Economic analysis of dry beans enterprises: a case of Çumra District in Konya province, Turkey

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Abstract

The main objective of the research is to set forth the current social and economic outcomes of the activities of dry bean producing enterprises. Dry bean is a crop with high protein content, low fat content and quite rich in vitamin and minerals in the Group of cereals. The annual economic activity results of the dry beans producing enterprises in Çumra District, which has the highest output with the largest production area of Konya Province, which is in the first place in the production of dry beans in Turkey, were analyzed and evaluated, and dry bean production costs and profitability has been revealed. The primary data obtained from the survey of Agricultural enterprises producing dry beans generated the research data. According to the results of the research, the production cost of 1 kg of dry beans was calculated as $0.5 on average. In the average of enterprises; Gross production value was $237.83/da, Gross profit was $138.45/da, net profit was $62.33/da. It has been determined that the Gross production value obtained from dry beans production covers the variable and fixed costs, as the size of enterprises increase, the production costs decrease and the profitability increases.

Keywords: Dry Beans. Economic Analysis. Çumra. Konya. Turkey.

1. Introduction

Dry beans have an important place among grain legumes in terms of cultivation area and production in the world. Edible grain legumes, which are known to have been cultivated

since 5000 BC, are important for human nutrition. Dry beans, chickpeas, lentils, broad beans, peas and black-eyed peas, which form edible legumes, have high protein content, low fat content, and contain high levels of vitamins and minerals (Şehirali, 1988). The cultivation of beans in the world is approximately 34.8 million hectares and its production is around 27.5 million tons (FAO, 2020). The largest area of dry beans cultivation is in the Asian continent. However, when viewed as crop yields, the highest yield is obtained from the European continent (FAO, 2020). In other words, although it ranks first in developing countries in terms of cultivation area, productivity per unit area is higher in developed countries. The main reason for this difference in productivity is due to the higher adoption of innovations, technique and technological advancements in farming in these developed countries. Dry beans are produced in a total area of 34,801,567 ha in the world. India ranks first in terms of dry bean production area. This country followed by Brazil, Myanmar and Mexico, respectively. Dry beans are produced on an area of 102,963 ha in Turkey. The amount of dry bean production in the world, which was 24,775,394 tons in 2010, increased to 27,545,942 tons in 2020. Production in Turkey between 2010 and 2020 increased by 13% and reached 279,518 tons in 2020 (FAO, 2020).

As of 2020, dry beans are produced in an area of 1,077,964 decares in Turkey. Konya Province constitutes 16.14% of Turkey's dry bean production area (185,900 da) and ranks first among the provinces. Konya province is followed by Niğde and Bitlis provinces. As of 2020, 62,408 tons of production was made in 185,900 areas in Konya province. Among the districts of Konya province, Çumra district ranks first in terms of production area and production amount. In 2020, 37.65% of the total dry beans production area (70.000 da) and 34.77% (21.700 tons) of the production amount in Konya province was made in Çumra district. In terms of production area and production amount, Çumra district is followed by Kadınhanı district with 18.000 decares, 7.920 tons, Altınekin district with 15.000 decares and 6.000 tons of production (TUIK, 2020).

2. Literature Review

In the study conducted in Karaman Province, unit cost values and the share of mechanization and labor costs in this cost were investigated (Gökdoğan et al., 2016). In the study conducted in Tekirdağ province, determining the cost of oil seed sunflower and the effect of deficiency payment support on producer income was examined (Semerci, 2019).

