**An analysis of the Problems Faced by Rural Women in the Adoption of Integrated Farming System: the case of Udaipur District, Rajasthan**


## ABSTRACT

Integrated Farming System (IFS) is a sub-system of a high-level land use system like a village or a watershed which includes crop production, raising livestock, fishery, poultry, and beekeeping on a particular farm with an objective of higher profitability without altering ecological and socio-economic balance on one hand and to meet the national goals on the other hand. The present study was planned to study problems faced by rural women in the adoption of recommended technologies. The study was conducted in *Gudli* village of Udaipur district of Rajasthan. The AICRP on Home Science has promoted two IFS models viz. crop+horticulture and crop+poultry in the adopted village of MPUAT, Udaipur. From the selected village, 50 respondents for the crop+horticulture model and 60 respondents for crop+poultry model were selected for the study. For accomplishing the present investigation, interviews (Structured) were conducted to collect information from the rural women beneficiaries. After data collection, data were analyzed using frequency, percentage, mean percent score and paired t-test. The major constraints faced by the respondents in the adoption of technologies were lack of technical guidance, lack of facilities, lack of finance, lack of improved technologies and more workload. There is need of training, good government support, easy availability of credits and improved tools and machinery for smooth running of these IFS models.




## INTRODUCTION

Indian agriculture is characterized by inter and intra-linking crop production activities with one or more agricultural and allied enterprises like cattle, sheep, goats, pigs, sericulture, poultry, fishery, beekeeping and vermicomposting. Under the given situation, Indian farming is not commercialized to a large extent on one hand and on the other hand farmer has to make decisions regarding his business of farming with a view to attain sustainability. Unsustainable farming leads to environmental pollution and threatens the livelihood of millions of small farm holders. Strengthening agricultural production systems for greater sustainability and higher economic returns is a vital process for increasing income and food and nutrition security in developing countries (Ravallion and Chen, 2009). In this regard, the farming

system which provide suitable and a sustainable socio-economic environment in resolving solutions to the problems encountered in agricultural production is a vital process.

The mono-cropping is risky due to seasonal and climate uncertainty and farmers invest heavily in single crops to get maximum return. The best solution to this problem is Integrated Farming System which minimizes the risk of monocropping and sound management of farm resources to enhance the farm productivity, reduce the environmental degradation and improve the quality of life for poor farmers and to maintain sustainability.

Integrated Farming System (IFS)is a sub-system of a high-level land use system like a village or a watershed which includes crop production, raising livestock, fishery, poultry, and beekeeping on a particular farm with an objective of higher profitability without altering ecological and socio-economic balance on one hand and to meet the national goals on the other hand(www.agri-bsc.kkwagh.edu.in).

Integration of various enterprises in a farm ensures recycling of farm residues, optimum use of available resources, increase in employment opportunities, minimization of risks and uncertainties and above all to increase the farm income. Nagarm (1989) opined that for smallholders farms in developing countries, growing food and forage together on the same land have not been much practiced probably because of lacking knowledge in suitable species and proper methods of cultivation to fit forage into farming systems. The farmers have become aware of integrated farming systems fairly and widely about each and every component. Sheikh *et al.* (2022) analyzed the problems by computing the Problem Facing Index (PFI) score by the farmers and the expert members. Lack of marketing products from various IFS components had the farmers' perception of the highest PFI (285 and 52). From the expert members in Punjab part, the same problem was ranked 3rd by the farmers and expert members in Bangladesh. Lack of coordinated extension services was ranked 1st both by the farmers (PFI, 295) and expert members (PFI, 54) in Bangladesh part which was rated 7th by the farmers (6th by the expert members) in the Punjab. The problem is the lack of IFS model demonstrations ranked 2nd by the farmers (5th ranking by expert members) in the Punjab, which had 4th ranking by the farmers and the expert members in the Bangladesh side. Besides, the high initial cost was rated 3rd by the farmers (2nd by the expert members) in Punjab study areas, which was ranked 2nd most important problems by the farmers and expert members. The present study was formulated with the objectives of identify the problems faced by the integrated farming system farmers in various enterprises

