Impact on Knowledge of Blackgram Growers in Periyar Vaigai Command Area of Madurai District

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Short Research Article

ABSTRACT

The World Bank Supported TN IAM (Irrigated Agriculture Modernization) Project is a follow up of IAMWARM presently it was called as (Irrigated Agriculture Modernization and Water-Bodies Restoration and Management) Project which has made significant development and impacts in the Tamil Nadu state by modernizing irrigation infrastructure, improving water use efficiency, enhancing yield and productivity of agriculture in a climate resilient production systems, diversification towards high-value crops, strengthening the institutional reforms through Participatory Irrigation Management (PIM) and Water Users Association (WUA). Madurai District of Tamil Nadu was purposively selected for this study because Tamil Nadu Irrigated Agriculture Modernization Project was conducted under Tamil Nadu Agricultural University. The foremost objective of the study is to assess the knowledge level of respondents in the study area. According to crop production technology aspects revealed that (79.00%) of the beneficiaries possessed knowledge in using VBN 6 variety for cultivation. The study concluded that majority (80.00%) of the beneficiaries were possessed knowledge on (cultural control) fixation of light traps, crop rotation (77.50%) and sowing carry out in proper season.

Keywords: TN IAM project; water use efficiency; crop production; beneficiaries.

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1. INTRODUCTION

Agriculture is the single largest consumer of water in the state, using 75% of the state's water. Out of 40000 tanks only 14098 Tanks are under the maintenance of the Water Resources Department with the rest under the Panchayat unions. Black gram is also known as Urd or Black lentil [1,2]. It is one of the most important pulse crops grown throughout the country in very diverse agro-climatic conditions. India produces 70 per cent of world's blackgram production and accounts for 10 per cent of total's pulse production [3]. Pulses are considered as "the meat of the poor" because still pulses are the cheapest source of protein [4]. Pulses are generally fabacian group food grains having rich source of proteins and contribute 11 per cent of the total intake of proteins in India [5]. Productivity achieved under demonstration over farmers practices created awareness and motivated the other farmers to adopt critical innovations for blackgram cultivation viz., selection of high yielding varieties, integrated nutrient management particularly post flowering nutrient management, integrated pest management and other technology of black gram in the Districts [1,6]. Irrigation through a combination of canals, wells and tanks increases the reliability and availability of water for farming and is essential for cultivating crops in much of the state. About 3 million ha of land (54 percent of the total crop land) is under irrigation. Pulses are generally fabacian group food grains having rich source of proteins and contribute 11per cent of the total intake of proteins in India [7]. The Committee recommended Integrated Water Resources Management & convergence of various Departments for the development and management of water resources in Tamil Nadu. This study will be much useful to the researcher, extension workers and policy makers as to what extent the technology were adopted by the beneficiaries besides reflecting on the impact of the project on the farm and home of TN-IAMP beneficiaries.

2. MATERIALS AND METHODS

Tamil Nadu state was purposively selected for the study as the researcher belongs to the same state. Madurai District of Tamil Nadu was purposively selected for this study because Tamil Nadu Irrigated Agriculture Modernization Project was conducted under Tamil Nadu Agricultural University. Sirumalaiyar and Sathaiyar sub-basins were covered by the Madurai district

which is having more ayacut area. Madurai district consists of 7 taluks. Among the seven taluks, Madurai north and Vadipatti taluk was selected. The sample size of 120 beneficiaries were selected by using the purposive sampling method. The data collection was done with the use of a well-structured and pre-tested interview schedule. The reliability of the data could be more in the interview method. The responses were recorded and converted in to mean per cent score and ranked accordingly as per [8]. The collected data were analyzed by descriptive statistics and Karl Pearson's coefficient of correlation using SPSS software.

3. RESULTS AND DISCUSSION

3.1 Practice- wise Level of Knowledge

The practice-wise knowledge level of TN-IAMP beneficiaries was studied and the results are present in Table 1.

3.2 Knowledge Level On Crop Production Technologies

It could be observed from above Table 1 according to the crop production technology aspects reveals that (79.00%) of the beneficiaries possessed knowledge in using VBN 6 variety for cultivation and duration of crop be 65-70 days and the maximum number of beneficiaries (90.00%) had knowledge on using alluvial / red soil land and using recommended seed rate of cultivation.

