

A. Title: Quality seeds no longer a dream

B. Background:

Come the Rabi season, and the majority of farmers in the western district of Palamu take to wheat cultivation. The reason that drives the move is consumption — both by humans and animals. But ever since Jharkhand was carved out of Bihar, there has been a problem with regard to the supply of quality seeds. The State has been relying heavily on outside assistance to meet its quota for the same. This, however, has begotten fresh problems instead of offering solutions to meet the scarcity. Most of the time seeds aren't delivered on time, and when they do arrive they are not quite of the desired standards vis-à-vis the new micro-farming situation prevalent in the State. The Department of Agriculture has its hand on the pulse of this problem and is trying to promote the concept of 'seed villages', wherein farmers are encouraged to grow seeds themselves instead of banking on somebody else's mercy.

C. Intervention and process:

Presently, ZRS, Chianki, is the only research station in the district that produces quality seeds of wheat. But that has not been enough to cater to the growing demands of the farming community. To bridge the gap between the burgeoning demand and scarce supply of quality seeds, ATMA, Palamu in association with KVK, Chianki convened a meeting of all Food Advisory Committee chairmen, District Agriculture Officers and two progressive wheat farmers.

Two wheat growers, who were economically sound and had a feel for technology, were picked. ATMA, Palamu and KVK, Chianki jointly organised training programmes in seed production for the duo, trying to drum into them the fact that

seed production was more economical than commercial production of wheat. ATMA also tried to convince the farmers that they wouldn't have problems marketing the seeds, and that their produce would be purchased by both their brethren and the government. The DAO also tried to allay their fears, assuring them that they would be certified as registered seed growers.

The chosen farmer-duo — Rajdev Oraon of Jhangasi village under Patan block and Rajendra Pal of Jamune village under Daltonganj block were imparted two days training at KVK, Chianki under the supervision of wheat seed production specialists. They were detailed about the nitty-gritty of the new venture apart from being made familiar with the do's and don'ts. Upon the suggestions of ATMA, the DAO provided 200 kg foundation seed of wheat (HUW-234 variety) to both the farmers to be sown across a two-hectare area. The duo was recommended to use a fertiliser schedule of 100:40:20 (N:P:K) along with 10 quintal of Farm Yard Manure for better yield. Half of the quantity of nitrogen and a full dose of phosphate and potash were mixed together and applied in furrows at the time of sowing. Lindane dust @ 25 kg/ha was mixed with the fertilizer mix to guard the crops against termites. The rest nitrogen was applied in two equal splits on the 30th and the 60th day after sowing. One weeding was done 25 days after the seeds were sown. The procedure followed was in sharp contrast to the tradition wheat cultivation techniques the farmer-duo was accustomed with. What was earlier familiar to them was the broadcast method that encompassed usage of 10 quintal of FYM besides the application of only nitrogenous fertilisers.

D. Benefits and impact:

All the hard work done, it was time to reap the benefits. The view of standing crop never looked so beautiful. Rajdev and Rajendra were over the moon, for the yield had left their expectation far, far behind. And they commanded respect from fellow farmers who paid a visit to their field to have a look at what till now seemed impossible. Some requested the duo to exchange some quality seeds. The

ATMA kept its promise. It worked in tandem with the DAO to prevail upon the seed certification agency to register both Rajdev and Rajendra as wheat seed growers.

The yield statistics too had bettered. The duo harvested 30 q/ha whereas other farmers in the village harvested only 18 q/ha. Their gross income through seed production was Rs 32,000 /ha, but others managed only Rs 7,200 /ha. The rate of return per rupee was also found high. While it was 4.58 under seed production practices, it touched 2.10 under grain production for food purposes.

The visible changes have prodded other farmer groups to lap up wheat seed production as an enterprise. At least, 20 farmers have shown their inclination to take up the project in 48 hectare of land in different blocks of the district and be registered as wheat seed producers.

Buoyed by this success, a concentrated plan has been mooted to propagate seed production technology in other crops also on wider scale through proper coordination of all related departments both at the district and State levels.