Barley, Wheat, Sugar Beet, Corn, green Lentils, Chickpeas, Tomatoes, Dried Beans, Poppies, Rapeseed, Onions, Sunflower and Aspirin production input costs in Eskisehir Province were calculated in terms of products (Polat et al., 2013). The factors that are effective in production and marketing of dry beans produced in Gevaş district of Van province were determined and recommendations were made on the solution of the problems encountered in the production and marketing stages. (Çiftçi et al., 2012). Factors affecting wheat, bean and sugar beet production in land consolidated Agricultural areas were examined (Bayramoğlu and Oğuz, 2005). The current status of parameters such as dry bean production areas, quantity produced, unit area yield in the world and Turkey were examined and the direction of future changes and production quantities were estimated for Turkey (Aydogan et al., 2015). The level of efficiency in dry bean production and the reasons for inefficiency in enterprises were investigated in seven provinces, which constitute approximately 60% of Turkey's dry bean production (Berk and Güngör, 2016). In addition, the following studies were used on the problems encountered in legumes production and their solution suggestions; (Akova, 2010; Özel and Gül, 2010; Özden, 2012; Okutucu et al., 2013; Ton et al., 2014). Within the scope of the studies, in the determination of the factors affecting the cost and profitability in the economic analysis and in the determination of the costs, (Wanjiru, 1992; Oğuz and Yener, 2018; Örs and Oğuz, 2019; Oruç and Gözener, 2020; Tongbram et al., 2021; Oğuz et al., 2021; Mavhungu et. al., 2022) studies were used.

3. Material and Methods

3.1. Material

The data used in the study were compiled from primary and secondary data. The primary data used in the study were obtained from voluntary face-to-face survey application. The main material of the study was the primary data obtained from 83 enterprises with the survey technique created according to the purpose of the subject. The data are for the production year of 2021 and the surveys were made face-to-face with the farmers who produced the beans by the researcher. Second data from previous studies and conducted from different organizations were used along with the primary data. Basic statistical analysis methods and cost analysis were used to analyze data. The average exchange rate for the dates of the fieldwork was taken and calculated as 1$ = 8.38 Turkish Lira.

3.2. The method used to calculate the research area and sampling volume

There is a total of 129,958 ha of Agricultural land in Çumra district, 65.73% consist of wetland (96,819 ha), 34.27% of drylands (33,188 ha). This area constitutes 6.9% of land use in Konya province (Anonymous, 2020). Çumra is the district with the highest dry bean production area and amount in Turkey. Dry beans are produced on an area of 185,900 decares in Konya and 37.65% (70,000 da) of this is made up of Çumra district, which has been chosen as the research area. In the study, the sampling size was calculated using the following formula according to the random stratified sampling method (Yamane, 1967). The formula of the method is given below:

$$n = \frac{\sum(Nh * Sh)^2}{N^2 * D^2 + \sum(Nh * Sh^2)} \qquad D^2 = \frac{d^2}{z^2}$$

n: Sample size,

N: Number of enterprises in the population,

Nh: number of enterprises at the hth layer,

Sh: Variance of the hth layer,

d: The margin of error allowed from the population average,

z: Refers to the z value in the standard normal distribution table according to the error rate.

Sample size was calculated as 83 within the margin of error of 5% and confidence limits of 95%. The following formula was used in the distribution of the determined sample size into the layers (Yamane, 1967). As can be seen in Table 1, the layers are formed according to the production areas of dry beans. The formula below was used in order to distribute the sample size to the layers;

$$n=(N_h S_h * n)/\sum N_h * S_h$$

Table 1: Distribution of sample size to be surveyed according to business size Groups

Strata	Number of Units in Stratas (Nh)	Standard Deviation (Sh)	Nh*Sh	Nh*(Sh)^2	Sample size (n)
0-15	399	3,34	1.331,82	4.445	7
16-50	931	9,82	9.146,19	89.853	45

51-+	361	17,33	6.254,54	108.364	31
SUM	1691	30,49	16.732,55	202.662	**83**

3.3. The method used in the calculation of economic analysis

The data obtained were evaluated separately according to the social and economic activities of the enterprises according to the averages of the strata as of the business size groups. In the evaluation of Agricultural enterprises results, enterprises are considered as a whole. Population in businesses; examined in terms of gender, age and educational status. Family labor force is calculated in terms of Man Power Unit (MPU). In the conversion to man power unit, the following coefficients are used in terms of age and gender Groups of the population: Coefficient 0,50 has been used for men and women between the ages of 7-14, coefficient 0,75 has been used for women and coefficient 1 has been used for men between the ages of 15-49, coefficient 0,50 has been used for women and coefficient 0,75 has been used for men over the age of 50.

