

Journal of Experimental Agriculture International

Volume 45, Issue 7, Page 172-181, 2023; Article no.JEAI.100885 ISSN: 2457-0591 (Past name: American Journal of Experimental Agriculture, Past ISSN: 2231-0606)

Perception of the Respondents towards Activities of Farmer Producer Organization in Jalore District of Rajasthan, India

Badal Kumar Joshi^{a++*} and Dipak Kumar Bose^{a#}

^a Department of Agricultural Extension and Communication, SHUATS, Prayagraj, 211007, India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JEAI/2023/v45i72146

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/100885

Original Research Article

Received: 27/03/2023 Accepted: 30/05/2023 Published: 31/05/2023

ABSTRACT

The study was conducted in the Jalore district of Rajasthan to determine the perception of respondents towards activities of farmer producer organizations on both its beneficiaries and nonbeneficiaries. Six villages under the Ahore block were chosen randomly, and a total of 120 respondents (60 beneficiaries and 60 non-beneficiaries) were selected randomly for the study. Data was collected using a pre-structured interview schedule through personnel interviews, and the results were analysed using appropriate statistical methods. The study found that middle-aged individuals were the largest group among both beneficiaries (53.33%) and non-beneficiaries (65.00%). The majority of respondents had medium landholdings, with (53.33%) being beneficiaries and non-beneficiaries (46.67%) having small landholdings. High-income individuals were the largest group

[#] Associate Professor;

^{**} Research Scholar;

^{*}Corresponding author: E-mail: thebadaljoshi@yahoo.com;

J. Exp. Agric. Int., vol. 45, no. 7, pp. 172-181, 2023

among non-beneficiaries (45.00%). The perception of farmers towards activities of FPO on its beneficiaries was found to be at a medium level (48.34%), while in the case of non-beneficiaries, it was low i.e. (46.66%). The study also found that age, education, land holding, annual income, extension contact, social participation, Mass media exposure, risk preference, and economic motivation were positively and significantly correlated with the perception of farmers towards activities of FPO on both its beneficiaries and non-beneficiaries.

Keywords: Perception; farmer producer organization; social participation; mass media exposure.

1. INTRODUCTION

India had over 138 million farm holdings as per the Agricultural Census. Over half of the workforce in India works in the agriculture sector, which is vital to the nation's economy. But the majority of it is made up of little, dispersed farms. The Indian government has improved this by implementing a new system to link small farmers with big businesses in order to boost productivity and promote growth. Most of the population will benefit from having jobs and food security as a result of 2011 (GOI, Agricultural Census, 2011).

One of the most effective ways to address the many challenges facing agriculture is through Farmer Producer Organisations (FPO), or the collectivization of producers, particularly small producer and marginal farmers into organizations. More significantly, this involves a better approach to investments, inputs. technology, and markets. Farmers Producer Organisations registered under the specific provisions of the Companies Act, 1956 have been identified by the Department of Agriculture Cooperation, Ministry of Agriculture, and Government of India, as the most suitable institutional form around which to organise farmers and establish their capacity to jointly production leverage their and selling effectiveness. collective action is an acclaimed strategy to deal with these challenges that smallscale producers face. Specifically, farmer organizations such as cooperatives; associations; unions, groups; and federations with different organizational structures - have been identified to play a key role in enhancing farmers' access to markets [1,2]. Currently, there are several cooperatives across the country which consist of approximately 70% of the total agricultural producers (Ministry of Agriculture, Govt. of India 2015). farmer perceptions towards FPOs and found that farmers are positive about FPOs. Farmers claimed positive changes in the quality of seeds, fertilizers, and pesticides due to their participation in FPOs. The study further found that the government schemes are not reaching farmers due to corrupt practices whereas FPOs are able to distribute inputs to farmers without any corruption. Producer Organizations, therefore, are as supposed to be non-political entities aimed at providing business services to smallholder farmer members, founded on the principle of self-reliance [3]. Still, a large portion of farmers who belong to the small and marginal land-holding category are facing problems due to market intermediaries, FPOs should find some permanent solution to this problem like registration with APMC and eNAM [4].

