

### ACHIEVEMENTS UNDER FRONT LINE DEMONSTRATIONS (FLD)

In order to create awareness about the utility of improved implements, it is necessary to demonstrate the improved implements on the farmers' fields as well as University Research Farms. Under FLD activity, the centre has extensively demonstrated improved farm implements on the farmers fields as well as University Farm.

### ACHIEVEMENTS UNDER PRODUCT TESTING ACTIVITY

Total 227 nos. of implements and machines of private entrepreneurs were tested by the centre under "Product Testing Activity."

### INFRASTRUCTURE FACILITIES AT THE PROJECT

**FARM MACHINERY TESTING LABORATORY :** The centre is having well equipped Farm Machinery Testing Laboratory. Sophisticated instruments available with the centre are viz. Electronic Balance, Rockwell cum Brinell Hardness Tester, Digital Load Cell With Indicator, Hot Air Oven, Hardness Tester For Non- Conducting Metals, Polar Heart Rate Monitor, Eye Flicker Meter, Reaction Meter, Emission Gas Analyzer ,Computerized Universal Testing Machine, Digital In Situ Soil Moisture Meter, Spray Pump Test Rig, Spray Patternator.



**FARM MACHINERY PRODUCTION WORKSHOP :** Workshop machinery available with the centre for production of agricultural implements and hand tools are viz. Lathe Machines, Shaping Machine, Slotting / Key Way Making Machine, Bench Grinder, Pillar Drilling Machine, Wood Working Lathe, Power Hack Saw, Treadle Shearing Machine, Hand Disc Grinder, Flywheel Press, Jig Saw, Buffing Machine, Spot Welding Machine, CO<sub>2</sub> Welding Machine, Power Press(50 Ton Capacity), Vertical Drilling Machine, Portable Drilling Machine, Blade Butt Welding Machine, Air Compressor, Horizontal Metal Cutting Band Saw Machine, Pipe and Bolt Threading Machine, Traub Machine, Precision CNC Machine, Hydraulic Multi-Function Sheet Metal Working Machine And Hydraulic Milling Machine



### FARM IMPLEMENTS AND MACHINERY MUSEUM CUM TRAINING HALL



### DISSEMINATION OF WOMEN FRIENDLY TECHNOLOGIES BY THE PROJECT TO WOMEN FARM WORKERS :-

The centre fabricates and supply many hand tools useful for women farm workers viz. Groundnut Decorticator, Vaibhav Sickle, Tubular Maize Sheller, Laxmi Sickle, Mango Harvester, Sapota Harvester, Bhendi Plucker, Cycle Hoe, Coconut Dehuskar etc.



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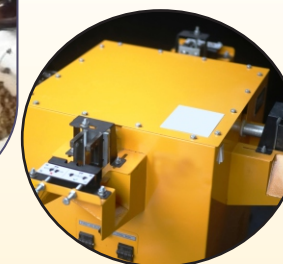
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## ALL INDIA COORDINATED RESEARCH PROJECT ON FARM IMPLEMENTS AND MACHINERY AT A GLANCE



## ALL INDIA COORDINATED RESEARCH PROJECT ON FARM IMPLEMENTS AND MACHINERY

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**HISTORICAL BACKGROUND OF THE PROJECT**

Development, testing and popularization of need-based farm implements and machinery is site specific and requires the knowledge of prevailing cropping practices and socio-economic status of the farmers. To achieve this specific requirement, the Indian Council of Agricultural Research, New Delhi initiated the All India Coordinated Research Project on Farm Implements and Machinery during 1975 with six centres. MPKV, Rahuri is one amongst them. The centre was previously known as Regional Training and Testing Centre of Department of Agriculture, Maharashtra State and was operational at Pune since 1962. With the formation of four SAU's in Maharashtra, the centre is under MPKV, Rahuri. The centre was shifted from Pune to Rahuri during July, 2002 for administrative convenience and strengthening of the Faculty of Agricultural Engineering,

**Major Thrust Areas**

- i. Mechanization of Horticultural crops
- ii. Mechanization of sugarcane crop
- iii. Mechanization of Dry Land Farming

**MANDATE OF THE PROJECT**

To identify the mechanization gaps and future needs of improved farm implements and machinery for cropping pattern in different agro-climatic zones under the jurisdiction of MPKV, Rahuri comprising of Kolhapur, Sangli, Satara, Solapur, Pune, Ahmednagar, Nashik, Jalgaon, Dhule and Nandurbar districts.

To conduct research and development of need based and crop specific improved farm implements and machinery, Prototype Manufacturing Works, Prototype Feasibility Testing, Front Line Demonstrations and promotion of manufacturing through industrial extension.

Transfer of Technology for introduction and popularization of improved farm equipments.

**ACTIVITIES UNDER THE PROJECT**

The activities under AICRP on Farm Implements and Machinery include development/adoption of need based farm implements, their prototype manufacturing for multi-location trials, prototype feasibility testing to adapt new designs based on mechanization gaps and frontline demonstration of proven designs to prove their efficiency, obtain feedback for design refinement and commercialization.

