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Contribution of Family Labour in Mixed Farming System

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ABSTRACT

Indian economy largely depends on the agriculture. Agriculture is the main source of income in the nation as most of the people choose their livelihood from agriculture. But this source of income is under threat as agriculture has become very risky due to extreme climate changes and highly volatile agricultural markets. Mixed farming system is one way of handling such problems because it provides better income returns to farm owners as well as higher productivity. Mixed farming is defined as a system of farming in which both crop and livestock farming are combined for the purpose of meeting family requirements and profiting from both enterprises. The case for integrating these two is based on the premises that bye –products from the two systems are used on the same farm. Mixed farming system is helpful in decreasing the cost of production per unit area, increasing income and productivity and reducing the risk of farmers. The contribution of family labour in these farming systems cannot be neglected. Mixed family farms produce almost half of the world food. Increasing food supply in developing countries requires increasing productivity of both land and farmers' labour as key to increase household income, food security and reduce poverty. So the present study focuses on contribution of family labour in mixed farming system and gender wise comparison of family labour towards mixed farming. From the study it can be concluded that mixed farming system is highly dependent on family labour. So that mixed farming can also be called as family farming. The mixed farming is a farming system which is managed and operated by a family and predominantly reliant on family labour both women's and men's. The family and farm are linked and can be concluded that family labour is critical resource of mixed farming system.

Keywords: Mixed farming, family labour

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Introduction

Agriculture is the art of feeding the world-food to humanity, feed to animals and seed to posterity. It is the main stay of Indian economy. (Onima et al. 2015) It lays the foundation for human Civilization. Modern agriculture support 7.8 billion World Population through substantial increase in yields resulting from intensified farming with high level of input and chemical fertilizers and pesticides as well as advanced crop and livestock production technologies. Due to increased demand for food chemical fertilizers is applied to squeeze more yields from land which may lead to environmental degradation such as soil matter depletion, nutrient loss, soil degradation etc. Intensive livestock and crop (separated) production has resulted in soil fertility loss and environmental pollution. It is a challenge before us to increase food production without compromising the integrity of environment. In such context, idea of sustainable agriculture arises to pursuit for balancing food production and environmental welfare as a double-edged strategic goal. To achieve this goal, farming system might be designed with due consideration of economics and environment and society. Recently mixed farming system receives increasing attention for its self sustainable feature.

According to the FAO (Livestock, Environment and Development Initiative – LEAD website), Mixed Farming System(MFS) are defined as farming systems conducted by households or by enterprises where crop cultivation and livestock rearing together form integrated components of a single farming system. The best known form of mixed farming is when crop residues are used to feed the animals and the excreta from the animals are used as nutrients for the crops. (FAO)

Mixed farming is considered by the FAO as probably the most benign agricultural production system from an environmental perspective because it is, at least partially, a closed system (Schiere and Kater, 2001). The waste products of one enterprise (crop residues), which would otherwise be loaded on to the natural resource base, are used by the other enterprise, which returns its own waste products (manure) back to the first enterprise. For example the waste product of paddy cultivation that is, straw is used to feed the cattle reared by agricultural household and in turn manure of the cattle is used as fertilizer for paddy cultivation. Because it provides many opportunities for recycling and organic farming and for a varied, more attractive landscape, mixed farming is the favourite system of many agriculturalists and environmentalists. (FAO). These farms are mostly owned and operated by family labour and hired farm labour is rather uncommon. Family labour force of the agricultural holding refers to family workers. Family workers are persons who help another member of the family to run an agricultural holding, provided they are not considered as employees. The purpose of the study is to analyse the contribution of family labour in mixed farming system and gender wise comparison of family labour towards mixed farming.

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DATA AND METHODS

The study is conducted in Palakkad district. The farmers practicing mixed farming ie. both paddy production and cattle rearing will be the respondents or sample units of the study. The sample frame will be list of farmers who are members of Padasekharams or Polders. Palakkad District stood first with respect to area and production of rice in the State. Palakkad District recorded the highest increase in paddy production of 15.3 per cent followed by Thrissur District with 10.22 per cent and Kannur with 5.9 per cent. (Economic Review 2020, Kerala state Planning Board). According to 20th Livestock census, Palakkad occupies first position in district wise cattle population 2019.