1.1 Farmer Producer Organizations (FPOs) in Rajasthan

Farmer Producer Organizations (FPOs) are playing an important role in improving the lives of farmers in Rajasthan. By pooling their resources and working together, FPOs are able to negotiate better prices for their produce, access better inputs and services, and market their products more effectively. As a result of these efforts, FPOs have been able to significantly increase the incomes of their members. A study by the Small Farmers' Agribusiness Consortium (SFAC) found that FPOs in Rajasthan were able to increase the incomes of their members by an average of 25%. In addition to increasing incomes, FPOs are also helping to improve the quality of life for farmers in Rajasthan. By providing access to better inputs and services, FPOs are helping farmers to improve their yields and reduce their costs. This is leading to a more sustainable and profitable agricultural sector.

2. METHODOLOGY

The present study was conducted in Jalore district of Rajasthan. Out of 6 blocks in Jalore district, Ahore block is selected purposively based on maximum number of farmers were engaged in Farmer producer organization. From the selected block, six villages were selected purposively based on maximum number of farmers were engaged in Farmer producer organization. Ex-Post facto design was adopted for the study as it describes the characteristics or phenomena that are being studied.

3. RESULTS AND DISCUSSION

From the Table 1, it was observed that distribution of various independent variables among beneficiaries and non-beneficiaries. age, middle-aged individuals are the largest group among both beneficiaries (53.33%) and nonbeneficiaries (65.00%). In terms of caste, the largest group among beneficiaries are General category individuals (48.33%), while among nonbeneficiaries were OBC individuals are the largest group (45.00%). In terms of education. the largest group among both beneficiaries (31.67%) and non-beneficiaries (43.33%) has only primary school education. Regarding occupation, farming along with business was the common occupation most among both beneficiaries (51.67%) and in non-beneficiaries (68.34%) are only practicing farming. Medium family size (5-8 members) is the most common category among both beneficiaries (56.67%) and non-beneficiaries (45.00%). In terms of type of house, cemented houses are more common among beneficiaries (63.34%), while semicemented houses are more common among non-beneficiaries (65.00%). Regarding landholding, medium landholding is the most common category in beneficiaries (53.33%) and non-beneficiaries(46.67%) were having small landholding. Regarding annual income, highincome individuals are the largest group among beneficiaries (63.34%). while low-income individuals are the largest group among nonbeneficiaries (45.00%). In terms of extension contact, the medium level of contact is the most common category among both beneficiaries non-beneficiaries (53.34%)and (46.67%). Similarly, social participation is mostly at the medium level among both beneficiaries (48.34%) and non-beneficiaries (53.33%). Regarding mass media exposure is the most common category among beneficiaries (53.34%), while low ownership is more common among non-(55.00%). In terms of beneficiaries risk orientation, medium risk preference is the most common category among both beneficiaries (51.67%) and non-beneficiaries (46.67%) in low. Finally, economic motivation is high among most beneficiaries (48.34%), while it is medium among most non-beneficiaries (53.33%). Similar findings also reported by Venkattakumar et al. [5] and Subhangi [6].

The perception of respondents towards the activities of farmer-producer organizations (FPOs) in India can vary based on multiple factors, including their personal experiences, cultural context, and socioeconomic background. However, there are certain common themes that emerge when examining the perception of FPOs in India and comparing them with studies in agricultural, rural, and indigenous areas of Latin America [7-9].

Empowerment and Collective Strength: FPOs are often seen as platforms that empower farmers by enabling them to collectively bargain for better prices, access credit, and inputs, and improve their bargaining power in the market [10]. This perception is shared both in India and Latin America, where FPOs have been seen as vehicles for strengthening the position of smallscale farmers and marginalized communities [11,12].

Improved Market Access: FPOs in both India and Latin America are perceived to enhance market access for farmers. By pooling resources and coordinating production and marketing activities, FPOs can help farmers overcome challenges such as limited market information, lack of infrastructure, and fragmented production [13,14]. This perception reflects the potential of FPOs to improve the livelihoods of farmers by connecting them to better market opportunities [15,16].

Knowledge Sharing and Capacity Building: FPOs are often viewed as platforms for knowledge sharing and capacity building, where farmers can learn about improved agricultural practices, market dynamics, and value-addition techniques [17,18]. This perception is consistent across India and Latin America, where FPOs are recognized for their role in disseminating information and promoting innovation among farmers [19,20], (Montenegro et al. 2021b).

