

CORRELATION OF ECONOMIC VIABILITY OF DRY LAND FARMING SYSTEMS

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ABSTRACT

Dry land farming is the important segment of Indian agriculture which is backbone of national economy. The study was conducted in Akola and Balapur Taluka of Akola district of Maharashtra State. An exploratory design of social research was used and total 100 respondents were selected for the present study. Findings reported that the major two farming systems i.e. Agriculture + cow, Agriculture + goat found to be economical viable for dry land farmers and from this it can be concluded that the cow and goat farming system found to be economically viable for dry land farmers fetching Rs 1.71 and 1.65 per rupee of investment respectively, return found to be increase with increase size of herd. It was observed that the majority of the respondent adopted Agriculture + cow farming system (40%), agriculture + goat (40%) and Agriculture + Buffalo farming systems (13%). The entire selected respondent adopted different farming systems because they get additional income. About 98 per cent of the respondent said that they get by product which is useful to own farming as well as 95 per cent of the respondent said that the rational behind adoption of different farming system is availability of raw material and input for system locally. About 65 and 55 percent of the respondents said that the reason behind adopting of the different farming systems was proper utilization of time of family members and get daily income from the farming system adopted respectively Agriculture+ cow farming system are positively and significantly correlated with annual income, social participation, extension contact, herd size and innovativeness. Agriculture + goat farming system are positively and significantly correlated with age, innovativeness, herd size and education, social participation, risk preference, economic motivation are negatively significant.

Keywords: adoption, dry land farming system, identification & economic viability

INTRODUCTION

India has about 108 million ha Dry land area which constitutes nearly 75 per cent of the total 143 million ha of arable land in such area crop production become relatively difficult as it mainly depends upon intensity and frequency of rainfall. The crop production in such area is called Rainfed farming. As there is no facility to give any irrigation and even protective life saving irrigation is not possible. This area gets annual rainfall up to 750 mm which is unevenly distributed, highly uncertain and erratic. The crop production depending upon this rain is technically called dry land farming. Therefore dry land farming is defined as a practice of growing profitable crops without irrigation in area which receive an annual rainfall of 750mm or even less. India achieved a record production of food grains that means 243 million tones in 2011. This achievement is no doubt spectacular and highly commendable but this needs further increase for meeting the challenges of feeding the even growing population of the country. To feed this large population they needed 300

million tones under present situation. The contribution of the food grains from dry land is only 42 per cent from 70 per cent area it indicates very low productivity. From this 42 per cent production these area produces 75 per cent of pulses and more than 90 per cent of Sorghum, millet, Ground nut from arid and semi arid regions. Thus dry land and Rainfed farming will continue to play a dominant role in agriculture production.

Maharashtra state has highest proportion of Rainfed area among the state. About 85 per cent of net cultivated area is Rainfed Agriculture in Vidarbha region. The production of crop in this region depends on natural rains, small size of land holdings, periodical droughts, soil erosion, and large dry spells, low crop yield and poor economic returns are the important features of the dry farming areas. The productivity in dry land areas is low because of lack of use soil moisture conservation technology. Dr PDKV Akola identified and recommended a package of dry land technology in respect of cropping systems in situ moisture conservation, integrated

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nutrient management, cropping systems and contingent planning. However, it was observe that farmers were not fully aware about this technology and adopt only few component of this technology at a given time. It may be related to the technology itself or to the farmers themselves and their situation. It is therefore through desirable to identify different farming system adopted by farmers and to assess the viability of different farming system used by farmers. These will help in deciding the strategies for promoting the use of these technologies by the farmers in the areas.

