# CONSTRAINTS PERCEIVED BY FARMERS IN CROP-DAIRY MIXED FARMING SYSTEM ON SMALL FARMS IN PARBHANI DISTRICT OF MARATHWADA REGION (MAHARASHTRA), INDIA

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## Abstract

The present paper attempts to examine constraints perceived by farmers in crop - dairy mixed farming system on small farms in Parbhani district of Marathwada region of Maharashtra state. A sample of 60 farmers was selected through multistage sampling technique from Parbhani district and data collected during November - December, 2012. The constraints faced by farmers in crop production were varied crop to crop, but the common perception of farmers about constrains of crop production were that the non-availability of inputs at village level, high cost of inputs and lack of technical guidance in time were the major constraints reported by 100 per cent, 86.67 per cent and 71.67 per cent farmers, respectively. The analysis of constraints in dairy animal rearing in the study area were revealed that in case of local cow owner majority of respondent *i.e.* 100 per cent were facing the constraints low productivity. Whereas in case of crossbreed cow majority of dairy owners (*i.e.* 100 per cent) faced low price of milk, high cost of feed and fodder and lack of organized market as the major constraints in each case, followed by 93.34 per cent of the respondents as non availability of land for fodder cultivation. Regarding constraints of buffalo milk production, 100 per cent respondents opined to have inadequate knowledge about feeding was the major constraint, followed by 95.92 per cent respondents to have constraints as lack of availability of credit. Beside these major constraints respondents dairy owners were also faced some other constraints in milk production and marketing of local cow, crossbred cow and of buffaloes.

*Key words :* Mixed farming, Crop production constraints, Milk production constraints, Local cow, Crossbred cow, Buffaloes.

## Introduction

In recognition of the importance of agriculture in national economies of majority of the undeveloped and developing countries in the world, thought has been given for formulation and implementation of programmes to increase agricultural production. This is true for a country like India, where agriculture is primary occupation engaging at least 68 per cent of working population (Agriculture data base, 2011). Due to rapid growth of population in India, not only per capita land, but also average size of holding has reduced to a great extent since independence. Land being the most limiting factor, the dependence on it has touched its climax these days. The majority of our farming community consists of marginal and small farmers with land holding of not more than two hectares and they together constitute about 84.97 per cent of the operational holdings (Agriculture Census, 2010-11). In context of the limitation of crop production activities in providing gainful employment to farm families and their resources, it becomes imperative to the farmers to find out the alternatives production possibilities, where they can use their surplus resources more advantageously and thereby derive additional income among the alternatives production opportunities open to the farming community, the important one is mixed farming, where combination of livestock enterprise, bee keeping, fish rearing etc. with arable farming much more than combination of diverse enterprise. Mixed farming in India implies to dovetailing crop production and animal husbandry to the best advantage of farmers. A complementary use of livestock enables full utilization of crop and their conversion into valuable animal products. Thus, farm yard manure become available and spare time of cultivator and his family is fully utilized. The normal characteristic of mixed farming is that profits are realized

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by selling animal products as well as farm grains (Shastri, 1961).

In India, agriculture is the primary source of employment for both men and women. Agriculture accounts for about 30 per cent of gross domestic product and employs about two third of the labour force. Most of the areas in our country suffer almost every year from one or other form of natural calamities like flood, heavy rains or droughts. Further, the pressure on the available agriculture land is increasing due to growing urbanization, population explosion and subsequent fragmentation of land holding. In view of the above facts, there is strong need to commercialize agriculture and in order to ensure an all round development of farming families farming should be considered as a system in which crop and other enterprises that are compatible and complimentary are combined together. It should include all components of land such as soil, water, crop, livestock, labour and other resources. The study of farming systems and application of farming systems approaches can bring a ray of hope for the betterment of farmers. Keeping all these factors in mind, the present study was conducted to suggest which particular mixture of crop and dairy can provide maximum benefit and job opportunity. And what were the major constraints related to crop–livestock mixed farming and what were the possible measures to overcome it.

## Data and Methodology

Before coming to the main objective of this paper constraints faced by farmers and data collection method. It may be needed to know some general information related to the constraints and useful for more understanding the constraints such as situations in location, soil, irrigation, climate, population, cropping pattern etc. We discuss these issues in step by-step following each headline.

