

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 9; September 2026; Page No. 249-254

Received: 11-06-2026
Accepted: 15-07-2026

Indexed Journal
Peer Reviewed Journal

Economic analysis of the different enterprises under Integrated Farming System in Wardha District of Maharashtra

¹Chatur VV, ²Shambharkar YB, ³Lahariya KT, ⁴Shende NV and ⁵Deshmukh JP

¹M.Sc. Student, Department of Agricultural Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

²Professor, Department of Agricultural Extension Education, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

³Professor, Department of Agricultural Extension Education, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

⁴Professor and Head, Department of Agricultural Economics and Statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

⁵Professor, I/C Integrated Farming System, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i9d.4195>

Corresponding Author: Chatur VV

Abstract

Integrated Farming System (IFS) combines crop production with allied enterprises such as horticulture and dairy on the farm unit, providing diversified and stable income to farmers. The study analysed the socio-economic profile and economics of enterprises adopted by beneficiary farmers under the AICRP-IFS project of ICAR-IIFSR, Modipuram, implemented by Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola, in six villages of Wardha district, Maharashtra. An ex-post facto research design was adopted, and 36 beneficiary farmers were purposively selected, comprising 21 farmers under IFS Model 1 (Crop + Horticulture + Dairy) and 15 under IFS Model 2 (Crop + Dairy). Primary data for 2025–26 were collected through interviews using a pre-tested interview schedule and analysed using frequency, percentage, mean, standard deviation, and cost-return analysis. The results showed that respondents were of old age (66.66%; mean 53.58 years), had small land holdings (61.11%; mean 1.27 ha), and exhibited medium progressiveness (66.67%) and medium risk orientation (50.00%). Among field crops, soybean recorded the highest B:C ratio (8.66), followed by gram (4.67), cotton + pigeon pea (3.19), and wheat (2.61). Among horticultural crops, sweet orange (5.57) and orange (5.03) were the most profitable perennial enterprises, while okra (2.97) and spinach (2.91) were the most profitable seasonal vegetables. Dairy emerged as the most profitable enterprise, with buffalo rearing recording B:C ratios of 12.87 and 11.43 under Models 1 and 2, respectively. The findings highlight the economic advantage of integrating horticulture and buffalo-based dairy with field crops and provide a basis for enterprise-mix planning under IFS.

Keywords: Integrated farming system, beneficiary farmers, profile, socio-personal characteristics, Wardha district

1. Introduction

The Integrated Farming System (IFS) combines crop production with one or more allied enterprises, such as horticulture and dairy, on the same farm to make efficient use of on-farm resources, generate income and employment throughout the year, and reduce the risk associated with dependence on a single enterprise. Behera and France (2016) ^[1] observed that IFS models combining crop, livestock and horticulture components are particularly suited to improving the livelihood security of small and marginal farmers in India, while Mahapatra and Behera (2011) ^[2] highlighted the role of such systems in stabilizing farm income across seasons. The extent and manner in which farmers adopt and benefit from IFS is closely linked to their socio-personal, economic and psychological characteristics. Variables such as age, education, land holding, family size, access to information, progressiveness and risk orientation.

shape a farmer's capacity to manage multiple enterprises simultaneously and to respond to the technical and institutional support extended under structured programmes. A clear understanding of the profile of beneficiary farmers is therefore a necessary first step before the economic and socio-economic impact of any IFS programme can be meaningfully interpreted, since the same intervention may affect farmers differently depending on their resource base and orientation. Paramesh *et al.* (2022) ^[3] and Bhagat *et al.* (2024) ^[4] have similarly emphasised the need to characterise the beneficiary population while evaluating IFS interventions.

Wardha district of Maharashtra has a considerable number of farmers who have adopted IFS components under the All India Coordinated Research Project (AICRP) on Integrated Farming Systems, implemented by ICAR-IIFSR,

Modipuram, through Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola, making it an appropriate setting for such a profiling exercise. While the economic and impact dimensions of IFS adoption have received relatively greater research attention, a detailed profile of the beneficiary farmers themselves, covering their personal, socio-economic and psychological characteristics as well as their cropping pattern before and after adoption, remains comparatively less documented for this project and region. Against this background, the present study was undertaken with the specific objectives: (i) to study the profile of beneficiary farmers under the integrated farming system (ii) to analyze the economics of different integrated farming system enterprises adopted by the beneficiary farmers.