OBJECTIVE

To know the correlation between selected of respondents with economic viability of dry land farming systems

METHODOLOGY

The present study was undertaken in Akola and

Table 1. Identified different farming systems

Sr. No.	Identified farming system	Frequency	Percent
1	Agriculture + Cow farming system	40	40.00
2	Agriculture +Goat farming system	40	40.00
3	Agriculture +Buffalo farming system	13	13.00
4	Agriculture +Poultry farming system	02	02.00
5	Agriculture +Cow+ goat farming system	03	03.00
7	Agriculture +Cow + buffalo farming system	01	01.00
8	Agriculture +Other(pigeon) farming system	01	01.00

From the above table it is observed that 40 per cent dry land farmers adopted agriculture +cow farming system nearly same percentage (40%) of the respondents adopted agriculture +goat farming system and few respondents (13%) adopted agriculture +buffalo farming system and very small percentage of the respondent adopted (2%) farmers adopted agriculture +poultry farming system. There is also different mixed farming systems are identified that are agriculture +cow + goat (3%), agriculture +cow + buffalo (1%), and agriculture +other (pigeon) farming system (1%). From above it can be concluded that the majority of the dry land farmer's follows agriculture +cow and agriculture +goat farming systems.

Correlation between selected of the respondents with economic viability of agriculture + cow and agriculture + goat farming systems

From the above table 2, it is reported that the

Balapur Taluka of Akola district in Vidarbha region of Maharashtra state because this area comes under dry land farming. The emphasis in the study was on identifying the different farming systems in Akola district and measured their viability. Therefore the exploratory design of social research used for the present investigation. For the present study a random sampling method was used. After selection of Akola and Balapur Taluka, 5 villages were purposively selected from each Taluka and 100 farmers were selected from these Taluka; it means 10 farmers from each village were selected randomly.

RESULTS AND DISCUSSION

Different identified farming systems

One of the objectives of the study was to find out different farming systems in Akola district. Following table shows the different identified farming systems along with their frequency and percentage.

variable annual income ,social participation, extension contact, and herd size were positively and highly significant with Agriculture + cow farming system at 0.01 level of probability and innovativeness was found to be positively significant relation with Agriculture + cow farming system at 0.05 level of probability.

In case of agriculture + goat farming system, age, innovativeness and herd size were found to positive and significant relationship with viability at 0.01, 0.05, and 0.01level of probability respectively. Where as education, social participation, economic motivation, risk preference were found to be negatively and significantly correlated with agriculture +goat farming system.

Table 2. Correlation between selected of the respondents with economic viability of agriculture + cow and agriculture + goat farming system

Sr. No.	Variables	Cow farming system	Goat farming system
X ₁	Age	0.022957 N.S	0.269657**
X ₂	Education	0.026001 N.S	-0.27887**
X ₃	Land holding	0.032369 N.S	0.037443 N.S
X ₄	Annual income	0.283187**	0.133468 N.S
X ₅	Size of family	0.134544 N.S	0.058358 N.S
X ₆	Type of family	-0.09813 N.S	-0.02619 N.S
X ₇	Social participation	0.313419**	-0.23611**
X ₈	Extension contact	0.470703**	0.045202 N.S
X ₉	Herd Size	0.403393**	0.3384**
X ₁₀	Training received	-0.01742 N.S	-0.08888 N.S
X ₁₁	Innovativeness	0.223455*	0.243511*
X ₁₂	Economic motivation	-0.10347 N.S	-0.19713*
X ₁₃	Risk preference	-0.03688 N.S	-0.34002**
X ₁₄	Market orientation	-0.13875 N.S	0.012057 N.S

* = Significant at 0.05 level of probability ** = Significant at 0.01 level of probability NS = Non significant

Economic viability

The economic viability of different farming systems was examined by comparing input output ratio. It provides the information on return to per rupee of investment. In dry land farming system of Akola and Balapur Taluka mostly identified farming systems are agriculture + cow farming system (40%) followed by agriculture + goat farming system (40%) Therefore it is important to know the viability of that farming system. And it was calculated by input output ratio or benefit cost ratio.

