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# Horticulture Research Station Summary

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# Horticulture Research Station Summary

**Abstract**

Includes Farm Staff, Farm and Weather Summary and Research Station Projects.

**Keywords**

RFRA1101

**Disciplines**

Agriculture

# Horticulture Research Station Summary

## RFR-A1101

### Farm Staff

Superintendent ..... Nick Howell  
 Ag Specialist/Small fruits ..... Dennis Portz  
 Operations Manager ..... Jim Kubik  
 Field Lab Technician ..... Lynn Schroeder  
 Equipment Operator ..... Jeff Braland  
 Turfgrass Assistant Scientist ..... Marcus Jones  
 Graduate Assistant ..... Brandon Carpenter  
 Graduate Assistant ..... Leah Riesselman

Research Farms Coordinator ..... Mark Honeyman  
 Farms Manager ..... Dennis Shannon  
 32 Curtiss Hall, ISU

Horticulture Research Station  
 55519 170th Street  
 Ames, IA 50010  
 515-232-4786 office and Fax  
 nhowell@iastate.edu

Location: Three miles north of Ames on Highway 69, turn east on 170<sup>th</sup> Street  
 about 1½ miles.

## Farm and Weather Summary

Nick Howell, farm superintendent

### Farm Comments

*Staffing.* There were significant changes in farm staffing in 2011. Marcus Jones, assistant scientist in turf grass, replaced Chris Blume who took a position with Monsanto. In addition, Brandon Carpenter and Leah Riesselman joined the farm staff as graduate assistants. Brandon and Leah will work for the station full time during the growing season and will attend classes during the spring and fall semesters. The graduate assistantships are funded by Research Farms and are a new model for farm staffing. Remaining in their positions in 2011 are Jim Kubik, operations manager; Dennis Portz, small fruit research specialist; Lynn Schroeder, field lab tech; and Jeff Braland, equipment operator.

*Classes and internships.* Research Farms and the Horticulture Station assisted in the development of a new course in the AgEdS/Hort curriculum in 2011. This course, AgEdS/Hort 465, is modeled after the Ag 450 program and is designed to provide students with real-life experiences managing a horticultural operation. Students in the course make decisions on crop selection, production, marketing, and management and then put their decisions into action on a 5-acre plot of land designated for their use at the Horticulture Station. Although in its infancy, AgEdS/Hort 465 promises to provide opportunities to horticulture students never before offered.

The Horticulture Station had four internships in 2010. Dylan Rolfes, senior, examined labor inputs for multiple crops in the high tunnel. Tabitha Fontinel, junior in horticulture, worked on cultural practices for the production of day-neutral strawberries. Joe Jacobs, a senior in horticulture, managed the production of crops grown for the new

AgEdS/Hort 465 class. Jacob Van Patten, sophomore, examined cultural practices of commercial production of lavender in Iowa.

*Developments.* Major improvements to the farm's irrigation systems began in 2011. A new wet-well and pumping station was installed replacing the previously separate farm, turf and orchard systems. The pumps will be operated with variable frequency drive units that will reduce energy consumption. The system will provide not only high pressure water for overhead irrigation, but low pressure water for trickle irrigation. When the new system is fully operational, low pressure water for trickle irrigation will be available for 30-40 acres of land never before usable for vegetable research and production.

Major landscape cleanup and renovation was completed as well. A local contractor owning a large tub grinder was hired and all the remaining diseased Scotch and Austrian pines were removed from the windbreaks and landscape at the station. When completed, over 400 trees were removed and ground into mulch with over 150 dump truck loads hauled to campus and used in the landscape plantings.

In the fall of 2011, 200 young Norway spruce and white pine from the nursery were planted in the windbreaks. An additional 110 spruce trees will be planted in the north windbreak in the spring with an additional 200 white pines over the next two years.