2. Methodology

The study was conducted in Wardha district of Maharashtra, purposively selected owing to the presence of a considerable number of IFS-adopting farmers under the AICRP-IFS project. Within the district, Wardha taluka was purposively selected, and six villages, namely Bharaswada, Sujatpur and Sirkutani from Ashti block, and Dharti, Bhalu and Jaurwada from Karanja Ghadge block, were purposively selected for the study.

An ex-post facto research design was adopted, as the IFS interventions had already been implemented by the beneficiary farmers. Respondents were selected purposively from among farmers who had adopted and implemented IFS components under the project; six beneficiary farmers were selected from each of the six villages, giving a total sample of 36 respondents.

Primary data were collected through personal interviews using a pre-tested, structured interview schedule, supplemented by secondary data from published records and project documents of ICAR-IIFSR and Dr. PDKV, Akola. The profile of the respondents were studied under twelve independent variables, namely age, education, land holding, family size, sources of information, progressiveness, source of irrigation, risk orientation, cropping pattern (before and after IFS adoption), labour availability, insurance availment and training received. Age, land holding and family size were recorded in actual units and categorised using standard class intervals. Sources of information were assessed on a three-point continuum (Always = 2, Sometimes = 1, Never = 0) across informal, formal and mass-media channels, and progressiveness was measured with a teacher-made scale administered on a five-point continuum (Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree); both variables were categorised on the basis of mean and standard deviation. Risk orientation was measured using the scale developed by Supe (1969) [5] with suitable modification, and respondents were similarly categorised using mean and standard deviation, while labour availability, insurance availment and training received were assessed through direct questioning and categorised as described in the relevant tables. The data so collected were coded, tabulated and analysed using frequency, percentage, arithmetic mean and standard deviation to describe the profile of the beneficiary farmers.

3. Results and Discussion

3.1 The profile of the beneficiary farmers was studied using

thirteen selected characteristics, and the data are presented in Table 1.

3.1.1 IFS Component / Model Adopted

Table 1 indicates that out of 36 beneficiary farmers, more than half (58.33%) had adopted IFS Model 1, combining crop production with horticulture and dairy enterprises, while the remaining 41.67 per cent had adopted IFS Model 2, combining crops with the dairy enterprise alone. Crop + Horticulture + Dairy was thus the predominant model, indicating a preference among beneficiary farmers for more diversified enterprise combinations. These findings are in line with the results of [1, 2], who reported that enterprise combinations involving crop, livestock and horticulture components are most widely adopted among smallholder farmers owing to their potential for higher and more stable income throughout the year.

3.1.2 Age

Table 1 shows that a relatively higher proportion (66.66%) of the respondents belonged to the old age group (above 50 years), followed by 30.56 per cent in the middle age group (36 to 50 years), while only 2.78 per cent belonged to the young age group (up to 35 years). The mean age of the respondents was 53.58 years. This may be attributed to the fact that experienced farmers are more likely to be selected for, and committed to, long-term integrated farming interventions. These findings are in line with the results of [3, 4, 5].

3.1.3 Education

The data in Table 1 reveal that the higher proportion of the respondents (30.56%) had completed secondary school education, followed by higher secondary (22.22%), middle school (19.44%), and primary and college level education (13.89% each). A combined 66.67 per cent of the respondents had attained secondary education or above, indicating a reasonably literate sample capable of understanding the technical aspects of IFS management. Similar findings were reported by [4, 5, 6].

3.1.4 Land Holding

It is evident from Table 1 that the maximum number (61.11%) of the respondents belonged to the small land-holding category (1.01 to 2.00 ha), while 38.89 per cent belonged to the marginal category (up to 1.00 ha). The mean land holding was 1.27 ha, and none of the respondents possessed more than 2.00 ha. Thus, all the beneficiary farmers in the study area were smallholder or marginal farmers, for whom diversification of income through IFS is particularly important. This finding is consistent with the report of [7].

