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Management orientation of farmers for integrated farming system

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Abstract

India is an agricultural country and majority of farmers in India are small and marginal farmers which possess less than two hectares of land. Achieving livelihood security and sustainability with a single enterprise is quite difficult for these farmers. The average size of agriculture landholding in India has reduced to 1.08 hectare in 2015-16 and there is no further scope for horizontal expansion of land for agriculture. So, vertical integration of various enterprises is need of the hour. In this connection Integrated Farming System (IFS) is a whole farm management system that aims to provide more sustainable agriculture. It indicates to agricultural systems that integrate livestock and crop production. The crop residues serve as food to the fish and livestock, and the wastes from the fish and livestock serve as fertilizer to the crops. Livestock, birds, trees and crops are the major components of IFS. The study was conducted in two Western and Eastern agro-climatic zones of Haryana state, covering two districts of each zone and three villages from each district with random sample techniques with 120 respondents. It was found that in Western zone and Eastern zone majority of respondents agree to the statements that availability of inputs and amount required to be assessed prior to selection of IFS (75.0%) one should plan in advance about the IFS components to be taken during the coming year (68.3%), timely utilization of available resources (65.0%) and ensure proper utilization of available resources undertaken (68.3%), input cost must be as per resources available (65.0%), one can enhance production by applying indigenous technical knowledge (73.3%), grading, value addition and packaging of agriculture produce is necessary to enhance income (70.0%) and (78.3%). Results further revealed that in Western and Eastern zone majority of respondents had medium scores on planning for IFS (63.3% and 66.7%), utilization of resources (61.7% and 53.3%), production of grains in IFS (56.7% and 68.3%) and marketing of produce (48.4% and 56.6%).

Keywords: Integrated farming system, management, planning, utilization, production and marketing

Introduction

India is an agricultural country and majority of farmers in India are small and marginal farmers which possess less than two hectares of land. Achieving livelihood security and sustainability with a single enterprise is quite difficult for these farmers. The average size of agriculture landholding in India has reduced to 1.08 hectare in 2015-16 and there is no further scope for horizontal expansion of land for agriculture. So, vertical integration of various enterprises is need of the hour. In this connection Integrated Farming System (IFS) is a whole farm management system that aims to provide more sustainable agriculture. It indicates to agricultural systems that integrate livestock and crop production. The crop residues serve as food to the fish and livestock, and the wastes from the fish and livestock serve as fertilizer to the crops. Livestock, birds, trees and crops are the major components of IFS. Crop may have subsystem like monocrop, mixed/intercrop, multi-tier crops of cereals, legumes (pulses), oilseeds, forage etc. Livestock components may be milch cow, goat, sheep, poultry and bees. The adoption of feasible farm enterprise combinations, efforts should be made to help farmers to adopt more integrated and resource efficient farming systems that maintain agricultural productivity and profitability while protecting the environment and farm family health. Besides livelihood security, social, economic and environmental sustainability is also ensured by the integrated farming system. IFS ensure that wastes from one form of agriculture become a resource for another form. Since it utilizes wastes as resources, we not only eliminate wastes but we also ensure overall increase in productivity for the whole agricultural systems. Considering these facts in mind this study was planned with the objective to study the Management orientation and Levels of different aspects of management orientation of farmers for Integrated farming system.

Methodology

The study was conducted in two agro climatic (Eastern and Western) zones of Haryana State. Two districts namely Hisar and Bhiwani were selected randomly from Western zone and Kaithal and Jind districts were selected from Eastern Zone. Three villages were selected purposively from each selected district namely Harikot, Mangali, and Kaimri from Hisar district, Bwani Kheda, Prem Nagar and Kungad from Bhiwani district, Peyoda, Songal and Kheri Sheru from Kaithal district and Kaer Kheri, Ahirka and Julna from Jind district and 10 Respondents were selected purposively from each villages. Out of each selected District 30 respondents were selected at random who were doing integrated farming, thus a total of 120 respondents were selected for the purpose of investigation. A well-structured interview schedule was prepared to obtain information from respondents. The data were collected personally by the researcher and obtained data were analyzed by using frequency and percentage.

Results

Management orientation of respondents for Integrated farming system

Management Orientation contains information regarding Integrated Farming System in-terms of Planning for IFS,

Utilization of resources, Production and Marketing of produce.

