

## In Chhattisgarh...

### Grass pea cultivation in rice fallow fetches more return

Cultivating *Lathyrus sativus* (kesari dal) in the rice fallow after the harvest of paddy in *kharif* season in the five tribal villages of Kasdol block, Baloda Bazar district of Chhattisgarh was promoted under the Farmer FIRST Programme (FFP). As the crop is grown under relay cropping, no tillage is required. Varieties such as Prateek and Mahateoda that have low oxalyldiaminopropionic acid (ODAP) were distributed among the farmers in the tribal region. The farmers fetched 4.48 quintal per acre yield in the first *rabi* season. The high-value pulses, rich in protein content, catered to the food consumption of the tribal people and ensured nutritional security besides promoting consistent income throughout the year.

**L**ATHYRUS *sativus* commonly known as Grass pea or kesari dal is considered as one of the drought-tolerant hardy crops, and is grown under rain fed conditions, especially during winter when lentil and chickpea are not

expected to give good yields. The crop has unique tolerance ability against stressful environmental conditions such as drought and water logging. Apart from using it for human consumption, it is widely used as a fodder crop.





Generally, the ideal temperature for the cultivation of crop is between 15°C and 25°C from sowing to harvesting.

Though it can withstand extreme drought conditions and also act as an alternative crop during famine, grass pea, when consumed in small quantities, is harmless to humans but when taken continuously for three months causes paralysis below the knees in adults, a condition known as lathyrism. However, the Food Safety and Standards Authority of India (FSSAI) is of the opinion that the ban on sale and storage of kesari dal should be lifted and the Ministry of Agriculture should promote cultivation of this nutritious pulse crop, as long as the varieties have low oxalyldiaminopropionic acid (ODAP), the neurotoxin that causes the paralysis when the dal is consumed in large quantities. The Indian Council of Medical Research (ICMR) too reported that no such cases of neuro-lathyrism were detected in the past 20 years. The food regulator said the ban should be lifted “in view of its low consumption, availability of low-toxin varieties, high protein content and water-use efficiency.” The proposal was supported by the Indian Council of Agricultural Research.

### Performance Indicators

Technical observation	Farmers practice	Intervention
<b>Yield (q/ha)</b>	First time introduced in the rice fallow lands of Kasdol block, Baloda Bazar district of Chhattisgarh	
Grain		11.20 Qu.
Straw		8.75 Qu.
<b>Economic indicators</b>		
Cost of cultivation (₹/ha)		12597
Net income (₹/ha)		21003
B:C ratio		1.66
<b>Farmer's reaction</b>	<ul style="list-style-type: none"> <li>• Fulfilled the pulses requirement for family consumption</li> <li>• Nutritional security</li> <li>• Very needful technology for rice growers</li> <li>• Low-cost technology</li> <li>• Good quality grain, useful for family consumption</li> <li>• Generated employment and income after rice crop</li> <li>• Rice fallow land utilized</li> <li>• Cropping intensity increased</li> </ul>	

### Crop status

During Twelfth Plan (2012-2015), the total area and production of kesari was 4.93 lakh hectares and 3.84 lakh tonnes respectively. Chhattisgarh ranked first both in area and production (67.26% and 59.52%), followed by Bihar (13.62% and 20.09%). Madhya Pradesh ranked third in area (8.80%), whereas in production West Bengal ranked 3<sup>rd</sup> (9.56%), due to highest yield among the all lathyrus producing state.

### Crop production

For cultivation of lathyrus under *utera* system (relay cropping), no tillage is required. However, for planting after harvest of rice, one deep ploughing followed by cross harrowing and planking is necessary. The crop should be sown in residual soil moisture after the harvest of *kharif* crop during last October to early November as pure crop. In *utera* cropping, last week of September or first week of October is the preferable season. The dal is high in protein content that varies between 26% and 32%. It is also rich in anti-oxidants. Kesari dal can be harvested in little less than 125 days. Hence promoting kesari dal in rice fallow

cropping will help relieve the shortage of pulses and cater to the needs of the poor people who cannot afford the otherwise expensive pulses to consume. ICAR-NIBSM, Raipur, promoted the low ODAP *Lathyrus* varieties in the cluster of five tribal villages of Kasdol block, Baloda Bazar district of Chhattisgarh under the Farmer FIRST Programme (FFP).

### Focus area

Small and marginal farmers with low resource base.

### Challenges

Mono cropping, rainfed area, low cropping intensity, rice fallow land, non-availability of good seed, lack of technical knowledge, lack of mechanization and terminal moisture/



heat stress are considered as the major challenges.

### Technology

After a detailed agro ecosystem analysis and field surveys, it was found that the farmers kept the land fallow after harvesting paddy in the *kharif* season. Intense extension activities were carried out to help the farmers make use of the rice fallow by sowing kesari dal varieties such as Prateek and Mahateoda that are low in ODAP using the happy seeder and aqua-ferti seed drill. During the

first *rabi* season, around 50 acres of rice fallow area and 100 farm families were covered under *Lathyrus* cultivation through zero tillage.

### Impact of the technology:

As per the first *rabi* crop on this area, a sumptuous yield of 4.48 quintal per acre was received after harvest. Majority of the farmers adopted *Lathyrus* as rice fallow pulse in *rabi*. In addition to that, the farmers have started the cultivation of *Lathyrus* for next *rabi* season and despite unexpected rainfall during harvest, the rice farmers in the tribal area covered 42 acres under cultivation in the current year.

### SUMMARY

The technology helps paddy growers in the tribal areas to have consistent income

throughout the year. The cultivation requires minimal investment tillage is not required. The protein-rich dal also meets the nutritional requirement of the people in the villages and helps in generating additional income.

For further interaction, please write to:

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