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# Status of Family Farming Systems in Balasore District of Odisha -A Case Study

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## ABSTRACT

*Family farming constitutes that form of production, in which the ownership of the means of production and labor power co-exists in the same production unit, without a discrete division between capital and labor among family members. From a sociological perspective, family farming is associated with family values, such as solidarity, continuity and commitment; in economic terms, family farming is identified with specific entrepreneurial skills, business ownership and management. Hence to realize the full potential of family farmers in eradicating hunger and ensuring food security, an enabling policy environment is necessary. The state of Food and Agriculture 2014: "Innovation in family farming", analysed family farms and their role in ensuring global food security, poverty reduction and environmental sustainability. Hence, the year 2014 was designated as the "International Year of Family Farming" at the 66th session of the United Nations General Assembly led by the Food and Agriculture Organization (FAO). NCEUS (2008) says that "some of the general challenges that confront small family farmers as agriculturalists are: absence of access to credit markets, smaller access to suitable extension services, restricting suitable decisions regarding cultivation practices, land and tenacy security, low level of formal education and skills, credit and indebtedness, globalization challenges and impact of climate changes. The topic entitled "Status of Family Farming Systems in Balasore district of Odisha" was conducted in the Balasore district of Odisha. This district was selected as Family farming practices was confined to this area under favourable agro- climatic condition. The results of this research study revealed that the acceptance of family farming was high in coastal blocks of the study area as compared to distant blocks of the district. There are six different family farming patterns were found in the study area. The majority of the farmers belonged to medium-type farmers and most of those were having dairy enterprises. Similarly, most of the farmers were having a number of domestic animals of their own and the majority of them practiced pisciculture as their secondary enterprise as a significant bulk of the farmers had a pond of their own and crop cultivation as their primary enterprise. Similarly, plantation and goatery had emerged as the majorly followed enterprises in the study area. This study definitely unfolded some significant areas in the field of status of family farming system which can be critically analysed and suitably streamlined by the scientists, planner and policymakers and also provides vital information about different primary and secondary agriculture & allied enterprises of the study area. It can be concluded from the study that, Status of family farming is quite stable and satisfactory in the study area and it can be added that, encouraging more families to take part in family farming has many benefits.*

***Keywords:*** *Cropping enterprise, Cropping systems, Dairy enterprise, Family farming status, Farming pattern, Farming system, Food security, Income security Pisciculture, Plantation crops*

## INTRODUCTION

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."Family farming is inextricably linked to national and global food security. There are over 500 million family farms. They make up over 98% of farming holdings. They are responsible for at least 56% of agricultural production on 56% of the land. Family farmers are the custodians of a finely adapted understanding of local ecologies and land capabilities. Vignola et al. (2015) consider that family farmers are sensitive to globalization, population growth and climate change. The farm and family have a link that combines and co-evolves environmentally, socially and economically (FAO, 2015). Peter (2008) researched the benefits and multiple functions of small-landholding agriculture. According to him farming managed natural resources and minimized environmental pollution. Family farming ensures food security even while meeting rising societal expectations for food safety, quality, value, origin and diversity of food. It also maintains a rural lifestyle and contributes to the socio-economic and environmental sustainability of the rural areas. The major objective of this research paper is to get enough understanding of the status of family farming in the study area and conduct a SWOT analysis of the identified family farming systems along with augmenting their income and undertaking more productive activities.

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greenhouse was used to test partial root drying (PRD), a new irrigation technique for saving irrigation water. The best way of testing plants' responses to PRD is under controlled conditions in a greenhouse on plants with a split-root system [14]. The objective of this research work was to evaluate the effect of partial root drying and deficit irrigation on the yield and water use efficiency under of greenhouse-grown tomatoes.

## SCOPE AND IMPORTANCE OF THE STUDY

1. Family farming feeds the whole world and eradicates the problems of food insecurity and also protects biodiversity and safeguards the environment.

2. It increases public investment in infrastructure and services in rural areas and directly support rural women through investment, credit, land titling etc.

3. It increases rural employment particularly for women & youth, promotes agricultural research and development, establishes training programs and helps in capacity building.

4. Hence identifying the status of Family farming develops social awareness about the importance of family farming in order to strengthen links between urban and rural society.

