

## Perception of Aromatic Black Rice Growers towards Mission Organic Value Chain Development Scheme

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### ABSTRACT

The research study was conducted in Thoubal and Bishnupur districts of Manipur state during 2020-21 to analyze the perception of aromatic black rice growers towards mission organic value chain development scheme (MOVCDS) and to find out the association between the profile characteristics of aromatic black rice growers with their perception towards MOVCDS. One hundred and eighty aromatic rice growers were interviewed using a pre-tested interview schedule. The results revealed that a vast majority (81.67 %) of aromatic black rice growers had good to better level of perception towards MOVCDS. Education, organic farming experience, livestock possession, crop productivity, achievement motivation, aspiration, management orientation, economic motivation, risk orientation, innovative proneness, mass media exposure, training on organic farming, extension agency contact and extension participation of aromatic black rice growers had significant to highly significant association with their perception towards MOVCDS. All the 20 profile characteristics of aromatic black rice growers had contributed to the tune of 71.69 per cent in developing a better perception towards MOVCDS.

*Keywords* : Aromatic black rice growers, Extension participation, MOVCDS, Perception

THE North-Eastern region of India provides considerable scope and opportunity for organic farming due to less utilization of chemical inputs, availability of conducive agro-ecological for organic farming, soil rich in organic matter (>1%), high farm-level agricultural diversity and above all the North-Eastern region are traditionally following low external input-driven agriculture. It is estimated that nearly 18 million ha of such land is available in the North-East, which can be exploited for organic production. Various research findings have revealed that the provision of subsidies is positively associated with farmer's decision to shift from modern to organic farming. One such scheme which promotes organic agriculture coupled with the provision of subsidies in the north-eastern region is the Mission Organic Value Chain Development Scheme in North East Region (MOVCD-NER). This scheme is a Centrally Sponsored Scheme established by the Ministry of Agriculture and Farmers Welfare, and it is a sub-mission scheme under the National Mission for Sustainable Agriculture.

The Mission Organic Value Chain Development Scheme (MOVCDS) is implemented by Manipur Organic Mission Agency (MOMA) in Manipur aiming at the promotion and production of certified organic commodities focussing on export-oriented crops viz., Black aromatic rice, Ginger, Tamenglong orange, King chilli, Kachai lemon and Pineapple. Phase I of the project was planned to be implemented from 2015-16 to 2017-18, however, the project implementation got delayed by two years and it was started from 2017-18 to 2019-2020 covering 2000 ha. The project authorities are planning to implement phase II of the project from 2021-22 covering 50,000 ha. The MOMA is conducting various production and extension activities, such as providing training on organic cultivation and identification of farmer cluster groups through which the organic practices, the information and technical know-how is expected to be tickled down.

Black aromatic rice is gaining importance in the national and international markets from all the

categories of farmers. It is considered to be the healthiest rice variety with higher vitamins and minerals content, than white and brown rice. Its black colour is due to the presence of powerful natural black colouring pigment (Anthocyanins), which is an impressive antioxidant property having many health benefits. The crop has received the status of 'Geographical Indicator of Manipur' and it has a huge market demand because the rice could be used to prepare a good number of value-added products. Even though that the crop yield when grown organically yields lower *i.e.*, about 12-15 q/ acre, the trivial feature of the crop aligns with the major drivers of organic market bloom, which include rising disposable incomes, increasing population, rising health consciousness and consumer spending on health and wellness products making it a popular crop in local, national and even at international markets. There are no research studies for analysing the perception of farmers towards MOVCDs, hence the present study was undertaken with the following specific objectives:

1. To analyze the perception of aromatic black rice growers towards Mission Organic Value Chain Development Scheme
2. To find out the association and extent of contribution of profile characteristics of aromatic black rice growers on the perception towards MOVCDs

#### METHODOLOGY

Mission Organic Value Chain Development Scheme was implemented in the dominant aromatic black rice-growing areas of Bishnupur, Imphal East, Imphal West and Thoubal districts of Manipur during the first phase of the project (2017-2018 to 2019-2020). The present research study was conducted in Bishnupur (500 beneficiaries) and Thoubal (493 beneficiaries) districts, since Thoubal (500 beneficiaries) and Bishnupur (493 beneficiaries) districts had more number of aromatic black rice growers, who had availed benefits under MOVCDs during phase I (Table 1). The same beneficiaries have derived benefits under MOVCDs for all the three years of phase I of the MOVCDs.