Gross production value (GPV) in enterprises; It is calculated by adding the increase in the value of productive inventory to the received value by multiplying the market price of the plant and animal products obtained as a result of Agricultural activities. Gross Product (GP); It is found by adding the non-operational Agricultural income to the Gross production value and the housing rent of the operations. The total operating costs of businesses for their Agricultural activities were calculated as variable and fixed costs based on the Laur accounting approach. Operating costs are obtained from addition of these costs. Variable costs are accounted separately for plant and animal production. Pure Product (PP) is obtained by subtracting the operating costs from the Gross product. Agricultural income (AI); It was found by subtracting the rent for land and debt interests from the pure product and adding the family labor force fee. Non-operating Agricultural income was calculated by taking work provisions of family members in non-operating Agricultural activities and income earned by the enterprises in return for using their tools and machines in other Agricultural enterprises. Operating Costs (OC); Operating costs consist of two Groups: variable costs and fixed costs. Production Costs (PC); Production costs were examined in two groups, fixed and variable costs, and production costs was found as a result of the addition of interest of active capital. Real interest was used 5% when calculating active capital. Net Profit (NP); Net profit was found by subtracting production costs from Gross product (Aksöz, 1972; Açıl, 1977; Demirci,

1978; Erkuş et al., 1990; Erkuş and Demirci, 1995; Kıral, 1995; Kıral et al., 1999; Oğuz and Bayramoğlu, 2015; Oğuz and Yener, 2018; Semerci, 2019; Örs and Oğuz, 2019; Oğuz et al., 2021).

Gross Production Value (GPV)	Plant Production Value (PPV) + Animal Production Value (APV) + Productive Stock Value (PSV)
Gross Product (GP)	GPV + Non-Operating Agricultural Income + Housing Rental Price
Operating Costs (OC)	Variable Costs (VC) + Fixed Costs (FC)
Pure Product (PP)	GP - OC
Gross Profit (GP)	GPV – VC
Production Costs (PC)	OC + Interest on active capital
Net Profit (NP)	GP – PC (Operating Costs + Interest on Active Capital)
Agricultural Income (AI)	PP – (Debt Interest and Rental Fee + Family Workforce Fee (FWF)

Cost calculation varies according to the purpose and partial budget analysis method was used in the study. The partial budget is used to define organizations that are made on part of the enterprise or on a production activity. In the calculation of production costs, only the costs for the production activity subject to research and the common costs of the enterprise were taken into account.

4. Research Findings and Discussion

The Agricultural sector is a labor-intensive activity arm. Enterprises in the Agricultural sector are not found in other sectors; family life and workforce have an integrated structure. The population presence in agricultural enterprises constitutes the source of the workforce, which is one of the main factors of production activities (Table 2).

Table 2: Family Labor Force of the Investigated Enterprises (MPU)

Business Groups	Business Groups								
	7-14		15-49		50-+		Sum		M+F
	M	F	M	F	M	F	M	F	
0-15	0,21	0,00	0,57	0,32	0,64	0,50	1,43	0,82	2,25
16-50	0,17	0,16	0,76	0,73	0,52	0,32	1,44	1,21	2,65
51-+	0,24	0,11	1,13	0,82	0,34	0,24	1,71	1,18	2,89
Work. Avg.	0,20	0,13	0,88	0,73	0,46	0,31	1,54	1,17	2,70
Ratio to Total Workforce (%)	7,35	4,68	32,52	27,06	17,04	11,36	56,90	43,10	100,00
Ratio of Age Groups to Total	12,03		59,58		28,40		100,00		100,00

Workforce (%)

Examining the social and economic analyzes of the population is of great importance in terms of business analysis (Kılıç, 1997). The average family labor force of the enterprises is 2.70 MPU. The fact that the active workforce in the 15-49 age group in the surveyed enterprises constitutes 59.58% of the total population shows that the enterprises are in good condition in terms of workforce potential. The 7-14 age group constitutes 12.03% of the total population and the group over 50 constitutes 28.40% of the total population. Family workforce potential was found to be 2.70 MPU on average. Table 3 has the workforce potential of enterprises. Businesses have a workforce potential of 757.35 MPD and 148.14 MPD is used in the enterprise. It is seen that there is an average of 605.01 MPD idle workforce in the average of enterprises. This means that workforce planning in enterprises is not well done.