Among the 13 blocks of Palakkad district, five blocks are randomly selected for data collection. Amongst these blocks, mixed farmers i.e. practicing paddy cultivation and cattle rearing are randomly selected for the study. The data is collected from the farmers through direct interview method by making use of structured questionnaire. The strategy adopted to analyse the family contribution was to constitute seasonal working calendar for the crop and livestock activities in each farm surveyed, identifying the operations and tasks carried out as well as the workload associated with each of them (in hours) during each agricultural season. By comparing this calendar with the pool of family labor, it would then be possible to identify the periods when it was necessary to hire labor to cope with the workload. A paddy season period is taken as 130 days according to farmers opinion.

The contribution of family labour is classified into two- family labour contributed to paddy cultivation and family labour contributed to cattle rearing. The labour requirements for cattle rearing is spread more evenly throughout the year. And cattle rearing demands no hired labour. But for paddy production labour contribution can be categorized into two- that is labour offered during peak days (during the time of harvesting, sowing etc.) and labour offered during off peak days (routine tasks- maintenance of field, removing weeds, proper irrigation management). The labour offered during peak days is known as peak labour and labour offered during off peak days is known as off peak labour. From 106 agricultural households, contribution of 212 members (1 male member and 1 female member from each agricultural household) is assessed for knowing the contribution of family labour towards mixed farming. Family contribution is measured in two aspects – time and wage. The average wage of hired male labour is Rs. 750(6 hours) i.e. for one hour is Rs.125. The average wage of hired female labour is Rs. 500(6 hours) i.e. for one hour is Rs.83. The number of hours of workload of family members is converted into wages. Tools used for analysis is mean, standard deviation and percentages. Mann Whitney test is used to compare the gender wise contribution of labour towards mixed farming.

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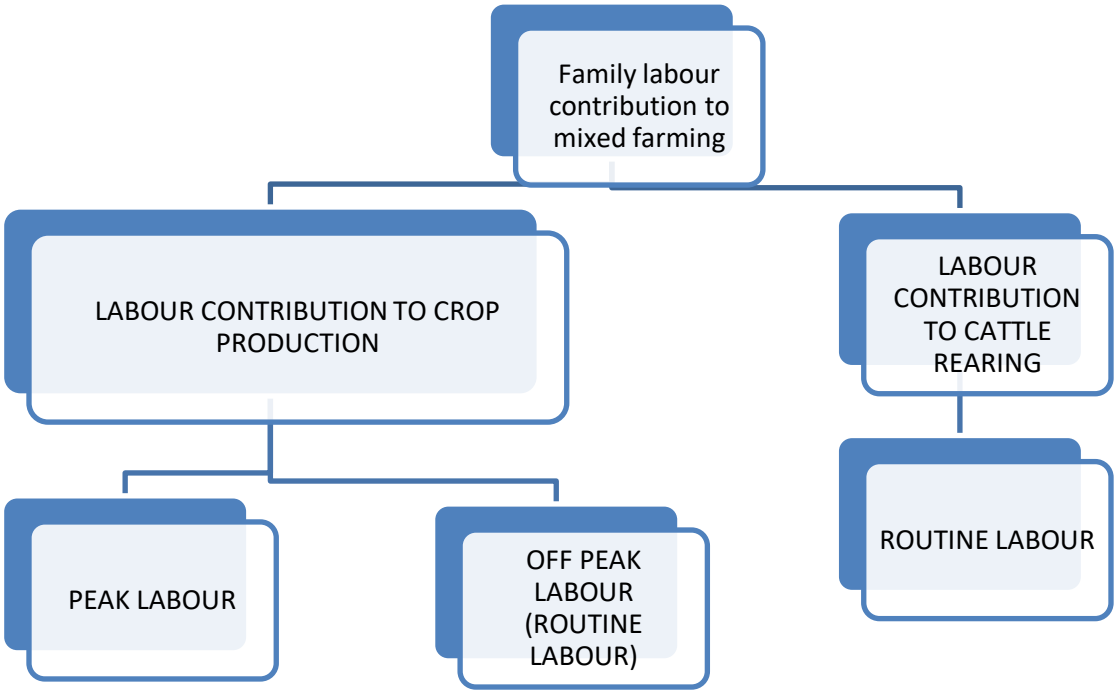