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## METHODOLOGY

The present study was conducted purposively in *Gudli* village of *Mavli* panchayat samiti of Udaipur district in Rajasthan state as the researcher was well acquainted with the socio-economic conditions of the place which facilitated and smoothened the data collection process. Another reason was that AICRP – Home Science has adopted the village and promoted various IFS models in the village. The AICRP on Home Science has promoted two IFS model viz. crop+horticulture and crop+poultry in the adopted villages of MPUAT, Udaipur. For selection of sample, IFS model wise list of women was procured from AICRP on Home Science. From the list, it was observed that crop+horticulture and crop+poultry IFS models were promoted among 50 and 60 respondents, respectively. Thus there were total 110 rural women and all were included in the study. For accomplishing the present investigation, interview (Structured) technique was used to collect information from the rural women beneficiaries. For this purpose, interview schedule was developed by the investigator by consulting a review of the literature. The schedule included problems faced by rural women in adoption of recommended technologies under IFS model. The constraints were clubbed under different categories such as personal, technical, operational and financial.

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The respondents were contacted individually and interviewed at their homes and farms. The questions were asked in local dialect (*Mewari*), which helped them to understand the questions more clearly.

## RESULTS AND DISCUSSION

Whenever we adopt an activity for income generation, there may be chances to face many problems that could be personal, financial and it is very important to rectify or mitigates the problem of rural women while adopting of recommended practices as these constraints could demotivate them there are more chances that the practices would be stopped by them in future. Hence in this section, the constraints are categorized as follows:

### a. Personal constraints

In the horticulture IFS model Table 1 indicates that majority of the respondents (86%) reported that domestic or household chores have been neglected by them as they were giving more time on horticulture operations followed by 84% reported that more hard work is required for carrying out horticulture based activities. Apart from that 66 and 58% respondents reported that they felt more fatigue in performing these activities and often

rearing of children got neglected. More than half of the respondents (56%&52%) had less leisure time to carry out other activities and there was an electricity problem in the village (which was an obstacle for them. Furthermore, heavy loan repayment, transportation and stiff completion in market were also other personal problems reported by 28 to 40% respondents.

In the poultry IFS model, 80% of the respondents reported that it was the problem of labour and hard work whereas more than half of the respondents 51.66 and 53.33% reported that electricity was a major problem in poultry house constant lighting is required for layers and brooders and there was heavy interest on loan amount which was very difficult to repay the bank. Apart from that half of the respondents (50%) had less leisure time to carry out other activities, 43.33% reported that domestic work gets neglected by them as poultry work required constant vigilance and 33.33% felt more fatigue in performing poultry activities. About 16.66 to 23.33% of the respondents reported other problems i.e. stiff competition, transportation, and less time allocation to the raring of children. Pandey *et al*. (2019) studied constraints faced by farmers in adoption of integrated farming system in vindhyan plateau of Madhya Pradesh and reported that as per the farmers opinion, overall (54.44%) farmers were faced problems in integrated farming system in different extent. The main constraint confronted by farmers were" financial constraints rank Ist followed by "marketing constraints" (rank IInd), "situational constraints " (rank IIIrd), "production constraints" (rank IVth) and "extension constraints" (rank Vth) respectively.

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**Table 1: Personal constraints faced by the respondents in adoption of recommended technologies**

| Personal Constraints | IFS Model | | | |
|---|---|---|---|---|
| | Horticulture (n=50) | | Poultry (n=60) | |
| | f | % | f | % |
| More workload /Hard work | 42 | 84 | 48 | 80 |
| Fatigue | 33 | 66 | 20 | 33.33 |
| Domestic work gets neglected | 43 | 86 | 26 | 43.33 |
| Children gets neglected | 29 | 58 | 14 | 23.33 |
| Lack of Space / time | 23 | 56 | 30 | 50 |
| Transportation | 14 | 28 | 14 | 23.33 |
| Lack of electricity | 26 | 52 | 31 | 51.66 |
| Stiff competition | 20 | 40 | 10 | 16.66 |
| Heavy interest rate on loan amount | 20 | 40 | 32 | 53.33 |

*Multiple responses

The results of the present study are in conformity with the study of Palanivelu and Manikandan (2017) who observed that women in India are very emotionally attached to their families. They are supposed to attend to all the domestic work, to look after the children and other members of the family. They are overburdened with family responsibilities like extra attention to husband, children and in-laws which take away a lot of their time and energy. In such a situation, it will be very difficult to concentrate and run the activities successfully.

