

STATUS FROM CASTOR SEED PURCHASERS TO SEED PRODUCERS: A SUCCESS STORY FROM ANDHRA PRADESH

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Introduction

India is the world's largest producer of castor. In India, the crop is mostly confined to Andhra Pradesh, Gujarat, Tamil Nadu, Karnataka. Of late it has spread across Rajasthan, Bihar, Maharashtra, Orissa, Madhya Pradesh etc. Annually the crop is raised over an area of 7.5 lakh hectares with a turn over of 7.7 lakh tones (Annual Progress Report on Castor, 2000-01). In India, Gujarat is at the forefront in the commercial exploitation of hybrid vigour and stands first in the spread of hybrid castor while other varieties are grown predominantly in Andhra Pradesh. Castor is raised in Andhra Pradesh over an area of 3 lakh hectares and the produce is 0.8 to 1 lakh tonnes annually. Castor is the poor man's crop in Andhra Pradesh, confined mostly to Mahaboobnagar, Nalgonda and Ranga Reddy districts. The productivity of the crop in Andhra Pradesh is only 275 kg/ha, as against national average of 1027 kg/ha (Damodaram & Hegde, 2000). The reasons for low yields are the poor socio-economic status of growers, cultivation in poor soils with low input management under rainfed conditions, besides use of poor quality seed. The quality seed, though costs low, constitutes a vital and most pivotal link in the production chain. By and large, the quality seed is not within the reach of castor growing districts in general and Mahabubnagar district in particular.

Of late, many growers are using genetically impure seed. In the absence of quality seed especially in castor, the efforts with respect to implementation of other technologies remain unproductive. This is due to a conspicuous absence of quality seed production and timely supply to growers. Keeping this situation in view, it was initially intended to make castor growers produce their own quality seed scientifically, for which the Directorate of Oilseeds

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Research (DOR) demonstrated the variety, DCS-9 popularly known as “Jyothi” in and around Amangal Mandal of Mahabubnagar district during 1999. This has evinced an interest among the growers of the villages and paved the way for quality seed on large scale demand in the area. Thus, keeping the demand for quality seed in view, DOR has made an attempt for participatory seed production by imparting skills among the castor growers in the selected villages in a systematic approach. The details are given in the methodology.

Methodology

Selection and location of seed villages

Karkalapahad, Narlakunta Thanda, Eluguralla Thanda and Gaddameedi Thanda in Amangal mandal of Mahabubnagar district were selected purposefully, since the villages are situated 55 km away from the state headquarters on the Hyderabad, Srisailem road and are easily approachable for attending the day to day operations related to seed production. A total area of 150 ha belonged to 146 growers constituting big (2 nos.), medium (4 nos) and semi-medium (10 nos) the rest of them were small and marginal growers. In thandas, all of the growers were tribals.

Formation of task force team (TFT)

Looking into the socio-cultural and agro-ecological situations of the selected villages, the Project Director DOR entrusted the job to a task force team (TFT), formed for the purpose which consists of six scientists and three technicians from various faculties of crop husbandry viz., Agril. Extension, Plant Breeding, Agronomy, Pathology and Entomology. The team had a reconnaissance survey, and formulated a conceptual seed production strategy on four aspects, social input, capacity building, technical input and procurement of surplus seed. The entire programme was bestowed on the team for guiding the growers from seed to seed. The details are as follows:

Social input

The success of any programme depends upon people's participation and large scale seed production programme is also in no way different with that of any programme related to rural development. Hence, the growers joined together

and came forward voluntarily, which facilitated in sensitizing as well as motivating them to become micro level entrepreneurs. However, still it was a hard task for the TFT to contact each grower within the stipulated time. Thus, the TFT managed to form four 'we feeling' or 'calling groups', each consisting 3-4 members, one in each village based on the socio gram approach. After forming the groups, they were entrusted the activities like mobilizing and sensitizing farmers from the beginning till the end of the programme. The calling groups played crucial roles during all phases of the programme like arrangements for trainings and seed materials, roughing in and around 300 meters from the seed production plots, farmer to farmer training and other important activities like timely fertilizer application, plant protection measures, timely harvesting, threshing and seed processing, contacting the procurement agencies, helping the seed certification agency during their visit to plots, helping in disbursement of bank cheques to growers etc. Without these groups, the programme could not have reaped the fruits of success.

