

Informal groundnut seed system in Andhra Pradesh – a case study

Ravinder Reddy Ch and S.P. Wani

The seed takes the major share (50%) in groundnut crop production cost. The seed systems in Andhra Pradesh, like the rest of the country, consist of public, private and civil sectors. Majority of large and a few medium farmers of Kurnool save their own seed and lend the surplus seed to small farmers with an understanding that, one and half times the quantity of seed borrowed will be returned. About 40% of farming community in Kurnool avail subsidized government seed supply. The formal seed sector of groundnut is represented by the government owned Andhra Pradesh State Seed Development Corporation (APSSDC). Informal sector includes own-saved seed, borrowings from others and the local seed trade which contributes to about 60% of seed needs.

Groundnut seed distribution by government plays an important role during drought years. APSSDC also plays a major role in groundnut seed multiplication and distribution in the state. The process adopted by the government for seed distribution, is by calling tenders from seed traders for supplying groundnut seed in a particular area and lowest bidder will get the tender to supply seed. An important aspect to note here is that there is no clear specification of variety to be supplied to a particular agro-climatic zone. The bidder procures seed from the unorganized markets, oil mill companies, or groundnut traders and farmers. Seed is cleaned, graded, packed and supplied to farmers without any tag of variety name. This system of seed distribution clearly indicates that the farmers often sow mixtures of varieties and the cycle continues year after year.

In this context, the concept of 'village based seed bank', (VBSB) which advocates village self-sufficiency in production and distribution of quality seeds, is fast gaining ground. Many

attempts are on to revive the age-old concept of seed self-sufficiency. Seed villages or village seed banks operate with utmost transparency, mutual trust and social responsibility of the seed farmer towards his fellow farmers. This is not an entirely new concept to villagers. It is being promoted to reduce their dependence on external inputs. In this background, an innovative attempt was made to promote the concept of village based seed banks by the International Crops Research Institute for Semi-Arid Tropics (ICRISAT) as an intervention of Andhra Pradesh Rural Livelihood Program (APRLP) in Andhra Pradesh state. In this case study, a detailed documentation of process in implementation of project in Karivemula village of Kurnool District in Andhra Pradesh from 2002-2005 is presented.

Process

Karivemula, a nucleus watershed village in Kurnool district was chosen as a pilot village for this purpose. A base line survey was carried out to understand the situation.

Karivemula has a vibrant agricultural economy. The most important crop of this village is groundnut, which is grown in over 400 ha. Other crops of significance are tomatoes, cotton, sunflower, pearl millet and chillies. Over 95% of the farmers' owning small/medium sized land holdings and are not aware of improved cultivars. Average groundnut pod yield from local non-descript varieties was 300-500 kg/acre. Awareness about improved groundnut varieties is less.

Majority of medium land holders and almost all large holders use own-saved seeds for sowing while small farmers depend heavily on external sources for seeds. Over 70% of small farmers depend on other sources for groundnut seed. Most of the small and medium farmers source groundnut seed from other farmers,

Women harvesting groundnut seeds.



unorganized markets, money lenders, fertilizer/pesticide dealers, and subsidized groundnut seed from government agencies. Distribution of seeds by government agencies is mostly delayed. As a result, they often end up losing cropping seasons.

A detailed overview of farmers seed sources and seed distribution channels is often relatively complex with farmer groups obtaining seeds of different crops and varieties from different sources at different times. However, it is possible to identify three main groups of farmers with regard to seed sourcing behavior – those who are secure, those who make a choice and those who don't.

Seed secure farmers tend to maintain their own varieties with limited influx of new varieties. It may also reflect the fact that in traditional self-contained seed systems, the same genetic material may be easily available from neighbors, thus, reducing the risk of seed procurement and access. This would also suggest that variety awareness is not always as well developed in traditional farming communities.

A good seed system needs to be facilitated with scientific practices like seed production technology, integrated pest and disease management, seed health and storage management and marketing linkages to yield sustainable results. Keeping this in view, special emphasis was given to develop alternative seed systems through consortium approach, involving Agricultural University, Regional Research Stations (RRS), State Agricultural Department, National Agricultural Research Centers (NARC), Non-governmental Organizations (NGOs), Community Based Organizations (CBOs) and farmers. Two models were adapted to make the village seed secure. The models are Individual farmers maintaining seed bank and Village Seed Bank (VSB).

