Present status of rice production and research in Turkey

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Abstract. There is a reduction in the rice area and in rice production in Turkey. Thrace, Central North and Central Black Sea are the major rice growing areas. The major causes of reduction are insufficient water and rice imports by government. The widely grown varieties are Ribe, Rocca, Krasnodarsky-424, Veneria, Ergene, Ipsala, Trakya, Meriç, Altìnyazì and Serhat-92. Many problems have been solved by the Turkish National Rice Research Project initiated in 1982, but the limited number of research institutes and research staff working on the project and insufficient budget allocation are the important constraints in rice research.

Introduction

Rice is an important cereal in Turkey. The rice area accounts for about 0.4% of the total cereal area, but its share in the cereal area changes from year to year. *Table 1* shows the cereal area, production and yield in Turkey.

Table 1. Cereal area, production and yield in Turkey

Crop	Area (,000 ha)	Production (,000 t)	Yield (kg/ha)
Wheat	9,600	19,300	3,040
Barley	3,440	6,900	2,039
Maize	525	2,225	4,243
Rice	43	129	3,002

Source: Agricultural Structure and Production (1992).

I – Production

1. Rice area, production and yield

The rice area has been expanding until 1985 and steadily decreased during the last decade from 68 000 ha to 40 000 ha in 1992 *(Table 2*). Parallel to the rice area expansion, production increased to 309 000 t in 1985, but decreased to about 120 000 t during 1991–1992. The rice yield was 3,785 kg/ha in 1961–65 and increased to 5,500 kg/ha in 1990.

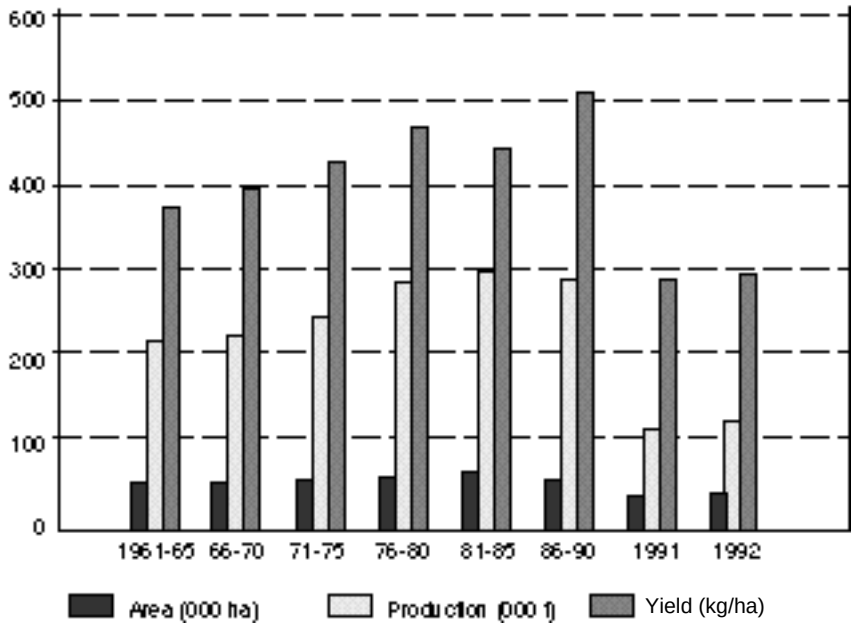
Table 2. Rice area, production and yield in Turkey

Year	Area ,000 ha	Area %	Production ,000 t	Production %	Yield kg/ha	Yield %	Relative yield increase (%)
1961-65	56.0	100.0	221.8	100.0	3,785	100.0	-
1966-70	56.6	101.0	233.2	105.1	4,034	106.5	6.5
1971-75	57.8	103.2	252.0	113.6	4,360	115.1	8.6
1976-80	61.8	110.3	293.6	132.3	4,750	125.4	10.3
1981-85	68.8	122.8	309.0	139.3	4,492	118.6	-6.8
1986	55.0	98.2	275.0	123.9	5,000	132.1	13.5
1987	53.0	94.6	275.0	123.9	5,190	137.1	5.0
1988	51.0	91.0	263.0	118.5	5,150	136.0	-1.1
1989	66.0	117.8	330.0	148.7	5,000	132.1	-3.9
1990	60.0	107.1	330.0	148.7	5,500	145.3	13.2
1991	40.4	72.1	120.0	54.1	2,970	180.4	-66.9
1992	43.0	76.7	129.0	58.1	3,002	79.3	0.9

Source: Agricultural Structure and Production (1961–1992).

Unfortunately the yield decreased to 3,000 kg/ha along with the area and production during 1991–1992. The reason for the reduction of the yield, area, and production in 1991 and 1992 is most probably insufficient water in major rice growing areas.

