

## CONSTRAINTS IN ADOPTION OF PULSE TECHNOLOGY

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A study entitled "Constraints in adoption of pulse technology" was undertaken in Orissa covering four blocks in three districts. The sample for the study consisted of 120 pulse growers comprising marginal, small and big farmers of equal size. In addition to farmers 20 subject matter specialists and 36 V. L. Ws of the concerned blocks were also included in the sample to make the finding more rational. The opinion of both categories of farmers were analysed to reveal constraints of pulse cultivation comprising of eleven important package of practices. The findings reveal constraints in adoption of recommended package of practices in pulses are mostly farmers ignorance, non-availability and high cost of inputs, lack of timely technical advice and guidance and poor economic return as perceived by pulse growers.

In view of serious malnutrition and rising cost of fertilizers, pulses have assumed added significance in present day Indian agriculture. In order to bring our national pulse production level to a satisfactory situation, the present sixth five year plan as well as new 20 point programme have given top priority to this group of crops.

The production level of pulses in our country has remained stagnant over the years. This in part relates to some of the constraints that do not allow the farmers to pay adequate attention to these crops as in case of cereals. These problems may be personal, social, psychological, economic, technological, administrative and promotional categories. An attempt was made in Orissa to identify the constraints that farmers face within adoption of recommended practices in pulses.

### MATERIAL AND METHODS :

This study was undertaken in four blocks in three districts. These were Sadar block of Sambalpur, Kendrapara of Cuttack, Nayagarh and Odogoan of Puri district. A sample of 120 pulse growers consisting of marginal, small and big farmers of equal size were selected at random. Besides the pulse growers, the opinion of 20 subject matter specialists and 36 village level workers of the concerned blocks was sought on structured schedule to identify constraints in a more rational way. Altogether eleven important practices of pulse cultivation were taken into consideration and the respondents were requested to cite the constraints under each of the practices. Having found that there was not much variation in kinds of constraints mentioned by different categories of

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farmers on one hand, the V.L. Ws and subject matter specialists on the other, the opinion expressed was analyzed for farmers in one group and officials in another. The pulses like green gram, blackgram, horsegram, pigeon pea and field pea were taken together to identify the general and most common constraints in adoption of their recommended practices.

#### *Result.*

##### *Improved seeds.*

Quality seeds are the key factor in higher production. But it is generally observed that many farmers do not use improved and quality seeds in pulses as recommended by the experts. The constraints in adoption of improved seeds are given below.

Constraints in use of improved seeds in pulses mostly account for more incidence of pests and diseases, high initial investment, lack of advice and guidance, non-availability of seeds in locality and ignorance of the farmers about the existence of improved varieties. All these constraints can be taken care of, provided attempts are made to evolve pest and disease resistant varieties, make more extension contacts and supply improved seeds within easy reach of the farmers.

##### *Seed treatment.*

Seed treatment is one of the important steps towards better harvest. It is commonly observed that many farmers do not go for seed treatment in many of the crops. On determining the constraints in adoption of seed

treatment in pulses the following results were obtained.

Both the farmers and officials are in opinion that ignorance of the farmers about seed treatment in pulses was the major constraint followed by non-availability of chemicals, lack of technical guidance and interest on the part of the farmers to adopt seed treatment in pulses.

##### *Recommended seed rate.*

Optimum use of seed rate is one of the major steps towards higher production. Many farmers do not stick to recommendation of seed rate as advocated by the experts. The constraints in this regard, the responses are detailed in Table 3 below.

Both groups taken together high cost of seeds ranked first among the constraints in adopting correct seed rate, others in descending order being assurance against poor germination, ignorance and non-availability of seeds. These constraints are not location specific in the sense that the farmers anywhere encounter almost the same problems.

##### *Correct sowing time.*

Sowing time has positive bearing on crop growth as well as on yield. Quite a large number of farmers fail to sow seeds in time due to some valid reasons that are given below.

Farmers as well as VLWs and Subject Matter Specialists had almost similar opinion so far as adoption of

correct sowing time in pulses is concerned. Based on pooled responses, the constraints ranked in descending order as growing of late paddy, soil moisture condition, non-availability of labour and delay in harvesting of paddy.

#### *Method of sowing.*

Experts advocate line sowing in pulses instead of broadcasting for a number of advantages. But the general practice in Orissa is that, farmers broadcast the seeds in field. The constraints in adoption of recommended method of sowing, are in Table 5.

As it can be seen from Table 5 that three major factors responsible for non-adoption of line sowing in pulses as indicated by both the categories of respondents, were ignorance on the part of the farmers, involvement of time and labour, non-availability of required implements and lack of advice and guidance. The other constraints mentioned by the farmers were poor yield and less population to which extension workers and subject matter specialists did not agree.