RESULTS AND DISCUSSIONS

- **Demographic and economic features of respondents**: It was found that amongst the 106 agricultural household, 45.3% of farmers belong to the age category of 60-69 with 25 years as average number of years of experience in mixed farming practices. 50% of respondents have the family size of 5-8, 44.4 % farmers have the family size of upto 4 and remaining have family size of above 8. 72.2% of farmers belong to nuclear family and remaining farmers belong to joint family and almost all were literate. It was noted that average area of land operated by respondent farmers are 2.42 acres.

- **Time spent by family members in mixed farming**: It could be observed that average number of hours spend for crop activity per day during peak days in a season by male member of a family is 6.13 hours, while that of female member in family is 4.6 hours. It could also be observed that average number of hours spend for crop activity per day during off peak days (routine) by male member in family during a season is 2.1 hours, but by female member in family is .95 hours. In the case of dairy production that is cattle rearing, average number of hours spend per day by male member in family is 3.31 hours, while female member in family is 3.67 hours. Male member of the family attended most of the crop activities while dairy activities were done by female member. This finding is in agreement with Subhadra (2009) et al who reported that in the work participation men dominated in crop activities and women in dairying and household. From the study it is

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observed that no workers are hired for carrying out routine and simple tasks. Workers are hired only during peak days. During these peak days, family members work along with hired workers in crop activities. The labour requirements for cattle rearing are spread more evenly throughout the year. No workers are hired by for cattle rearing and all the labour related to cattle rearing is managed by family members.

DESCRIPTIVE STATISTICS OF CONTRIBUTION OF FAMILY LABOUR

VARIABLES	MEAN	SD
AREA OPERATED(in acres)	2.4199 acres	3.18228
Paid out expenses of labour per day for crop production during a paddy season per acre (in Rs.)	134.5783	165.50359
Contribution of male member of the family per day in crop production during peak days in a season per acre (in Rs.)	667.1088	731.27074
Contribution of female member of a family per day in crop production during peak days in a season per acre (in Rs.)	380.7721	402.44964
Contribution of male member of the family per day in crop production during off peak days (routine tasks) in a season per acre (in Rs.)	231.7321	563.74045
Contribution of female member of the family per day in crop production during off peak days in a season per acre (in Rs.)	83.1593	109.20663
Contribution of male member of the family per day in cattle rearing per cattle(in Rs.)	172.7070	144.76326
Contribution of female member of the family per day in cattle rearing per cattle (in Rs.)	144.8050	161.44555
Total family labour contribution for crop production per day per acre in a season (in Rs.)	1362.7723	1439.11254
Total Family Contribution Per Day Per Cattle (in Rs.)	317.5121	238.16716
Total Family Labour Contribution For Mixed Farming Per day in a season (in Rs.)	1680.2843	1519.05992
Total expenses of labour (paid out expenses+ imputed expenses) for mixed farming in a season per day per acre (in Rs.)	1814.86	1544.81

Source: Primary data, 2024

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To quantify the work done by the family members, the number of hours of work of family members is converted into wages equal to that of paid to hired workers. This wages can be termed as imputed expenses of labour. From the table it is clear that average expenses of labour (paid out expenses and imputed expenses of labour) per day in a season for mixed farming is Rs. 1814.86. Amongst these, average paid out expenses of labour per day for crop production during a paddy season per acre is Rs. 134.6. But average imputed expenses of family labour per day are Rs1680.3, that is, 92.6 % of total labour expenses are contributed by family members towards mixed farming. From the study and above table, it can be concluded that majority of labour in mixed farming is contributed by family members itself.

