Progressive Research – An International Journal
Vol. 5 (Special Issue) : 507-509 (2010), ISSN : 0973-6417

Society for Scientific Development in Agriculture and Technology, Meerut (U.P.) INDIA

A STUDY ON ECONOMIC IMPACT OF AGROMET ADVISORY SERVICES IN ZONE IIIA OF BIHAR

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ABSTRACT

The results revealed that the additional income was more in case of wheat followed by paddy, maize and urd respectively. However, the percentage loss in Urd is comparatively less with respect to Paddy and Wheat after following the agromet advisories services. The impact was clearly visible with respect to the diseases and insects which are mainly weather based appearance.More emphasis is needed for timely dissemination of weather based agro advisories to the village level farming community. The issue of agro advisories to the farmers help to avoid the adverse effects of weather events like heavy rain, dry spell, high floods, wind speed which influences the growth and developments of the crops.

Key words : *Impact, agromet advisory services, Bihar*

The agromet advisory service based on weather forecasting is an effective toolsfor better income, if properly and timely disseminated to the farmers. Agromet advisory services is a vital tool which provides the valuable information about all agricultural operations starting from field preparation to harvesting based on weather forecasting. The aim of agromet advisory services is to conserve the natural resources and better utilization of inputs effectively and call for minimizing the natural hazards.

The National Centre for Medium Range Weather Forecasting (NCMRWF) under the administrative control of India Metrological department, Government of India created infrastructure for disseminating agro advisory through state meteorological centres and agro meteorological field unit based on weather broadcasting to strengthen weather based agromet advisory for the benefit of farmers and to ensure food and nutritional security. The utility of weather forecast further depends upon their reliability and applicability at micro level. Agriculturally relevant forecast is not only useful for efficient management of farm inputs but also leads to precise impact assessment (Anonymous 2002). The weather forecasting at national level and bi-weekly agro-advisory services at districts and regional level have been critical in instrumentalising the farmers to adjust their production plans in favour of maximum production. However, a people centric group dynamic approach is still lacking(Sharma et al. 2008). This article clearly shows the adoptive Agromet advisory farmers and non adoptive agromet advisory farmers are taken in consideration for adopt the new technology to achieve the productivity of land and also get the benefit by adopting agro advisory services. Keeping the importance of Agromet Advisory Services, the present study was an attempt to study and asses the economic impact of Agromet Advisory Services in Zone IIIA of Bihar.

RESEARCH METHODOLOGY

Bhagalpur district falling under the Jurisdiction of Zone IIIA was selected purposively. The average maximum and minimum temperature varies between 22-38^{0}C and 5-20^{0}C respectively. The average annual rainfall of this zone is 1250mm and Average Relative Humidity at morning in winter remains about 80-90 per cent while in afternoon it ranges between 50-60 per cent. The major growing crops are Paddy, Wheat, Maize, Pulses and Vegetables crops etc. The weather bulletin forecast regularly twice in a week on Tuesday and Friday to all the district of Zone- A of Bihar. Accordingly, agromet advisory bulletins were prepared and circulated among identified farmers and called as Agromet Advisory Services Farmers(herein after AAS Farmers) of the purposive selected districts. A survey was conducted to obtain the feedback from the participating farmers on specifically prepared scheduled and questionnaire. The economic impact analysis was carried out based on the feedback obtained from both identified AAS Farmers and Non-AAS Farmers for different practices, attack of pests and diseases and getting the profit from various crops like Paddy, Wheat and Urd. The details of selected farmers are as below:

Thus, altogether 40 Farmers comprises of 20

Table-1 : Selection of Sample farmers.

District	Blocks	Village	No. of Sample farmers selected	Total Numbers of Sample farmers	
			AAS Farmers	Non-AAS Farmers	
Bhagalpur	Sabour	Sabour	20	20	40

Table-2 : Economic Impact Assessments of Agromet Advisory Services in Zone IIIA of Bihar.

