



## Small Farms Equipment Training

Sound Northeast regional programs exist for small/beginning farmers to explore farm family goals, hone business management skills, and develop value-added practices. However, training for the selection and use of small-scale farming equipment, where the impact of costly mistakes spans years, is not readily available.

To address this need, the Rutgers Snyder Research and Extension Farm conducted a hands-on equipment demonstration in the field for 28 participants engaged as beginning, first-generation or part-time small farmers, managers, or Ag professionals. Rutgers NJAES maintains a unique institutional farm capacity, equipment ownership, and ability to transport, aggregate, operate, and demonstrate more than 40 pieces of specialty smaller-scale farming equipment. For this demonstration, five Rutgers NJAES professional farm staff, with decades of combined equipment operating experience and insight, were the field instructors. Farmers educating farmers remains the most effective method of transferring farm equipment selection and operating skills.

This intense, one-day training session covered seven equipment demonstration stations. Participants received detailed information and participated in discussions about new and used equipment costs, operational value, convenience value, and safety to help them make more informed decisions about selecting and investing in equipment necessary to for profitable smaller-scale or part-time farming.

[Participant Outcome Assessment](#) Program design and participant evaluations for this demonstration.

## Equipment Stations

### Primary and secondary tillage tractors and tillage implements

- Demonstration, defining power requirements, and cost of ownership, renting primary tillage services
- Soil differences and appropriate tillage in relation to moisture and vegetation.



Enthusiastic participants tolerated cold overcast conditions to see 40 pieces of specialized equipment operating close up.

## **Fertilizer and lime application equipment**

- Demonstration and discussion of fertilizer and lime spreader designs, including a rotary and drop spreaders. Cost of ownership. Basic plant nutrition and soil pH. Calibration of spreaders.

## **Seed Planting and Transplanting equipment**

- Review of operating parameters, importance of straight row procedures, hand seeders, seeding depth, and precision spacing of vegetable and other seeds, economies of scale, cost of ownership.
- Proper handling of transplants pre-and post-planting.



Small farmers **can** precision place expensive hi-tech pelleted seed, competitively, even on the smallest farm operation, using a one-row Stanhay planter available from Stanhay Webb in Great Britain.

## **Horticulture/vegetable crop irrigation**

- Trickle irrigation operation demonstration and discussion. Lower power + lower flow rates = lower capital and operating costs. Overhead irrigation operation, design, capacity, power requirement.
- Demonstration and cost of ownership. How to select the right irrigation methods for you. New Jersey DEP reporting regulation.

## **Controlling pests and pesticide application and safety**

- Using backpack sprayers. Utilization, operation, calibration, efficiency and costs compared to tractor-mounted sprayers or ATV sprayers.
- Review of basic herbicide insecticide and fungicide application methods, including products approved for organic crop production.
- Demonstrations and discussions of cost of ownership.
- Pesticide application workplace safety equipment and demonstration. Review of NJ DEP pesticide licensing requirements.

## **Crop cultivation equipment**

- Demonstration operating a diversity of specialized small equipment.
- Discussion on why we cultivate, mechanical cultivation weed control strategies. Costs of ownership.

- Fertilizer side dressing combined with cultivation

## **Growing and making hay and/or livestock forage**

- Equipment: seeder or drill, mower or mower/conditioner haybine, windrow hay rake or tether, baler, and wagons.
- Economy of scale in hay/forage enterprise, used equipment, need for low cost quality organic forages to support alternative livestock.



While recognizing growing & making quality hay has farm size “economy-of-scale” profitability hurdles, there are good markets, lower-cost leasing opportunities on preserved land, compatibility with part-time farmer labor, and good used equipment availability. These feature combine to make hay enterprises attractive in our region.