E. Lessons learnt:

- (i) Cultivating wheat for seed production is more profitable than doing so for the sole purpose of consumption.
- (ii) The venture if taken up by a group rather than an individual will reap greater dividends by way of effective marketing and reduced investment risks.
- (iii) Usage of improved seed varieties will not only boost higher yield (by 15%) but also give local farmers a sense of security, besides not making them dependant solely on external assistance.

A. Title: Mushroom fillip for Palamu

B. Background:

None doubts that the advent of improved agriculture technology can revolutionise rain-fed farming patterns, thereby resulting in impressive yields. But what is also required is the know-how of the crop that can flourish best under the existing environmental conditions.

After agro-ecosystem analysis through participatory learning and action (PLA) exercises taken up by the ATMA team, mushroom cultivation was identified as the most suitable enterprise in rural as well as urban areas of Palamu district. Mushroom has now been recognised universally as a nutritive food and is grown in many parts of the state on a commercial scale. Wild mushrooms are very much in demand but their availability is generally restricted to 2-3 months, i.e. July-September. Of nearly 50,000 valid species of fungi, about 2000 varieties of edible mushroom species have been reported and only 25 widely accepted for consumption purposes. However, only three to four species have been brought under cultivation, namely paddy & wheat straw mushroom (*Volvariella volvacea*) *Dhingiri* (*Pleurotus Sps*), button mushroom (*Agaricus bispourus*) and milk mushroom (*Calocuba indica*). Keeping in view the importance of mushroom cultivation as a subsidiary enterprise as well as its nutrition aspects, it was decided to introduce improved methods of mushroom cultivation in rural as well as urban areas so as to provide a source of gainful employment to the needy.

C. Intervention and process:

ATMA, Palamu, had published an article in a vernacular newspaper, giving a detailed account of different aspects of mushroom cultivation. The fact that the venture could reliably be taken up to provide a meaningful source of employment was all the more highlighted. Interested persons were requested to contact the Project Director, ATMA for details. In response to the publication, two groups, including one headed by Anjali Kuwaner of Bhargawa village under Chainpur block and the other also comprising Rajkishore Choudhary and Suresh Anand of Daltonganj evinced interest. The PD took keen interest and contacted KVK, Chianki, requesting that eight persons from each group along with the group leaders be sent on a training session. After successful completion of the programme, each farmer was given five bottles of spawn for starting production. At present 9-10 groups of rural youth lapped up the opportunity either on a full-time or on a part-time basis, with the number of beds per cycle varying between 50 and 100. Each group that took to 60-70 beds per cycle was provided with an infrastructure support for developing a soaking time for paddy straw by investing Rs 1,500 provided by ATMA.

D. Benefits and impact:

Both the groups started with 15 beds of mushroom cultivation, upon being demonstrated by ATMA officials. Later on the groups rotated the fund generated out of the demonstration and continued mushroom cultivation with 60-80 beds per cycle per person. On an average, additional employment opportunities of 10 man days per month were generated, and on an intervention of one bottle of spawn including other materials, one person received Rs 150 through production of 3.5 kg of mushroom in three flashes sold @ Rs 45/kg in such a way that he could earn

an additional income of Rs 2,500 each month. The greatest advantage was that by sparing hardly 2-3 hours per day villagers were able to earn substantially. The most eye-catching aspect of this venture was that it required less time and less drudgery but provided rich dividends.

In the mean time all the mushroom growers imparted training to other members of the society who took up this enterprise as a cooperative undertaking. At present about 10 groups, mostly women, are engaged in the venture.

E. Lessons learnt:

- (i) Mushroom cultivation as an enterprise requires less time and investment, but is much more paying.
- (ii) The availability of paddy and wheat straw, which is a requisite for the enterprise, is in abundance as a by-product of the existing farming system.
- (iii) Involvement of FAC members in encouraging groups to take up mushroom cultivation contributed significantly towards boosting the confidence of the farmers.
- (iv) The participation of more groups in the project will bring in economic stability to the region, reducing the over-dependence on the major crop yield.
- (v) Being not that painstaking, it can also serve as a gainful source of employment for the womenfolk.

