

Purdue University

Throckmorton Purdue Agricultural Center (TPAC) - More than 830 managed acres 5 miles south of Lafayette; 567 acres tillable. New areas of interest include organic and high tunnel vegetable production. In the late 1990s, horticultural and specialty crop research was relocated from the old Horticultural and O’Neill Memorial Farms to the Meigs Farm, which is part of TPAC. The center today encompasses four separate pieces – the home farm, Meigs North, Meigs South, and Meigs East. Resources include:

- 12 high tunnels in operation
- Crops processing facility with two walk-in coolers for produce and plant materials
- At the Meigs Farm, 145 acres set up for drip and overhead irrigation, and the site has been extensively tiled for optimum drainage
- Five full-time employees, including a horticulture crops manager and specialty crops specialist
- Twilight tours, topic-specific workshops, biannual pruning workshop

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Pinney Purdue Agricultural Center (PPAC) - 664 acres on the Porter-LaPorte county line, with about 560 tillable acres to serve the agricultural research needs of northwestern Indiana. Resources include:

- 30-foot by 48-foot greenhouse; two rolling high tunnels for organic research and conventional vegetables
- Linear move irrigation systems covering nearly 100 acres of tillable land
- Main building with meeting space for up to 50 and farm shop for equipment upgrades and repairs
- GPS/RTK technology
- Storage and drying facilities
- Private Applicator Recertification Program (PARP) Testing
- Two weather stations, for the National Weather Service and for Purdue climatologists

Research capitalizes on resources unique to this part of the state — a sandier soil and abundant water supply. Irrigation is prevalent among vegetable producers. Research at PPAC focuses on

agronomic, vegetable, and specialty crops. The center hosts field days and training events. Researchers in the Departments of Horticulture and Landscape Architecture, Botany and Plant Pathology, Agronomy, Entomology, and Forestry and Natural Resources currently conduct research at PPAC.

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The Department of Horticulture and Landscape Architecture's research and teaching facilities in West Lafayette include the **Horticulture Building**, which has more than 12,000 sq. ft. of laboratory space. The **Purdue University Horticulture Plant Growth Facility** includes 25 greenhouse rooms totaling 34,800 sq. ft., 2 air-conditioned growth rooms, 17 growth chambers, 5 walk-in coolers, a tissue culture laboratory, three teaching laboratories and 4,500 sq. ft. of headhouse space for offices, work space and storage. The greenhouse zones are each controlled using Priva Computers Inc. sensors and microprocessors using Priva Supervision software. With this state-of-the-art system, the greenhouses can be controlled remotely with wireless hand-held computers. The headhouse includes growth chamber facilities and 2 large (900 sq. ft. each) controlled environment rooms for large-scale plant production in a constant year round environment. In addition, this facility houses a 2,000 sq. ft. laboratory to support plant biotechnology efforts.

The greenhouses are heated with hot water and cooled using active ventilation and evaporative cooling. No vents are present in the ridge or sidewalls (other than fan shutters), allowing for a better seal, reduced maintenance, and reduced insect pressure. Clear water and fertilizer solution are independently plumbed into each greenhouse, and reverse-osmosis purified water plumbed into nearly half of the greenhouses. Compressed air for aeroponic/hydroponic culture and computer ports for specialized equipment are also available in each greenhouse. The computer ports can be linked to Purdue's server network, allowing investigators to log and examine data remotely using dial-in access, or use web-cameras. Approximately 30% of crops are irrigated automatically using drip tubes or dribble rings. In some greenhouses, computers trigger on irrigation solenoids based on accumulated sunlight level.

Within the 4,500-sq. ft. headhouse, two 900 sq. ft. growth rooms have control features similar to the greenhouses including compressed air, clear water, purified water, and fertilizer solution and environmental monitoring. Fifty-four metal halide and 36 high-pressure sodium lamps (400-watts each) distribute up to 250 $\mu\text{mol}/\text{m}^2/\text{s}$ of PAR at bench top level. Chilled water exchangers are used to cool the room, and a minimum 15% fresh air is added with each air exchange. Five walk-in refrigeration units provide cold storage, fix seed treatment, vernalization and space for cold hardiness research. Six reach-in Conviron E8 growth chambers of 8 sq. ft. and eight Conviron E15 of 15 sq. ft. growing space are linked to a central computer for monitoring and control similar to the greenhouse system.

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The **Student Farm** is a working small farm on the western edge of the Purdue University campus in West Lafayette. The farm grows vegetables, herbs and cut flowers using the principles that naturally govern balanced ecosystems, including emphasis on diversity, healthy soil, healthy plants, and healthy people.

Day to day during the school year, farm work is managed by several student groups: those enrolled in the "Small Farms Experience" courses, volunteers involved in the Purdue Student Farm Organization, part-time undergraduate staff, and full-time summer interns. A farm manager and faculty advisor also provide facilitation and oversight.

As a business, the farm's harvest is sold:

- Through a [Farm Share Program](#)
- Commercially to university dining halls and caterers, as well as to several small local grocers

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