*Field days, tours and class activities.* The station hosted 6 field days, 13 tours, 10 meetings, and 12 student classes. A total of 1,400 people attended events at the station in 2011. The All Horticulture Field Day was held July 19. The Department of Horticulture and the Horticulture Research Station invited the horticulture industry to tour research projects

at the station. This event, held for the third year in a row, hosted 185 visitors. The Horticulture Club's fall festival was also a success. This year the horticulture club invited other student organizations from the College of Agriculture and Life Sciences to participate bringing students to the station for the first time. A total of 30 student volunteers and 250 visitors attended the event.

### Weather Comments

*Winter 2010-2011.* High temperatures and precipitation were below normal in January and February but because of a slow cool down in the fall, little winter damage was seen on perennial crops.

*Spring 2011.* Cool windy conditions in late April and early May affected bee movement resulting in poor pollination of the apple orchards. Crop reduction was about 20 percent. Precipitation rates were near normal resulting in little delay of spring planting of vegetable and bulk crops.

*Summer 2011.* Precipitation was below normal in June and July with August well below normal with only 1.8 inches. Drought conditions were offset by irrigation and crops were unaffected. Over 7 million gallons of

water was pumped from the lake for irrigation in 2011.

*Fall 2011.* Drought conditions continued into the fall allowing for an uninterrupted harvest. A late September windstorm caused significant loss of the Golden Delicious and Chieftain apple crops. About one third of these varieties were lost. A gradual cool down allowed perennial crops to go into dormancy without damage.

### Acknowledgements

I would like to thank the Coles Memorial Farm for their financial support of the new irrigation pumping station at the Horticulture Research Station. I would also like to thank the farm crew Jim Kubik, Lynn Schroeder, Dennis Portz, Jeff Braland, and Marcus Jones for their efforts. Thanks to the student interns Dylan Rolfes, Brandon Carpenter, Tabitha Fontinel, Joe Jacobs, Jacob Van Patten, and all of the other student workers for their hard work. Thanks for the assistance with the irrigation system maintenance provided by John Newton, superintendent, Veenker Memorial Golf Course. I would also like to thank Meg Speer, for her assistance with the Home Demonstration Garden Field Day.

**Table 1. Horticulture Research Station, Ames, monthly rainfall and average temperatures for 2011.**

Month	Rainfall (in.)		High 2010	Temperature (°F)			Days 90° or above
	2010	Deviation from normal		Deviation from normal	Low 2010	Deviation from normal	
March	0.94	-1.13	39.2	-9.4	27.2	-0.17	0
April	4.24	0.7	53.3	-10.6	37.0	2.3	0
May	4.17	-0.42	66.3	-8.9	50.8	0.74	1
June	5.0	0.62	73.8	-10.1	62.4	2.6	2
July	3.23	-0.67	81.9	-5.1	70.1	6.5	4
August	1.85	-3.05	80.7	-3.9	62.6	1.4	1
September	1.34	-1.68	67.9	-11.1	53.7	1.1	0
October	0.86	-1.68	61.3	-3.9	44.3	3.6	0
Totals	44.01	-7.49					8

## Research Station Projects

<b><u>Project</u></b>	<b><u>Project Leader</u></b>
Soil temperatures of overwintering nesting sites	R. Ackerman
Mosquito-borne encephalitis surveillance	L. Bartholomay
Various pathology experiments	G. Beattie
Creeping bentgrass fairway cultivar trial	N. Christians
Creeping bentgrass putting green cultivar trial	N. Christians
Kentucky bluegrass cultivar trial	N. Christians
Perennial rye cultivar trial	N. Christians
Organic rotations for vegetable and field crops	K. Delate
Wine making	M. Dharmadhikari
Apple crop load study	P. Domoto
Honeycrisp apple trellis	P. Domoto
NC140 apple rootstock trial	P. Domoto
NE1020 wine grape trial	P. Domoto
Organic fertilizer trial	N. Dunlap/N. Christians
Tall fescue cultivar trial	S. Fei
DNR fish project	J. Fischer
Horticulture Club fall festival pumpkin production	T. Fontinel
	T. Fontinel/D. Portz/
Day-neutral strawberry management study	G. Nonnecke
Disease-resistant apple field trial	M. Gleason
Dollar spot trial - fairway height	M. Gleason
Dollar spot trial - green height	M. Gleason
Extended-duration row covers in muskmelon	M. Gleason
Floral provisioning study	M. Gleason
National Elm tree trial	M. Gleason
Perimeter trap crop study	M. Gleason
Phenology of cucumber beetle	M. Gleason
Phenology of inoculation time of sooty blotch and flyspeck on apples	M. Gleason
Sooty blotch/flyspeck pruning and spray-volume trial	M. Gleason
Strawberry anthracnose study	M. Gleason
Sustainable management of sooty blotch and flyspeck on apples	M. Gleason
Shrub field trial	W. Graves