TABLE 1  
Area and number of beneficiaries under MOVCDs in Manipur

District	Area (ha)	No. of beneficiaries
Thoubal	500	500
Bishnupur	500	493
Imphal West	500	410
Imphal East	500	427

All the three taluks of Bishnupur and Thoubal taluks were selected for the research study. Three villages from each of the sampled six taluks were randomly selected for the study. From each of the selected 18 villages, ten beneficiary aromatic black rice growers were randomly selected for the study. Thus, the total number of beneficiary aromatic black rice growers sampled for the research study was 180.

Perception of the aromatic black rice growers towards MOVCDs was operationally defined in the present research study as 'the degree to which an individual has understood the production, supporting and processing and marketing components of value chain activities of MOVCDs'. A standardized scale was developed specifically for the research study to analyze the perception of aromatic black rice growers towards MOVCDs. The developed perception scale was found to be highly reliable (0.771) and valid (0.8430). The developed perception scale consists of 18 statements for determining the perception of beneficiary aromatic black rice growers categorized under production, supporting and processing and marketing components (Table 3). The response was collected on a five-point continuum, namely, strongly agree, agree, undecided, disagree and strongly disagree with an assigned score of 5, 4, 3, 2 and 1 for positive statements and reverse scoring for negative statements, respectively. Thus, the minimum and maximum score one could get is 18 and 90, respectively. The perception score of a respondent was calculated by adding up the scores obtained by him / her on all items / statements. A higher score

TABLE 2  
Categorization of aromatic black rice growers based on mean and standard deviation

Perception categories	Production component (score)	Supporting component (score)	Processing and marketing component (score)	Overall perception (score)
Poor (Below Mean- ½ SD)	<15.37	<15.42	<11.09	<41.87
Good (Mean± ½ SD)	15.37 - 17.85	15.42 - 18.02	11.09 - 13.09	41.87 - 48.97
Better (Above Mean + ½ SD)	>17.85	>18.02	>13.09	>48.97
Mean	16.61	16.72	12.09	45.42
Standard deviation	2.49	2.60	2.00	7.09

on this scale indicates that the respondent has a better perception of MOVCDs. Based on the total cumulated score obtained, the aromatic black rice growers were classified into three categories *viz.*, poor, good and better level of perception based on the mean and half standard deviation (Table 2).

The perception of aromatic black rice growers towards MOVCDs was considered as the dependent variable for the study. Information regarding 20 profile characteristics (independent variables) of aromatic black rice growers was collected using a structured schedule with suitable scales. The collected data were scored, tabulated and analysed using frequency, mean, percentage, chi-square test and multiple regression analysis.

## RESULTS AND DISCUSSION

### Statement-Wise Perception of Aromatic Black Rice Growers towards MOVCDs

Table 3 presents the findings on the statement-wise perception of aromatic black rice growers towards MOVCDs. With respect to the production component, a vast majority of the aromatic black rice growers (83.33%) had 'strongly agreed' to the positive statement 'MOVCDs aims at the development of certified organic production in a value chain mode'. Whereas, majority of the aromatic black rice growers had 'strongly disagreed' to the negative statements such as : (a) More number of black rice growers have shifted from organic to chemical farming after the implementation of MOVCDs (82.22%); (b) crop

planning and time management are not followed effectively by black rice growers by participating in the value chain activities of MOVCDs (80.55%); (c) MOVCDs facilitate farmers with an untimely supply of quality seeds (70.56%); (d) MOVCDs is emphasizing the farmers to use less of organic manure to black rice (73.33%) and (e) MOVCDs is advocating excessive use of inorganic fertilizers to black rice (78.33%).

