Technology utilization pattern of pulse growers in Madurai district, Tamil Nadu

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ABSTRACT

Study was conducted to find out the technology utilization pattern of pulses production in Madurai district of Tamil Nadu with the objective of analyzing the knowledge and adoption level of recommended TNAU technologies by the farmers for pulse production. For the study 150 pulse growers covering nine villages of three blocks were randomly selected. The research findings indicated that majority of the pulse growers were aware of varieties of black gram (CO6, VBN 4 and VBN 6), green gram [CO6, CO8, VBN(GG)3], red gram [CO (RG)7, VBN 1 and VBN 2] and the scientific technologies recommended by TNAU. Due to non-availability of timely inputs and lack of precise knowledge on critical technologies such as seed treatment, mitigation of moisture, enhancement of flowering and foliar sprays etc and marketing problems they were unable to get good remuneration. Hence policies such as developing extension methodologies for intensive pulse production, strengthening input delivery mechanism, formation of pulse growers association, empowering women on value addition of pulses are recommended.

Keywords: Pulse growers; technology utilization; knowledge; awareness

INTRODUCTION

Pulse crops play an important role in farming systems of rainfed areas and for restoring soil fertility through nitrogen fixation. Pulses are major sources of protein in Indian vegetarian diet providing most of the essential oils to a certain degree. Green gram, black gram, red gram, Bengal gram and cluster bean are the common type of pulses. India is the largest producer and consumer of pulses in the world accounting for about 25 per cent of global production, 27 per cent of global consumption and about 33 per cent of world's area under pulses (Srivastava et al 2010).

The future requirement of pulses will increase with the increase in population. Ahlawat et al (2016) stated that the country would require 39 million tonnes of total pulses by 2050 which will require pulses production to grow at an annual rate of 2.2 per cent. To fulfill the growing requirement the country has to produce enough pulses as well as remain competitive to protect the domestic production. It is imperative to develop and adopt more efficient crop production technologies along with favourable policies and market support to encourage farmers to bring more area under pulses.

One is required to emphasize the need for identifying and quantifying level of adoption and its determinants across agro-climatic regions. Among so many the most important way to increase production in the short-run is to reduce yield gaps among research stations, on-farm demonstrations and farmers' fields (Nain et al 2015).

To meet the needs, GoI and Tamil Nadu have taken much efforts focusing on the technologies like system of pulses intensification, red gram transplantation and high yielding varieties besides the intensive pulses improvement by NADP and the enhancement of pulses production activities on a mission mode by NFSM-Pulses. The current productivity level is very low which could not meet the per capita requirement of pulses of 80 g/day. Despite of the various efforts the current productivity level is very low. Prahatha (2013) found that only 40 per cent of the pulse growers had knowledge on cultivation practices like amendments of soil surface crusting, seed

variety, seed treatment and application of fertilizers based on the recommendation. Though they had knowledge, only one-third of the respondents adopted the technologies. Labour scarcity, marketing exploitation by middlemen, undesirable climatic conditions and lack of technical guidance were the constraints stated by the pulse growers. Kumar et al (2010) also stated that the major constraints in pulse production were non-availability of HYV seeds, fertilizers and plant protection chemicals at the time of sowing, low price of produce, lack of subsidy for inputs, lack of knowledge about seed rate, seed treatment, weed management dosage and method of fertilizer application. Kundu et al (2013) reported that about two-third (64.3%) of the respondents had medium to high knowledge gap in pulse production.

In the present study an attempt was made to find out the technology utilization pattern of pulse growers in Madurai district of TamilNadu.

METHODOLOGY

The study was undertaken in the Madurai district of Tamil Nadu. Among the 13 blocks of Madurai district, three blocks namely Thirumangalam, Kallipatti and Kallikudi were purposively selected because of major area under pulse cultivation as pure crops/intercrops and bund crops. From the three blocks a sample size of 150 pulse growers was selected by proportionate random sampling method from nine villages taking three villages from each block.

Technology utilization pattern of pulse growers was studied by categorizing the scientific technologies as crop improvement, crop production and plant protection recommended by TNAU for pulse production.

