

WOMEN FARMERS' PERSPECTIVES ON THE USE OF MACHINERY IN AGRICULTURAL PRODUCTION IN TURKEY

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ABSTRACT

Using of machinery in agriculture, namely agricultural mechanization, embraces the use of tools, implements and machines for agricultural land development, crop production, harvesting, preparation for storage, storage, and on-farm processing. The main criteria such as technical, economic, ergonomic, environmental, and cultural aspects of agriculture have significantly influenced the use of machinery in agriculture. Women workers have been contributing to many fields of agricultural production. Therefore, this study analyzed the views of women farmers about the use of machinery in agricultural production. To this purpose, a survey was administered to leading women farmers to evaluate their perspectives regarding the use of machinery in agricultural production. The results of survey showed that the use of machinery in agricultural production was common and that in Turkey the machineries in widespread use in agricultural production were tractors, ploughs, cultivators, and planters. More than 50 % of leading women farmers stated that the use of machinery in agricultural production resulted in comfort and saved time.

Keywords: women farmer, agricultural machinery, agricultural production

INTRODUCTION

Agriculture is one of the leading sectors in the Turkish economy. Also, Turkey is one of the countries with the most agricultural land in the world. Arable land and forests consist of about 35.5% and 15% of the country, respectively. The cultivated land is around 26.5 million hectares. Around 18.4% of the cultivated land is irrigated. Grain production has an important role in agriculture of Turkey. 76.4% of the cultivated agricultural land, excluding long-life plants, is reserved for grains and other cultivated vegetable products. Wheat is cultivated on 67% of the land on which grain is cultivated. Although there is higher domestic consumption potential in oily seeds, the production is inadequate; the most cultivated plant in oily seeds is the sun flower. Turkey has an important position relating to a great number of fruits and vegetables; Turkey is the world's biggest producer of hazelnuts, figs, apricots and raisins, the 4th biggest producer of fresh vegetables and grapes, the 6th biggest producer of tobacco, the 8th biggest producer of wheat, and the 10th biggest producer of cotton (Yesilada, 2010).

Labor, land and water are the most important resources for agriculture. Agricultural production and food security are adversely affected because of insufficient use of farm power, low labor productivity and/or labor scarcity. The

processes involved in agricultural production such as seed bed preparation, planting, weed management, and harvesting require agricultural tools and machinery. Similarly, machines are required to assist with post-harvest loss reduction and on-farm processing because post-harvest processing tasks are often time-consuming, labor intensive and repetitive. The use of machinery in agricultural production and agricultural mechanization, embraces the use of tools, implements, and machines for a wide range of farm operations from land preparation to planting, harvesting, on-farm processing, storage, and the marketing of products. The use of machinery in agricultural production significantly increases the output derived from the human energy expended in crop production and processing. Also, it increases productivity per unit area due to the improved timeliness of farm operations (Viegas, 2003; Takeshima and Salau, 2010).

Women workers participate in almost every agricultural activity and play important roles in agricultural production in Turkey, as well as all over the world. They may be mothers, housekeepers, wage laborers, agricultural processors, market women and entrepreneurs as well as agricultural producers. Many women work as unpaid family laborers; many are primarily involved in the production of the family food supply, many work intensively in the fields only during the peak labor season (Ozcatibas and Akcaoz, 2010). Therefore, knowing the views of women farmers is very important for productivity and socio-economic development in agricultural production.

In this study, we conducted a survey in Turkey to determine the perspectives of leading women farmers about the use of machinery in agricultural production, the crops produced and agricultural systems conducted by them, as well as priority needs and the machineries mostly used in agricultural areas.

MATERIAL AND METHODS

The main material of this study was a survey applied to 40 leading women farmers who participated in World Farmer Woman Day arranged by Diyarbakır Provincial Food, Agriculture and Livestock Directorate on the 25th of October 2012. A questionnaire was designed and used as instrument for primary data collection. The data obtained from the results of survey were analyzed by using SPSS statistical analysis software (SPSS Institute Inc. 2012).

