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The Effects of Subsidizing Forage Production on Animal Production in Van, Turkey

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Abstract: In last 5 years, government of Turkey (ministry of agriculture) is subsidizing forages cultivation, therefore forage cultivated area and forage production is increasing continuously in Van. That forage production is also affecting stock breeding positively. However, there is a lack of information on amount of forage production and increases on animal product in the region. The data belonged to 2007 production period and were collected from 441 forage producing farmers face to face by means of questionnaires. Forage production area in each farm was 2.51 ha, which were mainly alfalfa (2.09 ha), sanfoin (0.36 ha), vetch (0.01 ha) and silage corn (0.04 ha). Average cow number in each farm was 11.82 (5.28 dairy and 6.54 fattening cattles) and average sheep number was 46.66. Forages produced in each farm were used to feed animal in same farm. Produced forages just met 81.40% of requirement of farms. Concentrate feeds are provided from feed-milling companies. Forage production increased 2.21 folds within last 5 years. However, numbers of dairy cows and sheep increased only 23 and 18%, respectively. Even though there was a considerable amount of increase in forage production with subsidies, this increase was not seen in animal production. Thus, it can be said that subsidizing forage production did not adequately met the goal.

Key words: Animal and forage production, subsidisy, animal farm, cattles, stock

INTRODUCTION

Most of the countries, particularly developed countries, subsidize their farmers in one way because of low economical returns and strategical importance of agricultural products (Yavuz, 2000).

Due to the involvement of international organization such World Trade Organization in agricultural policies of countries, Turkish agriculture faces new changes. Direct Income Support (DIS) was not encouraging agricultural production, it was based on land owned. Current development in animal market and increases in farm inputs pushed Turkish government to subsidize forage production that is most important input in animal production (Yavuz *et al*., 2003).

Subsidizing forage production to stimulate especially animal production is very important but in order to encourage forage production and make a common practice, it is necessary to improve to profitability of animal production, farmers income and experience in animal production (Sahin and Yilmaz, 2008a). Turkish agricultural subsidies consisted of direct income support (57.66%), premium payment (20.12%) and subsidies for animal and forage production (14.73%) (Yavuz *et al*., 2006).

Annual forage requirement of Turkey is approximately 30 million tons based on existing number of animals. Existing pasture, range, amount of forage produced can be accounted for 13 million (Anonymous, 2004). It is also very important to improve feeding quality of these animals because it is well-known that concentrate feed used in dairy cattle has great impact on milk production (Schaik *et al*., 1996).

The 53.4% of total usable land of Easter Anatolia, which is located in semi-arid region, are pasture and ranges. However, these pasture, ranges and cultivated forages do not meet the forage requirement of animals exist in the region. The 44.5% of annual Turkish forage (alfalfa an sainfoin) production is obtained and 30% of total Turkish animal exist in the region (Açikgöz *et al*., 2005).

Many different projects regarding the forage production have been developed and applied in the city of Van. It is vital to evaluate the present state of existing

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subsidies for forage production and problems faced during these processes based on animal production potential and need for forage production in the city of Van. Therefore, this study was aimed to evaluate the benefits and problems associated with existing subsidies to stimulate animal production in the region.

MATERIALS AND METHODS

The research material included 441 forage producers in Van (A province in eastern part of Turkey). The research population consisted of 11170 forage producing farms from 11 districts, in Center town of Van province. The sample size was determined by using the following strafed random sampling method (Yamane, 1967; Erkan *et al*., 1991).

$$n = \frac{N \cdot \sum N_h \cdot S_h^2}{N^2 \cdot D^2 + \sum N_h \cdot S_h^2}$$

where:

N = Total number of farms
S^2_h = Variance of hth strata
D^2 = d^2/Z^2
d^2 = Error size permitted from population mean
Z^2 = Z value in the standard normal distribution table
N_h = Number of farms in the hth strata

The sample size was 441 farms within 5% acceptable error limit. The forages producing farms were classified into 3 groups. The small-scale group (0.1-1 ha), the mid-scale group (1.1-2.5 ha) and large-scale group (>2.51 ha), which was consisted of 154, 158 and 129 farms, respectively. The data belonged to 2007 production period and were obtained from the face to face by means of questionnaires.

