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Nikam MB
Ex. Ph.D. Student, Department of Agricultural Economics and Management, RCA, MPUAT, Udaipur, Rajasthan, India

SS Burark
ICAR-Emeritus Professor, Department of Agricultural Economics and Management, RCA, MPUAT, Udaipur, Rajasthan, India

AC Deorukhkar
Professor (CAS), Department of Agricultural Economics, COA, Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, Maharashtra, India

MK Jangid
Ex. Ph.D. Student, Department of Agricultural Economics and Management, RCA, MPUAT, Udaipur, Rajasthan, India

Correspondence
Nikam MB
Ex. Ph.D. Student, Department of Agricultural Economics and Management, RCA, MPUAT, Udaipur, Rajasthan, India

Constraints faced by the farmers in existing farming systems in North Konkan region of Maharashtra

Nikam MB, SS Burark, AC Deorukhkar and MK Jangid

Abstract
The present study was conducted in Raigad (non-tribal) and Palghar (tribal) districts of North Konkan region of Maharashtra state with the specific objectives *viz.,* to identify the existing farming systems and to identify major constraints faced by the farmers. The multi stage random sampling plan was adopted for the selection of study area and sample respondents for collection of information required for the study. For the study 240 farmers were selected, out of which 120 sample farmers were from tribal area of Palghar district and 120 sample farmers were from non tribal area of Raigad district. Seven farming systems observed in the Raigad district, *viz*; FS-I: Crops + Vegetable, FS-II: Crops + Dairy, FS-III: Crops+ Poultry, FS-IV: Crops+ Vegetable + Dairy, FS-V: Crops+ Poultry + Dairy, FS-VI: Crops+ Vegetable + Goat and FSVII: Crops+ Vegetable + Orchard+ Dairy. While eight farming systems observed in the Palghar district, *viz*; FS-I: Crops + Vegetable, FS-II: Crops + Dairy, FS-III: Crops+ Flowers, FS-IV: Crops + Goat, FS-V: Crops + Vegetable + Dairy, FS-VI: Crops + Vegetable + Flowers, FS-VII: Crops+ Vegetable + Orchard and FS-VIII: Crops + Flowers + Orchard + Dairy. Major constraints faced by farmers in crop production in both the districts were, lack of marketing facilities, lack of credit facilities, high incidence of disease and pest. In livestock enterprises problems of heat detection in local cow, lack of common grazing land, and relatively low conception rate through A.I In horticulture major constraints were high incidence of disease and pest, lack of processing facilities.

Keywords: Existing farming systems, constraints, tribal and non-tribal area

Introduction
Indian agriculture is characterized by decreasing holding size of farms, increasing population and labour charges, changing consumption behavior pattern and reduced availability of land and water resources besides which climate change and global warming are also the important challenges. With these issues, agriculture has responsibility of providing household food and nutritional security to billion plus population. The decreasing trend of per capita land availability with shrinking operational farm holding size poses a serious challenge to the sustainability and profitability of existing farming systems especially in marginal and small households. A paradigm shift in agricultural research through integrating locally available farm resources along with restoration of environment is essential to address all the issues which are being faced by Indian agriculture. The farming systems approach to agricultural research and development efforts will accelerate agricultural growth and will provide opportunity to leverage poverty-prone rural India into a prosperous India.

Integrated farming systems have emerged as a well-accepted, single window and sound strategy for harmonizing simultaneously joint management of land, water, vegetation, livestock and human resources. A number of such illustrations can be given emphasizing the greater advantage of integrated farming system in generating technologies aimed at combating land degradation. It is the approach that can lead to a quantum jump in the productivity on a sustainable basis and ensure better livelihood securities to the people in fragile ecosystems. Farming system approach in analysing the constraints of agriculture is gaining lot of importance in recent years. Keeping these aspects in view, the present study entitled "Constraints faced by the farmers in existing farming systems in North Konkan region of Maharashtra" has been undertaken.

Methodology
For the present study, multi stage random sampling plan was adopted for the selection of study area and sample respondents for collection of information required for the study.

At first stage, two districts *viz.*, Raigad and Palghar were selected from north Konkan region. From the selected districts, two tehsils from each district were selected randomly. The selected tehsils were Palghar and Vikaramgad from Palghar district and Mahad and Roha tehsils from Raigad district. A list of villages along with area under crops was obtained from tehsil office / panchayat samiti office of each selected tehsil. From each tehsil four villages were selected on the basis of highest area under farming systems.
A list of farmers in the selected villages was obtained from revenue record. Out of which 15 farmers of each village were selected randomly. The distribution of sample households is given in Table 1.