3.1.5 Family Size

Table 1 reveals that the relatively higher (61.11%) of the respondents belonged to the small family size category (up to 4 members), followed by 33.33 per cent with medium family size (5 to 7 members), while only 5.56 per cent had large families (above 7 members). The mean family size was 4.36 members, indicating that most beneficiary households were nuclear or small family units, which may have implications for the availability of family labour in managing multiple IFS

enterprises. Comparable results were reported by [8, 5, 9].

3.1.6 Sources of Information

It is evident from Table 1 that a larger proportion (63.89%) of the respondents had a medium level of utilisation of sources of information, followed by 19.44 per cent with a low level and 16.67 per cent with a high level of utilisation (mean score 16.58, S.D. 2.37). Among individual sources, all respondents (100.00%) always contacted the Assistant Agriculture Officer and University Scientists, and 80.56 per cent always contacted KVK Scientists, reflecting a strong institutional linkage under the AICRP-IFS programme, while overall utilisation across all channels remained at a moderate level. Similar findings were reported by [10, 11].

3.1.7 Progressiveness

The findings in Table 1 show that the majority (66.67%) of the respondents had medium progressiveness, followed by 19.44 per cent with low and 13.89 per cent with high progressiveness (mean score 74.44, S.D. 12.24). This indicates that IFS beneficiary farmers in the study area were moderately progressive in their orientation towards new agricultural technologies. Similar results were reported by [2, 12].

3.1.8 Source of Irrigation

Table 1 shows that the half of the respondents (50.00%) depended on wells as their primary source of irrigation, followed by 41.67 per cent using borewells, while only 8.33 per cent depended on canal irrigation. The findings indicate that most IFS farmers in the study area depended on groundwater sources for irrigating their crops and allied enterprises, consistent with the predominantly groundwater- and rainfed-based irrigation scenario of Wardha district. Similar findings were reported by [13, 2].

3.1.9 Risk Orientation

It is evident from Table 1 that the half (50.00%) of the respondents had medium risk orientation, followed by 30.56 per cent with high and 19.44 per cent with low risk orientation (mean score 79.07, S.D. 7.50). This indicates that IFS beneficiary farmers displayed a moderate to high level of willingness to face the risks associated with new agricultural enterprises and technologies.

3.1.10 Labour Availability

The findings in Table 1 reveal that the majority (66.67%) of the respondents reported sufficient labour availability for carrying out agricultural and allied enterprise activities, while 33.33 per cent reported moderate availability; none of the respondents reported inadequate labour. This may be attributed to the multi-enterprise nature of IFS, which provides year-round employment to family members across different farm activities, thereby reducing dependence on hired seasonal labour. A similar observation was reported by [14].

3.1.11 Insurance Availment

Table 1 indicates that the larger proportion (58.33%) of the respondents had availed crop insurance, while 41.67 per cent had not availed any insurance; none had availed livestock insurance. The relatively low insurance coverage for allied livestock enterprises is a concern, given that the dairy

component constitutes a major source of income for beneficiary farmers, underscoring the need for enhanced awareness and facilitation of livestock insurance among IFS beneficiaries.

3.1.12 Training Received

It is evident from Table 1 that the majority (63.89%) of the respondents had received training under the AICRP-IFS programme or through allied extension activities, while 36.11 per cent had not received any formal training. This relatively high proportion of trained farmers reflects the strong extension component of the AICRP-IFS project at Dr. PDKV, Akola, and underlines the importance of training in component management, nutrient recycling and allied enterprise operations for effective IFS adoption. Similar findings were reported by [15, 2].

3.1.13 Cropping Pattern (Before and After IFS Adoption)

Table 2 reveals a notable shift in the cropping pattern of respondents following IFS adoption. The area under soybean decreased from 29.19 ha (27 farmers) to 25.76 ha (24 farmers), and cotton + pigeon pea also decreased from 15.89 ha (15 farmers) to 12.59 ha (14 farmers). In contrast, the area under rabi crops increased substantially, with wheat rising from 13.68 ha (14 farmers) to 20.55 ha (20 farmers), and gram from 9.11 ha (13 farmers) to 13.75 ha (16 farmers). Most significantly, horticultural enterprises were entirely absent before IFS adoption but emerged as important components afterwards, with sweet orange (6.38 ha, 11 farmers) and orange (9.18 ha, 16 farmers) becoming major perennial fruit enterprises, and seasonal vegetables such as okra, brinjal, chilly, onion and spinach being introduced across multiple farms.