### Location

Location of Parbhani district is at the center of Marathwada. The district is situated at 408 meter above mean sea level. The district lies between 18°45' to 20°17' North latitude and 76°13' to 77°29' East longitude. Its total geographical area is 7847 sq. km after separation of Hingoli. The district has 9 tehsils namely Parbhani, Jintur, Gangakhed, Pathri, Purna, Palam, Selu, Sonpeth and Manwat. It is surrounded by Nanded district in East, Beed district in South, Beed and Jalna district in West and Hingoli in North.

### Soil

There are three kinds of soil in Parbhani district namely deep black (90 cm depth), medium black (20-90 cm) and shallow (less than 20 cm). The Parbhani is situated in Godavari river basin. The Godavari itself drain the Southern portion of the district and is forming fertile valley in talukas of Pathri, Gangakhed, Parbhani and Jintur is drained by the Purna river. The soil of Parbhani district varies both in texture and depth on Northern portion of district. It is shallow and relatively poor in South. It becomes deep and fairly rich in Godavari valley especially along the banks of Godavari river.

### Irrigation

As described earlier the district has good water sources especially rivers and district also receive much better rains. Because of yearly flowing river dam could be constructed in the region. Little more than lakh hectares land is continuously under irrigation. Wells irrigated about 5 per cent land.

### Climate

Climate in general is dry throughout the district except during the South-West monsoon season. During hot season maximum temperature recorded is 45°C (high level) in month of May. While minimum temperature during cool dry season was 21°C-31°C. Temperature of district normally varies between 41.5°C to 14.6°C during the year. Hot dry winds prevail in month of April-November. The district gets bulk of rainfall from the South-West monsoon. Generally, the monsoon starts in the month of June and last upto mid October. The district also receives rainfall from mid October to December through the North-East monsoon. All the parts of districts do not receive uniform rains. The normal rainfall of the district is 827 mm.

### Population

Parbhani district has 9 towns and 1451 villages. Its total human population is 14.91 lakh in which urban population is 22.51 per cent and rural population is 77.49 per cent, according to population census for the year 2001. Literacy percentage is 67.04 per cent, whereas 80.58 per cent male and 52.98 per cent female were literate.

### Cropping pattern

Parbhani has total geographical area of 6.51 lakh ha with 5.20 lakh ha net cultivated land. Proportionate area under irrigation to net cultivated area is 10 per cent. The gross cropped area is 7.80 lakh ha. This district has proportional area under various major crops like sugarcane (1.67 per cent), *kharif* food grain (33.93 per cent), oilseeds (3.05 per cent), cotton (25.9 per cent), *rabi* food grain (28.8 per cent), *rabi* oil seed (5.99 per cent), summer crops (0.62 per cent) and other crops (0.04 per cent).

## Sampling design

For the study, multi stage stratified sampling method was adopted. At the first stage, the Parbhani district was purposively selected because, it is was known for high milk production in the Marathwada region. In second stage, Parbhani tehsil from Parbhani district was selected on the basis of highest milk production. For selection of villages, a list of villages having maximum milk production was obtained from Dairy manager, MIDC, Parbhani. Then villages were arranged in descending order of milk collection and top four of them were selected for the study. For this study, only small farmers were considered and for selection of farmers, a list of milk supplying farmers was obtained from milk collecting centers of respective villages. Then the information about operational holding of milk supplying farmers was obtained from village workers of revenue department. Another list of farmers, who did not sold their milk through milk collecting centre but sold direct to consumer was prepared by taking the help of village level peoples. Then the total sample of 60 farmers was randomly selected by giving proportionate weightage to small farmers. The data were collected in the month of November-December, 2012 from selected farmers by personal interview method. For this purpose, a special pre-tested schedule was developed. The analysis of collected data was carried out by using mathematical and statistical tools like percentages, averages, means, ratios etc. The constraints faced by the farmers were majorly related to transport, institutional, credit, marketing, technical, economic and socio-cultural etc. By looking these major constraints interview schedule was prepared so that it includes most of the constraints faced by farmers.