Season	Crops	Year	Weather Element	Name of Diseases/ Pest	Mean Productivity realized in Kg/hac.		Additional Production Gains by AAS farmers (Kg/hac)	Price (Rs/Kg)	Additional Income (Rs/hac)	%age of Loss
					AAS farmers	Non-AAS farmers				
Kharif	Paddy	2005-6	Temperature/ Humidity	Rice hispa	1852	1601	251	5.00	1255	15.67
	Maize		Temperature	Stem borer	1202	951	251	6.00	1506	26.39
Rabi	Wheat		Temperature	Termite	1802	1401	401	8.00	3208	28.62
Summer	Urd		Temperature	Pod borer	752	650	102	20.00	2040	15.69
Kharif	Paddy	2006-7	Temperature/ Rainfall	Sheath blight	2276	1812	464	6.00	2784	25.60
	Maize		Temperature	Stem borer	1766	1422	344	6.00	2064	24.19
Rabi	Wheat		Temperature	Rust	2181	1715	466	8.00	3728	27.17
	Maize		Temperature	Stem borer	4553	3825	728	6.00	4368	19.03
Summer	Urd		Temperature	Yellow Vein Mosaic	712	598	114	20.00	2280	19.03
Kharif	Paddy	2007-8	Temperature & Cloudiness	Bacterial leaf bight	2082	1751	331	7.00	2317	18.90
Rabi	Wheat		Temperature	Rust	2982	2561	421	10.00	4210	16.43
Summer	Urd		Humidity/ Temperature	Yellow Vein Mosaic	652	575	77	20.00	1540	13.39
Kharif	Paddy	2008-9	Temperature & Cloudiness	Bacterial leaf blight	2096	1754	342	8.00	2736	19.49
Rabi	Wheat		Temperature & Humidity	Rust	2998	2573	425	12.00	5100	16.51
Summer	Urd		Humidity	Pod borer	658	577	81	21.00	1701	14.03

farmers from each groups i.e. AAS farmers and Non-agromet Advisory Farmers (Non-AAS Farmer) were selected for detailed investigation.

RESULTS AND DISCUSSION

The present study is an attempt to study the impact of agromet advisories on the economic returns to the farmers. Insects and diseases like stem borer, gundhy bug, rice hispa, bacterial leaf blight, blast and sheath blight in paddy, rust, weed and irrigation in wheat, stem borer in maize and yellow mosaic in urd were considered for the study. Critical weather elements contributing to pests and diseases in various crops and finally the benefit accrued by the following agro advisory services for the entire district has been evaluated. The economic impact assessment of weather based agro-advisories(AAS) in different crops during 2005-6 to 2008-9 were calculated(Table-2) by considering the yield loss and percent adoption under each crop in the district, monetary benefit accrued to the farmers.

The results revealed that the additional income was more in case of wheat followed by paddy, maize and urd respectively. However, the percentage loss in Urd is comparatively less with respect to Paddy and Wheat after following the agromet advisories services. The impact was clearly visible with respect to the diseases and insects which are mainly weather based appearance. The additional income (Rs/hac) of Rs. 1255 for rice hispa, Rs. 2784 for sheath blight, Rs. 2317, Rs. 2736for bacterial leaf blight in Paddy were observed for the year 2005-6, 2006-7, 2007-8 and 2008-9 respectively. Similarly, the additional income were to the tune of Rs. 3208 for termite during the year 2005-6 and Rs. 3728, Rs. 4210, 5100for rust in wheat for the year 2006-7, 2007-8 and 2008-9. The additional income of Rs. 1506 during the year 2005-6,

Rs. 2064 and Rs4368for stem borer in maize was observed in Kharif and Rabi season for the year 2006-7.The impact of agromet advisories and additional income was calculated for Rs. 2040, Rs. 1701 for pod borer and Rs. 2280, Rs. 1540 for yellow vein mosaic in urd ha^{-1} were observed by controlling above diseases and insects.This can be compared with the findings that Kushwaha *et al.,* (2008) reported that AAS farmers harvested 19.4,21.7 and 20.9 q per acre compared to 17.5, 20.0 and 19.8 q per acre yield of paddy which was 10.8,8.5 and 5.6 percent more than non-AAS farmers.

CONCLUSIONS

It may conclude from the study that the altogether additional income was more in case of wheat followed by paddy, maize and urd respectively. However, the percentage loss in Urd is comparatively less with respect to Paddy and Wheat after following the agromet advisories services. The impact was clearly visible with respect to the diseases and insects which are mainly weather based appearance. The correct and usable rain forecastwhich is of immense use to the farmers to fine tune their agricultural operations still has to improve. Further, more emphasis is needed for timely dissemination of weather based agro advisories to the village level farming community. Thus the issue of agro advisories to the farmers help to avoid the adverse effects of weather events like heavy rain, dry spell, high floods, wind speed which influences the growth and developments of the crops. It is observed that the high benefit has been realized with the efficient management practices based on the agro advisories which contains the information mainly on weather parameters and do not depend on high input application.

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