These findings clearly demonstrate that the cropping pattern of beneficiary farmers showed substantial diversification after adoption of IFS away from dependence on kharif cash crops towards a combination of food crops, fruit orchards and seasonal vegetables, consistent with the principle of enterprise diversification underlying IFS. Similar patterns of diversification following IFS adoption have been documented by [1, 2].

3.2 Economic Analysis of Different Enterprises

3.2.1 Economic Analysis of Crop and Horticultural Enterprises

The economics of the different field crop, horticultural and vegetable enterprises cultivated by the respondents under IFS during 2025-26 are presented in Table 3. Among field crops, soybean recorded the highest benefit-cost (B:C) ratio of 8.66, on a total area of 25.76 ha, total expenditure of Rs 3,27,152 and net profit of Rs 25,07,478 indicating the highest economic efficiency per rupee invested among the field crops. Gram (chickpea) recorded a B:C ratio of 4.67, followed by cotton + pigeon pea (3.19) and wheat (2.61), the lowest among the four field crops studied. These findings indicate a clear economic advantage in integrating perennial fruit and select vegetable enterprises with field crops under IFS. Perennial horticultural crops, in particular, provide a sustained, high-value income stream that complements the seasonal income from field crops, thereby contributing to income stabilization for beneficiary households. Similar findings on the profitability of horticultural integration under IFS have been reported by Behera and France.

Table 1: Distribution of the beneficiary farmers according to their selected profile characteristics (N=36)

Sr. No.	Profile of the beneficiary farmers (N=36)	f	%
1	IFS Component / Model Adopted		
	Crop + Horticulture + Dairy (Model 1)	21	58.33
	Crop + Dairy (Model 2)	15	41.67
	Total	36	100.00
2	Age		
	Young (Up to 35 years)	01	02.78
	Middle (36 to 50 years)	11	30.56
	Old (Above 50 years)	24	66.66
	Total	36	100.00
Mean = 53.58 years			
3	Education		
	Primary School (Up to 4th)	05	13.89
	Middle School (5th to 7th)	07	19.44
	Secondary School (8th to 10th)	11	30.56
	Higher Secondary School (11th to 12th)	08	22.22
	College (Above 12th)	05	13.89
	Total	36	100.00
4	Land Holding		
	Marginal (Up to 1.00 ha)	14	38.89
	Small (1.01 to 2.00 ha)	22	61.11
	Total	36	100.00
Mean = 1.27 ha			
5	Family Size		
	Small (Up to 4 members)	22	61.11
	Medium (5 to 7 members)	12	33.33
	Large (Above 7 members)	02	05.56
	Total	36	100.00
Mean = 4.36 members			
6	Sources of Information		
	Low	07	19.44
	Medium	23	63.89
	High	06	16.67
	Total	36	100.00
Mean = 16.58 S.D. = 2.37			
7	Progressiveness		
	Low (Up to 62)	07	19.44
	Medium (63 to 87)	24	66.67
	High (Above 87)	05	13.89
	Total	36	100.00
Mean = 74.44 S.D. = 12.24			
8	Source of Irrigation		
	Well	18	50.00
	Borewell	15	41.67
	Canal	03	08.33
	Total	36	100.00
9	Risk Orientation		
	Low (Up to 72)	07	19.44
	Medium (73 to 86)	18	50.00
	High (Above 86)	11	30.56
	Total	36	100.00
Mean = 79.07 S.D. = 7.50			
10	Labour Availability		
	Moderate (1.01 to 3.00)	12	33.33
	Sufficient (Above 3.00)	24	66.67
	Total	36	100.00
11	Insurance Availment		
	Not availed any insurance	15	41.67
	Availed crop insurance	21	58.33
	Total	36	100.00
12	Training Received		
	No training received	13	36.11
	Attended training programmes	23	63.89
	Total	36	100.00

