

## Technology Transfer Division

### (a) Training programme organized during 2011-12 (Upto Aug., 2011)

Sl. No.	Name of training	Duration	No. of Trainees
1.	Specialized training on “Material testing, upgradation and manufacturing technology” for BE (Mech. Engg.) students	1 month	26
2.	Practical training in agricultural engineering for B.Tech. & M. Tech. students.	1 month (6 Courses)	96
3.	Manufacturing/ Fabrication Technology, Repair & Maintenance of Farm Equipment & Machines”.	6 days	07
<b>Total</b>			<b>129</b>

### (b) Participation in Exhibitions during 2011 – 12:

Sl. No.	Exhibition	Duration
1.	Kissan Mela at SKUAST, Jammu	23 – 25 March, 2011
2.	ICAR-CII Industry meet organized at NAS Complex, New Delhi	23 <sup>rd</sup> May, 2011
3.	8 <sup>th</sup> Inter-State Sangam Horti Fair – 2011 at Pragati Maidan New Delhi	27-30 May, 2011

### (c) Technologies developed

Sl. No.	Production, processes, technologies developed	Scientist
1.	Barrow type seed cum fertilizer spreader	Er. K.C. Bhardwaj
2.	Shot peening package for sweep blade	Dr. Dushyant Singh
3.	Low cost cottage scale soy-milk paneer plant	Er. K.C. Bhardwaj
4.	Modifications incorporated in (i) Briquetting machine (ii) Motorized soybean de-huller (iii) Pneumatic planter (iv) Dhal mill (v) Pedal/ power operated grain cleaner cum grader	Dr. AC Saxena
5.	Light weight rotary star weeder	Dr. AC Saxena

### **Manufacturing technology of CIAE dal mill developed**

The vitrified A24 grit size Aluminum oxide (food grade) annular rings were developed in collaboration with M/s Excel Abrasives, Gandhi Nagar, Gujarat. The ring has the dimensions of 300 (OD) x250 (ID) x 40(width) mm. One ring weighs around 2.086 kg and 15 such rings costing Rs. 12,474/- have been procured from the firm.



**Vitrified annular rings**

The drum design has been finalized using 10 Nos. of these rings on a PVC Casing pipe as per IS 12818-1992. The selected pipe outer diameter is 250 mm with thickness varying between 9.6 to 11 mm and 400 mm length. The selected pipe cost Rs. 300/-. The modified drum has been fabricated. The dal mill has been functionally tested and found working satisfactorily.

### **Pedal operated grain cleaner cum grader commercialized**



Commercial model of cleaner grader Developed by M/s Captain Tractors Pvt Ltd

Design refinement of pedal cum power operated cleaner grader was completed and the modified design was given to the manufacturer M/s Captain Tractors Pvt Ltd, Rajkot for commercialization. The manufacturer has successfully fabricated the commercial model as per guidance of CIAE. The manufacturer has also signed MOA for approval of the Institute.

### **The following production modifications incorporated in some CIAE designs:**

#### **Pneumatic Planter**

In tractor drawn 6 - row pneumatic planter, a commercially manufactured aspirator blower (2800rpm, 5.5 k Pa suction press, and 500 CFM air flow) with in built driven pulley and PTO spline input shaft was adopted to reduce excessive vibrations & ease of manufacturability. Instead of two fabricated ground wheel, one commercially available ground wheel was adopted. The planting frame made horizontal and planting unit mounting on U bolt saved time and enhanced ease of fabrication. The reduction in hitch frame length & drive system relocation were accordingly also undertaken to enhance machine maneuverability during turning.

### **Manual Weeders**

Two types of long handle weeders were developed. Star weeder with four 100 mm diameter star with weeding blade of 200 mm showed capacity of 110-115 man-h/ha and efficiency of 76.6%. The project profile consists of 15 sheets has also brought out. A dual work culti weeder was also developed for soil loosening and cutting weeds with capacity around 200 Man h/ha. The project profile consists of 22 sheets has also brought out.



**Fig. 1 Light weight rotary star weeder**

### **Sack Holder**

A folding platform with sack holder for manual cleaner was developed. The overall dimensions of the unit are 1453x915x640 mm and weighing around 20 kg. The project profile consists of 72 sheets has also brought out.

### **Light weight rotary star weeder**

The light weight rotary star weeder is capable of doing multiple of operation. It is suitable for seed bed preparation and maintenance. The units consist of pendulum blade, four star shaped wheel, frame and handle. The pendulum blade is cutting weeds while specially shaped star wheels crumble the soil, loosening and aerating between the rows of plants, making the ground suitable for sowing. The working width of the weeder is 20 cm. The unit could be used for inter culture operation in forward and back ward direction. Most of the parts of this weeder are made of 2 mm thick carbon steel sheet (C 80) section thereby reducing the weight of the machine.