

## Changing farming practices

### *PTD shows the way*

The production costs increased by 9.5% in PTD plot. This was mainly due to the costs of biofertiliser application and increased labour requirement owing to seed treatment and harvesting. There was a definite price advantage for VRI-2 over TMV-7. Owing to good quality, VRI-2 fetched Rs. 26/kg while TMV-7 was sold at Rs. 17/kg. The yield increase coupled with the price advantage resulted in doubling the net returns making VRI-2, the most promising alternative variety for the region.

The VRI-2 also yielded haulms without shedding leaves. The yield obtained was 325 kgs which was used as livestock feed. In case of local variety, the harvested plants did not have much leaf material.

The successful performance of VRI-2 in Tamilarasi's field, has motivated other farmers in the village to adopt the VRI-2 variety. The response to VRI-2 was so high that there was a heavy demand for VRI-2 seeds, for the next season. This was an unforeseen situation and based on this experience, the group members saved the seeds for the 2005 season and have distributed it among themselves. They also started seed production on a cooperative basis and created a seed bank at the group level. With these efforts, members are now able to share the seeds with other farmers in the village and around.

The shift from TMV-7 to an improved variety is now spreading across the region. Starting from a change in variety, farmers have now moved towards making their farming sustainable by learning to look at farming holistically.

**AME Foundation** promotes ecological agriculture among small and marginal farmers in the semi arid areas of the Deccan Plateau by generating farming alternatives, enriching farmers knowledge, linking development agencies and sharing experience.

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#### AME Foundation

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The livelihoods in Manbarai village in Tiruchi district are predominantly dependant on dryland agriculture. The village, on an average, receives an annual rainfall of 600 mm. The dry land crops in the region are groundnut and fodder sorghum. Crops like lab lab, cowpea and castor are grown as intercrops. Some farmers do possess patches of irrigated land on which paddy and irrigated groundnut are grown.

Low yields in groundnut was one of the major concerns of farmers. To address the issue of low yields in groundnut initially, and then move towards promoting sustainable agricultural practices, the Tiruchi Unit of AME Foundation, started to work with the groundnut farmers. To start with, grama sabhas were conducted and several rounds of discussions were held with farmers. Consequently, 17 farmers, including eleven women, formed an eco-farmers group, in May 2004. Majority of them were small and marginal farmers.

Poor soil fertility, increasing soil erosion, delayed and erratic rainfall were some of the factors affecting yields. The farmers were of the view that the variety they were using did not have high yield potential. TMV-7, a local variety, was the only groundnut variety grown in the village. It was being grown by all the farmers for many years. The average yields ranged from 350 to 420 kgs per acre. The haulm yield was less owing to leaf shedding during plant maturity stage, thus resulting in fodder shortage.

To start with, AMEF initiated its efforts to address the issue of groundnut variety. The group members were interested in going in for a new variety, only if they were convinced that it worked well under their farming situations. It meant that they wanted to test the new variety on a portion of their lands and if satisfied, would expand it to a larger area. Hence, Participatory Technology Development (PTD) was found to be the most appropriate means for introducing an alternative variety – VRI-2. This variety was selected for trial as it had higher potential in terms of yield and plant biomass.

Group members allotted half an acre of their land for conducting PTD trials with the new variety along with other alternative farming practices. Another half an acre was earmarked as a control, with the existing variety and cultivation practices. The case of **Tamilarasi**, describes in detail the process and outcome of the PTD exercise.

**Tamilarasi**, aged 35, belongs to a farming household. She is educated upto PUC. She is a member of a family with more than 10 members, owning 10 acres of dry land. The family has been cultivating groundnut and maize with groundnut as the major cash crop.

Tamilarasi has been an active member of the farmers group, with enthusiasm to gain more knowledge about new agricultural practices. Being a member of the eco-farmers group, she tried out VRI-2 on her PTD plot. In cultivating the new variety, she practiced the following alternative farming practices.

The land was ploughed across the slope after the first rains and furrows were made to conserve the soil moisture. About 15 quintals of FYM was applied to the PTD plot, though the general practice is, applying FYM, once in three years. FYM was enriched with Phospho bacteria, Rhizobium, *Trichoderma viridae*. Field bunds were formed and species like *cassia* and *stylo* were planted to conserve soil as well as to generate more plant biomass for composting.

A lot of care was taken in selecting the best seeds. About 25 kgs of seeds were used. After treating the seeds with *Trichoderma viridae*, they were dried in the shade and sown before 24 hours. Tamilarasi could see significant difference in terms of plant growth and control of root rot disease in the treated seeds compared to the untreated seeds.

Groundnut was sown along with intercrops. Eight rows of groundnut was followed by a row of maize, alternated with another 8 rows of groundnut followed by a row of cowpea. This pattern of planting not only allowed easy flow of air but also made harvesting easy, as these crops matured at different points of time. Bullock drawn plough was used for sowing different type of seeds at intervals of 7-8 rows of groundnuts.



Tamilarasi sharing her learning with other farmers

Castor was sown as a border crop. Tamilarasi also made trenches around the fields, to prevent the movement of red hairy caterpillar. Bajra was also grown to invite beneficial insects like wasps to feed on groundnut pests. All these were new learnings for Tamilarasi and her group members.

On the control plot, TMV-7 variety was grown. 36 kg was used for sowing half an acre of plot. The practices followed were similar to what farmers usually have been practicing over the years. The usual practice is to grow cowpea and greengram as mixed crops. Generally, seeds of cowpea and greengram are mixed with groundnut seeds and broadcasted. Excepting for two weeding at an interval of 20-25 days, no other operation is carried out on groundnut field. No fertilizers are applied to the soil.

### Outcome

Tamilarasi could observe difference in the number of pods between the two varieties. While the number of pods in TMV-7 variety was 9-10 pods per plant, in the case of VRI-2 it was 12-17. TMV-7 had more of single kernel pods which was not found in VRI-2. In the new variety, some pods contained 3 kernels also.

VRI 2 yielded 360 kgs of pods from the PTD plot whereas in the control plot, the yield was 230 kgs. There was a significant increase in the yield by 56%. Additionally, the intercrops in the PTD plot yielded 30 kg of cowpea, 12 kg each of maize and greengram and 18 kgs of castor. The yields of intercrops were significantly higher than the yields of intercrops from the control plot (cowpea – 9 kg; red gram – 4.5 kg and castor – 12 kg).

Costs and returns from Groundnut (half an acre) in Rs.				
S.No	Activity	Control plot	Trial plot	Difference
1	Production Costs			
	Land preparation	360.00	360.00	
	Seeds	576.00	558.00	
	Bio fertilisers	-	160.00	
	Gypsum application	-	100.00	
	Labour	555.00	455.00	
	Total	1491.00	1633.00	9.5%
2	Groundnut Yield (kg)	230.00	360.00	56.5%
3	Gross Returns			
	Groundnut	3910.00	9360.00	
	Intercrops	391.50	1162.00	
	Total	4301.50	10522.00	144%
4	Net Returns	2810.50	8889.00	216%