	Other	Total
1. Water products	3	7	10	37	57
2. Domestic economy	1	3	-	9	13
3. Expertise on tea production	-	-	-	1	1
Total	4	10	10	47	71

Annex 7 : Number of teaching staff by subject matter and degree in other higher agricultural education establishments