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Farmer's Opinion on the Usefulness of Agro-advisory Services in the NICRA Operated Districts of Odisha

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ABSTRACT

Agro Advisory Services (AAS) play a dominant role to minimize crop losses and increase crop production and productivity. AAS provides basic, timely and accurate pre-information of different climate and weather conditions for different crops. With this milieu, National Innovation on Climate Resilient Agriculture (NICRA) is operating in five climate vulnerable districts of Odisha. In this study three districts were selected based on the different agro-ecological situations. Different advisory services like agro-advisory, weather advisory, the usefulness of news letter, farm literature and farm videos. Agro-advisory services were found more than half of the farmers found it highly useful while 20 per cent found it useful. The scenario is much better in NICRA districts in comparison to non-NICRA districts ($p=0.006$). But in weather advisory, 35 per cent of farmers found it was highly useful while 15.8 per cent of farmers found it was useful. About a quarter (26.7%) of farmers expressed Newsletter is highly useful whereas 21.7 farmers opined it is useful. About 23.3 per cent of farmers found farm literature was highly useful while 25.8 per cent found it useful. Only 10 per cent of farmers opined that farm videos are highly useful whereas 18.3 per cent told it is useful. In the Non-NICRA areas, 33.3 per cent see these services as highly useful or useful. This scenario is significantly better in NICRA areas ($p=0.008$).

Key words : Agro-advisory services; Climate change; National Innovation on Climate Resilient Agriculture (NICRA)

Agricultural growth remains the key priority of the government. Over the years, Odisha agriculture has become more diversified and shifted to high-value crops. The state possesses a wealth of biodiversity, has experienced severe weather variability, crop failure and recurrent famine throughout the past. To tackle the problems that arise as a result of climate change and the resultant droughts, floods, land degradation, losses of crop and biodiversity, famine, malnutrition and poverty, there is a need for greater awareness on managing natural resources. With this milieu, National Innovation on Climate Resilient Agriculture (NICRA) is operating in five climate vulnerable districts of Odisha. The state needs a new integrated approach for the advancement of improved technologies and good practices to manage crops and livestock, as well as the soil, land and ecological resources of the region. The study

envisages different agro-advisory services like agro-advisory, weather advisory, newsletter, farm literature and farm videos.

The efficacy of the services was assessed through the opinion of farmers in the NICRA and Non-NICRA areas. Agro-advisory services are essential for farmer's development. The existing formal and informal knowledge networks also play a vital role in the decision-making process (Baethgen *et al.*, 2003). Nigeria was examined that the farmers should be educated more on the economic benefits of using agro-services to maximize the usage of the services and output by the farmers. They should also encourage the farmers to access agro-services in a group through their associations, for enhanced capacity to use agro-services at reduced prices (Umar *et al.*, 2019).

Weather-based advisory services can meet the real-time needs of farmers and contribute to weather-

based crop/livestock management strategies and operations dedicated to enhancing crop production and food security (*Gandhi et al., 2018*).

The NICRA project intends to promote people's adaptability to the persisting climate change situation in the intervention pocket which can be compared with the control area after the project period. Secondly, the institutional mechanism will be created during the intervention so that the initiated measures will sustain in the long run after the life of the project. Agro advisory services (AAS) were found helpful to the farmers in managing climate risks effectively for sustainable and profitable agricultural production (*Ramachandrappa et al., 2018*). Apart from direct benefit, this intervention will yield sufficient experience and enrich the understanding of planners and policymakers on micro-level implications of climate change and possible remedial measures from an agriculture point of view. AAS is helpful to farmers for increasing interest, knowledge, adoption and impact of climate changes on agricultural practices. Most of the project villages have more or less access to the services provided by AAO, CDAO, ATMA, VAW/LVAW, etc. but a few villages are required information/ agro-advisory services. Proper motivation and awareness creation among farmers is of the utmost importance as of now. A few progressive farmers can reap the benefits of information/ knowledge and govt. beneficial schemes.

METHODOLOGY

A research design that combined both qualitative and quantitative research techniques was deployed in this study. This is a test-control study, where the comparison is made between the NICRA- farmers (Test) and non-NICRA farmers (Control group). The districts, blocks and villages were selected following a judgment sampling approach to ensure proper representation. In this study three districts namely Kendrapara, Jharsuguda and Kalahandi, Odisha were selected based on the different agro-ecological situations. The respondents were selected following the random sampling method. The study periods were from 2012-13 to 2019-20 for studying the impact of the project. The efficacy of the services was assessed through the opinion of farmers in the NICRA and Non-NICRA areas.