Table 1: Distribution of sample households selected for study

Districts	Tahsil	Village	Households from each villages	Total Households
Palghar	2	2x4=8	15	120
Raigad	2	2x4=8	15	120
Total	4	4x4=16	-	240

Thus, final sample consisted of 240 farmers from four selected tahsils of study area.

Garrett's ranking technique was used to analyze the constraints perceived by the respondents in integrated farming systems. The respondents were asked to rank the factors that limit in adoption of integrated farming systems. These orders of merit were transformed into units of scores by using the following formula.

$$\text{Per cent position} = \frac{100\ (R_{ij} - 0.50)}{N_j}$$

Where,
R_{ij} - Rank given for the i^{th} factor by the j^{th} individual.
N_j - Number of factor ranked by the j^{th} individual.
The percent position was converted into scores by referring to the Table given by Garrett and Woodworth (1969) [1]. Then for each factor the scores of the individual respondents were added together and divided by the total number of respondents for whom scores were added. These mean scores for all the factors were arranged in descending order and the most influencing factors were identified through the ranks assigned.

Results and Discussion
The constraints faced by the famers are discussed in three sub sections.
1. Constraints Faced in Crop Enterprises/Activity
2. Constraints Faced in Livestock Enterprises/Activity
3. Constraints Faced in Horticulture Enterprises/Activity

a) Constraints Faced in Crop Enterprises/Activity
Constraints faced by farmers in crop production are presented in Table 2. It is observed from the table that twelve major of constraints were faced by farmers in crop production. In Raigad district 54.35 per cent farmers were reported lack of marketing facilities as most important constraints in crop enterprise. It was followed by lack of availability of agricultural labour in peak season (54.03%), lack of credit availability (51.89%), inadequate power supply (48.98%), high incidence of disease and pest (47.10%), high cost of quality seeds (44.10%), low price of farm produce at the time of harvest (44.16%), lack of timely availability of good quality seeds (47.02%), lack of storage facilities(43.43%), inadequate irrigation facilities(40.26%), lack of knowledge about recommended package of practices(36.11%) and damage caused by birds and animals (35.51%). While in Palghar district maximum number (62.10%) of farmers gave their opinion towards inadequate power supply, followed by lack of marketing facilities (56.52%), lack of availability of agricultural labour in peak season (53.57%), lack of credit availability(52.48%), high incidence of disease and pest (51.53%), lack of timely availability of good quality seeds (46.59%), high cost of quality seeds (45.68%), inadequate irrigation facilities (43.01%), low price of farm produce at the time of harvest (42.97%), lack of storage facilities(41.50%), damage caused by birds and animals (39.56%) and lack of knowledge about recommended package of practices(36.03%) were the major constraints faced by the farmers.

Table 2: Ranking of Constraints Faced in Crops Enterprises

Sr. No.	Constraints	Raigad District		Palghar District	
		Garrett Score	Rank	Garrett Score	Rank
1	Lack of timely availability of good quality seeds	44.10	8	46.59	6
2	High cost of quality seeds	47.02	6	45.68	7
3	Lack of availability of agricultural labour in peak season	54.03	2	53.57	3
4	Low price of farm produce at the time of harvest	44.16	7	42.97	9
5	Lack of marketing facilities	54.35	1	56.52	2
6	Lack of storage facilities	43.43	9	41.50	10
7	Lack of credit availability	51.89	3	52.48	4
8	Lack of knowledge about recommended package practices	36.11	11	36.03	12
9	Inadequate power supply	48.98	4	62.10	1
10	Inadequate Irrigation facilities	40.26	10	43.01	8
11	Damage caused by birds and animals	35.51	12	39.58	11
12	High incidence of disease and pest	47.10	5	51.53	5

b) Constraints Faced in Livestock Enterprises/Activity
Constraints faced by farmers in livestock enterprises in both districts are presented in Table 3 It is evident from the table that, in Raigad district 57.54 per cent farmers were reported the problem of heat detection in dairy cattle, followed by lack of common grazing (57.17%), relatively low conception rate through artificial insemination (52.84%), lack of organized milk marketing facilities in villages (48.46%), non-availability of green fodder cultivation (45.75%), lack of availability of land for fodder cultivation (42.02%), lack of A.I. and veterinary facilities (41.91%),low availability of dry fodder (40.05%), high cost of feed and fodders (39.95%), inadequate knowledge about balanced feeding(37.20%), low productivity in local cow (35.21%) and improper housing