Planning of respondents for Integrated Farming System

Data present planning of respondents for Integrating Farming System (IFS). Results in Table 1 showed that in Western zone majority of respondents agree to the statements that availability of inputs and amount required to be assessed prior to selection of IFS (75.0%) followed by, one should plan in advance about the IFS components to be taken during the coming year (63.3%) and selecting of IFS components need not to be dependent upon available resources (51.7%), where as in Eastern zone majority of respondents agree that one should plan in advance about the IFS components to be taken during the coming year (68.3%), selecting of IFS components need not to be dependent upon available resources (61.7%), and availability of inputs and amount required be assessed prior to selection of IFS (55.0%). Similar findings were reported by Sasikala *et al.*, (2015)^[11] and Asai *et al.*, 2018^[2]. IFSs are important for the efficient management of available resources at the farm level to generate adequate income and employment for the rural poor, for the promotion of sustainable agriculture, and for the protection of the environment.

Table 1: Planning of respondents for Integrated Farming System N – 120

S. No.	Statements	Western Zone F (%) N = 60			Eastern zone F (%) N = 60		
		Agree	Undecided	Disagree	Agree	Undecided	Disagree
Planning for IFS							
1.	One should plan in advance about the IFS components to be taken during the coming year	38 (63.3)	15 (25.0)	7 (11.7)	41 (68.3)	11 (18.4)	8 (13.3)
2.	Selecting of IFS components need not to be dependent upon available resources	31 (51.7)	13 (21.6)	16 (26.7)	37 (61.7)	19 (31.6)	4 (6.7)
3.	Availability of inputs and amount required to be assessed prior to selection of IFS.	45 (75.0)	9 (15.0)	6 (10.0)	33 (55.0)	15 (25.0)	12 (20.0)
4.	Cost of IFS component need not necessary to evaluate in advance	9 (15.0)	14 (23.3)	37 (61.7)	14 (23.3)	6 (10.0)	43 (71.7)
5.	Prior decision is not necessary for IFS.	3 (5.0)	18 (30.0)	39 (65.0)	5 (8.3)	12 (20.0)	43 (71.7)

Figures in parenthesis indicate percentages

Utilization of resources for Integrated Farming System

Results regarding utilization of resources for Integrating Farming System in Table 2 showed that in Western zone majority of respondents agree on the statements that timely use of available resources (65.0%) followed by consider the availability of resources (51.7%) and ensure proper utilization of available resources (43.3%) where as in case of Eastern

zone majority of respondents agree on the statements that ensure proper utilization of available resources undertaken (68.3%), timely use of available resources (66.7%) and input must be used as per recommended package of practice (63.3%). Similar findings are incorporated by Korikantimath and Manjumatha (2008), Gupta *et al.* (2012) and Gupta, *et al.* (2020)^[9,7,6].

Table 2: Utilization of resources for Integrated Farming System N – 120

S. No.	Statements	Western Zone F (%) N=60			Eastern zone F (%) N=60		
		Agree	Undecided	Disagree	Agree	Undecided	Disagree
Utilization of resources							
1.	Consider the availability of resources	31 (51.7)	16 (26.4)	13 (21.7)	34 (56.7)	17 (28.3)	9 (15.0)
2.	Timely use of available resources	33 (65.0)	23 (38.3)	4 (6.7)	40 (66.7)	13 (21.6)	7 (11.7)
3.	Ensure proper utilization of available resources	26 (43.3)	27 (45.0)	7 (11.7)	41 (68.3)	16 (26.7)	3 (5.0)
4.	Input must be used as per recommended Package of Practice	23 (38.3)	26 (43.4)	11 (18.3)	38 (63.3)	15 (25.0)	7 (11.7)
5.	One can use ample resources in IFS	6 (10.0)	11 (18.3)	43 (71.7)	3 (5.0)	19 (31.7)	38 (63.3)