In each district, the only block under the NICRA project was selected. In the block two NICRA villages

and one non-NICRA village were selected randomly out of the villages. In the selected villages, 20 farmers were selected proportionately from among different categories of farmers following a random process. In each district, one scientist is selected from KVK. A total of 3 Scientists were covered. In each district, two VAWs, two extension officials of the rank of AAO, DAO, or Chief District Officer are selected. In this process, there were 6 VAWs and 6 senior extension officials in the sample in one district. 15 officials each have been taken in the Non-NICRA and NICRA project areas. Out of 30 officials, 6 were scientists, 16 agriculture officers and 8 village-level agriculture staff. A total of 120 NICRA farmers, 60 non-NICRA farmers and 30 Officials were selected in the sample. Mainly the three-point rating scale was used to obtain the score.

Primary data was collected through in-depth interviews with farmers by the researchers in the selected villages. Similarly for qualitative research, Focus Group Discussion was conducted with a group of farmers through interviews to capture the information by the researcher. Data collected under the study was scrutinized, codified and entered into the IBM SPSS Statistics, 24.0 software for analysis.

RESULTS AND DISCUSSION

Usefulness of agro-advisory services : Agro advisory services were comprised of advisory relating to farming knowledge, skill and practices during agricultural operation from transplanting to the harvesting of the crops or any enterprises. It was found that slightly more than half of the farmers found it highly useful while 20 per cent found it useful. Fifteen percent of farmers could not say anything regarding its usefulness and 13.3 per cent stated it was not useful. This together comes to about 48.3 per cent which was the grey area that needs to be addressed. In the three districts, the scenario was not significantly different ($p=0.959$). The details are as follows in Table 1.

In the Non-NICRA districts, 33.3 per cent stated that agro-advisory services were not useful and 30 per cent could not form any opinion. This implied 63.3 per cent of farmers did not see the usefulness of agro-advisory services while 46.6 per cent see these services as highly useful or useful. This scenario was much better in NICRA districts in comparison to non-NICRA districts ($p=0.006$).

Usefulness of weather advisory services : Weather

Table 1. Opinion on weather advisory services

District	Highly useful		Useful		Undecided		Not useful	
	No.	%	No.	%	No.	%	No.	%
Kalahandi	11	27.5	7	17.5	6	15	16	40
Jharsuguda	14	35	7	17.5	5	12.5	14	35
Kendrapara	14	35	9	22.5	5	12.5	12	30
	$\chi^2=1.506$				$p=0.959$			
NICRA Total	39	32.5	24	20	15	12.5	42	35
Non-NICRA	8	13.3	14	23.3	18	30	20	33.3
	$\chi^2=12.552$				$p=0.006$			

Table 2. Opinion on Weather Advisory Services

District	Highly useful		Useful		Undecided		Not useful	
	No.	%	No.	%	No.	%	No.	%
Kalahandi	14	35	5	12.5	5	12.5	16	40
Jharsuguda	12	30	8	20	7	17.5	13	32.5
Kendrapara	16	40	6	15	6	15	12	30
	$\chi^2=2.276$				$p=0.893$			
NICRA Total	42	35	19	15.8	18	15	41	34.2
Non-NICRA	9	15.0	12	20.0	20	33.3	19	31.7
	$\chi^2=12.494$				$p=0.006$			

advisory services are very important for farmers to start field operation activities during various seasons i.e., Kharif, Rabi and Summer. Weather-based advisory services can meet the real-time needs of farmers and contribute to weather-based crop/livestock management strategies and operations dedicated to enhancing crop production and food security (Chattopadhyay, 2021). Table 2 shows that 35 percent of farmers found it was highly useful while 15.8 per cent of farmers found it was useful. But 15 percent of farmers could not express their notion whereas 34.2 per cent of farmers expressed that it was not useful for them. About fifty percent of farmers expressed that weather advisory services were either not useful for them or they can't say about it. Hence, the outreach of the weather advisory needs to be explored in a better way to reach the farmers timely to combat the climatic hazards. In the three districts, the scenario of weather advisory was not significantly different ($p=0.893$). The details are as follows in Table 2.

In the non-NICRA districts, 31.7 per cent specified that weather advisory services were not useful and 33.3 per cent could not form any opinion. This implied 65 per cent of farmers either did not see the usefulness or tell anything about it while 35

per cent see these services as highly useful or useful. The farmer's perception of the usefulness of weather advisory services is better in NICRA districts in comparison to non-NICRA districts ($p=0.006$).