Institutional Support and Policy Relevance: The perception of FPOs in both regions emphasizes the need for institutional support and favorable policy environments. Stakeholders often express the view that governments and other relevant institutions should provide adequate resources, infrastructure, and policy frameworks to enable the effective functioning of FPOs [21]. This perception reflects the recognition that FPOs alone cannot address the structural challenges faced by farmers, and supportive policies and institutions are crucial for their success [22].

Joshi and Bose; J. Exp. Agric. Int., vol. 45, no. 7, pp. 172-181, 2023; Article no.JEAI.100885

SI. No.	Independent Variables	Category	Beneficiaries		Non-Beneficiaries	
	-		Frequency	Percentage	Frequency	Percentage
1.	Age	Young age (Up to 35 years)	17	28.33	11	18.33
		Middle age (36-55 years)	32	53.33	39	65.00
		Old age (above 55 years)	11	18.34	10	16.67
2.	Caste	General	29	48.33	13	21.67
		OBC	22	36.67	27	45.00
		SC & ST	9	15.00	20	33.33
3.	Education	Illiterate	11	18.33	22	36.67
		Primary school education	19	31.67	26	43.33
		High school education	14	23.33	5	8.33
		Intermediate	11	18.34	4	6.67
		Graduate & above	5	8.33	3	5.00
4.	Occupation	Only farming	20	33.33	41	68.34
		Farming +Business	31	51.67	11	18.33
		Farming + Service	9	15.00	8	13.33
5.	Family Size	Small (1-4)	14	23.33	16	26.67
		Medium (5-8)	34	56.67	27	45.00
		Large (9 above)	12	20.00	17	28.33
6.	Type of house	Kuchha	2	3.33	10	16.67
		Semi-cemented	20	33.33	39	65.00
		Cemented	38	63.34	11	18.33
7.	Land holding	Marginal (<1 ha)	4	6.67	16	26.67
		Small (1-2 ha)	7	11.67	28	46.67
		Medium (2-3 ha)	32	53.33	12	20.00
		Large (4> ha)	17	28.33	4	6.66
8.	Annual Income	Low (below 1 lakh)	5	8.33	27	45.00
		Medium (1-2 lakh)	17	28.33	22	36.67
		High (Above 2 lakh)	38	63.34	11	18.33

Table 1. Socio-economic profile of the respondents

SI. No.	Independent Variables	Category	Beneficiaries		Non-Beneficiaries	
			Frequency	Percentage	Frequency	Percentage
9.	Extension contacts	Low	11	18.33	21	35.00
		Medium	32	53.34	28	46.67
		High	17	28.33	11	18.33
10.	Social Participation	Low	8	13.33	19	31.67
		Medium	29	48.34	32	53.33
		High	23	38.33	9	15.00
11.	Mass media exposure	Low	9	15.00	33	55.00
		Medium	32	53.33	25	41.67
		High	19	31.67	2	3.33
12.	Risk Preference	Low	11	18.33	28	46.67
		Medium	31	51.67	25	41.67
		High	18	30.00	7	11.66
13.	Economic motivation	Low	11	18.33	16	26.67
		Medium	20	33.33	32	53.33
		High	29	48.34	12	20.00

Joshi and Bose; J. Exp. Agric. Int., vol. 45, no. 7, pp. 172-181, 2023; Article no.JEAI.100885