Capacity building among the growers

Unlike other crops, castor crop needs special attention in seed production since the arrangement of male and female flowers on the raceme, nodes on the main stem, the bloom, color of stem, etc. play an important role in quality seed, which necessitates skill development. The seed production activity being new to the tribals, more emphasis was laid on imparting skills both for women and men growers. At the onset of monsoon, a common training for all the seed growers on preparatory cultivation, control of red hairy caterpillar, seeding technique, fertilizer application etc. was arranged at Narlakunta. After sowing (in the first week of June), one more training was given, with emphasis on identification of off type plants, removal of castor plants (of self sown seed plants) around 300 m distance from seed plots, back yards, FYM pits and stray plants in other crops and control of red hairy caterpillar, wire worms and other leaf defoliators like semilooper, *Spodoptera* etc was organized at each selected villages. During the spike emergence time, farmers were contacted in their fields. At this time, importance was given to develop skills on identification of male and female flowers on

inflorescence and other salient features like no. of nodes, colour of tender leaves, stem and bloom characteristics of Jyothi variety and removal of unwanted plants. In the later stages of crop growth, all of them were trained on the right stage of harvest, threshing and cleaning. By and large, the trainings were arranged at every stage of crop growth, because all the growers were ignorant about the techniques related to seed production. These trainings brought about a change in growers from being ignorant to becoming knowledgeable about the quality of seed production of Jyothi variety of castor in quality seed production.

Technical guidance

The TET arranged the Foundation seed well in advance of the onset of monsoon. It enabled them to remove any apprehensions about the supply of seed. This has also facilitated to complete the timely sowing operations in 150 acres within the first fortnight of June.

The TFT arranged trainings well before monsoon and helped them to follow the seed treatment and sowing method. The team also visited twice in a week during the initial period of crop growth, which is a very crucial time for seed production. The growers were given training on the farm as well as group trainings from time to time on different aspects of field operations. This has facilitated the growers to take up timely operations like control of insect pests and diseases, rouging of off-type plants, fertilizer application, harvesting, threshing, cleaning and others.

However, the 'calling groups' were entrusted the follow up action, regarding timely operations as well as grower to grower cooperation in community based operations like control of red hairy caterpillar, botrytis and others. The growers have borne all the expenditure and DOR has provided technical guidance.

Procurement of surplus seed

The requirement for local consumption was hardly one tonne, but the production estimation exceeds the local needs, so the growers appeal to the DOR in arranging for procurement of surplus seed. Keeping the growers appeal in view, the TFT consulted the Vijayavardhini Oilseed Growers

Federation (VOGF), Beechpalli - Mahabubnagar, for procurement of surplus seed. The Federation has readily accepted and participated from the beginning, leading to further strengthening of seed production activities in the villages. The needful understanding between growers and federation came into existence well in advance and also an agreement on procurement rate was fixed at Rs. 3,000/- q. Later on, the Federation involved the state seed certification agency for quality seed production. The certification agency inspected the entire seed production area at appropriate crop growth stages to ensure uniformity with all salient features of crop. The federation has followed strict procedures for getting quality seed, like care at the time of harvest, threshing and cleaning. To get uniform its seed cleaning was done by using 8 mm sieve. The quality seed was procured up to three orders viz., primary, secondary and tertiary. The Federation has opened the outlet at Karkalapahad and procured the processed seed. The growers were given the money through the Gramina Bank located at Karkalapahad.

The details of area , production and others are given as below:

Results

The attempt at participatory seed production under rainfed situation during kharif 2000 was successful though the season was unfavourable, the systematic approach made the growers earn more returns. The details are as follows:

From table-I and II it is clear that for maintenance of purity, 10 ha area was rejected for want of isolation distance. A total of 1150 q was produced from 150 acres. Further, the VOGF could procure only 230 quintals. While the private agencies procured about 100 quintals, rest of the seed (uneven, broken etc.) was sold in the open market at different rates. The gross returns accrued from the produce sold as seed and commercial purpose was Rs. 17,14,000, though unsold seed of 20 q kept with them for their own consumption.

It is clear from the table that, if the entire produce was sold in the open market commercially it would have fetched about Rs. 11,63,000 only so the net additional returns worked out to be Rs. 5,51,000, and per ha comes to Rs. 3662. Table 2 shows that the total cost of cultivation for 150 acres worked out to be Rs. 5,64,000 while the returns accrued was Rs. 17,14,000, thus

the BC ratio worked out to be 1:3.04, which indicates that, the growers gained considerable profits from the seed production.