#### *Rhizobium culture*

Experts invariably recommend the application of rhizobium culture in pulse cultivation. It is commonly observed that farmers in general do not apply rhizobium culture. The constraints in this regard, are indicated in Table 6 below.

Findings reveal that ignorance on the part of the farmers, lack of technical advice, non-availability of culture and lack of interest of the farmers were

the major barriers in order for adoption of rhizobium culture.

#### *Application of compost.*

Application of compost is an old age practice. Many farmers apply compost to cereal and cash crops, but not to pulses. The constraints in this regard are given below.

A perusal of findings presented in Table 7 above indicates that among the reasons as to why farmers do not apply compost to pulses are, poor attention to pulses compared to cereals, ignorance on the part of the farmers about effect of compost in pulse yield, belief that pulses do not require compost and apprehension of vegetative growth leading to poor pod formation.

#### *Adoption of fertilizer.*

The present agriculture depends on judicious application of fertiliser in almost all the field crops. But it is a matter of disappointment that, many farmers do not apply fertiliser to pulses and direct all the resources to cereals and cash crops. The reasons for non-application of fertiliser in pulses were ascertained and given below.

The major constraints in application of fertilizers to pulses were, farmers ignorance about the effect of fertilizers on pulse yield, lack of subsidy, absence of timely advice and guidance, non-availability of credits, high cost and poor economic return. The other constraints mentioned by the respondents were more incidence

of pests and diseases, wrong belief about requirements of fertilizers on pulses, excessive vegetative growth and non-responsiveness of the available varieties to fertilizers.

#### *Interculture and weed Control.*

The experts in agriculture recommended that, adoption of inter-culture and weed control is one of the important steps towards increase in pulse production and productivity. Following are the reasons for non-adoption of inter-cultural practices in pulses.

The findings bring out that the major constraints in use of interculture operations in pulses were high cost of labour, broadcasting method of sowing not permitting inter-cultural operation, lack of proper advice and guidance, ignorance about effects of interculture and weeding and less weed problems.

#### *Irrigation.*

The farmers do not irrigate their pulse crops even though considerable facilities are sometimes available with them. Results in Table 10 given below indicate the reasons for which farmers are reluctant in applying recommended irrigation in pulses.

The findings reveal that, factors responsible for not using irrigation in pulses were farmers' ignorance about the advantages of irrigation, occurrence of more pests and diseases, lack of irrigation facilities, lack of proper advice

from extension agency, problem of wilting and water logging, non-responsiveness of available varieties to irrigation and excessive vegetative growth leading to less pod formation.

#### *Plant Protection measures.*

Pulses are mostly susceptible to pests and diseases. Many farmers do not take proper care of the crop against pest and diseases. The reasons for non-adoption of plant protection measures are as given below.

It is evident from the above findings that among the factors responsible for non-adoption of plant protection measures in pulses were farmers' ignorance about chemicals and their doses recommended for different pests and diseases, non-availability of sprayers and dusters, high cost of pesticides, lack of proper advice and guidance in time, poor economic return, ineffectiveness of chemicals and less severity of pest and disease problems.

A critical look into the findings pertaining to constraints in adoption of the recommended package of practices in pulses as presented indicates that, the major constraints are (i) farmers' ignorance, (ii) non-availability and high cost of inputs, (iii) lack of timely advice and guidance and (iv) poor economic return.

## CONSTRAINTS IN ADOPTION OF PULSE TECHNOLOGY

TABLE 1. Constraints in adoption of improved seeds

Constraints	Farmers (N=120)	Officials (N=56)	Total (N=176)	Rank
More incidence of pests and diseases.	55.0	50.0	23.4	I
High initial investment.	52.5	35.7	47.1	II
Lack of advice and guidance.	44.1	48.2	45.4	III
Non-availability of seeds.	36.6	50.0	40.9	IV
Poor economic return.	46.6	107	35.2	V
Ignorance about existence of varieties.	19.1	51.7	29.5	VI
Unwillingness to grow more than home consumption.	26.6	25.0	26.1	VII
Less dormancy period.	22.5	8.9	18.1	VIII
Insignificant increase in yield over local variety.	22.5	7.1	17.6	IX

TABLE 2. Constraints in adoption of seed treatment.

Constraints.	Farmers. (N=120)	Officials (N=56)	Total (N=176)	Rank
Ignorance	78.3	73.2	76.7	I
Non-availability of chemicals.	27.5	57.1	36.9	II
Lack of advice and guidance.	28.8	25.0	27.2	III
Lack of interest in part of farmers.	23.3	3.5	17.0	IV
Ineffectiveness of chemicals	6.6	3.5	5.6	V

TABLE 3. Constraints in adoption of recommended seed rate.