Gender wise comparison of family labour in mixed farming:

The Mann-Whitney U test is used to compare the contribution of male member and female member of the same family towards mixed farming.

Hypothesis Test Summary					
Null Hypothesis	N	GENDER	MEAN RANK	Sig.	Decision
No of hours spend for **crop activity** per day during **peak season** by a male member and female member in family is the same across categories of GENDER.	106 106	MALE FEMALE	MALE-120.12 FEMALE-92.88	.001	Reject the null hypothesis.
No of hours spend for **crop activity** per day during **off peak season** (routine) by a male member or female member in family is the same across categories of GENDER.	106 106	MALE FEMALE	MALE-127.05 FEMALE-85.95	.000	Reject the null hypothesis.
No of hours spend for **cattle farming** per day by a male member or female member in family is the same across categories of GENDER.	106 106	MALE FEMALE	MALE-103.39 FEMALE-109.61	.454	Retain the null hypothesis.

Computed from Primary Data, 2024

From the above table it is clear that, the contribution of male member is greater than female member in crop production. That is, male member of the family contributes more labour compared to female member in crop activity in a paddy season. But in the case of cattle rearing, the contribution of male member and female member of the family is almost the same.

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CONCLUSION

International Year of Family Farming states that family farming "is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labor, including both women's and men's. The family and the farm are linked, co-evolve and combine economic, environmental, reproductive, social and cultural functions" (FAO, 2014). Family farmers contribute directly to food security and nutrition. They also directly influence the management of resources, social interaction, and community bonds. Roughly 80% of food in the world comes from family farming (FAO, 2014). Furthermore, estimates indicate there are 500 million family farms constituting 90% of all farms globally.

From the above definition and study, it can be concluded that mixed farming system is highly dependent on family labour. So that mixed farming can also be called as family farming. The mixed farming is a farming system which is managed and operated by a family and predominantly reliant on family labour both women's and men's. The family and farm are linked and can be concluded that family labour is critical resource of mixed farming system. The special roles of family labour are invisible in relevant discussions and planning processes It is important for governmental policymakers to pay attention to family labourers' exceptional capacity to adapt and advance innovation in farming.

REFERENCES

1. Aubron C, Bainville S, Philippon O and Dorin B (2022) *Neither Corporate, Nor Family: The Indian "Patronal" Farm.* Front. Sustain. Food Syst. 6:850545. doi: 10.3389/fsufs.2022.850545

2. Nicholas-Davies, Phillipa et al., (2017) *EIP-AGRI Focus Group Mixed farming systems: livestock/cash crops, MINIPAPER 1: How farmers deal with complexity and take decisions to achieve the benefits of mixed farming systems.*

3. Paula Colnago, Santiago Dogliotti, (2015): *Labour Productivity Analysis in Mixed Family Farm Systems to support a Co-Innovation Process*, 5 th International Symposium for Farming Systems Design 7-10 September 2015, Montpellier, France

4. Manikandan,K. et al.,(2023). *POCKET HAND BOOK ON RICE CULTIVATION*. Thannambikkai Publications.

5. PICAZO-TADEO,J. et al.,(2005). *Calculating shadow wages for family labour in agriculture: An analysis for Spanish citrus fruit farms*

ISSN: 2455-8834

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6. Elizabeth Garner and Ana Paula de la O Campos. (2014). *Identifying the "family farm": an informal discussion of the concepts and definitions*. ESA Working Paper No. 14-10. Rome, FAO.

7. Posadas Rodolfo Rogelio.et al., (2013). *Contribution of family labour to the profitability and competitiveness of small-scale dairy production systems in central Mexico*, Tropical Animal Health and Production, DOI: 10.1007/s11250-013-0482-4

8. Subhadra et al., (2009), *Optimum activity mix of dairy with crops in mixed farming system in Kerala*, J Dairying, Foods & H.S 28(2): 101-106.

9. www.fao.org