Table-3 indicate that there were 1550 man days generated as an additional employment from 150 acres. Further worked out to be 4.1 man days per ha as against a normal (62.5 man days/ha).

From table-4, it is clear that majority of the growers utilized the money for clearing old debts (42.46%), performing festivals (41.10), entertainment in the form of jathras (34.25%), purchased clothes and consumables (34.25%). Some purchased bullock pairs, performed son/daughter marriages and land was leased by 2.74, 2.05 and 1.37% of growers respectively. However, the castor growers felt happy about the programme.

Annexure-I

Table-1: Details of area, production and returns from seed villages

I.	Area particulars	
	i. Gross area sown	160 ha
	ii. Area rejected (for want of isolation)	10 ha
	iii. Net area considered	
II.	Production particulars (quintals)	
	i. Purchased by VOOF	230
	ii. Purchased by Private agency	100
	iii. Sold in the open market	800
	iv. Unsold (withheld by growers)	20
	Total	1150
III.	Particulars of returns	
	i. VOGF procured worth of (@Rs. 3000 /q)	Rs. 5,88,000
	ii. Karnataka Oilseed Growers Federation procured worth @Rs.2500/g)	Rs. 85,000
	iii. Private agency procured worth of (@Rs.2000/g and 1 500/g)	Rs. 1,95,000
	iv. Sold in the open market with different rates ranging between Rs.1000 and Rs. 1100 per quintal	Rs. 8,46,000
Gross Total		Rs.17,14,000

Annexure-II

Table-2: Details of additional returns, expenditure and BC ratio

I.	If the entire produce was sold @ Rs. 1030/g would have fetched worth of	Rs. 11,63,000
II.	Additional returns (Gross returns - open market price)	Rs. 5,5 1,000
III.	Additional returns per ha	Rs.3,662
IV.	Cost of cultivation for entire area 150 ha (includes preparatory cultivation, seed, fert., pp. chemicals, harvesting, x seed, fert., pp. chemicals, charges etc.) Mean cost @ Rs.3750/ha	Rs. 5,64,000
V.	Benefit cost ratio.	1:3.04

Annexure-III

Table-3: Details of additional employment generated during crop production (man days)

I.	For sowing 2.5 days/ha	376
II.	Roughing in seed plots @0.75 days/ha	112
III.	Roughing in and around seed plots (back yards, manure pits, jowar fields, red gram, vegetable fields, field bunds and other areas)	60
IV.	Threshing, cleaning and bagging @ 3 man days/quintal for 334g. Total	1002 1550
V.	Employment generated as additional per ha	10.25

Annexure-IV**Table 4: Utilisation of realized profits * by the growers from seed production**

Sl.No.	Particulars	Frequency No.	(%)
I.	Debts clearance	60	42.46
II.	Performed children marriages	3	2.05
III.	Used in purchasing clothes and other consumables	50	34.25
IV.	Purchased bullock pairs	4	2.74
V.	Performed festivals	60	41.10
VI.	Leased in land	2	1.37
VII.	Entertainment in the form of attending jatharas	50	34.25
VIII.	Purchased quality seed and fertilizers for kharif crops	30	20.55

*Multiple response

Annexure-V**Lessons to be learnt from seed production**

1. Strong feeling between participating agencies could facilitate better quality seed production.
2. Announcement of procurement price well in advance reduces back door entry of out side agencies involvement.
3. More no. of outlets (atleast) one in each village can mitigate the expenditure on transport and other drudgery works.
4. Timely procurement and payment of money lead to good faith in procurement agencies, (since most of the growers live on hand to month)
5. Community approach on pest control could minimize expenditure on plant protection measures.
6. Protective irrigation (possible places) further boosts the yields.
7. Advancement of sowings reduces loss due to botrytis as well early withdrawal of monsoon.

Conclusion

The participatory programme implemented by the DOR along with VOG-SSCA and calling groups of selected villages proved that even small and marginal farmers were able to produce quality seed under the systematic approach. The role played by extension personnel was appreciable as that of the calling groups in mobilizing and motivating the agencies and growers. Further, it was clear (Fig. 1) that a concerted and determined approach combined with scientific touch is essential for success like the above to improve the socio-economic conditions of small and marginal growers.

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