Table 2: Cropping pattern of respondents before and after IFS adoption

Sr. No.	Crops/ Season	Before (2022-23)		After (2025-26)	
		Area (ha)	f	Area (ha)	f
	Kharif Crops				
1	Soybean	29.19	27	25.76	24
2	Cotton + Pigeon Pea	15.89	15	12.59	14
	Rabi Crops				
1	Wheat	13.68	14	20.55	20
2	Gram (Chickpea)	09.11	13	13.75	16
	Horticultural Crops (Perennial)				
1	Sweet Orange	0	0	6.38	11
2	Orange	0	0	9.18	16
	Horticultural Crops (Kharif Vegetables)				
1	Okra	0	0	0.60	02
2	Brinjal	0	0	0.60	02
3	Chilli	0	0	0.20	01
	Horticultural Crops (Rabi Vegetables)				
1	Onion	0	0	1.50	04
2	Spinach	0	0	0.10	01

3.2.2 Economic Analysis of Dairy Enterprise

The dairy enterprise constitutes a major allied component of IFS in the study area, providing a regular income stream throughout the year from milk sales. Table 4 presents the

economics of the dairy enterprise, separately for cow and buffalo, under both IFS models.

Under IFS Model 1 (N=21), buffalo rearing (03 animals) recorded a markedly high B:C ratio of 12.87, with a total expenditure of only Rs 19,500 against a total income of Rs 2,50,900 and net profit of Rs 2,31,400, while cow rearing (21 animals) returned a B:C ratio of 3.58, with a total income of Rs 6,65,324, total expenditure of Rs 1,85,900 and net profit of Rs 4,79,424. Under IFS Model 2 (N=15), buffalo (01 animal) and cow (15 animals) returned B:C ratios of 11.43 and 4.00 respectively. In both models, buffalo rearing was considerably more profitable per rupee invested than cow rearing, on account of its markedly lower expenditure relative to income.

The high B:C ratios recorded for buffalo may be attributed to the lower cost of maintenance when animals are fed largely through crop residues and farmyard/vermicompost by-products generated within the IFS system, illustrating the underlying principle of nutrient and resource recycling in integrated farming. These findings are consistent with the observations of Joshi *et al.* (2020) and Paramesh *et al.* (2022), who reported that the livestock component of IFS yields a high return on investment when managed jointly with crop and horticultural enterprises.

Table 3: Economic analysis of crop and horticultural enterprises under IFS (2025-26)

Sr. No.	Crop	Total Area (ha)	Total Yield (Qt)	Avg. Rate (Rs/Qt)	Gross Income (Rs)	Total Expenditure (Rs)	Net Profit (Rs)	B:C Ratio
Field Crops								
1	Soybean	25.76	540.96	5240	2834630	327152	2507478	8.66
2	Cotton + Pigeon Pea	12.59	196.9 + 25.33	7600 + 8026	1701739	534000	1167739	3.19
3	Wheat	20.55	451.79	2503	1130605	433607	696620	2.61
4	Gram (Chickpea)	13.75	248.00	5731	1421288	304336	1117936	4.67
Horticultural Crops								
1	Onion	1.50	262.5	650	165865	59600	106265	2.78
2	Spinach	0.10	25.00	1200	30000	10300	19700	2.91
3	Okra	0.60	62.00	3300	202000	68000	134000	2.97
4	Brinjal	0.60	74.00	1200	87500	52000	35500	1.68
5	Chilli	0.20	25.00	1600	40000	18000	22000	2.22
6	Sweet Orange	6.38	155.34	32818	1487273	267046	1220227	5.57
7	Orange	9.18	64.83	32675	2108472	419252	1689220	5.03

Table 4: Economic analysis of dairy enterprise under IFS (2025-26)

Sr. No.	IFS Model	Animal Component	Milk Rate (Rs/L)	Total Milk Yield (L/Yr)	Total Income (Rs)	Total Expenditure (Rs)	Net Profit (Rs)	B:C Ratio
1	IFS Model 1 (N=21)	Cow (21 animals)	55	12096.28	665324	185900	479424	3.58
		Buffalo (03 animals)	65	3860	250900	19500	231400	12.87
2	IFS Model 2 (N=15)	Cow (15 animals)	55	9786	538247	134450	403797	4.00
		Buffalo (01 animal)	65	1125	73125	6400	66725	11.43