In the respect of supporting components, more than two-thirds of the aromatic black rice growers had 'strongly agreed' for the positive statements such as : (a) MOVCDs develops rice production clusters with necessary infrastructural, technical and financial support (80.00%); (b) MOVCDs empowers black rice growers with program ownership by organizing them into farmers interest groups at village level and federated into farmers producers companies at district level (78.88%); (c) outreach activities (demonstrations, training, field visits, field days, etc.) of MOVCDs has increased the adoption of more organic farming practices (71.66%) and (d) farmers cluster provides an opportunity for its members to develop leadership qualities (66.60%). While, over 70 per cent of the aromatic black rice growers had 'strongly disagreed' for the negative statements like: (a) farmers clusters has not provided platform for sharing experience among the members (81.11%), and (b) participating in value chain activities of MOVCDs has not helped the black rice growers to have strong research and extension linkages (72.22%).

TABLE 3  
Statement-wise perception of aromatic black rice growers towards MOVCDs

(n=180)

Perception statements	Aromatic black rice growers				
	Strongly agree	Agree	Un- decided	Disagree	Strongly disagree
<i>Production component</i>					
MOVCDs aims at development of certified organic production in a value chain mode	150 (83.33)	26 (14.46)	2 (1.11)	1 (0.55)	1 (0.55)
More number of black rice growers have shifted from organic to chemical farming after the implementation of MOVCDs	0 (0.00)	0 (0.00)	0 (0.00)	32 (17.7)	148 (82.22)
Crop planning and time management are not followed effectively by black rice growers by participating in the value chain activities of MOVCDs	0 (0.00)	0 (0.00)	0 (0.00)	35 (19.45)	145 (80.55)
MOVCDs facilitate farmers with untimely supply of quality seeds	1 (0.55)	2 (1.11)	0 (0.00)	47 (26.11)	130 (70.56)
MOVCDs is emphasizing the farmers to use less of organic manure to black rice	0 (0.00)	0 (0.00)	0 (0.00)	48 (26.67)	132 (73.33)
MOVCDs is advocating excessive use of inorganic fertilizers to black rice	0 (0.00)	0 (0.00)	0 (0.00)	40 (21.67)	141 (78.33)
<i>Supporting component</i>					
MOVCDs empowers black rice growers with programme ownership by organizing them into Farmers Interest Groups (FIGs) at village level and federated into Farmers Producers Companies (FPCs) at district level	142 (78.88)	34 (18.91)	2 (1.11)	1 (0.55)	1 (0.55)
Farmers cluster provides an opportunity for its members to develop leadership qualities	120 (66.60)	43 (23.88)	7 (3.91)	4 (2.22)	6 (3.33)
Farmers clusters has not provided platform for sharing experience among the members	1 (0.55)	1 (0.55)	6 (3.33)	26 (14.46)	146 (81.11)
MOVCDs develops rice production clusters with necessary infrastructural, technical and financial support	144 (80.00)	32 (17.79)	2 (1.11)	1 (0.55)	1 (0.55)
Participating in value chain activities of MOVCDs has not helped the black rice growers to have strong research and extension linkages	2 (1.11)	2 (1.11)	5 (2.77)	41 (22.79)	130 (72.22)
Outreach activities (demonstrations, training, field visits, field days etc.) of MOVCDs has increased the adoption of more organic farming practices	129 (71.66)	49 (27.24)	1 (0.55)	0 (0.00)	1 (0.55)
<i>Processing and marketing component</i>					
Organic bazaars are established to function as collection centers between the farm gate and processing infrastructures	8 (4.44)	10 (5.56)	12 (6.67)	36 (20.00)	114 (63.33)
MOVCDs facilitates partnerships and trade relations between FPCs and organic businesses for promoting domestic and exports markets	76 (42.22)	54 (30.00)	22 (12.22)	12 (6.67)	16 (8.89)

Perception statements	Aromatic black rice growers				
	Strongly agree	Agree	Un- decided	Disagree	Strongly disagree
MOVCDs has created awareness among public by giving wide publicity through printed literature, films and local advertisements for promoting the sale of organic black rice	129 (71.66)	49 (27.24)	1 (0.55)	0 (0.00)	1 (0.55)
MOVCDs markets the organic produce through direct retail, farmer markets, on-line chain and tying up with domestic retail chains and exporters	86 (47.78)	60 (33.33)	20 (11.11)	8 (4.44)	6 (3.33)
MOVCDs has organized trade fairs/organic festivals for effective marketing of organic black rice among trading fraternity and value chain operators	139 (77.22)	32 (17.79)	6 (3.33)	1 (0.55)	2 (1.11)
MOVCDs enables Manipur to evolve its own brand for organic black rice	146 (81.13)	26 (14.44)	5 (2.77)	2 (1.11)	1 (0.55)