Figure 1. Rice area, production and yield in Turkey



II – Rice production regions

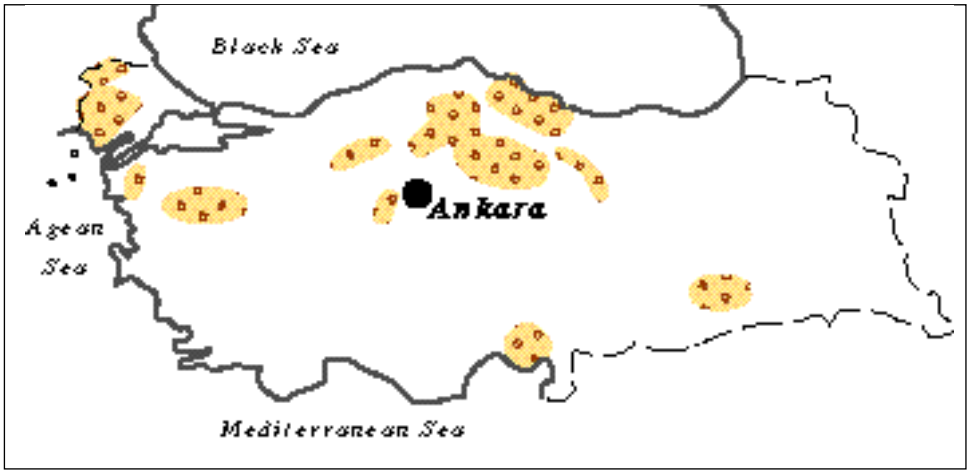
Table 3. Rice area, production and yield in Turkey (per region)

Regions	Area (ha) 1982	Area (ha) 1987	Area (ha) 1992	Production (t) 1982	Production (t) 1987	Production (t) 1992	Yield (kg/ha) 1982	Yield (kg/ha) 1987	Yield (kg/ha) 1992
Marmara	21,616	19,515	14,603	64,765	63,890	45,914	2,996	3,274	3,148
Black Sea	16,938	10,682	12,492	45,316	33,108	35,602	2,675	3,099	2,850
Aegean	13,586	7,455	2,178	41,758	25,683	8,449	3,074	3,445	3,879
Central North	5,531	8,407	6,907	26,823	27,181	24,781	2,814	3,233	3,588
Mediterranean	6,950	1,985	2,465	13,955	4,915	5,987	2,008	2,476	2,429
Southeastern	6,657	3,453	3,373	12,953	6,092	5,534	1,946	1,764	1,642
Other	2,072	1,503	982	4,430	4,131	2,733	1,882	2,705	2,382
Total	**77,350**	**53,000**	**45,000**	**210,000**	**165,000**	**129,000**	**2,715**	**3,113**	**3,002**

Source : Agricultural Structure and Production (1982, 1987, 1992).

Data for 1992 show that the highest rice yield was in the Aegean Region, with 3,879 kg/ha, followed by the following regions: Central North (3,588 kg/ha), Marmara (3,148 kg/ha) and Black Sea (2,850 kg/ha). The Marmara and Black Sea regions rank first and second respectively for the rice area. But it is surprising that the Marmara region ranks third and the Black Sea region fourth considering yields.

Figure 2. Rice production areas in Turkey



The major rice growing provinces are Edirne, Samsun, Çorum, Sinop, Diyarbakir and Balikesir.

Considering the distance to inhabited places, types of irrigation and sanitation, rice growing areas are restricted by the rice planting law. According to this law, rice growers must get the permission from the county agricultural directorate for rice planting and, in turn, they pay a small amount of money.

In all rice growing areas in Turkey, the number of small farmers is larger than moderate and big agricultural holdings. But the area devoted to rice is larger in moderate and big agricultural holdings compared to small farmers. 57% of the agricultural holdings growing rice have land between 1 to 50 decares. They account for 18% of the total rice area and 23% of total rice production. 40% of the agricultural holdings have land varying from 51 to 200 decares. They account for 60% of the total rice area and 58% of total rice production.

Shared and rented land is common in rice production. The rate of land used as shared and rented varies from region to region. Land is shared or rented especially by the farmers, who have the water use right, for the purpose of using this right (Günes, 1975). In recent years the working rural population declined due to migrations from rural to urban areas. It appears that these migrations will increase the rate of shared and rented land. The structure of the rice holdings differs from region to region.

Rice farmers almost in all the regions practise broadcast planting and carry out irrigation. Foreign varieties, Ribe, Rocca, Krasnodarsky-424 and Veneria and those developed by the Turkish National Rice Project, namely Ergene, ipsala, Trakya, Meriç, Altinyazi and Serhat-92 are currently grown varieties. Rice cultivation requires manpower mainly on account of limited mechanization. Therefore, a large number of the unemployed can work in this sector in Turkey.