## MATERIALS AND METHODS

The study was conducted in 4 blocks- Soro, Simulia, Bahanaga and Khaira of Balasore district of Odisha. The above blocks, gram panchayats and villages were selected by purposive sampling method. The present research project was formulated on the basis of expost-facto approach and survey research design. Multi stage random sampling technique was followed to select total 120 no. of respondents for the study. A proportionate random sampling procedure was a Prior to the preparation of the interview schedule. A pilot study was carried out in the blocks and the district head quarter to collect information. Close-ended questions were mainly asked for obtaining a better response. Pre-testing of the schedule was done to access the reliability and validity of the schedule to record data analyzed through computer software i.e., Statistical Package for Social Sciences (SPSS).

## STATISTICAL PROCEDURE

The collected data were properly tabulated and analyzed in accordance with the objectives of the present study. In the present study, following descriptive and inferential statistics were used in the analyzing of data using the standard formula.

a) Frequency
b) Percentage
c) Rank order

**a) Frequency:** The number of individuals or observations in each class of attributes/variables is called frequency of that class of variable.

**b) Percentage:** For calculating percentage, the frequency of a particular cell was multiplied by 100 and divided by the total number of respondents in the particular category to which the cell belonged.

**c) Rank order:** On the basis of percentage rank order was calculated. The item securing highest percentage was given first rank and the next higher second rank and so on.

## RESULT AND DISCUSSION

**Table-1 Distribution of respondents on the basis of their adoption of family farming systems**

| Name of the Block | | Name of the villages selected | No. of families in the villages | No. of families adopting family farming system | Percentage |
|---|---|---|---|---|---|
| Soro | COASTAL BLOCK | Mulising | 300 | 260 | 86.60 |
| Simulia | | Maitapur | 250 | 240 | 96.00 |
| Bahanaga | DISTANT COASTAL BLOCK | Kuchiakoili | 380 | 340 | 89.47 |
| Khaira | | Kuparl | 320 | 290 | 90.62 |
| | TOTAL | | 1250 | 1130 | 90.40 |

In order to find out the farmers practicing different family farming patterns, enumeration work of the total farm families in the selected villages was made and the results obtained have been shown in Table –1. The acceptance of family farming was as high as 96% in Maitapur village of Simulia block and as low as 86.6% in Mulising village of Soro block.

It is observed that in interior villages almost all people take different family farming patterns to maintain their livelihood but in the villages which are close to urban centers and are well developed, some proportions of the families have diversified their activities and taken up some non-farm employment.

**Table-2 Distribution of Respondents on the basis of their different family farming Patterns**

| Family Farming Systems | Coastal block n=60 | | Distant coastal block=60 | | TOTAL n=120 | | |
|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | Rank order |
| Crop +plantation | 32 | 53.33 | 31 | 51.66 | 63 | 52.50 | I |
| Crop + diary | 5 | 8.33 | 27 | 45.00 | 32 | 26.67 | II |
| Crop + pisciculture | 19 | 31.67 | - | - | 19 | 15.83 | III |
| Pisciculture + lantation | - | - | 2 | 3.34 | 2 | 1.67 | V |
| Crop + diary + plantation | 3 | 5.00 | - | - | 3 | 2.50 | IV |
| Crop +goatery | 1 | 1.67 | - | - | 1 | 0.83 | VI |
| TOTAL | 60 | 100 | 60 | 100 | 120 | 100 | - |

A glance at Table-2 reveals that 6 different family farming patterns were found in the study area.. The patterns were Crop +plantation, Crop + diary, Crop + pisciculture, Pisciculture + plantation, Crop + diary + plantation and Crop +goatery. The highest percentage (52.50%) of the farmers had accepted crop + plantation followed by crop + diary (26.67%) and Crop +pisciculture (15.83%). Pisciculture + plantation (1.67%), and crop + goatery (0.83%) were rarely found. Crop + diary + plantation was found with 2.5% of the farmers. The comparison of the extent of the practice of these patterns between coastal and distant coastal blocks uncovered some interesting facts. The percentage of the farmers in two situations in the crop + plantation pattern was found almost equal.

The popularity of crop + plantation, crop + diary and crop + pisciculture is high because saline climate, sandy loam soil, higher water table and big water sources have provided opportunities for above family farming patterns. Cows are kept due to the abundant availability of straw and grass. Fish and prawn are also grown in traditional methods as well as following modern technologies.