S. No. Statement		Beneficiaries			Non- Beneficiaries		
		Agree	Undecided	Disagree	Agree	Undecided	Disagree
1.	It provides timely inputs	38 (63.33%)	15 (25.00%)	7 (11.67%)	14 (23.33%)	20 (33.33%)	26 (43.33%)
2.	It provides extension support (training program, demonstration, meeting, exposure visit)	47 (78.33%)	8 (13.33%)	5 (8.33%)	11 (18.33%)	25 (41.67%)	24 (40.00%)
3.	It has tie-up with the agricultural universities to facilitate access to improved technology and expert advice	25 (41.67%)	28 (46.67%)	7 (11.67%)	8 (13.33%)	23 (38.33%)	29 (48.34%)
4.	Regular audit	26 (43.33%)	20 (33.33%)	14 (23.33%)	16 (26.67%)	17 (28.33%)	27 (45.00%)
5.	It has well-built storage structures	16 (26.67%)	40 (66.67%)	4 (06.66%)	11 (18.33%)	14 (23.33%)	35 (58.34%)
6.	It has well equipped transport facilities	15 (25.00%)	39 (65.00%)	6 (10.00%)	7 (11.67%)	16 (26.67%)	37 (61.66%)
7.	It helps in grading and packaging of the produce	16 (26.67%)	39 (65.00%)	5 (8.33%)	10 (16.66%)	25 (41.67%)	25 (41.67%)
8.	It helps in quick payment to farmers	10 (16.67%)	47 (78.33%)	3 (05.00%)	4 (6.67%)	26 (43.33%)	30 (50.00%)
9.	It helps in planning group activities	20 (33.33%)	37 (61.67%)	3 (05.00%)	7 (11.66%)	25 (41.67%)	28 (46.67%)
10.	It help in marketing produce	34 (56.67%)	21 (35.00%)	5 (8.33%)	12 (20.00%)	17 (28.33%)	31 (51.67%)
11.	Ideology of all members match	10 (16.67%)	47 (78.33%)	3 (05.00%)	8 (13.33%)	17 (28.33%)	35 (58.34%)
12.	Are friendly with each other in action	10 (16.67%)	49 (81.67%)	1 (1.67%)	4 (6.67%)	14 (23.33%)	42 (70.00%)
13.	It helps in form coordination committee to solve conflicts related to organizational management	40 (66.67%)	16 (26.67%)	4 (6.66%)	12 (20.00 ⁽ %)	16 (26.67%)	32 (53.33%)
14.	Given equal opportunity to contribute	39 (65.00%)	14 (23.33%)	7 (11.67%)	4 (6.67%)	27 (45.00%)	29 (48.33%)
15.	Encourage others to raise questions	43 (71.67%)	15 (25.00%)́	2 (03.33%)	10 (16.66%)	19 (31.67%)	<u>31 (51.67%)</u>

Table 2. Distribution of respondent according to their perception of FPO

Challenges and Limitations: While there is generally a positive perception of FPOs, studies also highlight challenges and limitations. Common concerns include issues related to governance, transparency, financial viability, and the need for effective leadership within FPOs [23,24]. These challenges are not limited to a specific region but are shared by FPOs in both India and Latin America [25,26].

It is important to note that while there are similarities in the perception of FPOs between India and Latin America, there can also be significant variations within each region and among different contexts. Factors such as cultural diversity, historical background, and local agricultural systems can influence the specific perceptions and outcomes associated with FPOs in different areas.

It is evident from the above table that among beneficiaries, 48.34% of the respondents have medium levels of progressiveness, 43.33% have high levels of progressiveness, and only 8.33% have low progressiveness. Similarly, among nonbeneficiaries, 46.66% of respondents have low levels of progressiveness, 36.67% have medium levels of progressiveness, and only 16.67% have high progressiveness.

From this below Table 4 concluded that independent variable education, type of house, land holding, annual income, extension contact, social participation, mass media exposure, risk preference and economic motivation were positively and significantly correlated at 0.01 percent level of probability and age was positively and significantly correlated with Perception of farmer towards activities of FPO on its beneficiaries at 0.05% probability. Therefore, the null hypothesis was rejected for these variables. caste, occupation, and family size were negatively and not significantly correlated with the impact of FPO on its beneficiaries similar finding also reported by S.K. Sharma et al. [27]. concluded that independent variable education, occupation, family size, land holding, annual income, extension contact, social participation, mass media exposure and risk preference were positively and significantly correlated at 0.01 percent level of probability and age, type of house and economic motivation were positively and significantly correlated with perception of farmers towards activities of FPO on its nonbeneficiaries at 0.05% probability. Therefore, null hypothesis was rejected for these variables. Caste, occupation and family size was nonsignificantly correlated [28-31].

able 3. Overall perception of resp	ndent on its beneficiaries and non-beneficiaries
------------------------------------	--

Beneficiaries				Non - Beneficiaries		
S. No	Category	Frequency	Percentage	Category	Frequency	Percentage
1.	Low (19-24)	5	8.33	Low (17-21)	28	46.66
2.	Medium (25- 29)	29	48.34	Medium (22-25)	22	36.67
3.	High (30-34)	26	43.33	High (26-29)	10	16.67
Total		60	100		60	100

Table 4. Association between selected independent variables with perception of farmer towards activities of FPO on its beneficiaries and non-beneficiaries