Figures in parenthesis indicate percentages

Production of Integrated Farming System

Results in Table 3 shows that in Western zone majority of respondents agree on statements that input cost must be as per resources available (65.0%), to follow the necessary guidance of specialist during production process (56.7%) and IFS establishment should be under the guidance of subject specialist (55.0%), where as against these majority of

respondents disagree on the statement that one can enhance production by applying indigenous technical knowledge (21.7%). In case of Eastern zone majority of respondents agree on the statement that one can enhance production by applying indigenous technical knowledge (73.3%) followed by IFS establishment should be under the guidance of subject specialist and plan timely to increase higher production

(63.3%) and it is necessary to follow the guidance of specialist during production process (60.0%). whereas, against these only 18.3 percent of respondents disagree on it is necessary to follow the guidance of specialist during production process. Results are in consonants with CARDI (2010) [4], Gupta *et al.*, (2012) [7] and Allen *et al.* (2007) [11]

who concluded that Integrated Farming Systems are about bringing crops and livestock into an interactive relationship with the expectation that together, as opposed to alone, they will generate positive effects on outcomes of interest, such as profitability overall productivity, and conservation of non-renewable resources.

Table 3: Production of Integrated Farming System N – 120

S. No.	Statements	Western Zone F (%) N=60			Eastern zone F (%) N=60		
		Agree	Undecided	Disagree	Agree	Undecided	Disagree
	Production						
1.	Plan timely to increase higher production	27 (45.0)	25 (41.7)	8 (13.3)	38 (63.3)	13 (21.7)	9 (15.0)
2.	Input cost must be as per resources available	39 (65.0)	18 (30.0)	3 (5.0)	33 (55.0)	21 (35.0)	6 (10.0)
3.	IFS establishment should be under the guidance of subject specialist	33 (55.0)	16 (26.7)	11 (18.3)	38 (63.3)	20 (33.4)	2 (3.3)
4.	It is necessary to follow the guidance of specialist during production process	34 (56.7)	17 (28.3)	9 (15.0)	36 (60.0)	13 (21.7)	11 (18.3)
5.	One can enhance production by applying indigenous technical knowledge	27 (45.0)	20 (33.3)	13 (21.7)	44 (73.3)	9 (15.0)	7 (11.7)

Figures in parenthesis indicate percentages

Marketing of produce of Integrated Farming System

Results in Table 4 revealed that in Western zone majority of respondents agree with the statement that grading, value addition and packaging of agriculture produce is necessary to enhance income (70.0%) followed by *Artiyas* reduce the profit of grains (61.7%) and proper storage facilities during off season can fetch good price (55.0%) where as against these 15.0 percent of respondents disagree with the statements that proper storage facilities during off season can fetch good price. In Eastern zone majority of respondents agree on statements that grading, value addition and packaging of agriculture produce is necessary to enhance income (78.3%) followed by adoption of improved IFS practices rather than old one for maximizing profit in farming (71.7%) and *Artiyas*

reduce the profit of grains (70.0%). whereas against these 38.3 percent of respondents disagree on the statements that adoption of improved IFS practices rather than old one for maximizing profit in farming). Results are compatible with Dashora and Hari (2014) and Manjunatha (2014) [5, 10] who inferred that greater sustainability in production on farms is due to the integration of diverse enterprises of different economic importance. Recycling of wastes built in the system helps reduce dependence on external high-energy inputs, thus conserving natural and scarce resources. Recycling organic wastes reduces the requirement for chemical fertilizers. Further, biogas production can meet the household energy requirement. Thus, IFS goes a long way in solving energy crises.

Table 4: Marketing of produce of Integrated Farming System N - 120

S. No.	Statements	Western Zone F (%) N=60			Eastern zone F (%) N=60		
		Agree	Undecided	Disagree	Agree	Undecided	Disagree
	Marketing of produce						
1.	<i>Artiyas</i> reduce the profit of grains	37 (61.7)	22 (36.6)	1 (1.7)	42 (70.0)	15 (25.0)	3 (5.0)
2.	Grading, value addition and packaging of agriculture produce is necessary to enhance income	42 (70.0)	16 (26.7)	2 (3.3)	47 (78.3)	8 (13.4)	5 (8.3)
3.	Market demand driven IFS component should be considered	30 (50.0)	23 (38.3)	7 (11.7)	41 (68.3)	12 (20.0)	7 (11.7)
4.	Proper storage facilities during off season can fetch good price	33 (55.0)	18 (30.0)	9 (15.0)	29 (48.3)	27 (45.0)	4 (6.7)
5.	Adoption of improved IFS practices rather than old one for maximizing profit in farming	32 (53.3)	21 (35.0)	7 (11.7)	43 (71.7)	12 (20.0)	5 (8.3)