**RESEARCH AND DEVELOPMENT**

This activity is to design, development, testing and design refinement of farm tools and implements for crops and cropping pattern of Western Maharashtra region. It also includes study of prevailing agricultural systems to identify farm mechanization needs.

**PROTOTYPE MANUFACTURING WORKS (PMW)**

The basic function of Prototype Manufacturing Works is

multiplication of research prototypes and their supply to other research centers' for multi-location trials, development of manufacturing technology for new farm implements and promotion of their manufacturing by involving local manufacturers. Besides, PMW also cater to the needs of farmers for new farm implements and machinery for the period during which manufacturers take up designs for production.

**PROTOTYPE FEASIBILITY TESTING (PFT)**

The activities on Prototype Feasibility Testing include :

- i. Mechanization studies to identify crops and operations for which improved farm implements and machines are required ;
- ii. Identification of designs of farm implements and machinery which can be adopted to fill the identified mechanization gaps ;
- iii. Procurement and feasibility testing of identified implement on farmer's fields and their adaptation under local agro-climatic conditions;
- iv. Popularization of adapted farm implements and machinery amongst the farmers and promoting their manufacturing by involving local manufacturers.

**FRONT LINE DEMONSTRATIONS (FLD) OF IMPROVED FARM IMPLEMENTS AND MACHINERY**

Under this activity, large scale demonstration of selected farm implements and machinery has been taken up on farmer's field to:

- i. Adapt new designs of farm implements to bridge the identified mechanization gaps
- ii. Test the efficacy of the identified farm implements and machinery.
- iii. Obtain feedback from farmers for design refinement of selected farm implements and machinery

**COMMERCIAL TESTING OF AGRICULTURAL IMPLEMENTS AND MACHINERY**

Farm machines supplied to the farmers must ensure functional and life reliability. For this, testing of machines according to a well-established standardization procedure is important. This will help to ensure quality of machines reaching farmer as well as pin pointing improvement need for higher efficiencies/enhanced quality to manufacturer.

This Center is acting as an important link between manufacturers and users of agricultural machines as well as other agencies responsible for the introduction and popularization of farm Equipment. Commercial tests are carried out as per BIS standard at the AICRP on FIM, MPKV, Rahuri. The commercial tests are aimed to verify declarations/claims of the manufacturer/applicant for performance characteristics of machines that are in or ready for commercial production.

**ACHIEVEMENTS UNDER RESEARCH AND DEVELOPMENT**

Farm mechanization for sugarcane crop and orchard crop management as well as for dry land farming was identified as major

thrust area by the centre. The centre has designed, developed and commercialized improved implements viz. tractor drawn Jyoti multi-crop planter, bullock drawn Jyoti multi-crop planter, , bullock drawn Jyoti sugarcane inter-culturing implement, tractor operated sugarcane trash shredder, manually drawn Jyoti single row multi-crop planter, bullock drawn Jyoti multipurpose hoe, power tiller drawn Phule multi-crop planter, tractor operated banana stem shredder, tractor operated Phule sugarcane transplanter, power operated Phule sugarcane sett cutter, manually operated Phule drumstick harvester, tractor operated Phule ridger-planter, low hp tractor drawn Phule multicrop planter,, power operated onion detopper-cum-grader, tractor operated Phule check basin former and tractor operated Phule hydro mechanically controlled inter row cum intra row weeder for orchards etc

**ACHIEVEMENTS UNDER PROTOTYPE FEASIBILITY TESTING (PFT)**

Besides, many improved implements were extensively tested by the centre under PFT activity viz. small tractor (13.8 kw) operated sugarcane inter-culturing implement, tractor operated raised bed planter, tractor operated Tycoon sprayer with rotary nozzle, I.I.T. , Kharagpur power operated hold on type paddy thresher, tractor operated banana stem shredder(MPKV), tractor operated banana clump remover, tractor operated ASA- Lift onion detopper-digger, BCS reaper-binder, tractor operated Agricola make vegetable seeder, tractor operated root crop harvester (PAU), tractor operated air sleeve boom sprayer for pomegranate, tractor operated Pant-ICAR sub-soiler cum differential rate fertilizer applicator (GBPUAT),Tractor operated turmeric rhizome planter (TNAU) tractor operated root crop harvester (Comm.), tractor operated fertilizer dibbler for ratoon sugarcane crop ,tractor operated onion seeder (Comm.) , tractor operated sugarcane manager (IISR), tractor operated pneumatic planter (CIAE) ,self-propelled BCS reaper-binder (Comm.) etc.

**ACHIEVEMENTS UNDER PROTOTYPE MANUFACTURING WORKSHOP (PMW)**

Under PMW, the centre has fabricated and sold 42000 nos. of different agricultural implements to the farmers. The centre has encouraged and promoted many entrepreneurs to take up mass production of improved implements in Maharashtra State and through these manufacturers, more than 10,00,000 hand tools and improved farm implements have been supplied to the farmers during last decade



COCONUT DEHUSKARS AND GROUNDNUT DECORTICATORS FABRICATED UNDER PMW