With regard to an equal level of knowledge accompanied by beneficiaries on several practices possess (70.83%) on recommended chemicals and averagely (70.00%) of beneficiaries possess knowledge on land preparation, maintaining recommended seasons (73.33%), bio-fertilizer usage on seed treatment and land preparation (60 – 70 per cent) and recommended spacing (59.17%) on the crop production aspects.

3.3 Knowledge Level on Crop Protection Technologies

It could be observed from above Table 1 regarding crop protection measures beneficiaries are good in knowledge level, whereas the majority (80.00%) of the beneficiaries were possessed knowledge on (cultural control) fixation of light traps, crop rotation (77.50%) and sowing carry out in proper season.

Table 1. Distribution of respondents according to their practice wise extent of knowledge (n=120)

S. No	Practices	Knowledge level	
		Number	Per cent
I	**Crop production technologies**		
1.	Land should be free from volunteer plants like dry root rot	76	63.33
2.	land should be with proper drainage facility	91	75.83
3.	Land should be red soil or alluvial soil	108	90.00
4.	Make the land to fine tilth condition	95	79.17
5.	Application of 12.5 t/ha of FYM/coir pith during land preparation	84	70.00
6.	Mid-July to mid-august and mid-January to mid-February is suitable season	88	73.33
7	VBN 6 is the variety used for black gram cultivation	94	79.00
8	Duration of VBN 6 is 65-70 days	120	100.00
9.	Carbendazim and thiram are mostly used chemicals for seed treatment	85	70.83
10	Treat the seeds with carbendazim or thiram @ 2g/kg of seeds 24 hrs before sowing	83	69.17
11	Treat the seeds with *pseudomonas fluorescens* @ 10 g/kg or *tricodermaviride* @ 4 g/kg of seeds 24 hrs before sowing	87	72.50
12	Rhizobium is mostly used bio fertilizer for treating seeds	78	65.00
13.	Treat the seeds with rhizobium @ 600 g/ha of seeds required along with 500 ml of rice kanji	79	65.83
14.	Rhizobium and phosphobacteria are bio fertilizer used for basal application	82	68.33
15	In case of seed treatment is not done, 10 packets of rhizobium (2kg/ha) and 10 packets of phosphobacteria (2kg/ha) along with 25 kg of FYM and 25 kg of sand applied before sowing	92	76.67
16.	20 kg/ha seed required	104	86.67
17.	Seed dibbling is method of sowing	67	55.83
18.	45X10 cm is spacing	71	59.17
19.	Application of 5 t/ha of FYM during last ploughing of land preparation	74	61.67
20.	25 kg/ha of nitrogen fertilizer applied as basal	67	55.83
21.	50 kg/ha of phosphorous fertilizer applied as basal	56	46.60
22.	25 kg/ha of potassium fertilizer applied as basal	66	55.00
23.	Pendimethalin and fluchloralin are mostly used pre-emergence herbicides	81	67.50
24.	Spraying of pendimethalin @ 2.5 l/ha or fluchoralin 30% EC @1.5 l/ha at 3rd or 5th day after sowing with hand sprayer	81	67.50
25.	Soil digging should be done at 30th day after sowing to prevent weeds	81	67.50
II	**Crop protection technologies**		
26.	Sowing should be done in proper season	92	76.60
27.	Crop rotation should be done	93	77.50
28.	Fixation of light traps to attract gram pod borer adult stage	96	80.00
29.	Collect all stages of pest and destroy it	56	46.67

