

# **ANALYSIS ON ADOPTION OF BLACKGRAM GROWERS IN PERIYAR VAIGAI COMMAND AREA OF MADURAI DISTRICT**

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## **ABSTRACT**

The IAM Project will bring the policy and institutional development achieved under IAMWARM project to a new level and will serve as the key vehicle for implementing the Tamil Nadu Government agenda in further enhancing water and agriculture productivity in a sub basin framework. 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 was to assess the adoption level of respondents in study area. Majority of the TN-IAMP beneficiaries (81.70% ) had medium level of adoption followed by nearly less than one-sixth of the total beneficiaries (15.80% ) possess low adoption and only 2.5% of the beneficiaries had high level of adoption rate in this study.

***Key words:*** *Irrigated Agriculture Modernization Project, Adoption.*

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## **Introduction**

Agriculture interventions will form an integral part of sub-basin Water Resources Department (WRD) and Detailed Project Report (DPR's) for rehabilitation and modernization of tanks and irrigation water delivery systems. Commodity groups of farmers anchored in WUAs will be mobilized and federated as producer association/companies for undertaking commercial activities. These groups will be the focal points for dissemination of improved technologies for increasing crop, horticulture, and livestock and fish productivity. The objective of this component is to address irrigation and Water management, covering both supply and demand aspects.

The support envisaged under the project would cover policy and institutional strengthening. This study could be very useful to researchers, 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 farm and home of TN-IAMP beneficiaries.

## **Materials and methods**

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 were selected. The sample size of 120 beneficiaries were selected among TN-IAMP project beneficiaries by using purposive sampling method. The data collection was done with the use of a well-structured and pre-tested interview schedule by questionnaire. **The reliability of the data obtained through the interview method was stronger.** The collected data were analyzed by descriptive statistics and Karl Pearson's coefficient of correlation using SPSS software 25.

## Results and Discussion

### Practice - wise level of adoption

The practice wise adoption level of TN-IAMP beneficiaries on black gram cultivation was studied and the results were presented in table 1.

**Table 1. Distribution of respondents according to their practice wise level of adoption (n=120)**

S. No	Practices	Adoption level	
		Number	Per cent
<b>I</b>	<b>Crop production technologies</b>		
1.	Land should be free from volunteer plants like dry root rot	62	51.60
2.	Land should be with proper drainage facility	83	69.10
3.	Land should be red soil or alluvial soil	57	47.50
4.	Work the land to fine tilth condition	79	65.80
5.	Application of 12.5 t/ha of FYM/coir pith during land preparation	60	50.00
6.	Mid-July to mid-August and mid-January to mid-February is suitable season for black gram cultivation	65	54.10
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	62	51.60
10.	Treat the seeds with carbendazim or thiram @ 2 g/kg of seeds 24 hrs. before sowing	63	52.50
11.	Treat the seeds with <i>Pseudomonas fluorescens</i> @ 10 g/kg or <i>trichoderma viride</i> @ 4 g/kg of seeds 24 hrs. before sowing	70	58.30
12.	Bio-fertilizer Rhizobium is mostly used for treating seeds	59	49.10
13.	Treat the seeds with rhizobium @ 600 g/ha of seeds required along with 500 ml of rice kanji	62	51.60
14.	Rhizobium and phosphobacteria are bio fertilizer used for basal application in black gram cultivation	72	60.00
15.	In case the seed treatment is not done, 10 packets of rhizobium (2 kg/ha) and 10 packets of phosphobacteria (2 kg/ha) along with 25 kg of FYM and 25 kg of sand applied before sowing	78	65.00
16.	20 kg/ha seed required for black gram cultivation	90	75.00
17.	Seed dibbling is method of sowing	58	48.30
18.	45X10 cm is spacing followed for black	61	50.80

	gram cultivation		
19.	Application of 5 t/ha of FYM during last ploughing of land preparation	57	47.50
20.	25 kg/ha of nitrogen fertilizer applied as basal for black gram cultivation	52	43.30
21.	50 kg/ha of phosphorous fertilizer applied as basal for black gram cultivation	45	37.50
22.	25 kg/ha of potassium fertilizer applied as basal for black gram cultivation	60	50.00
23.	Pendimethalin and fluchloralin are mostly used pre-emergence herbicides in black gram cultivation	71	59.10
24.	Spraying of pendimethalin @ 2.5 l/ha or fluchloralin 30% EC @1.5 l/ha at 3 <sup>rd</sup> or 5 <sup>th</sup> day after sowing with hand sprayer	69	57.50
25.	Soil digging should be done at 30 <sup>th</sup> day after sowing to prevent weeds	73	60.80
<b>II</b>	<b>Crop protection technologies</b>		
26.	Sowing should be done in proper season	80	66.60
27.	Crop rotation should be done	81	67.50
28.	Fixation of light traps to attract gram pod borer adult stage	95	80.00
29.	Collect all stages of pest and destroy it	53	44.10
30.	Removal of yellow mosaic virus affected plants from the field to control viral	51	42.50

