

Groundnut shells boost crop yields

Regenerating local resources is crucial if resource poor farmers are to boost crop production and improve their livelihoods. They need simple technologies and practical farming methods which are durable and sustainable. At the Central Research Institute for Dryland Agriculture in India researchers are developing systems that use indigenous knowledge to revitalise and regenerate farm soils.



A tethered buffalo and her calf bedded on groundnut shells.

Credit: V.Maruthi

Present food production systems cause some soil degradation and farmers are failing to counter the damage. So there is a need to find ways to regenerate soils and restore them to their original state by making maximum use of farm resources, which are renewable. One way is to encourage the use traditional systems and build on them.

In the Anantapur district of Andhra Pradesh in India, farmers grow a lot of groundnuts and after the crop is harvested and processed there is plenty of waste groundnut shells. These can be used to improve crop yields if they are processed correctly. Traditionally farmers used to spread them on the floor of the cattleshed as bedding, and some farmers still do this.

After the shell becomes soaked with cattle urine and mixed with dung over one or two days, it is removed and heaped so that it can rot down for two months or so. Decomposition is quite quick due to the presence of moisture in the form of cattle urine. This process continues throughout the year depending upon the quantity of shell material available. With the onset of the rains, manure from the heap is spread in the fields just

before the soil is cultivated.

The groundnut shell contains about 1.19 per cent nitrogen (N); the cattle urine about 0.83 per cent N; and the farm yard manure some 0.52 per cent N; so the groundnut shell manure (GSM), after decomposition, contains about 1.75 per cent N and 0.62 per cent potassium (K). Phosphorus (P), unfortunately, is not improved.

Findings

- One application of GSM during the kharif season enhanced the groundnut yields by 10-15 per cent while during the rabi or irrigated, yields increased by 20-25 per cent as well as helping to retain soil moisture for two days longer than control plots during the rainy season.
- Groundnut shell manure produces better results when irrigation is used.
- Groundnut plants produce more pegs per plant (a peg is a stalk which grows out of the flower and enters the soil to produce a pod) when organic manure is applied. The plants also produce more flowers.
- Bedding cattle on groundnut shells

mean cattle remain healthier. Sheds are easier to clean as well.

Using GSM reduces the effect of droughts; it helps to reduce soil compaction and therefore easier peg penetration; weeding is more manageable; harvesting is easier and cattle are cleaner. Using GSM also means that less inorganic fertilisers and other external inputs are required.

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Irrigating vegetables - simply and cheaply

Two Ethiopian friends became disillusioned with working in Addis Ababa, and, in 2004, decided to move back to their home area and start growing and marketing vegetables. As they didn't own any land they went into a share-cropping agreement with the owner of 0.25 hectares. It was agreed that the harvest would be shared equally between the partners and the landowner.

The partners chose land adjoining the river Lege Kela, so that they could irrigate their vegetables and produce crops all-the-year round. At the chosen spot the river forms a gorge, but when the water level drops during the dry period, pools are formed so water is still available.

The partners, having found a reliable source of water, now had the problem of