Data were analyzed by using absolute, proportional distribution and chi-square (χ^2) analysis (Miran, 2003). Relationship among variables were evaluated by chi-square (χ^2) analysis.

RESULTS

Farms in the province consisted of small-scale (34.9%), mid-scale (35.8%) and large-scale (29.3%) farms. In these farms, the average population per farm was 7.09 people. The average age of farm managers was 51.03 years-old and their average education period was 5.12 years. The average experience of farm managers in forage production activities was 23.13 years.

The average land size was 5.17 ha. Approximately 68.5% of the total land is irrigated and the remaining 31.5% is dry land. In 2007, an average of 2.51 ha land was planted with forages, which were mainly alfalfa (2.09 ha), sanfoin (0.36 ha), vetch (0.01 ha) and corn for silage (0.04 ha). Size of land utilized for forage production has increased 2.21 folds within last 5 years. Average annual forage requirement for a operation is 36.49 tons. The 81.4% of this forage requirement has been supplied by same operation. Each operation has been subsidized approximately 3410.08$ for this amount of forage production (Table 1).

Land used for forage production and total forage production per farm were significantly different among groups ($p<0.05$).

The average numbers of cows per farm was 5.28. Overall, the average lactation period was 264.15 days for farms. Yearly milk production per farm was 7748.52 kg. Numbers of dairy cows have increased 23.1% within last 5 years. The average daily forage consumption of dairy cow 12.78 kg (Table 2).

Table 1: The number of forage producing farms and forage production

	Small-scale	Mid-scale	Large-scale	Overall
The average land size (ha)	2.69	4.05	9.51	5.17
The average land used for forage (ha)*	0.67	1.67	5.72	2.51
The average land used for forage (ha) (5 years ago)	0.24	0.75	2.66	1.13
Rate of increase (%)	282.77	221.16	214.92	221.38
Total forage production (ton: 1)*	7.51	20.08	71.07	29.70
Total forage consumption (ton: 2)	28.32	36.35	46.48	36.49
Meeting rate (%; ½)	26.54	55.23	152.90	81.40
Amount of subsidy ($)*	888.93	2372.54	7690.61	3410.08

*p<0.05

Table 2: The number of cow, milk production and some inputs used per cow and farm

Inputs	Small-scale	Mid-scale	Large-scale	Overall
Number of cow per farm*	4.99	5.34	5.54	5.28
Lactation period (days)	256.10	263.09	278.08	264.15
Milk production per farm (kg)*	7105.72	7544.43	8816.13	7748.52
Number of cow per farm (5 years ago)	3.93	4.45	4.51	4.29
Rate of increase (%)	27.11	19.91	22.85	23.12
Daily forages intake per cow (kg)	12.64	12.75	12.98	12.78

*p>0.05

Table 3: The number of fattening cattle and some inputs used per fattening cattle

Inputs	Small-scale	Mid-scale	Large-scale	Overall
The number of fattening cattle*	4.28	7.23	8.38	6.54
Fattening period (days)	132.72	136.51	182.05	148.51
The number of fattening cattle (5 years ago)	3.52	5.65	6.98	5.30
Rate of increase (%)	21.59	27.88	19.98	23.37
Daily forage intake per fattening cattle (kg)*	15.56	15.32	15.41	15.43

*p<0.05

Table 4: The number of sheep and some inputs used per sheep and farm

Inputs	Small-scale	Mid-scale	Large-scale	Overall
Number of sheep per farm)*	40.98	40.73	60.69	46.66
Number of sheep per farm) (5 years ago)	33.80	33.28	53.71	39.44
Rate of increase (%)	21.25	22.36	12.99	18.29
Daily forage intake per sheep (kg)*	1.76	1.79	1.82	1.79

*p<0.05

Cow number and total milk production per farm were not significantly different between forage producing farm groups (p>0.05). Daily forage intake per cow were significantly different among groups (p<0.05).