Table 3: Workforce Potential of the enterprises examined (MPD)

Business Groups (da)	Business Groups								
	Family Workforce Potential	Workforce Used in Business	Non-Business Workforce	Total Family Workforce Used		Labor Force Idle		Workforce Available in Business	
	MLFU	MLF	MLF	MLF	Ratio	MLF	Ratio	MLF	Ratio
0-15	2,25	122,14	8,57	130,71	20,75	499,29	79,25	630,00	100,00
16-50	2,65	139,33	6,40	145,73	19,64	596,27	80,36	742,00	100,00
51-+	2,89	166,81	0,00	166,81	20,63	641,58	79,37	808,39	100,00
Business Average	2,70	148,14	4,19	152,34	20,11	605,01	79,89	757,35	100,00

It has been determined that the examined enterprises had an average of 208.00 decares of land and 3.52 parcels per enterprise. With the results obtained from the surveyed enterprises, it has been determined that the average parcel size throughout Turkey was close to each other. When the proportional distribution of the use of land assets in the average of the enterprises is examined, it is determined that 65.10% of the enterprises use the property land, while 31.57% of them produce by renting land (Table 4). The fact that the property land is higher than the rented land in the enterprises is important for the sustainability of the enterprise, as it will reduce the interest costs that will occur due to borrowing.

Table 4: Land Use Methods of The Enterprises Examined

Business Groups (da)	Land Saving Style			
	Property land	Holding	Common land	Total business land

	da	%	da	%	da	%	da	%
0-15	29,00	80,24	7,14	19,76	0,00	0,00	36,14	100,00
16-50	68,26	57,86	42,61	36,12	7,11	6,03	117,98	100,00
51-+	273,61	72,41	103,61	27,42	0,65	0,17	377,87	100,00
Business Average	141,50	65,10	62,40	31,57	4,10	3,33	208,15	100,00

In the surveyed enterprises, it has been determined that they produce dried beans, barley, wheat, sweet corn, sugar beet, silage corn, sunflower, clover, Hungarian vetch, chickpeas, potatoes, rye, fallow, oats, canola, poppy seed, pumpkin seeds, melons. It was determined that 28.14% dry beans, 23.31% barley, 18.48% wheat, 6.69% sweet corn, 4.94% sugar beet, 3.76% maize for silage, 2.61% oil seed sunflower and 12.07% other products of the total farmland (Table 5).

Table 5: Distribution of Land Used in Businesses According to Grown Products

Business Groups	0-15		16-50		51-+		Business Average	
	(da)	(%)	(da)	(%)	(da)	(%)	(da)	(%)
Beans	11,14	30,83	33,47	28,37	102,77	27,2	57,47	28,14
Barley	12,14	33,6	29,02	24,6	72,26	19,12	43,75	23,31
Wheat	5,71	15,81	22,46	19,03	69,11	18,29	38,47	18,48
Sweetcorn	2,86	7,91	7,03	5,96	28,23	7,47	14,59	6,69
Sugar beet	0	0	5,16	4,37	25,97	6,87	12,49	4,94
Silage corn	4,29	11,86	1,09	0,92	22,9	6,06	9,51	3,76
Sunflower	0	0	4,14	3,51	7,18	1,9	4,93	2,61
Other	0	0	15,61	13,25	49,45	13,08	26,94	12,07
Sum	36,14	100	117,98	100	377,87	100	208,15	100

Other*=Seed sunflower, clover, Hungarian vetch, chickpeas, potato, rye, fallow, oats, canola, poppy seeds Pumpkin seeds, melon

As can be seen in Table 6, the surveyed enterprises are shown in the GPV table. Accordingly, Gross production value increases in parallel with the operating size and productivity in the unit area is seen to increase. As a matter of fact, while the GPV falling per unit area in small-scale enterprises is 171.55 $/da, it is 245.82 $/da in large-scale enterprises and it is determined as 216.09 $/da according to the average of the enterprises in the region. Increasing Gross production value is closely related to the use of technology in enterprises. It is known that there is a direct relationship between business size and productivity in Agricultural enterprises with the effect of external factors such as seed breeding, mechanization and fertilizer use, as well as internal factors such as the ability of the operator.