With regard to the processing and marketing component, a majority of the aromatic black rice growers had 'strongly agreed' for the following positive statements: (a) MOVCDs enables Manipur to evolve its own brand for organic black rice (81.13%); (b) MOVCDs has organized trade fairs / organic festivals for effective marketing of organic black rice among trading fraternity and value chain operators (77.22%) and (c) MOVCDs has created awareness among the public by giving wide publicity through printed literature, films and local advertisements for promoting the sale of organic black rice (71.66%). It was very interesting to note that less than half of the aromatic black rice growers had 'strongly agreed' for the positive statements *viz.*, (a) MOVCDs markets the organic produce through direct retail, farmer markets, on-line chain and tying up with domestic retail chains and exporters (47.78%), and (b) MOVCDs facilitates partnerships and trade relations between farmers producers companies and organic businesses for promoting domestic and exports markets (42.22%). A majority of aromatic black rice growers had 'strongly disagreed' for the negative statement 'Organic bazaars are established to function as collection centres between the farm gate and processing infrastructures (63.33%)'.

It could be observed from the above results that a majority of the aromatic black rice growers had 'strongly agreed' for almost all the positive perception statements and 'strongly disagreed' for all the negative perception statements. It could be inferred from the above results that the aromatic black rice growers had better perception towards production, supporting and processing and marketing components of MOVCDs.

#### **Perception of Aromatic Black Rice Growers towards Manipur Organic Value Chain Development Scheme**

The results in Table 4 presents the data on the perception of aromatic black rice growers towards different components of MOVCDs and also the overall perception towards MOVCDs. It is found that a larger number of aromatic black rice growers had better perception towards the production component of MOVCDs (48.90%), whereas 40.55 and 10.55 per cent of the aromatic black rice growers had good and poor perception towards the production components of MOVCDs, respectively. It could be inferred from the research results that an overwhelming number of aromatic black rice growers (89.45%) had good to better perception towards the production component of MOVCDs. The scheme has advocated the farmers to follow crop planning and time management, facilitated

TABLE 4  
Perception of aromatic black rice growers towards different components of MOVCDs (n=180)

MOVCDs components	Perception categories						Mean	SD
	Poor		Good		Better			
	No.	%	No.	%	No.	%		
Production component	19	10.55	75	40.55	88	48.90	16.61	2.49
Supporting component	21	11.66	69	38.33	90	50.01	16.72	2.60
Processing and marketing component	60	33.33	59	32.77	61	33.39	12.09	2.00
Overall perception	33	18.33	67	37.22	80	44.45	45.42	7.09

farmers in providing timely supply of quality seeds, emphasized the minimum use and maximum use of inorganic fertilizer and organic manures and aimed at development of certified organic production in a value chain mode, hence an over whelming number of aromatic black rice growers (89.45%) had good to better perception towards the production component of MOVCDs.

Table 4 reveals that a little over half of the aromatic black rice growers had better perception towards the supporting component of MOVCDs (50.01%), followed by 38.33 and 11.66 per cent of them having good and poor perception towards the supporting component of MOVCDs, respectively. It could be interpreted that a greater majority of aromatic black rice growers (88.34%) had good and poor perception towards the supporting component of MOVCDs. The scheme has empowered the respondents through the programme ownership, developed leadership qualities and provided the platform for sharing experiences by organizing them into farmers interest groups at the village level and federated into farmers producers companies at the district level, developed rice production clusters with necessary infrastructural, technical and financial support and also the scheme had organised a good number of outreach activities for dissemination of organic rice farming practices, therefore a greater majority of aromatic black rice growers (88.34%) had good and poor perception towards the supporting component of MOVCDs.