RESULTS and DISCUSSION

Utilization of crop improvement technologies by the pulse growers

The data given in Table 1 show that all the farmers were aware of the field preparation technology and almost all of them (98.60%) had adopted it. However out of 81.30 per cent who were aware of the application method of FYM only 53.33 per cent adopted it. Regarding varieties of crops like black gram, green gram, red gram and cowpea, 85.30 to 96.00 per cent were aware but only 50.00 to 75.00 per cent had adopted these varieties.

Utilization of crop production technologies by the pulse growers

The knowledge of farmers on production technologies varied from 30.00 (application of organic manures) to 100.00 (hand weeding) per cent whereas the adoption varied from 2.66 (mitigation of moisture stress using potassium and 100 ppm boron through foliar spray) to 100.00 (hand weeding) per cent (Table 2). Biggest gap in knowledge and adoption was found in application of chemical fertilizers (80.00 and 3.33% respectively), mitigation of moisture stress using KCL 0.5 per cent as foliar spray (79.33 and 6.33% respectively) and soil application (73.30 and 10.00% respectively).

Table 1. Knowledge and adoption of the farmers of crop improvement technologies (n= 150)

Component	Respondents			
	Knowledge		Adoption	
	Number	Percentage	Number	Percentage
Field preparation	150	100.00	148	98.60
Application of FYM	122	81.30	80	53.33
Varieties				
Black gram	140	93.30	75	50.00
Green gram	144	96.00	112	75.00
Red gram	140	93.30	112	75.00
Cowpea	128	85.30	100	66.67

Table 2. Knowledge and adoption of the farmers of crop production technologies (n= 150)

Component	Respondents			
	Knowledge		Adoption	
	Number	Percentage	Number	Percentage
Seed rate	120	80.00	85	56.00
Seed treatment	106	70.60	62	41.33
Spacing	100	66.60	82	54.60
Application of chemical fertilizers	120	80.00	05	3.33
Soil application	110	73.30	15	10.00
Application of organic manures	45	30.00	15	10.00
Irrigation (after sowing, at flowering and at pod filling)	95	60.00	80	53.33
Weeding using chemical (pre-emergence application of pendimethalin 2.5 l/ha 3 days after sowing)	95	60.00	12	8.00
Hand weeding	150	100.00	150	100.00
Mitigation of moisture stress using KCL 0.5% as foliar spray	119	79.33	10	6.33
Mitigation of moisture stress using potassium and 100 ppm boron through foliar spray	52	34.66	04	2.66
Application of Pulse Wonder 5 kg during flowering stage	99	66.00	12	8.00
Foliar spray of NAA 40 mg/l and salicylic acid 100 mg/l	134	89.33	35	23.33
DAP 20 g/l or urea 20 g/l at flowering and after 15 days	99	66.00	60	40.00

Table 3. Knowledge and adoption level of the farmers of plant protection and harvest and post harvest technologies (n= 150)

Component	Respondents			
	Knowledge		Adoption	
	Number	Percentage	Number	Percentage
Plant protection measures				
Pod borer	78	52.00	56	37.33
Leaf folder	95	63.33	64	42.66
Powdery mildew	91	60.66	78	52.00
Yellow vein mosaic	88	58.66	60	40.00
Harvest and post harvest technologies				
Harvesting time pod maturity	150	100.00	150	100.00
Value addition	50	33.00	15	10.00

Utilization of plant protection and harvest and post harvest technologies by the pulse growers

While studying the knowledge and adoption of plant protection technologies (Table 3) it was found that control measures for pod borer, leaf folder, powdery mildew and yellow vein mosaic were known to 52.00, 63.33, 60.66 and 58.66 per cent farmers and adoption was done by only 37.33, 42.66, 52.00 and 40.00 per cent respectively. All the farmers were aware and had adopted the harvesting time pod maturity technology but value addition was known to 33.00 per cent out of which only 10.00 per cent had adopted it.

CONCLUSION

The research findings indicated that majority of the pulse growers were aware of the varieties and the scientific technologies recommended by TNAU. But due to non-availability of timely inputs and lack of précise knowledge on critical technologies such as seed treatment, mitigation of moisture, enhancement of flowering and foliar sprays etc and marketing problems they were unable to get good remuneration. Hence policies such as developing extension methodologies for intensive pulse production, strengthening of input delivery mechanism, formation

of pulse growers' associations and empowering women on value addition of pulses are recommended.

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