(a) Economic viability of Agriculture + cow farming systems based on input output ratio

The economic viability of operating the cow farming system was examined by comparing the input output ratio. It provides the information on return to per rupee of investment. The table revealed that the input output ratio as total cost was 1: 1.65, 1:1.71, and 1:1.77 for group I, group II and group III respectively for the Agriculture +cow farming system. It could be further be noticed that there was increasing trend in input output ratio at total cost from group I to group III. It could therefore be stated that the rate of return was more in group III followed by group II and group I.

Table 3. Input output ratio in cow rearing at total cost for different herd size group

n=40

Sr. No	Herd size	No. of respondents	Total No. of animal	Total cost	Total out put	Input output ratio
1	Group I (up to 3)	30	67	557255	924000	1.66
2	Group II (4 to7)	09	39	317644	544000	1.71
3	Group III (above 8)	01	10	76000	135000	1.77
Total		40	116	938236	1612000	1.71

It was further noticed that overall input output ratio at total cost was 1:1.71. In other word ,it could be stated that there was a return of Rs 1.71 toper rupee of investment in cow farming system .it could be noted that the cow farming income increase with the increase in the size of herd with the cow rearers.

The economic viability of operating the cow farming system was examined by comparing the input output ratio. It provides the information on return to per rupee of investment.

The table revealed that the input output ratio as total cost was 1: 1.59, 1:1.64, and 1:1.67 for group I, group II and group III respectively for the Agriculture + goat farming system. It could be further be noticed that there was increasing trend in input output ratio at total cost from group I to group

(b) Economic viability of Agriculture + goat farming systems based on input output ratio

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III. It could there fore be stated that the rate of return was more in group III followed by group II and group I. It was further noticed that overall input output ratio at total cost was 1:1.65. In other word ,it could be stated that there was a return of Rs 1.65 to per rupee of investment in goat farming system .it could be noted that the goat farming income increase with the increase in the size of herd with the goat rearers.

Table 4 : Input output ratio in goat rearing at total cost for different herd size group

n=40

Sr. No	Herd size	No. of respondents	Total no. of animal	Total cost	Total out put	Input output ratio
1	Group I (up to10)	13	70	135667	216750	1.60
2	Group II (11 to20)	22	359	711758	1173000	1.65
3	Group III (above 21)	05	159	330070	554000	1.68
Total		40	588	1177495	1943750	1.65

From this it can be concluded that the cow and goat farming system found to be economically viable for dry land farmers of Akola and Balapure farmers fetching Rs 1.71 and 1.65 respectively as return per rupee of investment .return found to be increase with increase size of herd. The similar finding is reported by Shinde (2004) and Vinaya et al (2015).

CONCLUSION

From the above findings, it can be concluded that all the selected respondents were adopted different farming systems because they get additional income like get by-product which is useful to own farming, availability of raw material and input for systems locally, proper utilization of time of family members and get daily income from the farming system adopted. Agriculture + cow farming system are positively and significantly correlated with annual income, social participation, extension contact, herd size and innovativeness, whereas, agriculture + goat farming system are positively and significantly correlated with age, innovativeness, herd size and education, social participation, risk preference, economic motivation are negatively significant.

Cow and goat farming system along with agriculture was found to be economically viable for dry land Farmers of Akola and Balapure farmers fetching Rs 1.71 and 1.65 per rupee of investment respectively, return found to be increase with increase size of herd. It was observed that the majority of the respondent adopted agriculture + cow farming system (40%), agriculture + goat (40%) and agriculture + buffalo farming systems (13%).

The result shows that among different farming systems Agriculture + cow and Agriculture + goat farming systems seem to be more viable among different farming systems. Therefore farmers should focus on these two farming systems. Government and extension agencies given more promotion of there farming systems in the dry land areas. So the income of the farmer may increase. Return from the investment in the Agriculture +cow and Agriculture

+goat farming system found to be increase with increase size of herd .there fore farmer should possess maximum number of animal to got maximum return.

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