A. Title: Riding high on cooperative farming

B. Background:

The horticulture sector, such as fruits, vegetables, flowers, root and tuber crops, mushroom, medicinal and aromatic plants, has great potential in Jharkhand, particularly in Palamu district. Vegetables like tomato, brinjal, cauliflower, French bean, capsicum have established their credibility in improving the productivity of land, generating employment, improving the economic conditions of farmers and entrepreneurs, enhancing exports and, above all, providing economic security to the farming community. But despite the district being endowed with climatic conditions suitable for growing a large number of horticulture crops, particularly off-season vegetables, its potential remains to be exploited. In the plateau region of Palamu, vegetable production is becoming a very remunerative enterprise among the farmers with limited irrigation facilities. However, in the Kharif, Rabi and summer seasons a number of vegetables like tomato, cauliflower, cabbage, capsicum and cucurbita are also grown in a completely rain-fed situation. Generally three types of vegetable production systems are prevalent in the district — commercial, green revolution (GR) and complex diverse and risk-prone (CDR). Commercial or industrial production systems are characterised by fully controlled irrigated, mechanised, pre-dominance of cash crop, high input technology, use of fully hired labour and fertile land, and production strategy for higher returns. Thus farmers' production systems are managed by highly resource rich farmers. The green revolution or well-endowed production system is characterised by irrigated/protective irrigation facilities, combination of good or less fertile land use of family labour in combination with hired labour of cash-earning and food crops. The CDR or a small production system is characterised by interdependency and off-farm activities, complete dependency on family labour, multipurpose use of the product and by-product of each enterprise, and the production system being confined to household food security system. Wide variation in soil fertility due to slope and shade and no control in productivity and, on the contrary, stability and susceptibility are areas of concern.

In Palamu district, mainly the CDR production system exists. However, with the introduction of small irrigation facilities some pockets have been equipped. Some farmers have started cultivation of vegetables with the increased use of modern inputs.

C. Intervention and process:

Looking at the market demand for vegetables in the state or its adjoining areas, the FACs of all the blocks had proposed exposure-cum-training visits for farmers at MANAGE, Hyderabad. The proposal has been critically discussed by the ATMA Management Committee (AMC) and appreciated by all its members. It was decided that two progressive educated unemployed youths from each block be sent to MANAGE, Hyderabad, on a training-and-exposure visit so that they are encouraged to take to agriculture-based enterprises. The Governing Board (GB) suggested that the visit and training must concentrate on vegetable production. The Project Director of ATMA sent 20 farmers to MANAGE on a six-day visit. After returning, one farmer of Mahuganwa village, Brijesh Kumar Pandey, was so keen about self-employment that he narrated the lessons learnt at MANAGE through an article in a local newspaper. The item headlined “Vegetable cultivation is the only way for self employment” motivated about 20 youths who came together to form the Harit Kranti Club. The Club acquired about 5 acre of land for community vegetable cultivation under Pandey’s leadership. Pandey was regularly in touch with the Block Technical Team (BTT) in-charge and ATMA office for technical support. The BTT took equal interest, preparing a round-the-year programme for commercial vegetable cultivation. The Project Director, ATMA, and DAHO regularly visited the site and gave technical guidance to the Club members from time to time. Within six months, the plot under cultivation become a stamping ground for farmers of the neighbouring village as well as state officials. The Director, Agriculture and Agriculture Production Commissioner also visited the site and appreciated the efforts of the group.

D. Benefits and impact:

Of the 5-acre plot acquired by the group, tomato, brinjal and cabbage were grown on one-acre plots each. The remaining 2-acre space was being prepared for agriculture. The average yield per hectare was 112 quintal tomato, 141 quintal brinjal, 1498 quintal

cabbage. When translated to money, tomato yielded Rs 22,000, brinjal Rs 18,000 and cabbage Rs 23,000. The total income of the group in one season was Rs 63,000. Later on, the group rotated the money generated by selling the vegetables and continued with the practice of growing vegetables.