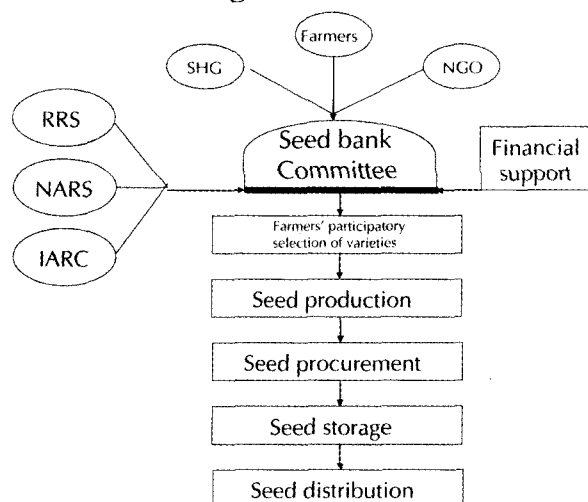
Village based seed bank

The concept of village seed banks was initiated with great enthusiasm by Self Help Groups (SHGs), Village Organization (VO) and Project Implementing Agencies (PIAs) in project village. The whole village took up the concept with lot of enthusiasm during gramasabha (village level meeting where in all the villagers have the chance to take part). The proposal for separate village committee for management of seed bank was successfully implemented by PIAs. The secretaries of the village organizations and SHGs have become members of the village seed bank committee (VSBC) to take up the responsibility of seed production, procurement, storage, fixation of procurement and selling price of seed. The PIAs and committees ensure the quality of seed and redistribution of procured seed in the village passed resolutions. Their responsibilities also included decisions regarding allocation of seed quantities to each farmer in the nucleus watershed and to other satellite villages.

Building capacities

In order to harness the synergy between technologies and the community participation, special emphasis was given to build farmers' capacity to produce quality seeds. A systematic on time

Village based seed banks



(crop stages) training program was developed to attain the objectives. A peripatetic training strategy was adopted for attaining maximum coverage in the given time. Two persons from each of the PIA/NGO and WDT, besides 2-3 interested farmers each from the nucleus and satellite watersheds and also ICRIASAT field staff were involved in the training.

The PIAs implementing the Project identified potential farmers and project staff for the training course. PIAs were assigned with the responsibility and liberty to make appropriate arrangements best suited to their conditions. The course consisted of technical details about the seed production. The trainees were exposed to details such as the characteristics of the varieties, isolation distance, purity of seeds and pest and disease management in the seed production plots and seed health and storage management. Posters and illustrations were used as teaching aids during the program. Important details that need to be kept in mind were detailed on a poster and displayed in the PIAs' office for ready reference after the training was over. On-farm training included identification and control of pests and diseases and seed health management strategies.

Farmers with the help of PIAs were encouraged to come out with questions and doubts about seed production process and formulate their own bylaws at community level to enforce quality seed production among fellow farmers. PIA, VSBC and farmers in consultation passed a 'resolution' for quality seed production among the communities in their village. The process of farmers' capacity building happened in several steps, which is described in the following paragraph.

Farmers' participatory selection of varieties

In Kharif 2002, breeder's seeds of different crops of selected varieties were procured from various research stations and provided to interested farmers on subsidized price for evaluation.

Table: Effect of Improved varieties of groundnut on yield of pod and fodder

Varieties	Yield of pod (Kg ha ⁻¹)	% Change in pod yield over local	Yield of fodder (haulm) Kg ha ⁻¹	% Change in fodder yield over local
ICGS 76	2380	73	2670	34
ICGS 11	2128	54	2200	11
ICGS 86590	1916	39	1968	1
Local cultivar	1374	-	1989	-

Seeds were provided to the farmers who volunteered to take up on-farm trials with their local varieties as control. At the end of season, PIAs, Village Organizations (VOs), and farmers were involved in evaluating these varieties based on pod yield, fodder value and other varietal characteristics. Farmers of Karivemula watershed selected three varieties of groundnut ICGS11, ICGS76, and ICGV86590 and multiplied during Rabi season, 2002. In Kharif 2003, seed production of different crops and selected varieties was taken up. Seed procured by VSBC was distributed on demand to other farmers of the village. During seed production process, members from PIAs and VOs, seed growers and ICRISAT scientists jointly inspected the seed production plots. As part of their training, farmers were involved in different steps of seed production like, selection of field, identification of varietal characteristics, removing the off-type plants (roguing) and diseases and pests control measures, precautions during harvesting and threshing, and finally in seed health, grading and storage management.