**b. Operational Constraints**

Table 2 shows that in the horticulture model, 84% of respondents reported that there were loses during the handling of the product as there was a lack of appropriate packaging material whereas there was also a lack of government support/interest and feasible schemes for them (70%). More than half of the respondents (54% &56%) reported that there were low shelf life of raw material and final product, as the majority of the fruits and vegetables were perishable in nature and there was also lack of proper transportation facilities to deliver the product in the nearby market. There was lack of marketing facilities as reported by 46% of the respondents and there was huge demand fluctuation also (44%). It was further reported by an equal number of respondents (38%) that sometimes a certain disease outbreak became a constraint for them which hamper their marketing and sometimes middleman demanded a huge commission for selling their product. Respondents (36%) further reported that there was a lack of storage facilities as they had very limited space to store the fruits and vegetables. Pushpa (2010) reported in the adoption of Integrated Farming Systems that lack of coordinated extension service, lack of demonstration on the integrated farming system, and lack of knowledge on integration aspects of sub-systems are the main constraints. Akshitha and Dolli (2020) stated in a study that the equal per cent (86.66 %) of IFS farmers expressed non availability of inputs in time and high wage rate as their major constraints, followed by lack of technical knowledge regarding IFS (80.00%), high cost of inputs (70.00%) and insufficient power supply (63.33%) as production related constraints. Major marketing constraints expressed by the IFS farmers includes low remunerative price for the produce (86.66%) and price fluctuation (83.33%).

**Table 2: Operational constraints faced by the respondents in adopting Horticulture and Poultry IFS model**

| Operational Constraints | IFS Model | | | |
|---|---|---|---|---|
| | Horticulture (n=50) | | Poultry (n=60) | |
| | F | % | f | % |
| Low shelf life of raw material and the product | 23 | 56 | 30 | 50 |
| Demand fluctuation | 22 | 44 | 38 | 63.33 |
| Lack of storage facility | 18 | 36 | 47 | 78.33 |
| Disease outbreak | 19 | 38 | 60 | 100 |
| Commission to middleman | 19 | 38 | 16 | 26.66 |
| Lack of marketing facility | 23 | 46 | 30 | 50 |
| Losses during handling | 42 | 84 | 16 | 26.66 |
| Lack of proper transportation | 27 | 54 | 30 | 50 |
| Lack of government support | 35 | 70 | 54 | 90 |

*Multiple responses

In poultry model, 100% of respondents reported that a disease outbreak sometimes could create a problem in the poultry business which directly affects the selling of products. In an informal discussion, rural women reported that an outbreak of bird flu (in July 2021 year) and corona pandemic shattered their poultry business and they had a huge loss. Apart from that 90% of respondents reported that there was a lack of government support as the current schemes are not attractive and feasible for them. There was a lack of storage space for preserving eggs and chicks as reported by 78.33% of the respondents. Moreover, respondents reported that there was fluctuation in demand of the product in the market, which created problem in selling of their product and received less/minimal profit (63.33%). Further, half of the respondents (50%) reported that there was lack a of marketing and transportation facilities of selling their end product to the nearby market. Nearly a quarter of the respondents (26.66%) faced other problems *viz.* commission of middleman and losses during handling. In a study conducted by Poorani *et al.* (2011) stated that, the integrated farmers from Palladam district of Western Zone of Tamil Nadu faced a major production constraint was the insufficient quantity of fodder to feed their livestock during the offseason.

Palanivelu and Manikandan (2017) reported the same that tuff competition in the market and lack of mobility of women make them dependent on middleman. Many women found it very difficult to capture the market share and make their products well popular and accepted by

customers. Most of the women especially in rural areas were not aware of the financial assistance provided by various institutions.

**c. Technical constraints**

Perusal of the Table 3 reveals percentage distribution of the respondents according to technical constraints perceived by the respondents in both horticulture and poultry models.

**Table 3: Technical constraints faced by the respondents in adopting Horticulture and Poultry IFS model**

| Technical Constraints | IFS Model | | | |
|---|---|---|---|---|
| | Horticulture (n=50) | | Poultry (n=60) | |
| | F | % | f | % |
| Lack of technical guidance | 40 | 80 | 60 | 100 |
| Lack of improved technology in local market | 23 | 46 | 60 | 100 |
| Modern machine and tools are not available | 25 | 50 | 60 | 100 |

*Multiple responses

About technical constraints, Table 3 indicates that in horticulture model, majority of the respondents (80%) had lack of technical guidance in performing horticultural operations. Rural women showed their desire that they need advance training and technical support from the government training unit so that they could upgrade their existing knowledge. Half of the respondents (50%) reported that they require modern machine and tools in carrying out horticultural operations such as harrowing, hoeing, weeding, tillage, puddling and post-harvest management of fruits and vegetables followed by 46% of the respondents reported that the machines which were available in local market were not improved/advanced as they were using old and traditional one which are obsolete now a days. Youns (2013) found that major constraints perceived by the Schedule caste/Schedule Tribe farmers regarding IFS were non-availability of quality planting materials (96.58%) followed by lack of the technical knowledge (87.17%), lack of knowledge in identification of pest and diseases (84.61%) and balanced use of fertilizers (81.19%). Pandey *et al.* (2019) in a joint study revealed that majority (54.44%) of the farmers were faced problems in Integrated Farming System in different extent.