The average numbers of fattening cattle per farm was 6.54. Overall, the average fattening period was 148.51 days for farms. Numbers of fattening cows have increased 23.4% within last 5 years. The average daily forage intake of fattening cow was 15.43 kg (Table 3).

The number of fattening cattle and daily forage intake per fattening cattle were significantly different among groups (p<0.05).

The average numbers of sheep per farm was 46.66. Numbers of sheep have increased 18.3% within last 5 years. The average daily forage intake of sheep was 1.79 kg (Table 4).

The number of sheep and daily forage intake per sheep were significantly different among groups (p<0.05).

DISCUSSION

The main objective of this study was to evaluate the effects of subsidy provided for forage production on animal production in the province of Van. Overall, average land utilized for forages per cow was 2.51 ha, which is consistent with the corresponding figure of 2.91, 2.69 and 2.94 ha for farms in differing sizes, respectively in Van, Turkey (Sahin, 2007; Sahin and Yilmaz, 2008a, b). This daily milk yield is very low for milk production in the current study, which is consistent with the corresponding figure of 2094, 1720.6, 1452.77 and 1249 kg found for farms, respectively in Van, Turkey (Dedeoglu, 2005; Yildirim and Sahin, 2006; Sahin, 2007; Sahin and Yilmaz, 2008a, b). Overall education level of people in region is the lowest in Turkey, reflecting the lack of training about animal care. Animal used in the region are mainly low producing domestic cattle or cross-bred compared with high producing dairy cattle, fattening cattle and sheep in the other region. Main forage source in the region is ground-alfalfa. Use of corn silage is very limited in large-scale operation, not exist in other groups. Thus, animals in the region usually unbalanced and under-fed, resulting in considerable low milk yield. One or more reasons mentioned above have additive effects on milk yield of animals in the region. In order to at least improve feeding condition of animals by feeding high quality forages produced with the help of subsidies in the region, forage production subsidies should continue to improve animal production in the region.

While big scale forge producing farms produced forage more than they needed, other farmers could not produce forage necessary for their need. However, 70.7% of farms were small-or mid-scale farms in the region. Small-scale operations should be exist because there are some situation in which they have many adventages compared with large-scale operations (D'souza and Ikend, 1996; Tweeten and Amponsah, 1996). Farmers of small-scale operations had better results when they fed their dairy cows with forage based diets compared with those fed with concentrate based diets (Hilfiker, 1996). Production was more economical in operations and competitive power of farmers improved when animal grazed during summer season (Durgiagi, 1996). In order to be more efficient and profitable, small-and mid-scale farms have to utilize majority their lands to produce feedstuffs to meet their requirement.

During the last decades, Turkey's livestock sector has displayed 2 clear trends; declining number of large and small ruminants and decreasing per capita consumption of animal products.

In order to improve animal production, subsidies for forage production have increased forage production, thus, improved animal production.

Existing subsidy policies were determined based on existing market conditions. Approximately 3410.08 $ was paid per operation. Producers gained a considerable benefits from these changes in subsidy policies. This subsidy reduced production cost of forage and improved the animal production.

One of the most important problems regarding subsidies is to check out the farmers who have misinformation and misuse. Sometimes, farmers tries to get subsidy by planting improper land with high quality forages. If these types of misuses are not stopped, production yield relatively decreased and government money would be misused.

CONCLUSION

Large-scale farmers got more benefits compared with mid-and small-scale farmers. Thus, this group produced more forage than they needed. Small- and mid-scale forage producer need greater amount of subsidy. However, these farmers have very limited land for forage production.

It is difficult to say that subsidizing forage production improve animal production to expected levels. Subsidizing forage production, which had considerable positive impact on forage production, should remain as it is in the future in Eastern Anatolian region because this region has no other better alternatives agricultural activities rather than animal production. Efficient use of this subsidies can and should be improved with proper training activities.

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