In the businesses examined, GP was determined as $66,469.06 per business. The average non-operating agricultural income is $97.05. The non-operating agricultural income ratio in GP is 0.15%. It has been determined that the GP per enterprise increases as the size of the enterprise increases. In the average of enterprises, 97.40% of GP is GPV, 0.15% is non-operational agricultural income and 2.46% is residential rental price. It can be said that as the land size increases, the tendency of the operators to work outside the enterprise decreases and they spend their time on the production process of their own enterprise. The amount of variable costs are the costs that decrease and increase depending on the amount of production and are not made when there is no production activity (Aksöz, 1972). In the average of enterprises, it was determined that the variable costs constituted 74.73% of the operating costs. The must-do costs that are not dependent on production constitute fixed costs. Fixed costs constitute a significant amount in operating costs (Açıl,1977). It has been calculated that fixed costs accounted for 25.27% of operating costs in the average of enterprises. The pure revenue calculated according to the Laur accounting system has been calculated by subtracting operating costs from Gross domestic product. Pure income is defined as the interest of the active capital used in the enterprise regardless of its source (Erkuş et al., 1995). In the surveyed agribusiness, the net income per business has been determined as $66,469.06. It has been determined that 55.81% of GP is operating costs and 44.19% is pure product. In the average of the businesses, the pure product has been determined as $ 138.69 per decare. The fact that the pure product is low in small-sized enterprises means that the fixed costs per unit area are high.

Table 6: Economic Activity Results in Research Area

	0-15		16-50		51-+		Business Average	
	$	%	$	%	$	%	$	%
Plant Production value	5.906,32	56,29	23.896,01	72,31	92.886,74	75,52	48.146,43	74,37
Animal Production value	4.585,75	43,71	9.150,98	27,69	30.103,02	24,48	16.591,42	25,63
GPV	10.492,06	100,00	33.046,99	100,00	122.989,77	100,00	64.737,85	100,00
Decare	171,55		202,54		245,82		216,09	
GPV	10.492,06	90,51	33.046,99	95,03	122.989,77	98,50	64.737,85	97,40
Non-operating agricultural income	255,71	2,21	139,22	0,40	#DEĞER!	-	97,05	0,15
Housing rental price	843,85	7,28	1.590,10	4,57	1.876,59	1,50	1.634,16	2,46
GP	11.591,62	100,00	34.776,30	100,00	124.866,36	100,00	66.469,06	100,00
Decare (GP)	336,69		294,76		330,45		319,56	
Variable costs	5.159,32	60,12	15.652,64	73,21	43.560,62	80,24	25.191,12	74,73
Fixed costs	3.422,26	39,88	5.728,06	26,79	10.724,34	19,76	7.399,68	25,27
Operating costs	8.581,59	100,00	21.380,70	100,00	54.284,96	100,00	32.590,80	100,00

Decare	249,26		181,22		143,66		172,93	
GP	11.591,62	100,00	34.776,30	100,00	124.866,36	100,00	66.469,06	100,00
Operating costs	8.581,59	74,03	21.380,70	61,48	54.284,96	43,47	32.590,80	55,81
Pure Product	3.010,03	25,97	13.395,61	38,52	70.581,39	56,53	33.878,26	44,19
Decare	87,43		113,54		186,79		138,69	
GPV	10.492,06	100,00	33.046,99	100,00	122.989,77	100,00	64.737,85	100,00
Variable costs	5.159,32	49,17	15.652,64	47,36	43.560,62	35,42	25.191,12	43,06
Gross profit	5.332,74	50,83	17.394,35	52,64	79.429,15	64,58	39.546,73	56,94
Decare	154,89		147,43		210,20		171,50	
Operating Costs	8.581,59	66,22	21.380,70	68,23	54.284,96	62,41	32.590,80	64,45
Interest of Active Capital	4.377,34	33,78	9.956,09	31,77	32.699,03	37,59	17.979,94	35,55
Production Costs	12.958,93	100,00	31.336,79	100,00	86.983,99	100,00	50.570,74	100,00
GP	11.591,62		34.776,30		124.866,36		66.469,06	
Net Profit	-1.367,31		3.439,52		37.882,37		15.898,32	
Decare	-39,71		29,15		100,25		49,90	