RESULTS AND DISCUSSION

The types of crops grown by leading women farmers in the survey are shown in *Table 1*. Mostly the leading women farmers were observed to grow wheat. Also, it was determined that 70% of leading women farmers conducted vegetable and fruit production. While 37.5% of the leading women farmers grew all three, wheat, vegetables and fruits, 20% of them grew only vegetable and fruit.

Wheat production is mechanized and does not need intensive labor in Turkey. However, the labor requirement of vegetables and fruits is high. Similarly, Ngeleza *et al.* (2011) stated that the benefits of mechanizing land preparation depend on both

the system and the type of crop cultivated. For instance, the mechanization of land preparation in the vegetable belt was more labor saving and cost effective than mechanization of land preparation in the cereals belt. Traditionally, the roles of men and women in agricultural production are different in Turkey. While men have been most active in the production process of field crops such as land preparation, irrigation, planting, harvesting, women have been mainly concerned with food and horticultural crops, small livestock and agro processing. Technology is gender neutral. The use of technology and the division of labor is a private decision and usually culturally determined. In many cultures, women participate in the mechanization sector and operate the most sophisticated machines. Mechanization may be a means of freeing women and children from agricultural work to more rewarding occupations and receive education (Rijk, 2013).

Table 1

The main crops grown by leading women farmers in survey

Crops	Frequency	Percentage (%)
Wheat, lentil	3	7.5
Wheat, lentil, potato	2	2.5
Wheat, corn	3	7.5
Wheat, vegetable, fruit	15	37.5
Wheat, barley, clover	2	2.5
Wheat, grape, fruit	3	7.5
Fruit	2	5.0
Vegetable, fruit	8	20.0
Cotton	2	5.0
Total	40	100.0

65% of leading women farmers in the survey stated that they have livestock production (Table 2). Livestock production is an important and integral component of farming systems in Turkey as well as in West Asia and North Africa (WANA). Livestock also contributes to a large proportion of the income of farmers with small-landholdings, which are by far the most common type of farms. The tasks women perform are commonly often non-mechanized and labour-intensive. Women feed and water animals, clean stables, milk, collect dung for fertilizer and fuel, care for the sick, and milk and process the animal products. The structure of agricultural production differs very much from one region to another in Turkey. For example, while the eastern part of Turkey is still using the traditional methods of agricultural production, the western part makes use of the newest technological developments (Kaya et al., 2013).

When asked their view of the use of milking machines, more than half of leading woman farmers stated that use of milking machines increased the amount and hygiene of milk (Table 3).

Table 2

Leading women farmer's response: Do you have livestock?

Response	Frequency	Percentage (%)
Yes	26	65
No	14	35
Total	40	100.0

Table 3

Leading women farmers' views about milking machines

Crops	Frequency	Percentage (%)
Improving farmer's life quality	18	43.6
Increasing the amount and hygiene of milk	22	56.4
Total	40	100.0

The use of tractors in agricultural production is the most important equipment in technological development because many tools and machineries in agricultural production are operated by tractor. Tractors bring certain advantages, such as increased labor productivity, contract work and rental opportunities for owners, and reduced drudgery (FAO, 1998). 50% of the leading woman farmers who participated in the survey stated that they have tractors (Table 4).

Table 4

Leading women farmers' response: Do you have tractor?

Response	Frequency	Percentage (%)
Yes	20	50
No	20	50
Total	40	100.0

The fact that women farmers use tractors and farm machinery is an important parameter to know in order to improve the mechanization since woman workers using more productive tools and machinery produce more crops. All leading woman farmers who had tractors stated that they could use the tractor (Table 5).

Weeds are plants which compete with crops for water, nutrients, and sunlight. They are hardy, with deep root systems, and produce many seeds which, in some cases, remain dormant and viable for decades. There are different weed management methods, including the use of chemicals and machines, and removal by hand. In general, hand weeding is often the job of women in agricultural production. In this survey, the 67% of leading woman farmers stated that weeds during agricultural production were controlled by machines (Table 6).