III – Consumption

Pilav, rice soup, etc., are not the only rice dishes. Rice is used for many other Turkish dishes. Rice or boiled pounded wheat (bulgur) can both be used in making pilav. However, rice is more nutritive than boiled pounded wheat. The rice consumption increases as the living standard rises.

Assuming that rice consumption per capita in Turkey is 4–5 kg, the annual rice demand is estimated to be about 300,000 tons. The area planted to rice began to decrease in 1985 resulting in insufficiency. In recent years, the annual deficit of 100,000 tons of rice is covered by imports which has been raised to 200,000 tons due to the import convenience. This led to low rice prices and correspondingly reduced the rice area.

Table 4. Turkey's rice consumption, imports and values (US dollar)

	Consumption (,000 t)	Production* (,000 t)	Import (,000 t)	Value $
1985	252	162	82,8	26,556
1986	259	165	76,1	18,875
1987	262	165	158,4	33,609
1988	270	157	91,1	26,698
1989	340	198	213,0	79,273
1990	255	198	176,9	62,124
1991	200	110,6	132,6	41,405
1992	225	132	370,4	93,669
1993	225	130	298,0	85,604

Source : Undersecretariat of Treasure and Foreign Trade.
* Estimated, based on 60% output.

Assuming the area planted to rice to be about 60,000 ha, the annual rice demand would be approximately 100,000 tons. It is planned to devote an area of about 38,000 ha to rice in the GAP Region. In this case Turkey will be self-sufficient in rice.

There is no correspondence between seed production and seed distribution by years. Changes in the rice area due to inconsistent prices may account for this.

IV – Research

Early research on rice consisted in varietal trials with introduced rice varieties in the 1960s. Programmed studies started in the 1970s. The National Rice Research Project was initiated in 1980 in order to accelerate rice research. The objectives of this project are as follows:

- ❏ to develop varieties and crop management practices suitable to the regions;
- ❏ to produce elite and original seeds to maintain the pureness of varieties;
- ❏ to establish strong ties between extension services and research institutes to transfer the research results to farmers;
- ❏ to provide training to scientists.

Ten foreign and 6 local varieties have been released by this project and seed production permission has been given for 3 varieties so far. But, of these varieties Rocca, Ribe, Kransnodarsky-424, Veneria, Ergene, Ipsala, Trakya, Meriç, Altinyazi and Serhat-92 are being produced. Variety improvement studies are in progress. The variety adaptation trials and agronomic trials and the determination of fertilizer requirements, planting date, seed rates, as well as irrigation are being conducted under regional conditions by the research institutes engaged in the National Rice Research Project. The rice diseases causing substantial crop losses usually do not occur in rice growing areas in Turkey. But, fungal diseases such as blast (*Piricularya oryzae*), brown spot (*Helminthosporium* sp.) and Bakanae (*Fusarium moniliforme*) sometimes occur in some regions and may cause considerable crop losses depending on climatic conditions. But, no research on these subjects has been carried out because of the limited number of research scientists working on the National Rice Research Project. Research on rice technology is not sufficient. Limited research staff working on the project along with insufficient budgets are the major constraints affecting rice research.

V – Recommendations

The following points must be taken into consideration to increase rice production to a level which makes Turkey self-sufficient in rice:

1. The amount of irrigated area is increasing gradually. In areas which are irrigated or having a potential for irrigation, necessary steps should be taken to increase the area sown.

2. Another alternative to increase rice production may be the double cropping of rice after forage crops using the transplanting method. In the southern part of Turkey, ratoon cropping can be possible with earlier varieties. The use of legume crop in rotations or in the winter for forage in continuous rice areas can increase rice yield.

3. Intensive labour demand in rice production is one of the reasons of high production cost. Mechanization can increase profitability in rice production.

4. The law which regulates rice production in Turkey must be updated, and rice farmers should contribute to rice research.

5. In humid regions, investments on drying facilities should be supported by government.

6. Use of inputs in rice farming is very intensive. Therefore, cheap input and credit are of importance to increase profitability.

7. Stable price policy will encourage farmers to produce more rice.

8. Varieties which are stable and high yielding, tolerant or resistant to diseases, pests and lodging should be developed and distributed to farmers. Research oriented to these objectives should be continued.

9. Crop management practices for all areas should be determined and given to the farmers in an efficient way.

10. Laboratory facilities for disease and quality should be improved.

11. The National Rice Research Project needs a number of scientists or research workers adequately trained. Training of scientists is important to make the project effective.

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