## Results and Discussion

Across the study area, farming community adopts mainly 14 dairy based cropping systems, which were more income generating than sole cropping of cereals, pulses, cash crops and or livestock. The range of dairy based cropping system varied widely in the study area indicating complete diversification to perfect specialization to traditional farming system. The productivity of different farming systems is largely affected by a number of constraints faced by the farmers in different enterprises. The constraints faced by the farmers were majorly related to transport, institutional, credit, marketing, technical, economic and socio-cultural etc. Here in the present paper constraints faced by farmers were not presented under any group, but they were presented commonly in the following under headed tables.

## Constraints faced by farmers in crop production

The constraints faced by farmers in crop production were varied crop to crop, but the common perception of farmers about constrains of crop production were listed out in table 1. For instance non-availability of inputs at village level, high cost of inputs and lack of technical guidance in time were the major constraints reported by 100 per cent, 86.67 per cent and 71.67 per cent farmers, respectively. This showed that among the constraints non-availability of inputs at village level, high cost of inputs and untimely diffusion of the latest technical knowledge were the very important constraints perceived by the respondents. This might be due to fact that farmers were not getting information about latest technical knowhow timely.

Other constraints like lack of easy credit facilities, timely non availability of inputs, lack of knowledge, poor quality of seed and plant protection chemicals, poor marketing facilities and poor quality of lands were reported by 63.33 per cent, 58.33 per cent, 55 per cent, 41.76 per cent, 35 per cent and 23.54 per cent farmers, respectively.

## Constraints faced by farmers in dairy enterprise

The data on commonly occurring constraints in dairy animal rearing in the study area were collected and analyzed and the results are presented in table 2. It revealed that main constraints faced by local cow, crossbreed cow and buffalo owner in milk production were low productivity, poor quality of bulls, low price for milk, lack of availability of credit, high cost of feeds and fodder, lack of AI and veterinary facility etc.

Constraints imply the problems or difficulties faced by dairy farmers while adopting day-to-day animal husbandry practices in their dairy enterprise. It was observed from table 2 that in case of local cow owner majority of respondent *i.e.* 100 per cent were facing the constraints low productivity. This might be because of the fact that most of the farmers in the region have local breeds and because of poverty, they are unable purchase high yielding crossbreds. Whereas, 94.45 per cent respondents stated high costs of feeds and fodder and non availability of land for fodder cultivation in each case separately. 88.88 per cent respondents conveyed their constraints about low price of milk and poor quality of bull in each case whereas non availability of green fodder and improper housing facility are stated by 83.34 per cent respondents in each case. Beside these constraints respondents also states other constraints like inadequate knowledge about balance feeding, lack of organized market, lack of cold storage facility, lack of availability of

**Table 1 :** Constraints faced by farmers in crop production.

| Sr. No. | Constraints | No. of farmers | Percentage |
|---|---|---|---|
| 1. | Non-availability of inputs at village level like HYV seeds, chemical fertilizers, plant protection chemicals etc. | 60 | 100 |
| 2. | Lack of easy credit facilities | 38 | 63.33 |
| 3. | Timely non availability of production Inputs like HYV seed, chemical etc. | 35 | 58.33 |
| 4. | High costs of improved production inputs | 52 | 86.67 |
| 5. | Insufficient funds to buy improved production inputs | 29 | 48.33 |
| 6. | Lack of knowledge about improved production Practices | 33 | 55.00 |
| 7. | Poor quality of seed and plant protection chemicals | 25 | 41.67 |
| 8. | Lack of technical guidance in time | 43 | 71.67 |
| 9. | Poor marketing facility for the produce | 21 | 35.00 |
| 10. | Poor quality of lands | 14 | 23.34 |