Gross profit is calculated by subtracting the variable costs incurred for these activities from the total GPV obtained from all agricultural activities. It has been determined that 43.06% of the average gross production value in the surveyed businesses consists of total variable costs and 56.94% of gross profit. In addition, it is seen that the gross profit increases as the size of the business grows. In the study of Berk (2016) in dry bean growing enterprises, it was determined that total variable costs account for 35.6% of the gross production value and gross profit for 64.4%. The average net profit of the surveyed businesses was $49.90/da. It has been determined that the net profit increases in parallel with the size of the enterprise (Table 6). When we study the costs of producing beans in the examined businesses, the average costs of the enterprises constitute 56.63% of the total production costs and 43.37% of the fixed costs. Maintenance costs has the largest share of variable costs and constitutes 34.43% of it. The largest share of fixed costs elements is rent for land and constitutes 17%. It has been determined that the businesses made an average production cost of 175,50 $/da (Table 7).

Table 7: Dry Bean Production Costs in Examined Enterprises

Cost Elements	**0-15**		**16-50**		**51-+**		**Business Average**	
	Value ($/da)	**Ratio (%)**	**Value ($/da)**	**Ratio (%)**	**Value ($/da)**	**Ratio (%)**	**Value ($/da)**	**Ratio (%)**
Soil Preparation	18,42	9,34	17,26	9,55	14,97	9,18	16,50	9,40
Maintenance	71,00	36,00	63,01	34,87	53,79	33,00	60,24	34,33
Harvest	14,73	7,47	12,45	6,89	11,78	7,22	12,39	7,06

Revolving Capital Interest	5,21	2,64	4,51	2,49	4,35	2,67	4,51	2,57
Tool Machine Repair Maintenance Costs	6,43	3,26	5,84	3,23	5,42	3,33	5,74	3,27
Variable Costs	115,79	**58,70**	103,07	**57,04**	90,32	**55,40**	99,38	**56,63**
General Administrative Costs	3,47	1,76	3,09	1,71	2,71	1,66	2,98	1,70
Rent for Land	29,83	15,12	29,83	16,51	29,83	18,30	29,83	17,00
Interest on Equipment-Machine Capital	8,86	4,49	8,23	4,55	7,56	4,64	8,03	4,58
Instrument Machinery Capital Depreciation	9,24	4,69	8,58	4,75	6,68	4,10	7,93	4,52
Building Repair Maintenance Cost	7,10	3,60	6,59	3,65	6,12	3,75	6,46	3,68
Building Capital Interest	7,57	3,84	7,03	3,89	6,53	4,00	6,89	3,92
Building Capital Depreciation	9,80	4,97	9,11	5,04	8,45	5,19	8,92	5,08
Family Workforce Fee	5,58	2,83	5,18	2,87	4,81	2,95	5,08	2,89
Fixed Costs	**81,46**	**41,30**	**77,64**	**42,96**	**72,70**	**44,60**	**76,12**	**43,37**
Production Costs	**197,24**	**100,00**	**180,71**	**100,00**	**163,01**	**100,00**	**175,50**	**100,00**

Labor force costs in the studied enterprises, all production processes from soil preparation to harvest of dry bean production were calculated. It is seen that the production costs decrease as the size of the business grows. In the study of Berk (2016), it was determined that 81.4% of the total average production costs in dry bean production businesses were variable costs and 18.6% were fixed costs.