Constraints.	Farmers (N=20)	Officials (N=56)	Total (N=176)	Rank
High Cost.	25.0	53.5	34.0	I
More seed rate better population.	22.5	44.6	29.5	II
Ignorance about recommendation.	5.8	76.7	28.4	III
Non-availability of seeds.	5.0	19.6	9.6	IV

TABLE 4. Constraints in adoption of correct time of sowing.

Constraints.	Farmers. (N=120)	Officials (N=56)	Total (N=176)	Rank
Growing of late paddy.	62.5	50.0	58.5	I
Soil moisture condition.	48.6	58.9	51.7	II
Non-availability of labour.	35.0	37.6	35.7	III
Delay in harvesting paddy	38.3	25.0	34.0	IV

TABLE 5. Constraints in adoption of recommended method of sowing

Constraints,	Farmers, (N—120)	Officials (N—56)	Total (N—176)	Rank
Ignorance,	63.3	71.4	65.3	I
Laborious and time taking,	74.1	44.6	64.7	II
Non-availability of tools for spacing,	45.0	51.7	47.1	III
Lack of advice and guidance,	41.6	33.9	39.2	IV
Less population,	30.0	0.0	20.4	V
Poor yield,	25.8	0.0	17.6	VI

TABLE 6 Constraints in adoption of rhizobium culture.

Constraints,	Farmers, (N=120)	Officials (N=56)	Total (N 176)	Rank,
Ignorance about practice,	82.5	75.0	80.1	I
Lack of advice	85.0	53.5	75.0	II
Non-availability of culture	35.0	50.0	39.7	III
Lack of interest	22.5	48.2	30.6	IV

TABLE 7. Constraints in adoption of compost.

Constraints,	Farmers, (N—120)	Officials, (N—56)	Total (N—176)	Rank,
Poor attention to pulses compared to cereals,	38.3	46.4	40.9	I
Ignorance about effect of compost on pulse yield,	34.1	39.2	35.7	II
Wrong belief about requirements of compost in pulses,	20.8	26.7	22.7	III
Excessive vegetative growth and less pod formation,	15.0	5.3	11.9	IV

TABLE 8, Constraints in adoption of fertilizer.

Constraints,	Farmers, (N—120)	Officials, (N—56)	Total (N—176)	Rank
Ignorance about effect of fertilizers in pulse yield,	69.1	51.7	63.6	I
Lack of subsidy,	42.6	60.7	48.2	II
Lack of advice and guidance,	50.0	14.2	38.5	III
Non-availability of credit,	35.0	46.4	38.6	III
High cost,	38.3	35.7	37.6	IV
Poor economic return	34.1	37.5	35.2	V
More incidence of pests and diseases,	41.6	0.0	28.4	VI
Wrong belief about requirement of fertilizers in pulses,	25.0	33.9	27.8	VII
Excessive vegetative growth leading to less pod formation,	13.3	0.0	9.0	VIII
Varieties not responsive to fertilizers	0.0	14.2	4.5	IX

Table 9. Constraints in adoption of interculture and weed control.

Constraints.	Farmers (N=120)	Officials (N=56)	Total (N=176)	Rank
High labour cost.	54.1	64.2	57.3	I
Reason of broadcasting.	55.0	39.2	50.0	II
Lack of advice.	31.6	26.7	30.1	III
Poor economic return.	34.1	8.9	26.1	IV
Ignorance about advantages.	17.5	41.0	25.0	V
Less weed problem.	21.6	30.3	24.4	VI

Table 10. Constraints in adoption of irrigation.

Constraints.	Farmers. (N=120)	Officials, (N=56)	Total (N=176)	Rank
Ignorance about advantages	40.0	55.3	44.8	I
More incidence of pests and diseases.	45.8	28.5	40.3	II
Lack of irrigation facilities.	39.1	32.1	36.9	III
Lack of advice and guidance	29.1	32.1	30.1	IV
Causes wilting and water logging condition.	33.3	7.1	25.0	V
Non-response to irrigation.	2.5	41.0	14.7	VI
Excess vegetative growth.	14.1	5.3	11.3	VII

Table 11. Constraints in adoption of plant protection measures in pulses.

Constraints.	Farmers, (N=120)	Officials (N=56)	Total (N=176)	Rank
Ignorance about chemicals and doses.	55.8	71.4	60.7	I
Non-availability of sprayers and dusters	49.1	75.0	67.3	II
High cost.	31.6	53.5	38.6	III
Lack of timely advice and guidance.	38.3	28.5	35.2	IV
Poor economic return.	32.5	39.2	34.6	V
Ineffectiveness of chemicals.	4.1	50.0	18.7	VI
Less problem of pests and diseases.	17.5	5.3	13.6	VII