A local newspaper covered the success story of community farming, thereby popularising the concept in the entire district.

Presently, 7-8 groups are cultivating vegetables under the guidance of ATMA. The total area under vegetable cultivation increased by 10-15% within two years. The advantage of operating in a group would benefit the farmers in assessing inputs, technology and resource collectively. Further, the group can easily manage to drive a good bargain in the market. It is observed that farmers engaged in this process can earn a profit of Rs 2,000 per month in the first year itself.

E. Lessons learnt:

- (i) Commercial vegetable cultivation is highly remunerative for farmers.
- (ii) Community farming helps in providing self-employment to the rural youth.
- (iii) As large quantities of vegetables are required in the district, state as well as neighbouring states, marketing the produce isn't a problem.
- (iv) Off-season vegetables will reap more profits for the farmers.

A. Title: Vermicompost manna for resource-starved farmers

B. Background:

Escalating cost of fertilisers along with related pollution hazards caused by injudicious use and overuse of the same have evoked awareness among the farmers and extension workers for exploitation and utilisation of organic resources available in Palamu. It is a well-known fact that earthworms influence the physical and chemical properties of soil. Their role in improving soil fertility has been advocated by several farmers. Of late, there has been a boom of vermicompost in the district and a considerable number of farmers have shown their eagerness in using it for crop production. Several private organisations have been attracted to commercial production of vermicompost. Some have already introduced their product in the market as a substitute for conventional inorganic fertilisers. Keeping this under consideration, the Department of Agriculture, Government of Jharkhand has promoted vermicompost production through providing training and demonstration. In this context, farmers at least produce vermicompost for their own consumption so that they do not rely solely on chemical fertilisers.

C. Intervention and process:

For promoting vermicompost production, the State department of agriculture launched training-cum-demonstration programmes in each district. District Agriculture Officers discussed the programme with Project Director, ATMA and were given the responsibility to conduct the programme under the technical guidance of ATMA. The Project Director (PD), ATMA put this issue in front of all BTT members in the presence of the Training Organiser, KVK Chianki. Training responsibility was given to KVK. Five progressive vegetable growers selected from each block of the district were sent for a three-day training to KVK Chianki. In the course of the training programme, a brainstorming session was also organised to motivate and convince the farmers about the usage of vermicompost, underling the fact that crops grown using vermicompost as fertiliser are beneficial for human health as compared to those produced by application of chemical fertilisers. It was also informed that there is a high market demand for organically produced vegetables. The DAO also handed over

a thousand earthworms to each farmer to start vermicompost production. Out of 40 farmers, two, namely Sudarshan Singh of Belghara village in Patan block and Gupteswar Prasad Gupta of Arar village under Chatarpur block, lapped up this opportunity and started production. Within three months, they managed to produce 250 kg compost each. The number of earthworms also quadrupled.

D. Benefits and impact:

The quantity of compost produced in the first phase, 250 kg, due to its low nutrient content and slow acting nature alone may not be able to meet the nutritional requirement of high-yield crops. So it needs supplemental use of chemical fertilisers. Therefore keeping this in view, the benefits of organic manures as well as their inherent limitations were not calculated separately. But farmers feel that in the future, vermicompost has the potential to substitute chemical fertilisers. After seeing the results of vermicompost used in cabbage cultivation, farmers of the neighbouring villages also evinced interest in taking up vermicompost production. At least 30 farmers enrolled themselves with ATMA for a five-day training camp.

E. Lessons learnt:

- (i) Vermicompost is particularly useful for farmers starved of resources.
- (ii) The produce generated by the application of vermicompost can fetch the farmers with more financial output in comparison to that which has been fed with chemical fertilisers.
- (iii) Vermicompost enhances the physico-chemical properties of the soil.