In dry bean production, variable costs within the total production costs in small-size enterprises were calculated as 99.38 $/da and fixed costs as 76.12 $/da. According to the average of the businesses, the share of variable costs is 56.63% and the share of fixed costs is 43.37%. In addition, productivity increase has been observed due to the production factors such as seeds, fertilizers, pesticides, and mechanization used, and the yield which was 275.90 kg/da in small-sized enterprises, was realized as 354.62 kg/da in medium-sized enterprises with an increase of 28.53% and 365.23 kg/da in large-sized enterprises with an increase of 32.37%. Therefore, it is seen that the efficiency of input use is higher in large-sized

enterprises, and this situation also increases the gross profit and net profits of the businesses in the unit area. While the Gross profit per decare was determined as 138.45 $/da according to the average of the businesses, the net profit per decare was determined as 62.33 $/da. In the study, the cost of dry bean production differs according to the size of the enterprises, but it varies between 0.71-0.45 $ / kg according to the enterprises. As the size of the enterprise increases, the production costs per kg show a decreasing trend as a result of the decrease in fixed costs and the variable costs depending on the efficiency in the use of inputs.

Table 8: Dry Beans Production Costs in the Research Area

Process Production	0-15	16-50	51-+	Businesses Average
Variable Costs($/da)	115,79	103,07	90,32	99,38
Fixed Costs($/da)	81,46	77,64	72,70	76,12
Production Costs ($/da)	197,24	180,71	163,01	175,50
Profit(kg/da)	275,9	354,62	365,23	351,94
GPV ($/da)	156,06	232,75	263,68	237,83
Gross Profit ($/da)	40,27	129,67	173,37	138,45
Net Profit ($/da)	-41,19	52,03	100,67	62,33
1 kg Production Cost ($/kg)	0,71	0,51	0,45	0,50
1 kg Production Price ($/kg)	0,57	0,66	0,72	0,67
1 kg Production Net Profit ($/kg)	-0,15	0,15	0,28	0,17

This situation is also seen in studies conducted in different regions and countries, and production costs vary due to many internal and external factors such as business types, climatic conditions, business sizes, topographic structure. Patterson and Hines (2013) In the USA, as of 2013, the total cost of dry bean production per decare is calculated as 256 $/da, the production cost of 1 kg of dry beans is 0.7 cent/kg, and the net income per decare is 23 $/da. Long et al. (2014) calculated that the total cost of dry bean production is 396 $/da, the production cost of 1 kg of dry beans is 1.06 $/kg, and the net income per decare is –29 $/da.

5. Conclusions and Recommendations

In recent years, when the world population has increased rapidly, dry beans, which have an important place in terms of human nutrition, is a planet product with high protein content, low oil content and very rich in vitamins and minerals. Dry beans production area and production amount in Konya decreased by 9% between the years of 2010-2020. In Çumra

District, 21,700 tons of dry beans was produced in an area of 70,000 decares in 2020. This study is very important for producers in terms of making production planning by knowing the production costs in advance. When the cost items in the businesses are researched, it has been determined that decare cost decreases as the size of the enterprise increases, while the profitability of the enterprise increases. In this respect, although there has been significant land consolidation in the region, it is very important to be done the consolidation in the remaining regions in terms of reducing operating costs. In the study conducted by Bayramoğlu and Oğuz (2005) in the district, the relationship between the amount of bean production and the production factors affecting it was analyzed, it was determined that 87% of the change in bean production could be explained by production factors and it was determined that it provided a decrement return to scale.

The COVID-19 pandemic, which started in 2019 and continues in the world, has once again revealed the importance of countries' food needs and supply chain. When we look at the foreign trade figures, dry bean export was 103,139 tons and import was 117,921 tons (TOB, 2020). The increase in demand for legumes has increased the price of dry beans in international markets. It is predicted that price increases will continue due to the worldwide pandemic causing increased demand and problems in supply. While the increase in prices increases the purchasing power of producers at the micro level, it also causes inflation at the macro level. For this reason, a sustainable production should be ensured by developing a support model based on input-price parity for dry beans, which is among the important vegetable protein sources. Thus, food security in the supply of vegetable protein will be ensured and competition will be improved.

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