4. Conclusion

The study found that beneficiary farmers under the Integrated Farming System in Wardha district were predominantly of older age, held small land holdings and small family sizes, and exhibited medium progressiveness and medium risk orientation, with a majority (58.33%) having adopted the more diversified Crop + Horticulture + Dairy model. Economic analysis of the component enterprises showed that dairy, particularly buffalo rearing, recorded the highest benefit-cost ratios (12.87 under IFS Model 1 and 11.43 under IFS Model 2), reflecting its high efficiency of return per rupee invested through recycling of farm resources within the

system. Among crop-based enterprises, soybean was the most profitable field crop (B:C ratio 8.66) and recorded the highest net return among field crops, while sweet orange and orange were the most profitable horticultural enterprises (B:C ratios 5.57 and 5.03) and orange generated the single highest gross return among all crop and horticultural enterprises studied. Brinjal recorded the lowest benefit-cost ratio (1.68) among all enterprises.

These findings indicate that combining field crops with perennial horticulture and buffalo-based dairy substantially enhances the overall economic efficiency and income-generating capacity of the farming system for beneficiary

farmers, and that enterprise-mix decisions under IFS should account for both the per-rupee efficiency and the absolute income contribution of each component enterprise.

References

1. Behera UK, France J. Integrated farming systems and the livelihood security of small and marginal farmers in India and other developing countries. *Advances in Agronomy*. 2016;138:235-282.
2. Mahapatra IC, Behera UK. Rice (*Oryza sativa*)-based farming systems for livelihood improvement of Indian farmers. *Indian Journal of Agronomy*. 2011;56(1):1-19.
3. Paramesh V, Ravisankar N, Behera UK, Arunachalam V, Kumar P, Rajkumar RS, *et al.* Integrated farming system approaches to achieve food and nutritional security for enhancing profitability, employment, and climate resilience in India. *Food and Energy Security*. 2022;11(2):e321.
4. Bhagat R, Walia SS, Sharma K, Singh R, Singh G, Hossain A. The integrated farming system is an environmentally friendly and cost-effective approach to the sustainability of agri-food systems in the modern era of the changing climate: a comprehensive review. *Food and Energy Security*. 2024;13(1):e534.
5. Supe SV. An introduction to extension education. Oxford and IBH Publishing Company; 1969.
6. Joshi PK, Kumar P, Kishore A. Integrated farming systems for enhancing farmers' income: evidence from smallholder farms in India. *Agricultural Economics Research Review*. 2020;33(1):1-12.
7. Shinde NN. Socio-economic impact of integrated farming system on beneficiary farm families of Pune district [master's thesis]. Rahuri: Mahatma Phule Krishi Vidyapeeth; 2019.
8. Monika, Sharma R, Yadav SK. Sources of irrigation and their utilization pattern among farm households. *Journal of Scientific Research and Reports*. 2024;30(9):210-216.
9. Mohite PB. Socio-economic status of beneficiary farmers under integrated farming system in Vidarbha region [master's thesis]. Akola: Dr. Panjabrao Deshmukh Krishi Vidyapeeth; 2016.
10. Pawar SM. Economic analysis of integrated farming systems for smallholder farmers of Konkan region [master's thesis]. Dapoli: Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth; 2022.
11. Raut MS. Constraints faced by farmers in adoption of integrated farming system in Vidarbha region [master's thesis]. Akola: Dr. Panjabrao Deshmukh Krishi Vidyapeeth; 2018.
12. Singh B. Economic analysis of crop and livestock integration on small farms of Punjab [doctoral dissertation]. Ludhiana: Punjab Agricultural University; 2019.
13. Kirar BS, Singh V, Bhalavi SK, Singh A. Constraints in adoption of integrated farming system in Jabalpur district of Madhya Pradesh. *Journal of Krishi Vigyan*. 2016;5(1):59-62.
14. Solkar PA, Surve US, Sawant BM. Constraints and suggestions of integrated farming system beneficiary farmers in Konkan region of Maharashtra. *International Journal of Agriculture Extension and Social Development*. 2024;7(2):218-222.
15. Hiremath GK, Nagaraj N. Impact of integrated farming system on employment generation among farm households. *Karnataka Journal of Agricultural Sciences*. 2013;26(1):112-115.
16. Bhoyar VN, Salame SP, Chinchmalatpure UR, Ghatol PU, Vaidkar RD, Shambharkar YB. Impact of Dr. PDKV interventions in model village Chelka. *Int J Agric Extension Social Dev*. 2026;9(8):441-444.