Figures in parenthesis indicate percentages

Levels of different components of management orientation in IFS

The data regarding levels of different components of management orientation in IFS presented in Table 5. Results revealed that in Western and Eastern zone majority of respondents had medium scores on planning for IFS (63.3% and 66.7%) followed by utilization of resources (61.7% and 53.3%), production of grains in IFS (56.7% and 68.3%) and

marketing of produce (48.4% and 56.6%). Same results are in pooled sample. The similar results are in tune with Behera, *et al.* (2008) [3] who reported that IFS are important for the efficient management of available resources at the farm level to generate adequate income and employment for the rural poor, for the promotion of sustainable agriculture, and for the protection of the environment.

Table 5: Levels of different aspects of management orientation in IFS N – 120

Sr. No.	Variable	Category	Western Zone F (%) N = 60	Eastern zone F (%) N = 60	Total F (%) N=120
1.	Planning for IFS	Low (5-7)	3 (5.0)	(8.3)	8 (6.7)
		Medium (8-11)	38 (63.3)	40 (66.7)	78 (65.0)
		High (12-15)	19 (31.7)	15 (25.0)	34 (28.3)
2.	Utilization of resources	Low (5-7)	3 (5.0)	7 (11.7)	10 (8.3)
		Medium (8-11)	37 (61.7)	32 (53.3)	69 (57.5)
		High (12-15)	20 (33.3)	21 (35.0)	41 (34.2)
3.	Production	Low (5-7)	9 (15.0)	7 (11.7)	16 (13.3)
		Medium (8-11)	34 (56.7)	41 (68.3)	75 (62.5)
		High (12-15)	17 (28.3)	12 (20.0)	29 (24.2)
4.	Marketing of produce	Low (5-7)	17 (28.3)	10 (16.7)	27 (22.5)
		Medium (8-11)	29 (48.4)	34 (56.6)	63 (52.5)
		High (12-15)	14 (23.3)	16 (26.7)	30 (25.0)

