

Background

With the 500 mm of average rainfall, the district Anantapur marks the second driest district in the country next to Jaisalmer. Increased temperature, frequent occurrence of droughts, delayed rainfall and failure of the monsoon are the recurring phenomena for past 10 years in many parts of Anantapur making the district most vulnerable to climate change. The occurrence of these extreme events resulted in reduced crop outputs and increased the cost of cultivation. These highest degrees of risks are associated with droughts is due to climate change. These circumstances have forced the marginal and small farmers to migrate to new areas in search of work and big farmers depend on single cropping systems.

Mono cropping system of groundnut is being cultivated by about 80% of the farmers in Anantapur district under rain-fed conditions. The introduction of green revolution led to the wider adoption of groundnut as mono crop owing increase in demand for oil. On the other hand, the area under other crops was reduced. This vicious cycle of groundnut mono cropping in large areas by investing large amounts, and all of it going waste due to recurring droughts, had become a routine in Anantapur district, pushing farmers into distress.



CSV Project

To overcome the drought and promote climate resilient agricultural practices to enhance climate change adaptation, **APMAS** with its funding partner **AEIN, Luxemburg** in collaboration with two FPOs of two mandals Nallamada and Gudibanda has implemented "**Climate Smart Village**" (CSV) project for 3 years from 2019 to 2022 to gradually diversify the cropping systems with pulses and millets.

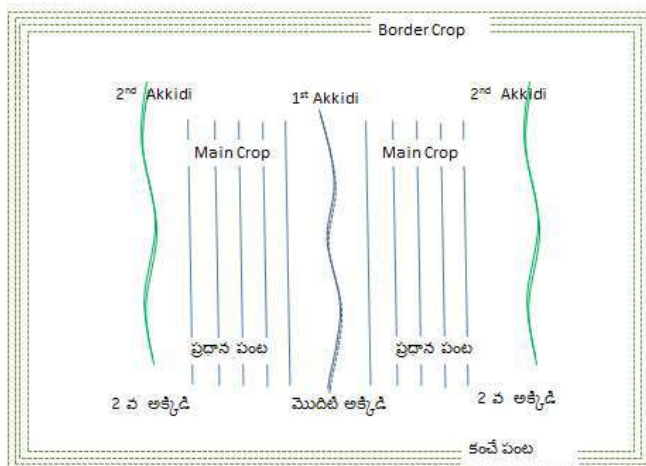


The project with one of its objective to promote sustainability and nutritional security in the area, introduced an innovative cropping model in the area to divert farmers practicing mono cropping to diversify cropping model. Adopting "**Navadhanya cropping system**" by growing millets and pulses along with oil crops has a new hope to farmers, along with conserving rainwater, the key to mitigating drought in the area.

Navadhanya Cropping system

This is an intercropping/ poly cropping system suitable for dry land agriculture. It has evolved the system of trapping erratic rainfall and utilizes 99% to the crops. The cropping system will keep the land green for 10 months in a year. As the crops are diversified – oil seeds, millets, and pulses (poly cropping system) ensures a complete food basket to farmers apart from an assured income. Failure of one crop can be compensated by the others.

The cropping system is a combination of three types of crops that is millets, pulses and oil crops. With oil crops covering the major part of the land, millets and pulses will be as an intercrop combination. Under millets two varieties are promoted Bajra and Jowar, while Red gram, Green gram, Black gram, Cow Pea, Horse gram, Field Beans as pulses and Groundnut is chosen as the major oil crop.



Trainings to farmers

Capacity building programs were organized to the farmers in small groups also demonstrations were conducted in the progressive farmers' fields. Training sessions have encouraged farmers to adopt this cropping system.

Navadhanya seed kits having 2 kgs of Red gram, 500 gms of Green gram, 1 kg of Horse gram, 1 kg of Jowar, 500 gms of Cow pea, 1 kg of Bajra, 250 gms of Field bean, 250 gms of Castor were provided to the farmers.

Millets are grown on the borders, height-based sowing allows maximum exposure to sunlight, utilizing moisture to the maximum extent possible with reduced runoff. Millets grow up to 3 to 4 feet height protecting the pulse and oil crops from different pest problems also can be harvested in 3 to 4 months after sowing. Red gram, castor, jowar, bajra, cowpea, field bean, green gram and groundnut are sown in strips along the bordering rows of bajra/jowar. Groundnut as main crop planted in for 7 rows in between 1 row of pulses (7:1).



The millets and pulses are ready to harvest 120 days (green gram/ cow pea/ field bean/ jowar) and other crops for 7 to 9 months (red gram and castor). Groundnut crop comes to maturity in 90 to 120 days. This is a year round cropping and harvesting. This cropping system have yielded 150 to 200 kgs of Red gram, 5 to 7 kgs of Green gram, 5 kgs of Horse gram, 3 to 5 kgs of Jowar with 50 kgs fodder grass (bajra/jowar), 7 kgs of Cow pea,

5 kgs of Bajra, 15 kgs of Field beans and 30 kgs of Castor seed (for oil production) with 300 to 500 kgs of Ground nut yield per acre of land every season. This has generated year round income without gap while meeting the nutritional needs of the households.

Around **439 farmers** including **230 women farmers** have adopted this system in **572 acres (229 hectares)** of land in both Nallamada and Gudibanda; they are now able to reap multiple crops from available one acre land. The dependency on the market for their food needs have reduced along with reduced family expenses on nutritious food. Through this cropping system, farmers are able to produce food grains to meet the needs for their families as well as fresh fodder for their cattle.

Ratnamma Bhai from MS Tanda village, Gudibanda mandal says “Currently, the third round of cropping is about to be completed in my one acre of land. As part of the method, I have adopted poly cropping method under rainfed agriculture as I don’t have proper irrigation facility to water the crops. The crops are planted in the shape of a rainbow with crop foliage of different colours. I am able to provide sufficient food for my family and now we are healthy including millets and pulses in our daily diets. I have harvested about 250 kgs of pulses, 180 kgs of millets and 30 kgs of oil seeds which is sufficient for 1 year for my own family consumption. In addition to this I have harvested 1000 kgs of fodder to feed my animals.”



In Pathabaththalapalli and Gopepalli villages, around 92 farmers are practicing Navadhanya/Poly cropping system. Mostly these farmers are smallholders with lands ranging from 0.80 ha to 1 acre. “After adopting navadhanya cropping, we are not really waiting for rains, we are able to reap harvests even 25 days of delayed, as women farmers we can say the crop will survive,” says **Ramalakhamma and Reddamma**, who has been practicing poly cropping system since 2019 after they have attended the training programs organized by CSV staff. They grow groundnut, and ragi in their one acre.

“The crop colour has improved and we get more yields. Crops survived because the soil stays fertile and moist due to the application of *ghanajeevamrutam* and *dravajeevamrutam*, says **Chandrasekhar**, another farmer from the same village.