

WISCONSIN NCR-101 REPORT

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Biotron:

The Biotron has been upgrading computer control systems that schedule and record environmental parameters in research rooms. Some energy conservation projects have also been completed. They are listed below:

- The computer control system is being replaced utilizing new computers and LABVIEW™ software. This will be accomplished in two phases. Phase 1 has been completed and involved replacing the computers and installing LABVIEW™ software. Phase 2 involves replacing the bus and control cards and will take place next year. The customized LABVIEW™ program has been very successful providing a more robust system. Room schedules for environmental control (light, temperature, RH, watering) can be configured with unlimited configurations. Room alarms offer unlimited settings with minor alarms (in house warning) and major alarms (calls out to pager) individually set by the operator.
- The Wisconsin Energy Initiative (WEI) has been completed for the Biotron. The upgrade will save \$38,149 per year in energy costs. Thus the investment of \$373,000 has a 10-year pay back. The energy conservation includes high efficiency motors, air handling unit control, chiller upgrade, dual duct VAV conversion and occupancy sensors. We are currently entering the energy-monitoring phase to determine actual energy savings.
- Upgrading the control of the elevated CO₂ greenhouse rooms utilizing LABVIEW™. The computer system is configured to control (up to 2000 ppm) elevated CO₂ in four 180 Sq. ft. A/C greenhouse rooms and monitor the CO₂ in four additional 180 sq. ft. A/C greenhouse rooms. The CO₂ is being supplied from 400 lb tanks. This system has just been completed and testing has started this week.
- A light sensor has been installed that will automatically control the lights in 29 air conditioned greenhouse rooms to come on during cloudy periods and turn off during sunny periods. This is being done as an energy conservation measure to reduce the heat load during the summer and save electricity year around. This was accomplished using Johnson Control's Metasys software program and graphic program language.

A major remodeling project (\$540,000) is planned for 2002-03 to upgrade the animal cage washing facility to meet AAALAC requirements. A NIH grant proposal has been submitted to acquire funding.

Other Facilities:

- A chamber, Percival 32 sq ft., has been obtained for cold acclimation research with cranberries, potatoes and turf grass. This can reach -15 C utilizing a double cooling coil system to permit adequate coil defrosting.