**Table 2 :** Constraints faced by milk producer in milk production.

| Sr. No. | Constraints | Local cow (No.) 18 farmer | | Crossbreed cow (No.) 30 farmers | | Buffalo (No.) 49 farmers | |
|---|---|---|---|---|---|---|---|
| | | No. | Percent | No. | Percent | No. | Percent |
| 1. | Low productivity animal | 18 | 100 | - | - | - | - |
| 2. | Poor quality bulls | 16 | 88.88 | 26 | 86.67 | - | - |
| 3. | Lack of AI and veterinary facility | - | - | 19 | 63.34 | 42 | 85.71 |
| 4. | Non availability of green fodder around the year | 15 | 83.34 | 22 | 73.34 | 41 | 83.67 |
| 5. | Lack of availability of dry fodder | 5 | 27.78 | 4 | 13.33 | 19 | 38.77 |
| 6. | Non availability of land for fodder cultivation | 17 | 94.45 | 28 | 93.34 | 46 | 93.87 |
| 7. | High cost of feed and fodder | 17 | 94.45 | 30 | 100 | 43 | 87.75 |
| 8. | Inadequate knowledge about balance feeding | 14 | 77.78 | 8 | 26.67 | 49 | 100 |
| 9. | Improper housing facilities | 15 | 83.34 | 23 | 76.67 | 34 | 69.38 |
| 10. | Lack of availability of credits | 6 | 33.33 | 26 | 86.67 | 47 | 95.92 |
| 11. | Lack of organized market | 12 | 66.67 | 30 | 100 | 45 | 91.84 |
| 12. | Low price for milk | 16 | 88.88 | 30 | 100 | - | - |
| 13. | Lack of cold storage facility | 11 | 61.12 | 27 | 90 | 41 | 83.67 |

credits and lack of availability of dry fodder faced by 77.78 per cent, 66.67 per cent, 61.12 per cent, 33.33 per cent and 27.78 per cent respondents, respectively.

About constraints of crossbreed cow majority of dairy owners (*i.e.* 100 per cent) faced low price of milk, high cost of feed and fodder and lack of organized market were the major constraints in each case, followed by 93.34 per cent of the respondents as non availability of land for fodder cultivation. 90 per cent respondents conveyed their constraints as lack of cold storage facilities, while 86.67 per cent respondents stated poor quality of bulls and non availability of credit as constraint in each case. Other than these respondents were also conveyed constraints like improper housing facilities, non availability of green fodder around the year, lack of AI and veterinary facility, inadequate knowledge about

balance feeding and lack of availability of dry fodder faced by 76.67 per cent, 73.34 per cent, 63.34 per cent, 26.67 per cent and 13.33 per cent respondents, respectively.

Regarding constraints of buffalo milk production, 100 per cent respondents opined to have inadequate knowledge about feeding was the major constraint, followed by 95.92 per cent respondents to have constraints as lack of availability of credit. Whereas, 93.87 per cent respondents stated their constraints as non availability of land for fodder cultivation, followed by 91.84 per cent respondents as lack of organized market. Beside these major constraints respondents also states other constraints like high cost of feed and fodder, lack of AI and veterinary facility, non availability of green fodder around the year, lack of cold storage facility, improper housing facilities and lack of availability of dry fodder faced by 87.75 per cent, 85.71 per cent, 83.67 per cent, 83.67 per cent, 69.38 per cent and 38.77 per cent respondents, respectively.

## Conclusion and Recommendations

From the present study, it was concluded that

1. As regard constraint in crop enterprise, most of the respondents expressed their constraints as non-availability of inputs at village level, high cost of inputs and lack of technical guidance in time were the major constraints.

2. With respect to local cow milk production constraints, majority of the respondents opined, low productivity was the most serious constraint. And other major constraints were high costs of feeds and fodder, non availability of land for fodder cultivation, low price of milk and poor quality of bull etc.

3. Referring to constraints faced by crossbred cow owners, low price of milk, high cost of feed and fodder and lack of organized market, lack of cold storage facilities, poor quality of bulls and non availability of credit were the major constraints.

4. With regard to constraints related to buffalo milk production, inadequate knowledge about feeding was most serious constraint. Other than this lack of availability of credit, non availability of land for fodder cultivation, lack of organized market etc. were major constraints faced by dairy owners.

### Suggestion and implications

1. There should be a special provision to impart frequent training to farmers in the area with which, they are concerned in their day-to-day life based upon judicious assessment and analysis of the training needs of the farmers in areas such as seed quality, soil test, mordant package and practices of cultivation, irrigation type etc and for dairy owners in the areas such as animal health care and disease control, care and management of animal, breeding and management of animal, feeding and management of animal and clean milk production etc.

2. Training programmes should be formulated by considering some important aspects like duration, time (season), place, month and interval of training as per the responses recorded by the farmers. Training fees should be minimum and affordable by the rural farmers, if at all charged.

3. Even the government, co-operative or private institutes should organize training programme before distribution of loans and provide guidance to rural farmers through guidance centre or counselling centers through an extension agency.

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