Few recently developed technologies

- Developed over 200 agricultural tools, implements and machines for different farm operations (land preparation, sowing, planting, weeding, intercultural, harvesting and threshing) to maintain timeliness, drudgery reduction and efficient input use for various field and horticultural crops; of which about 75 machines are commercialized.

- Ergonomic and safe design for reduced drudgery and improved safety.

- Developed renewable energy source-based devices and gadgets such as solar assisted prime mover for spraying and weeding, solar powered bird scarer, solar powered sprayer, solar insect trap, solar dryers, solar refrigerator, solar-hybrid refrigeration system for horticultural crops, briquetted fuels, gasifiers, improved biogas plants, dewatering system for biogas slurry. Developed systems for utilization of animal energy for operating different agricultural machines and equipment.

- Developed structures, environment control techniques and packages of production practices for raising nurseries, production of flowers, medicinal plants and off-season vegetables.

- Plastics have been utilized for lining of rain water harvesting ponds, micro-irrigation systems, mulching for crops, carp hatcheries and live fish transportation system etc.

- Low cost improved storage structures for food grains, evaporative cooled storage structures for fruits and vegetables, long distance fruits, vegetables and live fish transportation systems were developed.

- Post-harvest machinery and pilot plants for value addition to agricultural products such as automatic custard apple pulper, millet processing plant, pomegranate aril extractor, groundnut pod decorticator, tomato grader,

Garlic Weeder

Tobacco Seedling Planter

Makhana Popping Machine

banana comb cutter, modified atmosphere packaging for sapota and mango, ripening chamber for mango, dried onion flakes and powder, production of ginger powder, protein isolates from de-oiled cake, fish descaling machine etc. were developed.

- Makhana seeds roasting and popping machines, soybean de-hullers, extrusion expelling pilot plant, soy flaking machine, soy snack extruder, cottage level soy paneer plant, okara fortified soy-cereal snacks are commercialized.

- Post-harvest management and value addition to natural fibres including efficient retting of jute, degumming of ramie, modernization of cotton ginning technology, improved micro spinning system; bio-scouring process for fabrics; diversified products from jute, jute geo-textiles, cotton-coir fibres for conveyer belt manufacture, utilization of cotton and jute stalks and by-products for particle boards are some of the new initiatives.

- Processes developed for microbial production of nano-particles for preparation for fabric finishing, extraction of natural dyes, resins and gums from plant based biomass, value added products from coir in combination with other natural fibres.

- Equipment for primary processing of lac, processes for preparation of shellac, bleached lac, dewaxed and decolorized lac, insulating varnishes, melfolac, lac wax based emulsions for coating of fruits and vegetables, aleuritic and perfumery compounds were developed.

- Integrated small lac processing unit of capacity 100 kg stick lac/day has been developed to accomplish all the unit operations such as crushing, sieving/grading, soaking, washing etc. The single machine is useful for obtaining seedlac from sticklac.

Millet Milling Machine

Jute Grading System

Cotton Gin

	 **Integrated Small Lac Processing**