Figures in parenthesis indicate percentages

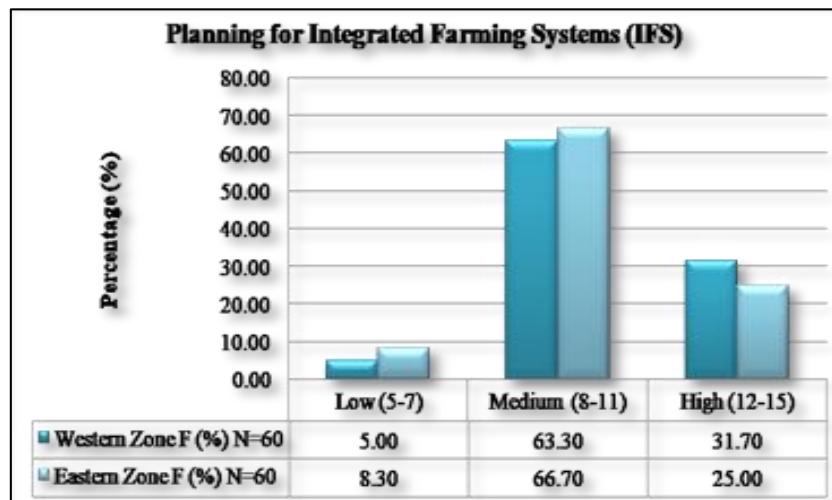


Fig 1: Planning for IFS

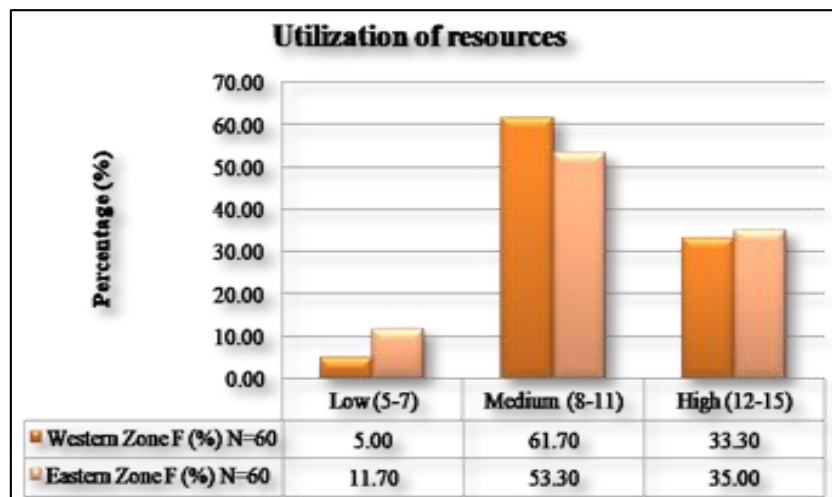


Fig 2: Utilization of resources

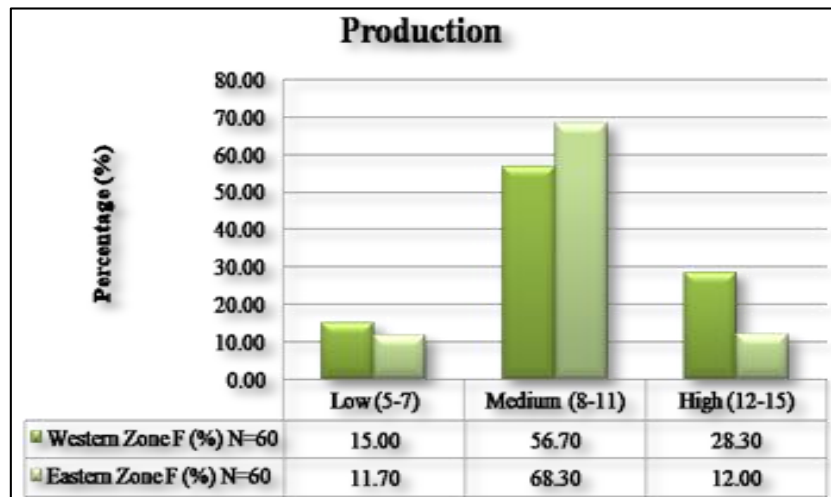


Fig 3: Production og grains of IFS

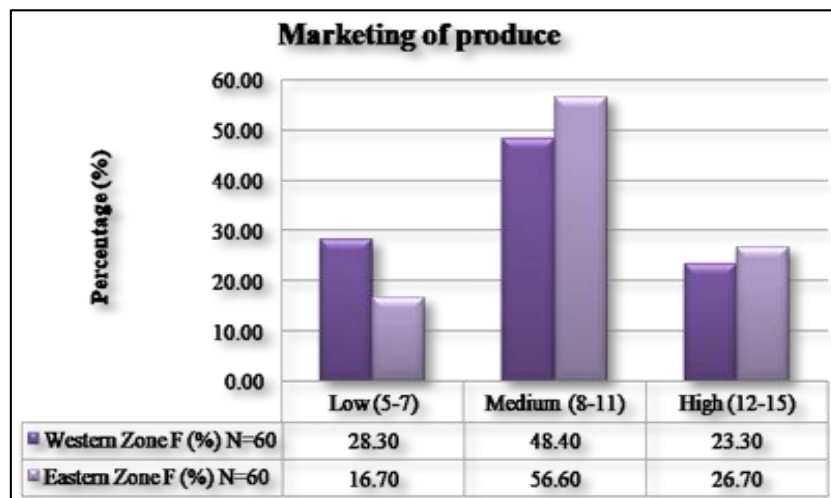


Fig 4: Marketing of produce

Conclusion

Results concludes that in Western zone and Eastern zone majority of respondents agree that for proper management of Integrated Farming System availability of inputs and amount required to be assessed prior to selection of IFS, one should plan in advance about the IFS components to be taken during the coming year, timely utilization of available resources and ensure proper utilization of available resources undertaken, input cost must be as per resources available, one can enhance production by applying indigenous technical knowledge, grading, value addition and packaging of agriculture produce is necessary to enhance income. Results further revealed that in Western and Eastern zone majority of respondents had medium scores on planning, utilization of resources, production of grains and marketing of produce of integrated farming system.

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