A little over one-third of the aromatic black rice growers were having better perception (33.90%) towards the processing and marketing component of MOVCDs, while one-third of them were having poor perception (33.33%) and the remaining respondents were having good perception (32.77%) towards the processing and marketing component of MOVCDs (Table 4). Under the scheme, awareness was created among the stakeholders by giving wider publicity for promoting the sale of organic black rice, organised trade fairs / organic festivals and had enabled Manipur to evolve its own brand for organic black rice, as a consequence, 33.39 and 32.77 per cent of the aromatic black rice growers were having better and good perception towards MOVCDs, respectively. On the other hand, one-third of the aromatic black rice growers (33.33%) had poor perception towards MOVCDs, because the scheme had often failed in developing the partnerships and trade relations between farmers producers companies and organic businesses for promoting domestic and exports markets.

The results in Table 4 further reveals that in respect of the overall perception towards MOVCDs, a greater proportion of the aromatic black rice growers (44.45%) had better overall perception, whereas, more than one-third (37.22%) and less than one-fifth (18.33%) of them had good and poor perception towards MOVCDs. As high as 81.67 per cent of the aromatic black rice growers had good to better perception towards MOVCDs. Organizing

farmers into farmer interest groups, timely availability of organic inputs, effective crop planning, accessibility of agricultural extension personnel and service providers, adequate opportunities to participate in extension activities, etc. are the reasons for a vast majority (81.67%) of the aromatic black rice growers for having good to better overall perception towards MOVCDs. On the other hand, aromatic black rice growers perceived the scheme to be failing in meeting their expectations in terms of executing the activities such as organising farm bazaars and linking farmers with market, hence 18.33 per cent of the respondents had poor overall perception towards MOVCDs. The present findings are in line with the findings of the study conducted by Duhan (2017), Preethi *et al.*, (2017) and Philip and Sivaraj (2018).

#### Association and Extent of Contribution of Profile Characteristics of Aromatic Black Rice Growers on the Perception towards MOVCDs

*Association between profile characteristics of aromatic black rice growers with the perception towards MOVCDs* : The association between the profile characteristics of aromatic black rice growers with the perception towards MOVCDs is presented in Table 5. It could be observed from the results that 14 out of 20 independent variables were found to have a significant to highly significant association with the perception of aromatic black rice growers towards MOVCDs. Age, family size, land holding, annual income, fallow period and material possession of aromatic black rice growers had a non-significant association with their perception towards MOVCDs, whereas education, organic farming experience, livestock possession, crop productivity, achievement motivation, aspiration, management orientation, economic motivation, risk orientation, innovative proneness, mass media exposure and training on organic farming of aromatic black rice growers were found to have a significant association with their perception towards MOVCDs at five per cent level of probability. The variables such as extension agency contact and extension participation of aromatic black rice growers had a highly significant association with

TABLE 5  
Association between profile characteristics of aromatic rice growers with their perception towards MOVCDs (n=180)

Characteristics	Degree of freedom	Chi-square value	Contingency coefficient
Age	4	2.61 <sup>NS</sup>	0.06
Education	4	10.62 <sup>*</sup>	0.25
Family size	4	0.99 <sup>NS</sup>	0.02
Land holding	4	4.64 <sup>NS</sup>	0.12
Annual income	4	5.61 <sup>NS</sup>	0.13
Fallow period	4	2.29 <sup>NS</sup>	0.07
Organic farming experience	4	10.11 <sup>*</sup>	0.24
Livestock possession	4	11.28 <sup>*</sup>	0.27
Material possession	4	3.69 <sup>NS</sup>	0.09
Crop productivity	4	12.99 <sup>*</sup>	0.27
Achievement motivation	4	11.01 <sup>*</sup>	0.27
Aspiration	4	10.88 <sup>*</sup>	0.26
Management orientation	4	11.66 <sup>*</sup>	0.29
Economic motivation	4	12.68 <sup>*</sup>	0.30
Risk orientation	4	12.22 <sup>*</sup>	0.29
Innovative proneness	4	10.50 <sup>*</sup>	0.26
Mass media exposure	4	10.58 <sup>*</sup>	0.25
Training on organic farming	4	9.92 <sup>*</sup>	0.21
Extension agency contact	4	13.61 <sup>**</sup>	0.33
Extension participation	4	13.90 <sup>**</sup>	0.34

NS= non-significant, \*=Significant at 5%,  
\*\*= Significant at 1%

their perception towards MOVCDs at one per cent level of probability. The finding was in line with the findings reported by Kangale *et al.* (2016) and Darshan *et al.* (2019).