Seed procurement and distribution

The farmers and seed committee members inspect the quality of the seed at various stages. A sample of the seed is kept aside from each seed lot and subjected to germination test before seed distribution in next season. The seed committee and the farmers would decide the procurement price, which would usually be 5-10% above the market price. The committee however will decide the selling price during the next cropping season taking into consideration the market price of the seeds and grains. Thus, the committee ensures that the farmers get an incentive to sell and buy the seeds within the village. The basic amount required for procurement of seed from seed producing farmers was secured from the District Water Management Agency (DWMA), a Government of Andhra Pradesh organization funded by DFID program. The amount was extended to VO as revolving fund. The VO in turn fund SHG involved in village seed bank committee with minimum interest rate for procurement of seed for village seed bank.

The VSBC resolved to sell seed firstly to farmers of their village and later in small quantities to satellite villages. In case of seed surplus over the demand, it would be sold to individual growers of other villages at the same price as sold to the local farmers. The selling price is usually less than the commercial market price and more than the procurement price. The difference in price is to cover expenses such as the premium paid to producers of seed, processing costs, salaries, wages, electricity, bags, chemicals, rent etc, cost of seed treatment, transport and cleaning losses, interest on the capital for purchase of seed.

Farmers of nucleus and satellite villages approached village seed bank in Karivemula for procuring seed in the month of May-June. Priority was given to those farmers who have registered their names by paying Rs. 100/- in advance. In satellite villages, seed distribution was done by respective SHGs of the village. While distributing the seed (groundnut pod) to the farmers, farmers were encouraged to take up seed treatment at the time of sowing and improved crop management practices for high crop production.

Outcomes

With the introduction of improved variety and the village level seed bank system, the area under improved groundnut crop varieties has increased from 1.2 ha in 2002 to 8 ha in 2003, and 36 ha in 2004 and 142 ha in 2005. The number of farmers adopting new varieties increased from 3 in 2002 to 68 in 2005.

Based on seed quantities collected and distributed by VSBC, it is expected to cover 400 ha under improved varieties in 2006 Kharif season in nucleus watershed. The message about seeds of improved varieties and VSB activity has spread to satellite watersheds through farmer-to-farmer interactions, relatives, farmers' day celebrations and local newspaper. Groundnut crop is cultivated in all satellite villages around Karivemula and is a major crop. It is expected to cover the major areas in nucleus watershed areas and considerable areas in satellite villages by year 2006-2007 with improved varieties of groundnut. It is estimated that there is an average increase in groundnut production by 55% over local variety and fodder production by 15% and the increase in monetary returns is around Rs. 12500 per hectare.

Seed production capacity has been nurtured among small farmer groups. Farmers have been successfully linked to institutions and NGOs for technology backstopping. Small farmer seed producers are motivated by an incentive of higher procurement price for seed produced by them. Availability of improved varieties at reasonable price and in time to all groups of farmers is the major benefit perceived by farmers.

Along with improved livelihoods, owing to increased production returns, and seed security through village seed bank concept, the initiative has also generated employment for couple of people in the village. It has proved that VSBC concept not only increased the production but also educated and increased awareness on new/improved crop varieties and production technologies.

Scaling up

Up scaling of seed villages in APRLP- ICRISAT project sites was a very good learning opportunity. Government of Andhra Pradesh state has adopted the village based seed bank model developed by ICRISAT to upscale in 322 mandals in the state to strengthen the alternative seed systems. The results of this intervention will encourage SHGs, NGOs, KVKs, and farmers to invest in the development of rural small-scale seed enterprises, thus enhancing the adoption and dissemination of new improved varieties and production technologies.

Ravinder Reddy Ch and S.P. Wani

International Crops Research Institute for the Semi-Arid Tropics,
Patancheru, Hyderabad - 502324, Andhra Pradesh, India,
Email: c.reddy@cgiar.org

References

1. Ravinder Reddy Ch. 2004. **Seed Systems in Semi-Arid Tropics of Andhra Pradesh**. Paper presented in "Enhanced livelihoods of poor livestock keepers through increasing use of fodder", Partners meet from 2-3 September 2004, held at ICRISAT center, Patancheru, India.
2. Ravinder Reddy, Ch, Tonapi, V.A. Prasad, V. L and Peter Bezkorowajnyj. 2006. **Innovative seed systems and seed delivery models for food-feed-fodder security in semi-arid tropics of Andhra Pradesh**. In Souvenir released on the occasion of XII National Seed Seminar on "Prosperity through quality seed", organized by Indian Society of Seed Technology, New Delhi and Acharya NG Ranga Agricultural University, Hyderabad, 24-26 February, 2006. Souvenir: Pages 57-72.