In poultry IFS model, 100% respondents reported that there was urgent need of technical guidance requirement from animal husbandry department and the tools which they possessed

were not up to date as they need advanced tools for smooth functioning of backyard poultry and the modern technology which they require is not available in the market. In informal discussion, rural women forced that they were facing lots of problem in poultry model, and they were thinking to shut down it. Meshram and Khare (2020) concluded that the constraints based on the overall mean score and ranking the major constraints of IFS practicing farmers as the order of severity as production constraints, lack of resistant varieties towards various pest and diseases (mean score- 2.17, Rank I) followed by, the situational constraints as uneven distribution of rainfall (mean score 2.15, Rank II), Financial constraints expressed that high cost of production (mean score- 2.10, Rank III), in marketing constraints as fluctuation in the prices (mean score - 1.92, Rank IV).

In a research study conducted by Kinyangi in the year 2014 observed the same that majority of the respondents (87%) indicated the cost of technology was a very strong factor affecting adoption of technology among small farmers and 12.5% were undecided. Majority of the respondents (92.3%) believed that availability of tools and equipment was also a significant factor affecting adoption of technology whereas 51% respondents also reiterated that cost of technology and exposure to technology were rated as the key determinants of technology adoption.

**d. Financial constraints**

Perusal of the Table 4 reveals percentage distribution of the respondents according to financial constraints perceived by the respondents in both horticulture and poultry model.

**Table 4: Financial constraints faced by the respondents after adopting Horticulture and Poultry IFS model**

| Financial Constraints | IFS Model | | | |
|---|---|---|---|---|
| | Horticulture (n=50) | | Poultry (n=60) | |
| | f | % | f | % |
| Lack of finance | 41 | 82 | 37 | 61.66 |
| Lack of timely availability of credit | 16 | 32 | 14 | 23.33 |
| No financial support by other | 34 | 68 | 36 | 60 |
| High price of raw material | 32 | 64 | 48 | 80 |
| License for products | 16 | 32 | 12 | 16.66 |

*Multiple responses

It is depicted from the table that in horticulture, majority of the respondents (82%) perceived lack of finance in running the horticulture operations such as procurement of raw material, marketing of products and selling of items in market. Rural women explained that their husband had minimal daily wages and had no savings to purchase something. About 68% of the respondents reported that they had no financial support from family and relatives to whom they lend the money, followed by 64% respondents explained that the cost of raw material was very high such as seed, fertilizers, agriculture tools and equipment and it was out of their reach to purchase good quality seed, fertilizers and modern equipment. Lack of timely availability of credit was also a big problem as reported by 32% of respondents.

Table 4 shows that in case of poultry model, 80% of the respondents faced problem of high cost of material like, fodder for chicks, 24 hour lighting arrangement, temperature regulation for chicks, arrangement of cage for layers and brooders, maintenance of hygiene and disease control measures whereas 61.66% reported lack of finance as they had minimum livelihood activities followed by 60% had no financial support or help from others such as friends and relatives. The non-availability of credit on time as reported by 23.33% of the respondents. They further reasoned that the process of getting credit was too lengthy and tedious and sometimes, interest rate was so high that they were not able to pay it back. The present study is in line with the study of Ahmad and Parmar (2018) who studied role of integrated farming system in agriculture development and reveals that the constraints faced by farmers in adoption of IFS include shortage of labour, lack of availability of critical inputs like seeds and fertilizers at proper time, low investment capacity due to small size of land holdings and lack of awareness about benefits of Integrated Farming System.

## CONCLUSION AND RECOMMENDATION

Rural women stated that in running these IFS models they face many problems and especially in poultry, where they faced bird flu and COVID crises. Apart from that they were able to carry out the horticulture and poultry activities independently. Rural women suggested that they need training, good government support, easy availability of credits and improved tools and machinery for smooth running of these IFS models.

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