**Table-3 Distribution of respondents on the basis of size of holding for crop enterprise (n=120)**

| Class of holding (Acre) | Rice | Vegetables | Rice + vegetables | Total | | Rank order |
|---|---|---|---|---|---|---|
| | F (%) | F (%) | F (%) | f | % | |
| Up to 1 | 14 (11.66) | 4 (3.33) | 4 (3.33) | 22 | 18.33 | III |
| 1.01 to 2 | 19 (15.83) | 4 (3.33) | 3 (2.5) | 26 | 21.66 | II |
| 2.01 to 3 | 25 (20.83) | 5 (4.16) | 2 (1.66) | 32 | 26.66 | I |
| 3.01 to 4 | 12 (10) | 3 (2.5) | 5 (4.16) | 20 | 16.66 | IV |
| 4.01 to 5 | 6 (5.00) | 4 (3.33) | 2 (1.66) | 12 | 10.00 | V |
| More than 5 | 5 (4.16) | 1 (0.83) | 2 (1.66) | 8 | 6.69 | VI |
| Total | 81 (67.5) | 21 (17.50) | 18 (15.00) | 120 | 100 | |

**Figures in the parentheses indicate percentages**

Farmers take two or more enterprises in combination. Besides rice, other crops are also taken. The effort is made here to find the distribution of farmers according to the land devoted to different crops. The perusal of data contained in Table-3 reveals that the highest percentage (26.66%) of the farmer belonged to the class 2.01 to 3 acres followed by 21.66% in 1.01 to 2 acres and 18.33% in up to 1-acre class.

The number of farmers in higher classes of land holding was found low. An interesting feature was that 67.5% of the farmers practiced rice crops only under crop enterprise. Vegetables and rice + vegetables were grown by 17.5% and 15% of the farmers respectively. Rice + vegetables were taken by the farmer having more land under crop enterprise. In the coastal district, the majority of the cultivated lands are low to medium which is most suitable for rice crops. Besides that sometimes green gram and black gram are also taken as pyra-crop in the rice fields.

**Table-4 Distribution of respondents on the basis of numbers of dairy enterprises**

| Number of dairy animals | Desi cow | Crossbred cow | Buffalo | Total | | Rank order |
|---|---|---|---|---|---|---|
| | F (%) | F (%) | F (%) | F | % | |
| 1 | 5 (14.70) | 6 (24.00) | 3 (15.78) | 14 | 17.95 | III |
| 2 | 18 (52.94) | 11 (44.00) | 8 (42.10) | 37 | 47.44 | I |
| 3 | 6 (17.64) | 7 (28.00) | 5 (26.31) | 18 | 23.08 | II |
| More than 3 | 5 (14.70) | 1 (4.00) | 3 (15.78) | 9 | 11.53 | IV |
| TOTAL | 34 (43.60) | 25 (32.05) | 19 (24.35) | 78 | 100 | |

**Figures in the parentheses indicate percentages**

Farmers rear dairy animals which consists of cows and buffaloes of desi and crossbreds. Variation is observed in the size of the dairy unit. A glance at Table-4 reveals that the highest percentage (47.44%) of those having dairy enterprise had two numbers of dairy animals. The next in order was the farmers having 3 numbers of animals (23.08%) and one number of animals (17.95%).

The traditional habit of farmers for rearing desi cows had undergone changes after the introduction of crossbred cows. In the coastal tract, the availability of pasture land is very less, for which people face many difficulties in feeding buffaloes, goats and sheep.

**Table-5 Distribution of respondents on the basis of the size of holding for pisciculture**

| Class of holding (acre) | Fish cultivation | Prawn cultivation | Total | | Rank order |
|---|---|---|---|---|---|
| | F (%) | F (%) | f | % | |
| Up to 1 | 31 (59.61) | 15 (50.00) | 46 | 56.09 | I |
| 1.01 to 2 | 21 (40.38) | 8 (26.66) | 29 | 35.38 | II |
| More than 2 | - | 7 (23.33) | 7 | 8.53 | III |
| Total | 52 (63.41) | 30 (36.59) | 82 | 100 | |

**Figures in the parentheses indicate percentages**

The great demand for fish in the local market and prawns in the international market has recently encouraged farmers to start fish farming in scientific lines.The different sizes of pisciculture unit together with the percentage of farmers in each class which has been shown in Table-5 reveals that among the farmers practicing pisciculture highest percent (56.09%) were having areas up to 1 acre. The percentages of farmers in 1.01 to 2 acres category and more than 2 acres category were 35.38% and 8.53% respectively. In pond based fish cultivation, a significant bulk of the farmers (59.61%) had pond up to 1 acre but in pond based prawn cultivation, highest percentage (50.00%) were having pond size of up to 1 acre.

Previously fish cultivation was more popular than prawn cultivation. But with an increase in demand and high returns from the prawn, prawn cultivation is gradually expanding among the farmers. The farms opting for prawn cultivation is having high profit motive and they are more enterprising in nature.