The explanations for the profile characteristics having significant to highly significant association with the perception level is explained in the ensuing paragraphs.

*Education and perception level* : The chi-square test revealed a significant association between education of the aromatic black rice growers with their perception towards MOVCDs at five per cent level. Education enables the aromatic black rice growers to be more receptive of the interventions put forward

by MOVCDs. It also enables the aromatic black rice growers to comprehend the activities of MOVCDs for promoting the organic aromatic black rice production through different production, supporting and processing and marketing components of MOVCDs, leading to better perception of respondents towards MOVCDs.

*Organic farming experience and perception level* : A significant association was existing between organic farming experience of the aromatic black rice growers and their perception towards MOVCDs. The association is quite obvious because an aromatic black rice grower with a prior experience in organic farming could able to understand the organic farming practices advocated under MOVCDs in an effective and efficient way, as a consequence the respondents have developed better perception towards MOVCDs.

*Livestock possession and perception* : There exist a significant association between the livestock possession and perception of aromatic black rice growers towards MOVCDs. The scheme promotes establishing on-farm production units like liquid manure tanks etc. for which livestock are required for preparing liquid manure. Since, the MOVCDs is providing an assistance of Rs.3750 per ha could be availed for the establishment of on-farm input production unit, the aromatic black rice growers have developed better perception towards MOVCDs.

*Crop productivity and perception level* : A significant association exists between crop productivity of the respondents with their perception towards MOVCDs. The aromatic black rice growers with better perception towards MOVCDs are likely to follow organic farming technologies advocated under the scheme resulting in getting higher yield and income.

*Achievement motivation and perception level* : The study reveals that there exist a significant association between achievement motivation and perception of aromatic black rice growers towards MOVCDs. The achievement of an individual is associated in excelling in farming and thereby attaining a sense of successful accomplishment. To achieve this distinction, the aromatic black rice growers would

have availed the benefits of MOVCDs in the form of obtaining technical guidance on organic farming and timely supply of organic inputs.

*Aspiration and perception level* : There was a significant association exist between the perception of aromatic black rice growers with their aspiration level. The aromatic black rice growers aspire to bring about improvement in their standard of living by actively involving in the activities of MOVCDs. Their aspiration has made them to reach out to extension agents and participate in extension activities of MOVCDs for obtaining good crop yield and income related activities. The above reasons may have helped the respondents in forming a better perception towards the scheme.

*Management orientation and perception level* : The urge of the respondents to perform better compare to others will act as an instrument to adopt the managerial activities relating to organic farming. MOVCDs is promoting crop planning and time management by motivating the respondents to actively participate in the value chain activities of MOVCDs. Hence, the management orientation and perception towards MOVCDs have significant association with one another.

*Economic motivation and perception level* : A significant association exist between economic motivation of the aromatic black rice growers with their perception towards MOVCDs at five per cent level. The major motto of the aromatic black rice growers is to improve their economic condition by availing the benefits of MOVCDs. The respondents have availed the incentives and financial assistance regarding on-farm production inputs, off-farm inputs and seeds, besides getting good price for the produce.

*Risk orientation and perception level* : Risk orientation of aromatic black rice growers and perception towards MOVCDs has a significant association. The various risks involved in organic farming include risks of scarcity of organic manure, water scarcity, drought, pests and diseases, market failure etc. In this context, aromatic black rice growers with more risk orientation will be regularly



contacting agricultural extension functionaries for receiving timely information related to organic farming, obtaining subsidy / financial assistance for on and off farm inputs, agricultural insurance, weather forecasting, marketing facilities etc.

*Innovative proneness and perception level* : The interest of the farmers to adopt the current and new organic farming practices predisposes them to seek additional information from the extension functionaries of MOVCDs, hence there exist a significant association between innovative proneness of aromatic black rice growers and perception level.