30.	Removal of yellow mosaic virus affected plants from the field to control viral diseases	67	55.83
31.	Fix the pheromone trap @ 12 no/ha to control borer	62	51.67
32.	To control yellow mosaic virus, seed treatment of seeds with imidacloprid @ 5 ml/kg of seeds 24 hrs before sowing	92	76.67
33.	Seed treatment with *tricodermaviride*@ 4g/kg or *pseudomonas fluroscenes*@ 10 g/kg of seeds to control dry root rot	70	58.33
34.	Spraying of 0.1% carbendazim on plant parts to control dry root rot	67	55.83
35.	Spraying of carbendazim @ 2.5 kg/ha on plant parts to control powdery mildew disease	79	65.83
	Harvest and storage		
36.	Pods turns brown or black with hard seeds inside pods are harvesting indices	94	78.33
37.	Plants are uprooted by hand or cut with sickle at the bottom of the plants	95	79.17
38.	Beating with flexible bamboo stick or by machinery to separation of seeds from harvested plants	92	76.67
39.	Drying of seeds by open sun dry up to 8-9 per cent of moisture content in seeds	86	71.67
40.	Agro moisture meter is instrument used to check moisture content in seeds	59	49.17
41.	Discolored and broken seeds should be eliminated before grading	77	64.17
42.	Grading is done by sieving the seeds with BSS 7X7 wire mesh sieve	78	65.00
43.	Store the seeds in gunny bags or cloth bags for short term storage (8-9 months) with seed moisture of 8-9 per cent	70	58.33
44	Store the seeds in polyline gunny bags for medium term storage (12-15 months) with seed moisture of 8-9 per cent	78	65.00
45	Store the seeds in polythene bags for long term storage (more than 15 months) with seed moisture of 8 per cent	93	77.50

With regard to equal distribution (55-76 per cent) of beneficiaries possess knowledge on biological and chemical control of pests & diseases.

3.4 Knowledge Level on Harvest and Storage

It could be observed from table 1 majority of the beneficiaries (78.33%) were possessed knowledge on harvest indices (color turns brown to black), harvesting methods (79.17%) (Hand removal / by sickle) and processing (76.67%) (Separation of seeds and drying).

4. CONCLUSION

The success and experiences of the project need to be regularly and continuously shared among the black gram growers through publications, websites, newsletters and mass media. It has been observed from the study on the part of farmers, scientists and extension functionaries have been enhancing the adoption levels to create an impact on the TN-IAMP beneficiaries. These linkages need to continue and strengthen all the stakeholders for perusing positive impact. According to Raju [8] productivity achieved under demonstration over farmers practices created awareness and motivated the other farmers to adopt critical innovations for blackgram cultivation viz., selection of high yielding varieties, integrated nutrient management particularly post flowering nutrient management, integrated pest management and other technology of black gram in the Districts.

Mostly 80.00 per cent of the TN-IAMP black gram growers were medium level in information-seeking behavior. Major sources of information are training, demonstrations and publications. Hence, interventions on these aspects need to be continued and strengthened to earn more benefit to all black gram growers of the project.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Palanisamy A. Impact Of TN-IAMWARM Project on the Farm and Home of Precision Farming Beneficiaries- An Analysis, M.Sc(Agri) Thesis, Department of Agricultural Extension and Rural Sociology, TNAU, Coimbatore; 2011.

2. Sindhuja P, Shanthasheela M. Profile of Precision Farming Vegetable Beneficiaries in Ongur Sub-Basin Under TN-IAMWARM project, International Journal of Research in Agriculture and Forestry. 2013;4(2):10-15.

3. Jat SK, Dangi BL, Kumhar. Knowledge of farm women about improved black gram cultivation practices. Journal of progressive agriculture. 2017;8(1):119-122.

4. Mohiuddin M, Akter N, R. Khanum. Economics of Black gram cultivation and its impact on farmers livelihood in two selected districts of Bangladesh. SAARC Journal of Agriculture. 2018; 16 (2): 83-96.

5. Devi MG, Kumar CA, Kumar DS. Impact analysis of trainings and front line demonstrations in Black Gram (*Vigna mungo*) cultivation. Journal of Krishi Vigyan. 2017;6(1):97-100.

6. Ravichandran VK, Prakash KC. Socio-Economic Impact of SRI and Traditional Rice Cultivation in Villupuram District of Tamil Nadu: Experiences from TN-IAMWARM Project, International Journal of Agricultural Sciences. 2015;11(1):166-171.

7. Rao PVG, Chittibabu DC, Naidu. Impact of front line demonstrations on integrated crop management in rice fallow black gram in Srikakulam District of Andhra Pradesh. Scientists Joined as Life Member of Society of Krishi Vigyan. 2020;8(6):189.

8. Raju M. Study on constraints and adoption of black gram seed production technologies by the farmers of Cauvery delta zone of Tamil Nadu." Journal of Pharmacognosy and Phytochemistry 2019;8(4):1031-1035.

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