Usefulness of news letter : New letters are equally important for farmers to get aware of various proven technologies demonstrated in different agro-climatic zone/ agro-ecological situations or locations. About a quarter (26.7%) of farmers expressed Newsletter was highly useful whereas 21.7 farmers opined it was useful. About eleven percent of farmers were not sure about its usefulness, while 2/5th stated that it was not useful. These two together come to about 51.7 per cent which was the grey area that needs to be addressed in the upcoming days. The usefulness of the Newsletter was not significantly different ($p=0.999$) across three districts. The details are stated in Table 3. In the Non-NICRA districts, only 31.7 per cent perceive that the newsletter is highly useful or useful 33.3 per cent. This proportion is much higher in NICRA districts ($p=0.001$).

Usefulness of farm literatures : Farm kinds of literature (booklet/leaflet etc.) are very important to change the knowledge level of farmers during the production of crops or enterprises. Table 4 shows that 23.3 per cent of farmers found it highly useful while 25.8 per cent found it useful.

More than 10 per cent of farmers could not tell anything on farm literature whereas 40 per cent told it is not useful for them. This together comes more than 50.8 per cent. Therefore, it needs to be ensured that the farm literature is to be reached for all farmers. The usefulness of the farm literature is not significantly different among the three districts ($p=0.549$). In the non-NICRA districts, 31.7 per cent opined that Farm Literatures (Booklet/leaflet, etc.) were not useful or not able to furnish any opinion. This shows 63.3 per

Table 3. Advisory through news letter

District	Highly useful		Useful		Undecided		Not useful	
	No.	%	No.	%	No.	%	No.	%
Kalahandi	11	27.5	9	22.5	5	12.5	15	37.5
Jharsuguda	11	27.5	9	22.5	4	10	16	40
Kendrapara	10	25	8	20	5	12.5	17	42.5
	$\chi^2=0.407$				$p=0.999$			
NICRA Total	32	26.7	26	21.7	14	11.7	48	40
Non-NICRA	6	10.0	13	21.7	21	35.0	20	33.3
	$\chi^2=16.934$				$p=0.001$			

Table 4. Usefulness of farm literatures

District	Highly useful		Useful		Undecided		Not useful	
	No.	%	No.	%	No.	%	No.	%
Kalahandi	10	25	13	32.5	6	15	11	27.5
Jharsuguda	10	25	8	20	4	10	18	45
Kendrapara	8	20	10	25	3	7.5	19	47.5
	$\chi^2=4.963$				$p=0.549$			
NICRA Total	28	23.3	31	25.8	13	10.8	48	40
Non-NICRA	7	11.7	15	25.0	19	31.7	19	31.7
	$\chi^2=13.323$				$p=0.004$			

cent of farmers did not see the usefulness of Farm Literatures (Booklet/leaflet etc.) while 36.7 per cent see these services as highly useful or useful. The perception of farmers about the usefulness of farm literature was much better in NICRA districts in comparison to non-NICRA districts ($p=0.004$).

Usefulness of farm videos : Farm videos are imperative for farmers to change their knowledge, skill, and attitudes during project interventions. Only Ten percent of farmers opined that farm videos are highly useful whereas 18.3 per cent told it is useful. More than 17 per cent of farmers could not express their notions while 54.2 per cent of farmers expressed it is as not useful. Most of the NICRA households do not have the facility for viewing videos. The usefulness of the farm videos is not significantly different among the districts in Table 5 ($p=0.950$). In the non-NICRA districts, 33.3 per cent see these services as highly useful or useful. This scenario is significantly better in NICRA districts ($p=0.008$).

CONCLUSION

Agro-advisory services were a vital element for farmers' to improve their knowledge as well

Table 5. Effectiveness of farm videos

District	Highly useful		Useful		Undecided		Not seen	
	No.	%	No.	%	No.	%	No.	%
Kalahandi	4	10	6	15	7	17.5	23	57.5
Jharsuguda	5	12.5	9	22.5	6	15	20	50
Kendrapara	3	7.5	7	17.5	8	20	22	55
	$\chi^2=1.637$				$p=0.950$			
NICRA Total	12	10	22	18.3	21	17.5	65	54.2
Non-NICRA	6	10.0	14	23.3	22	36.7	18	30.0
	$\chi^2=11.717$				$p=0.008$			

as their mindset. The usefulness of agro-advisory services (AAS) like agro-advisory, weather advisory, newsletter, farm literature and farm videos were the effective way to disseminate various farm information on climate changes effects to minimize the losses. The agro-advisory services deliver timely pre-alert information on agriculture and allied sectors to enhance yield and production. Agro-advisory services have significantly higher NICRA villages as compared to non-NICRA villages. Apart from their conventional function of providing knowledge for improved agricultural productivity, agricultural advisory services are expected to fulfil a variety of new functions, such as linking smallholder farmers to high-value and export markets, promoting environmentally sustainable production techniques, and coping with the effects of health challenges that affect agriculture. Proper coordination among various development actors like GO, NGO, Private Agencies and policymakers need to be strengthened to reduce climate change.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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