SI. No. Independent Variable		Correlation coefficient		
		Beneficiaries	Non- Beneficiaries	
1.	Age	0.349**	0.218**	
2.	Caste	0.089NS	0.027NS	
3.	Education	0.755*	0.756*	
4.	Occupation	0.089NS	0.087NS	
5.	Family size	0.093NS	0.076NS	
6.	Type of house	0.802*	0.159**	
7.	Land holding	0.795*	0.866*	
8.	Annual income	0.700*	0.999*	
9.	Extension contacts	0.795*	0.727*	
10.	Social participation	0.986*	0.596*	
11.	Mass Media Exposure	0.885*	0.996*	
12.	Risk preference	0.836*	0.979*	
13.	Economic motivation	0.802*	0.371**	

* = 0.01% level of probability, ** = 0.05% level of probability, NS = Non-significant

Joshi and Bose; J. Exp. Agric. Int., vol. 45, no. 7, pp. 172-181, 2023; Article no.JEAI.100885





4. CONCLUSION

lt was concluded that the majority of beneficiaries respondents. both and nonbeneficiaries, were middle-aged and had a primary level of education. Most respondents were part of a nuclear family and owned 1-2 hectares of land. Both groups had moderate extension contact and levels of social participation. The perception of farmers towards activities of the farmer producer organization on its beneficiaries was observed to be at a medium level and in the case of non-beneficiaries was observed to be at a low level. Moreover, it was found that age, family size, education. householding, annual income extension contacts, social participation, media ownership, risk preference, and economic motivation were positively and significantly correlated with the perception of farmers towards activities of FPO. To improve the perception of farmers towards FPOs, the government should provide subsidized training, demonstrations, infrastructure facilities, and inputs.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

- Chirwa E, Dorward A, Kachule R, Kumwenda I, Kydd J, Poole N. oulton, C. and Stockbridge, M. Farmer organizations for market access: Principles for policy and practice. Department of Agricultural Sciences, Imperial College London; 2005.
- 2. Hellin J, Lundy M, Meijer M. Farmer organisation and market access. Leisa Magazine. 2007;23(1):26-7.
- Onumah G, Davis J, Kleih U, Proctor F. Empowering Small holder Farmers in Markets: changing agricultural system and innovative responses by producer organization; 2007.
- Bishnoi R, Kumari S. Challenges faced by FPOs & strategies to overcome: A review International Journal of Advances in Agricultural Science and Technology (IJAAST). 2020;7(6):25-33.
- 5. Venkattakumar R. Mysore VS. Balakrishna Narayanaswamy Β, В. producer Performance of farmer organizations (FPOs and associated factors Karnataka): Producers' in perspective. Indian Research Journal of Extension Education. 2019;19(2&3):7-12.
- 6. Subhangi S. Farmers Producer Organization for effective linkage of small producers with market. Int J Appl Res. 2016;2(10):142-6.
- Cortez A, Olivares B, Muñetones A, Casana S. Strategic elements of organizational knowledge management for

innovation [case]: Agrometeorology Network. Revista Digital de Investigación en Docencia Universitaria. 2016;10(1): 68-81.

- Camacho R, Olivares B, Avendaño N. Agri-food landscapes: An analysis of the livelihoods of indigenous Venezuelans. Research Magazine. 2018;42(93):130-53.
- Olivares B. Application of principal component analysis (PCA) in socioenvironmental diagnosis [case]. The Campo Alegre Sect Simón Rodríguez Municipality Anzoátegui Rev Multiciencias. 2014;14(4):364-74.
- Cortez A, Olivares B, Rodríguez MF, Rey JC, Lobo D. Development of the information system of the network of alternative rain gauges in rural areas. Case. Anzoátegui. Venezuela. University Act. 2016;26(4):65-76.
- Orlando B, Hernández R, Arias A, Molina JC, Pereira Y. Agroclimatic zoning of corn cultivation for the sustainability of agricultural production in Carabobo, Venezuela. Rev Univ Geogr. 2018;27 (2):139-59.
- 12. Hernandez R, Olivares B, Arias A, Molina JC, Pereira Y. Eco-territorial adaptability of tomato crops for sustainable agricultural production in Carabobo, Venezuela. Idesia. 2020;38(2):95-102.
- 13. Guevara E, Olivares B, Demey J. Use of climatic bioindicators in agricultural production systems in the state of Anzoátegui, Venezuela. Revista Multiciencias. 2012;12(2):136-45.
- Hernández R, Olivares B, Arias A, Molina JC, Pereira Y. Identification of potential agroclimatic zones for production of onion (*Allium cepa* L.) in Carabobo, Venezuela. J Selva Andina Biosph. 2018 ;6(2):70-82.
- 15. Guevara E, Olivares B, Demey J. Use and demand of agrometeorological information in agricultural production systems in Anzoátegui, Venezuela. Revista Multiciencias. 2012;12(4):372-81.
- Hernández R, Olivares B. Application of multivariate techniques in the agricultural land's aptitude in Carabobo, Venezuela. Trop Subtrop Agroecosystems. 2020;23(2):1-12.
- Montenegro E, Pitti J, Olivares B. Adaptation to climate change in indigenous food systems of the Teribe in Panama: Training based on Cristal 2.0. Luna Azul. 2021:51-2, 182-97.