facilities leading to infection (31.89%), while in Palghar district maximum number of farmers gave their opinion towards same constraints i.e. problem of heat detection in dairy cattle (63.88%) followed by lack of common grazing (63.19%), relatively low conception rate through A.I. (60.78%), non availability of green fodder (50.20%), lack of organized milk marketing facilities in village (49.46%), high cost of feed and fodders (48.70%), lack of A.I and veterinary facilities (46.38%), lack of availability of land for fodder cultivation (45.55%), low availability of dry fodder (45.35%), inadequate knowledge about balanced feeding (44.35%), low productivity in local cow (39.77%) and improper housing facilities leading to infection (35.01%)as the major constraints faced by them.

Table 3: Ranking of Constraints Faced in Livestock Enterprises

Sr. No.	Constraints	Raigad District		Palghar District	
		Garrett Score	Rank	Garrett Score	Rank
1	Low productivity	35.21	11	39.77	11
2	Problems of heat detection	57.54	1	63.88	1
3	Lack of A.I. and veterinary facilities	41.91	7	46.38	7
4	Relatively low conception rate through A.I.	52.84	3	60.78	3
5	Non-availability of green fodder cultivation	45.75	5	50.20	4
6	Lack of Availability of land for fodder cultivation	42.02	6	45.55	8
7	Low availability of dry fodder	40.05	8	45.35	9
8	High cost of feeds and fodders	39.95	9	48.70	6
9	Inadequate knowledge about balanced feeding	37.20	10	44.35	10
10	Improper housing facilities leading to infection	31.89	12	35.01	12
11	Lack of common grazing	57.17	2	63.19	2
12	Lack of organized milk marketing facilities in village	48.46	4	49.46	5

c) Constraints Faced in Horticulture Enterprise/ Activity

Constraints faced by farmers engaged in horticulture crops are presented in Table 4. Table showed that the constraints faced by farmers in horticulture crops were high incidence of disease and pest, lack of processing facilities, scarcity of labour, lack of good quality of planting material, low productivity, lack of knowledge about recommended package and practices, lack of marketing facilities, lack of transportation, lack of storage facilities and lack of institutional credit. In Raigad district farmers optioned that high-incidence of disease of pest (34.62%) was the first and major constraint's followed by lack of processing facilities (31.02%), scarcity of labour (27.89%), lack of good quality of planting material (27.89%), low productivity(26.72%), lack of knowledge about recommended package and practices (26.48%), lack of marketing facilities (25.40%), lack of transportation (23.67%), lack of storage facilities(22.84%) and lack of institutional credit(21.53%).

Table 4: Ranking of Constraints Faced in Horticulture Enterprises

Sr. No.	Constraints	Raigad District		Palghar District	
		Garrett Score	Rank	Garrett Score	Rank
1	Low Productivity	26.72	5	41.18	4
2	Lack of good quality of planting material	27.88	4	40.73	5
3	Hi-incidence of disease & pest	34.62	1	52.12	2
4	Scarcity of labour	27.89	3	43.78	3
5	Lack of processing facilities	31.02	2	52.42	1
6	Lack of storage facilities	22.84	9	38.07	7
7	Lack of transportation	23.67	8	39.91	6
8	Lack of knowledge about recommended package & practices	26.48	6	36.28	9
9	Lack of institutional credit	21.53	10	34.87	10
10	Lack of marketing facilities	25.40	7	36.95	8

In Palghar district maximum constraints were, lack of processing facilities (52.42%) followed by high-incidence of disease and pest (52.12%), scarcity of labour (43.78%), low-productivity (41.18%), lack of good quality planting material (40.73%), lack of transportation (39.91%), lack of storage facilities (38.07%), lack of marketing facilities (36.95%), lack of knowledge about recommended package and practices (36.28%) and lack of institutional credit (34.87%).

Conclusion

The study revealed that, in terms of crop enterprise lack of marketing facilities was the major constraint in the study area. Due to undeveloped market structure farmers are not getting proper prices for their produce. Therefore, marketing systems needs to improve. Lack of credit as and when required supply of good quality seed were other important constraints faced by the farmers. Regarding Dairy enterprise lack of organized milk market facilities in village was major constraint, very low rates are obtained for milk in the village, and lack of common grazing land, lack of green fodder and lack of 'artificial insemination' units were major problems faced by the farmers. In terms of horticulture enterprise, lack of processing facilities and lack of good quality planting material and technical knowledge were the major constraints faced by the farmers in study area.

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