**Project (continued)****Project Leader**

Populus cultivar biomass study	R. Hall
Biodegradable plastic mulch study	J. Hannan
Seed dispersal and life history effects on spatial coexistence	W. Harpole
Home demonstration garden	C. Haynes
Barenbrug seed mixture evaluation	A. Hoiberg/D. Minner
Calcium products recovery green	A. Hoiberg/D. Minner
Calcium products trial #1	A. Hoiberg/D. Minner
Calcium products trial #2	A. Hoiberg/D. Minner
Earthworm/fertility trial	A. Hoiberg/D. Minner
Fertility based establishment (spring and fall)	A. Hoiberg/D. Minner
Seedbank potential	A. Hoiberg/D. Minner
Tazo trial	A. Hoiberg/D. Minner
Tenacity/ryegrass seeding trial	A. Hoiberg/D. Minner
EarthKind rose trial	N. Howell
EarthKind Japanese beetle study	N. Howell
EarthKind rose disease study	N. Howell
Bald Cypress trial	J. Iles
Flowering crabtree trial	J. Iles
Shade tree trial	J. Iles
Horticulture 465 field management	M. Robertson
Horticulture 465 tunnel tomato production	M. Robertson
Common garden painted turtle nesting experiment	F. Janzen
Adaptive significance of temperature-dependent sex determination in the painted turtle	F. Janzen
Glyphosate resistant perennial ryegrass conversion trial	M. Jones
Stimp ball roll trial	M. Jones
Creeping bentgrass recovery trial	M. Jones/N. Christians
Imprelis crabgrass and broadleaf control trial	M. Jones/N. Christians
Kentucky bluegrass seed treatment trial	M. Jones/N. Christians
Plant growth regulator trial	M. Jones/N. Christians
Creeping bentgrass biostimulant trial	Q. Law/M. Jones/ N. Christians
GrubOUT! calibration	Q. Law/M. Jones/ N. Christians
Fish projects	J. Morris
Vegetable crop production in high tunnel	L. Naeve

**Project (continued)**

Fall lettuce crop production  
Vegetable cover crop study

Apple crop load study including thinning treatments  
Blackberry training study  
Small fruit teaching planting  
Student orchard  
USDA June bearing strawberry trial

Hardy/disease resistance pear trial

Hardy peach trial

Aphid/soybean cyst nematode interaction

Grape growing system vineyard  
Day-neutral plant spacing study  
High tunnel day-neutral strawberry study

Effects of glyphosate on corn susceptibility to fusarium

Legume ipmPIPE project

Orchard replacement

Student Organic Farm

Annual bluegrass control

Lavender production

EarthKind hydrangea trial

Tree swallow nesting

Physiology of iron and zinc in common beans (*Phaseolus vulgaris* L.)

Prairie cover crops

**Project Leader**

A. Nair  
A. Nair

G. Nonnecke  
G. Nonnecke  
G. Nonnecke  
G. Nonnecke  
G. Nonnecke

P. O'Malley/D. Portz/  
L. Schroeder  
P. O'Malley/D. Portz/  
L. Schroeder

M. O'Neal

D. Portz  
D. Portz/G. Nonnecke  
D. Portz/G. Nonnecke

A. Robertson

E. Saalau

L. Schroeder/D. Portz

Student Leaders

S. Trembly/ M. Jones/  
N. Christians

J. Van Patten/N. Howell

A. VanDerZanden

C. Vleck

M. Westgate

B. Wilsey