

NOTE

Sustainable Farming Systems Development in Bhadrak Block of Coastal Orissa

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Abstract

India with 2.2% of the total geographical area of the world embraces 16% of the global population. Agriculture is the prime occupation of major part of people i. e. 105 million farm families in 6 lakh villages of India, out of which 30% are below poverty line and 90 million of them belong to small and marginal farmers group. With 41.42% of the total geographical area under cultivation and most fields (about 70%) falling under vagaries of monsoon, it is high time to increase the productivity through sustainable farming systems. Among the farmers of Bhadrak block, small farmers were found to get more return per rupee invested. Fisheries, mushroom animal husbandry were found to be more efficient and productive in coastal belt of Orissa.

Key words : Farming system, Small farmer, Marginal farmer.

The most horrifying feature of many developing countries' demographic picture can be revealed from their burgeoning population over years. India with 2.2% (328 million ha) of world geographical area supports about 16% of the global population increasing at a pace of 1.9% each year, which is equal to the population of Australia. The direct or indirect pressure has been exerted on the demand of food and land. There being no scope for horizontal expansion of cultivated land with dwindling man to land ratio, ever increasing problematic areas and with much touted green revolution confined to potentially endowed pockets benefiting well off farmers, the resource poor and socio-economically under privileged farmers lot is becoming deplorable (though there are 90 million small and marginal farmers out of 105 million farm families residing in 6 lakh villages). So, the only way out for maintaining sustainability in food production is through vertical expansion with diversification of farm enterprises particularly for resource poor small and marginal farmers by focusing on farmer's participatory research and generation of low cost location specific relevant and technically feasible technology and transfer of such technology through an effective and rejuvenated extension network (Dube 1995, CRRRI 1995). Embracing all these

purposes, Farming System Research (FSR) has been developed for sustained increase in food production through vertical expansion.

Most of the coastal Orissa belong to small and marginal farmers group comprising of a little farm pond or ditch for both irrigation and drainage. The agro-ecological situation compels them to go for paddy based cropping system and hence they prefer to maintain small dairy or goatery so as to utilize the farm produce as cattle feed. In addition to this apiary, mushroom cultivation, poultry/duckery and fruit like banana and moringa and papaya cultivation on the farm bund is found to be common phenomenon in that area.

Before inception of the ICAR (NATP) funded Remandated Zonal Agricultural Research Station (Krishi Vigyan Kendra) at Ranital in Bhadrak district, the farmers were maintaining their farm in traditional way without or with a little scientific and technical know how. Extensive training programs were conducted and farmers were given the best possible way for converting those traditional farming system units to scientifically managed sustainable farming systems. To study the economic development of the farmers

Table 1. Income-expenditure statement of beneficiaries of farming system of village Jodagadia, Sarasatia, Tagira and Rahanja.

| Category of farmers | Year | Average size of holdings (ha) | Field crops | | Vegetables | | Animal husbandry | |
|----------------------|---------|-------------------------------|------------------|-------------|------------------|-------------|------------------|-------------|
| | | | Expenditure (Rs) | Income (Rs) | Expenditure (Rs) | Income (Rs) | Expenditure (Rs) | Income (Rs) |
| Small farm family | 2000-01 | 1.44 | 8910 | 14070 | 11200 | 19600 | 1140 | 1660 |
| Marginal farm family | 2000-01 | 0.57 | 2520 | 5260 | 4340 | 8300 | 1500 | 2240 |
| Small farm family | 2001-02 | 1.44 | 7920 | 13720 | 11660 | 21200 | 1560 | 2920 |
| Marginal farm family | 2001-02 | 0.57 | 2300 | 2940 | 3940 | 8220 | 1280 | 2000 |
| Small farm family | 2002-03 | 1.44 | 10320 | 18420 | 11520 | 21240 | 1680 | 3260 |
| Marginal farm family | 2002-03 | 0.57 | 3320 | 5780 | 4420 | 8980 | 2640 | 5340 |

Table 1. Continued.

| Category of farmers | Year | Fisheries | | Miscellaneous (Duckery, Mushroom/Apiary) | | Total expenditure (Rs) | Total return (Rs) | Net return (Rs) | Family labor contribution (Rs) | Total income (Rs) |
|----------------------|---------|------------------|-------------|--|-------------|------------------------|-------------------|-----------------|--------------------------------|-------------------|
| | | Expenditure (Rs) | Income (Rs) | Expenditure (Rs) | Income (Rs) | | | | | |
| Small farm family | 2000-01 | 2500 | 11240 | 750 | 1580 | 24500 | 48150 | 23650 | 12300 | 35950 |
| Marginal farm family | 2000-01 | 1000 | 4250 | 320 | 570 | 9680 | 20620 | 10940 | 6210 | 17150 |
| Small farm family | 2001-02 | 3500 | 14320 | 840 | 2050 | 25480 | 54210 | 28730 | 13780 | 42510 |
| Marginal farm family | 2001-02 | 1360 | 4980 | 350 | 750 | 9230 | 18890 | 9660 | 5850 | 15510 |
| Small farm family | 2002-03 | 3780 | 15770 | 970 | 2180 | 28270 | 60870 | 32600 | 1580 | 34180 |
| Marginal farm family | 2002-03 | 1490 | 5220 | 410 | 780 | 12280 | 26100 | 13820 | 7285 | 21105 |

through farming system approach, to study the role of Krishi Vigyan Kendra (ZARS), Ranital in change in economic status of the farmers.

Twenty respondents with farming system units in four adopted villages namely Jodagadia, Sarasatia, Tagira and Rahanja of Bhadrak block were selected randomly on their size of holdings. The income expenditure statements of their farms were recorded in pre-tested structural interview schedule for three consecutive years i. e. 2000-01, 2001-02 and 2002-03. Changes in employment generation in those farms were also taken in to account.

Table 1 shows that there was steady increase in the economic status of the farmers over years. This can be attributed to the change in knowledge level and skill level of the farmers due to technological intervention of the KVK scientists of ZARS, Ranital Bhadrak.

Moreover the return per rupee invested was higher in small farmers compared to the marginal farm-

ers. This might be due to better financial stability of small farmers which facilitates in timely purchase of farm inputs and hire of farm labors at the time of requirements. But, in marginal farmers, their limited resource-base restricts them to adopt any advanced technology and prevents them to invest in right time and in right way.

The contribution of family labor was better in marginal farmers compared to the small farmers. This might be due to the efficient utilization of the labor force due to non-availability of other avenues.

Fisheries, mushroom cultivation and animal husbandry were found to be more beneficial to the small farmers. In marginal farmers return per rupee invested was found to be inconsistent because of the non-availability of sufficient fodder for the animal for that particular year leading to decrease in output level.

Conclusion

In coastal Orissa where small and marginal farmers lead the farming community, farming system was

found to be main stay. The existing farming units should be upgraded with the help of technical persons for efficient and sustainable return. Enterprises like fisheries, mushroom cultivation and animal husbandry should be given priority in coastal tract of Orissa. Training objectives should be directed more towards landless and bonded labors. Adequate steps should be taken for utilization of farm wastes and

with limited air and water pollution.

References

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