*Mass media exposure and perception level* : Mass media exposure and perception of the aromatic black rice growers towards MOVCDs were having a significant association. The authorities of MOVCDs have advertised in both print and electronic media regarding the benefits of cultivating organic farming and the advantages of farmers joining MOVCDs. Exposure to mass media by the farmers has given an opportunity for the aromatic black rice growers to get aware about the activities of MOVCDs in promoting organic farming.

*Training on organic farming and perception level* : The significant association between training on organic farming and perception towards MOVCDs was obvious because participation of respondents in the training programmes on organic farming has given an opportunity to acquaint themselves not only on the organic farming practices of aromatic black rice but also on the various benefits of MOVCDs.

*Extension agency contact and perception level* : The agricultural extension personnel working in MOVCDs has disseminated the organic farming practices to be followed by the beneficiaries regarding various incentives available under the scheme, marketing facilities for the crop produce etc., hence there is a highly significant association exist between extension agency contact of black rice growers and perception level.

*Extension participation and perception level* : The participation of aromatic black rice growers in the extension activities (conventions, field days,

demonstrations, field days, exhibitions etc.) has motivated the respondents to participate and avail the benefits under MOVCDs. As a consequence, there exist a highly significant association between extension participation of aromatic black rice growers and perception level.

### Extent of Contribution of Profile Characteristics of Aromatic Black Rice Growers on the Perception towards MOVCDs

The results in Table 6 reveals that age, family size, land holding, annual income, fallow period and material possession of aromatic black rice growers have not significantly contribution to the development of better

TABLE 6

Extent of contribution of profile characteristics of aromatic black rice growers on the perception towards MOVCDs (n=180)

Characteristics	Regression coefficient	SE of Regression coefficient	't' value	
Age	0.06	0.12	0.51	NS
Education	0.31	0.69	2.21	*
Family size	0.32	0.09	0.28	NS
Land holding	0.47	0.18	0.38	NS
Annual income	0.50	0.21	0.42	NS
Fallow period	0.41	0.22	0.53	NS
Organic farming experience	0.32	0.72	2.21	*
Livestock possession	0.30	0.70	2.33	*
Material possession	0.19	0.18	0.92	NS
Crop productivity	0.07	0.20	2.52	*
Achievement motivation	0.35	0.81	2.31	*
Aspiration	0.24	0.59	2.42	*
Management orientation	0.34	0.72	2.11	*
Economic motivation	0.30	0.69	2.33	*
Risk orientation	0.32	0.70	2.16	*
Innovative proneness	0.35	0.69	2.00	*
Mass media exposure	0.29	0.72	2.44	*
Training on organic farming	0.32	0.81	2.50	*
Extension agency contact	0.29	0.89	3.01	*
Extension participation	0.36	0.92	2.51	*

NS= non-significant, \*=Significant at 5%,  
\*\*= Significant at 1%, R<sup>2</sup> = 0.7169

perception towards MOVCDs, whereas variables such as education, organic farming experience, livestock possession, crop productivity, achievement motivation, aspiration, management orientation, economic motivation, risk orientation, innovative proneness, mass media exposure, training on organic farming, extension agency contact and extension participation have synergic effect on one another leading to significantly to highly significantly contributing in developing better perception towards MOVCDs among aromatic black rice growers. All the 20 profile characteristics of aromatic black rice growers had contributed to the tune of 71.69 per cent ( $R^2 = 0.7169$ ) in developing better perception towards MOVCDs.

The research results revealed that a vast majority of 81.67 per cent of the aromatic black rice growers had good to better level of perception towards MOVCDs, while 18.33 per cent of the aromatic black rice growers had poor perception towards MOVCDs because of poor marketing strategies adopted by MOVCDs. Hence, there is a need by the authorities of MOVCDs to develop the partnerships and trade relations between farmers producers companies and organic businesses for promoting domestic (marketing of organic rice through farmers markets, direct retail, farmer and on-line chains) and export markets for organically grown aromatic black rice. The MOVCDs should provide adequate opportunities to the aromatic black rice growers to participate in extension activities and publish / broadcast / telecast the activities of MOVCDs which will further help the aromatic black rice growers in developing better perception towards MOVCDs.

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