Table 5

Leading women farmers' response: Do you know how to use a tractor?

Response	Frequency	Percentage (%)
Yes	20	50
No	20	50
Total	40	100.0

Table 6

Weed management and cultivation types used by farmers

Weed management	Frequency	Percentage (%)
Manual	14	35
Machinery	26	65
Total	40	100.0

When the leading women farmers who participated in the survey were asked “where do you obtain technological information?”, they mostly answered “extension agents” and “television” (Table 7). Ozcatalbas and Akcaoz (2010) stated that extension is different for women and men. Women need direct extension on the crops and livestock they grow or have responsibility for the specific activities that they carry out or want to learn and the skilled tasks they perform. Therefore, the training and dissemination of information to women farmers are critical inputs for the modernizing of farm production.

Table 7

Sources of technological information obtained by leading woman farmers (%)

Source	High	Moderate	Low	No-access
Television	32.5	7.5	7.5	52.5
Extension agents	35.0	22.5	10.0	32.5
Internet	12.5	10.0	7.5	70.0
Acquaintances	10.0	2.5	2.5	85.0

The results of the survey showed that 77.5% of leading women farmers could not use agricultural machinery (Table 8). The fact that leading women farmers have the information about using agricultural machinery is important for the modernizing of farm production.

The use of machinery in agricultural production is a key input in any farming system because it increases productivity per unit area due to improved timeliness of farm operations. Also, it contributes to a reduction of drudgery in farming activities, thereby making farm work more attractive and increasing the social-economical level

of the farmer. Therefore, the appropriate choice and subsequent proper use of mechanized inputs into agriculture have a significant effect on agricultural productivity and the profitability of farming. The views of leading women farmers regarding the effect of the use of machinery in agricultural production on social life are seen in *Table 9*. By analyzing the data obtained in the survey, it was determined that about 75% of leading woman farmers stated that the use of machinery in agricultural production save time and increased the farmer's comfort.

Table 8

Leading women farmer's response: Do you have the information about using of agricultural machinery?

Response	Frequency	Percentage (%)
Yes	9	22.5
No	31	77.5
Total	40	100.0

Table 9

The effect of the use of machinery in agricultural production on social life

Effect	Frequency	Percentage (%)
Save labor	7	17.5
Comfort	14	35.0
Save time	16	40.0
Reducing input costs	3	7.5
Total	40	100.0

The machinery types that leading women farmers had are shown in *Table 10*. The results of the survey showed that the most common machinery on farms are land preparation machinery such as ploughs and cultivators.

Table 10

The machinery used by leading women farmers in survey

Machinery	Frequency	Percentage (%)
Tractor	5	11.9
Plough	5	11.9
Plough, cultivator	7	16.7
Plough, cultivator, planter	6	14.3
Combine	6	14.3
Pulverizer	2	4.8
Planter, anchor	4	9.5
Total	40	100.0

CONCLUSIONS

In this paper, leading women farmers' perspectives on the use of machinery in agricultural production in Turkey were evaluated by using the results of a survey study. The main findings are:

1. The types of crops grown by leading women farmers in the survey were wheat, vegetable, and fruit, and 65% of leading women farmers in the survey stated that they have livestock production
2. The tasks women perform were commonly often non-mechanized and labour-intensive.
3. More than half of leading woman farmers stated that using a milking machine increased the amount and hygiene of milk.
4. All leading woman farmers who had tractors stated that they could use the tractor.
5. 77.5% of leading women farmers stated that they could not use agricultural machinery.
6. The leading women farmers who participated in the survey stated that they obtained technological information from extension agents and television. This shows that extension agents and television are important for training and dissemination of information to women farmers.
7. About 75% of leading woman farmers stated that the use of machinery in agricultural production saved time and increased the farmer's comfort.
8. The results of the study show that extension agents and television are important for the training and dissemination of information to women farmers. The training of woman farmers and the dissemination of information about the use of agricultural machinery to women farmers contributed to the modernizing of farm production.

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