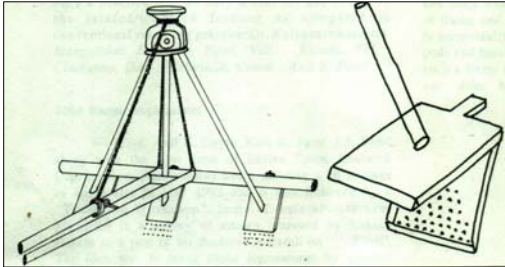


Wheat Sowing Box, Mini Kaliyu & Janak Santi

Wheat Showing Box



Wheat was normally shown in Saurashtra region using narrow coulters of 2" – 3.5" width on a harrow. In this method, the plants grow close to each other within the narrow row and the space between the two rows within a furrow remains more or less vacant. This led to ineffective use of moisture and nutrients. Some farmers therefore preferred to sow by hand. In this method, the moisture utilization was better but the plants, which grew on

other edge of the outer edge of the furrow, tended to lodge on maturity, as the seeds did not penetrate deep enough. Through trial and error, Amrutbhai Agrawat developed first a wider coulters and later a unique plate or box of dimension 8"X4"X2" for sowing wheat. Fig: 1 shows comparative advantage of sowing by Wheat sowing box and conventional methods.



On the anterior side, the box gets connected to the seed tube through a small hole. The lower side of the box remains open. The ventral plate contains small projections of "hills" on the inner side, which are made with the help of a welding machine. The grains, which drop from the seed tube, are interrupted by the small hills during their movement towards the open end. This arranged interruption causes uniform spreading of seeds at the outlet of the box. According to Amrutbhai the seeds fall "like pearls". In this system the seed rate remains the

same but the yield increase from 600 kgs/vigha to 800-1000 Kgs/vigha.

The wheat-sowing box has since been adapted for sowing of sorghum, garlic, gram and maize. It has also been adapted for use on the tractor, for which the frame had to be modified.

Specific Advantages

- The method results in improved germination as the seeds no longer have complete contact with each other in a narrow space. Germination rate is very high as compared to conventional methods.
- The seeds sown by this method germinate two to three days earlier, as compared to the conventional methods.
- The plant growth is better due to better moisture and nutrient utilization. This results in a fifty percent increase in yield.
- Plants are not uprooted or damaged during inter cultivation as they grow uniformly within the furrow.

- The plants on the outer edge of the furrow do not lodge on maturity since the seeds are planted at uniform depth throughout the furrow.
- The innovation is time saving as it improves the speed of sowing. A farmer can sow 37.5 vighas in eight hours or 70 vighas within a day. Timely sowing can make a big difference to yields especially in semi-arid areas where the periods of optimal moisture and tilth conditions may be very limited on account of erratic nature of rainfall.

Mini Kaliu (Groundnut digger)



Normally in Saurashtra severe drought condition occurs, due to this the soil of this region has become very hard. Groundnut is the important cash crop of this region, but when the harvesting of groundnut coincides with drought condition it becomes a labourious and time-consuming process so keeping this in view, Amrutbhai has developed Mini Kaliu

It is exclusively used for the harvesting of the groundnut crop under severe drought condition.

It is a simple twin bullock drawn implement, which is used to dig out the groundnut in hard soil condition. The implement is made up of cast iron weighing about 30 to 35 kg. The length of beam is 40 inches, which rests on two supporting wheels. These wheels help the attached blade to penetrate in the soil uniformly and easily. The thrusting

of blade to a particular depth in the soil can be even adjusted with this implement. Different length blades are available, which can be used accordingly.

Advantage:

- 1) Only one or two person is sufficient for carrying out different agricultural operations.
- 2) Time consuming and laborious process of digging out g'nut from hard soil can be done with ease using this implement.
- 3) Over all harvesting rate can be increased manifolds compare to other harvesting operation
- 4) Bullocks feel less tired while working with mini kaliu.

It is under commercial set up and is being successfully in use through out saurashtra. Amrutbhai, himself has sold near about 200 to 250 mini kaliu.

Janak Santi



Normally from sowing to harvesting of any crop, about 10 – 15 different implements are needed. Keeping this view in consideration, Mr. Amrutbhai has developed “Janak Santi” in the year 1972. It can be used in all types of crop and soil.

The implement is made up of cast iron. The length of beam and loin is 5 feet and 10.5 feet respectively. The weight of Janak Santi is approx. 31.750 kg. In this implement near about 15 subsidiary implements can be attached for carrying out different agricultural operations i.e. at the time of ploughing, plough can be attached, at the time of sowing seed drill can be attached and so on.... Thus all the necessary operations can be carried out with single “Janak Santi” along with its subsidiary implements.

Advantage:

- 1) Only one or two person is sufficient for carrying out different agricultural operations.
- 2) Since monetary input regarding this implement is low compare to other single operation doing implements. Thus it can be affordable even by the marginal farmers.
- 3) Bullocks feel less tired while working with Janak Santi.
- 4) Less space is required to keep this implement as compare to the 15 different implements.