**Distribution of farmers by primary and secondary enterprises**

The various components of the family farming systems are not equally income-generating. One enterprise may generate more income for the family farmers than the other ones. So it is imperative to determine the various primary and secondary enterprises and their various combinations.

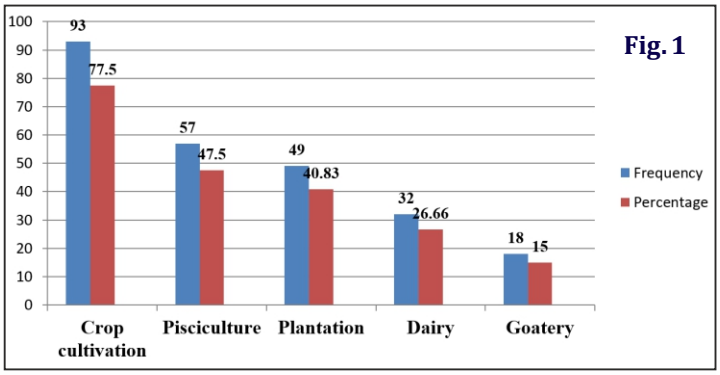


**Fig. 1**

**Distribution of respondents on the basis of their primary enterprise**

A perusal of the data furnished in Fig. 1 showed that in 77.5% of cases crop cultivation was found to be the primary occupation of the respondents followed by Pisciculture (47.5%), plantation (40.83%), dairy (26.66%) and goatery (15%).

It can be interpreted from the above findings that the farmers get a major part of the income from crop cultivation, followed by pisciculture and plantation and these sectors dominated the family farming pattern as a primary enterprise.

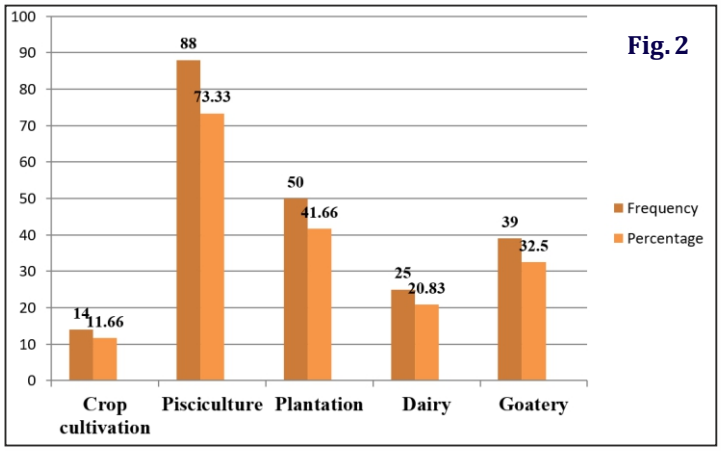


**Fig. 2**

### Distribution of respondents on the basis of their secondary enterprise

A perusal of the data furnished in Fig. 2 showed that in 73.33% of cases pisciculture was found to be the major secondary occupation of the respondents followed by plantation (41.66%), goatery (32.5%), dairy (20.83% and crop cultivation (11.66%). Hence it can be interpreted from the above findings that the farmers get a major part of their income from pisciculture followed by Plantation, goatery and dairy enterprises and these sectors dominated the family farming pattern as a secondary enterprise.

## SUMMARY AND CONCLUSION

The 2014 World Food Day theme – Family Farming- "Feeding the World, Caring for the Earth". It focuses world attention on the significant role of family farming in poverty eradication and providing both food and nutritional security. It also aims at livelihood improvement, natural resource management and environmental protection & sustainability. Therefore, it is significantly proved that Family farms have an inherent capacity for quick production expansion are key to sustainable food production, if given an appropriate policy environment. Similarly in the present research context, it can be concluded that due to high fertile soil and coastal climate in the study area, provides favorable condition for a variety of cultivation of crops especially several varieties of paddy cultivation and due to the close proximity of sea area, it provides an ambient atmosphere for aquaculture, prawn and crab cultivation. It also provides a conducive climate for ample cultivation of plantation crops such as coconut, palm etc which serve as the main source of livelihood and ensure food and income security for women, rural youth and young farmers in the future perspective.

### Conflict of Interest

The resources of the author such as funds; time and mobility were very much limited. Therefore, the universe of the investigation was restricted only to four blocks of Balasore district. Due to limited time, only 120 respondents were taken from adopter categories. The study may be considered as explorative in nature. However, research workers will definitely get valuable information from this study which will help them in large scale investigation.

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