- Olivares B. Relationship of nature climate and spirituality of indigenous communities agricultural Kari'ña state Anzoátegui, Venezuela. Tiempo Espacio. 2014;61(2): 129-50.
- Olivares B, Cortez A, Parra R, Lobo D, Rodríguez MF, Rey JC. Evaluation of agricultural vulnerability to drought weather in different locations of Venezuela. Rev Fac Agron (LUZ). 2017;34(1):103-29.
- 20. Olivares B, Hernández R. Ecoterritorial sectorization for the sustainable agricultural production of potato (*Solanum tuberosum* L.) in Carabobo, Venezuela. Agricultural Science and Technology. 2019;20(2):339-54.
- Olivares B, Lobo D, Cortez A, Rodríguez MF, Rey JC. Socio-economic characteristics and methods of agricultural production of indigenous community Kashaama, Anzoategui, Venezuela. Rev Fac Agron (LUZ). 2017;34(2):187-215.
- 22. Olivares B. Machine learning and the new sustainable agriculture: Applications in banana production systems of Venezuela. Agricultural Research Updates. Nova Science Publishers, Inc. 2022;42:133-57. ISBN: 979-8-88697-261-0 Available:https://novapublishers.com/shop/agricultural-research-updates-volume-42/.
- Orlando B, Franco E. Agrosocial diagnosis of the indigenous community of Kashaama: An empirical study in the state of Anzoátegui, Venezuela. Rev Cient Guillermo Ockham. 2015;13(1):87-95.
- 24. Pittí J, Olivares B, Montenegro E, Miller L, Ñango Y. The role of agriculture in the Changuinola District: a case of applied economics in Panama. Trop Subtrop Agroecosystems. 2021;25(1).
- 25. Rodríguez MF, Olivares B, Cortez A, Rey JC, Lobo D. Caracterización físico natural de la comunidad indígena de Kashaama con fines de manejo sostenible de la tierra. Acta Nova. 2015;7(2):143-64.
- Olivares BO, Zingaretti ML, Demey Zambrano JA, Demey JR. Tipificación de los sistemas de producción agrícola y la percepción de la variabilidad climática en Anzoátegui, Venezuela. FAVE Sección Ciencias Agrarias. 2016;15(2): 39-50.
- 27. Sharma SK, Sharma NK, Vyas KG. Association between selected independent variables and adoption level of Farmers about recommended production technology of fennel. Asian Journal of

Agricultural Extension, Economics & Sociology. 2020;38(6):60-8.

- FAO. Food and Agriculture Organization United Nations. FAO statical Yearbook 2013-World Food agriculture; 2013.
- 29. Government of India. State of Indian agriculture 2012-13. New Delhi: Ministry of Agriculture, Department of Agriculture and Cooperation, Directorate of Economics and statistics; 2013.
- Government of India. Cooperation & Farmers' Welfare Ministry of Agriculture & Farmers' Welfare Government of India [Annual Report]. Department of Agriculture; 2016.
- Montenegro E, Pitti-Rodríguez J, Olivares-Campos B. Identificación de los principales cultivos de subsistencia del Teribe: un estudio de caso basado en técnicas multivariadas (In Spanish). Idesia. 2021; 39(3):83-94.

© 2023 Joshi and Bose; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

> Peer-review history: The peer review history for this paper can be accessed here: https://www.sdiarticle5.com/review-history/100885