	diseases		
31.	Fix the pheromone trap @ 12 no/ha to control borer	57	47.50
32.	To control yellow mosaic virus, seed treatment of seeds with imidacloprid @ 5 ml/kg of seeds 24 hrs. before sowing	75	62.50
33.	Seed treatment with <i>trichoderma viride</i> @ 4 g/kg or <i>Pseudomonas fluorescens</i> @ 10 g/kg of seeds to control dry root rot	60	50.00
34.	Spraying of 0.1% carbendazim on plant parts to control dry root rot	61	50.80
35.	Spraying of carbendazim @ 2.5 kg/ha on plant parts to control powdery mildew disease in black gram	64	53.30
<b>III.</b>	<b>Harvest and storage</b>		
36.	Pods turns brown or black with hard seeds inside pods are harvesting indices for black gram	85	70.80
37.	Plants are uprooted by hand or cut with sickle at the bottom of the plants	80	66.60
38.	Beating with flexible bamboo stick or by machinery to separation of seeds from harvested plants	81	67.50
39.	Drying of seeds by open sun dry up to 8-9% of moisture content in seeds	75	62.50
40.	Agro-moisture meter is instrument used	54	45.00

	to check moisture content in seeds		
41.	Discolored and broken seeds should be eliminated before grading	68	56.60
42.	Grading is done by sieving the seeds with BSS 7X7 wire mesh sieve	67	55.80
43.	Store the seeds in gunny bags or cloth bags for short term storage (8-9 months) with seed moisture of 8-9%	65	54.10
44.	Store the seeds in polyline gunny bags for medium term storage (12-15 months) with seed moisture of 8-9%	61	50.80
45.	Store the seeds in polythene bags for long term storage (more than 15 months) with seed moisture of 8 %	83	69.10

### **Adoption level on crop production technologies**

Table 1. reveals that (79.00% ) of the beneficiaries had adopted recommended variety (VBN 6) and three-fourth of the beneficiaries (75.00% ) have adopted recommended seed rate.

Regarding land preparation, (47.50% ) of the beneficiaries adopted recommended practices on black gram and correct sowing of season.

Maximum number of beneficiaries (40-65% ) adopted recommended rate for chemical use / bio-fertilizers for seed treatment, sowing, spacing and cultural practices (weeding, soil digging etc.)

## **Adoption level on crop protection technologies**

From Table 1, it could be observed that 44 – 65% of the beneficiaries adopted the recommended crop protection practices like cultural control (sowing in proper season and crop rotation), physical control (use of traps for pest monitoring and trapping out), biological control (using bio control agents) and chemical control (recommended chemicals).

## **Adoption level on harvest and storage**

It could be observed (Table 1.) that majority (70 %) of the beneficiaries adopted the recommended practices on harvest indices (pods turns brown to black color), harvest methods (66.60 %) (Hand removal / sickle method) and processing (removal of seeds).

Regarding drying process, adoption rate was 62.50 %. 50 – 65 % of the beneficiaries possess good adoption rate on grading (elimination of broken and discolored seeds, using 7X7 wire mesh) and storage (50 – 70%)(with gunny bags for short, medium, and long term).

## **The extent of new technology adoption**

### **Overall extent of adoption of TN-IAMP blackgram growers**

The extent of adoption is the degree to which a farmer accepts and adopts a new technology. Though various technologies were introduced and taught to the farmers, it is important that those technologies were fully accepted and adopted by the farmers in their field characterized by continuous adoption of those technologies.

Adoption of innovations by farming clients is the main goal of all the extension agencies. It is defined by Rogers and Shoemaker (1971) as a decision to make full use of an innovation.

The data collected to study the adoption behavior of TN-IAMP beneficiaries of blackgram cultivation practices were analyzed and the findings are presented in Table 2.

**Table 2. Distribution of the respondents according to their overall adoption level of TN-IAMP beneficiaries**

**(n=120)**

<b>S. No</b>	<b>Category</b>	<b>Number</b>	<b>Percent</b>
1.	Low	19	15.80
2.	Medium	98	81.70
3.	High	3	2.50
	Total	120	100.00

Our data show (Table 2.) that majority of the TN-IAMP beneficiaries (81.70 % had medium level of adoption followed by low level of adoption with 15.80%, followed by high level of adoption with 2.5%.

### **Conclusion**

From our findings, majority of TN-IAMP beneficiaries (81.70% ) were categorized under medium level of adoption of recommended practices because beneficiaries are mostly in medium level of social participation, information seeking behavior, decision making, economic and scientific orientation, innovativeness, and training. This medium level will possess moderate level of income gained and that will satisfy the living style, savings and other financial activities of the beneficiaries in the study. Providing more finance to meet marketing expenses, establishing more financial institutions to avail finance at right time. Providing financial support to crops other than supply of inputs. Conduct training and demonstrations frequently to keep beneficiaries well informed and up to date on the latest cultivation technologies and methods. It will also reduce lack of interest among beneficiaries.

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