

# Horticulture Research Station Summary

**RFR-A1232**

## **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  
Turfgrass Research Associate ..... Dan Strey  
Graduate Assistant ..... Brandon Carpenter  
Graduate Assistant ..... Leah Riesselman

Research Farms Coordinator ..... Mark Honeyman  
Farms Manager ..... Dennis Shannon  
103 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 2012. Dan Strey, research associate in turfgrass, replaced Marcus Jones who took a position with Stoller Enterprises. In addition, Dennis Portz left his position and is working with a vineyard on Vancouver Island. Brandon Carpenter and Leah Riesselman continued on the farm staff as graduate assistants. They work for the station full-time during the growing season and attend classes during the spring and fall semesters. The graduate assistantships are funded by the ISU Research Farms and are a new model for farm staffing. Remaining with the staff in 2012 are Jim Kubik, operations manager; Lynn Schroeder, field lab tech; and Jeff Braland, equipment operator.

*Classes and internships.* Two students, Kyle Tester and Jesse Worth, participated in the Horticulture Enterprise course Hort 465. This course, listed in the AgEdS/Hort curriculum, is modeled after the Ag 450 program and is designed to provide students with real-life experiences managing a horticultural operation. In addition, these students were given the opportunity to work at the station with the 465 class fulfilling their farm summer internship requirement.

The Horticulture Station had two other internships in 2012. Taylor Goetzinger, junior, studied the effectiveness of an Imidacloprid insecticide patch for control of Japanese beetle on roses. Shannon Woodford, senior in horticulture, looked at the effects of biochar on vegetable and ornamental crops.

*Developments.* Major improvements to the farm's irrigation systems were completed in 2012. A new wet-well and pumping station

were installed replacing the previously separate farm, turf, and orchard systems. The system provides high pressure water for overhead irrigation and low pressure water for trickle irrigation. With this new system fully operational, low pressure water for trickle irrigation is available for 30–40 acres of land that was previously unusable for vegetable research and production.

A high tunnel was constructed for the Horticulture 465 class in 2012. This new 90 ft × 36 ft structure will be used as a teaching tool for the students in the class. Students will learn early production techniques that they can incorporate into production and marketing plans for the course and their own future vegetable production businesses.

Research facilities were added to the station for the Department of Ecology, Evolution, and Organismal Biology (EEOB). Four 50 ft × 50 ft ponds were dug and lined for turtle research and a 30 ft × 40 ft building was constructed for bee and wasp research.

Major landscape cleanup and renovation was completed as well. Brush areas at the north end of the lake were cleared and railroad tie retaining walls were removed at the south end of the lake. The area was then re-graded and seeded.

The north and west windbreaks were replanted in the fall of 2012. To accomplish this, 120 Norway spruce were planted using a 24 in. tree spade. A total of 250 trees were planted in the past two years replacing the windbreaks on the station.

*Field days, tours, and class activities.* The station hosted five field days, 17 tours,

8 meetings, and 10 student classes. A total of 1,400 people attended events at the station in 2012. Dr. Ajay Nair hosted one of the field days in 2012 for the Iowa Fruit and Vegetable Grower Association with tours of various fruit and vegetable research plots and a picnic lunch served under the shade trees for 185 attendees. The Iowa Turfgrass Institute hosted a field day at the station in the summer of 2012 also. This newly revamped event was held for its second year and had over 200 people in attendance. A special tour was provided to President Atifete Jahjaga of the Republic of Kosovo. The Kosovo delegation included the president and various government officials including the U.S. ambassador to Kosovo. University officials hosted the event and included the Dean of the College of Agriculture and Life Sciences, the vice president of Iowa State University, the department chair of Horticulture, and the superintendent of the Horticulture Station. Lunch was served at the farm of Jeff and Shelley Taylor located across the road from the Horticulture Station.

### **Weather Comments**

*Winter 2011-2012.* In March, higher than normal temperatures caused early bud break and bloom in the apple orchards and vineyards. Precipitation remained well below normal throughout the winter.

*Spring 2012.* The apple crop was lost due to a hard mid-April freeze. The grape primary buds and growth were also heavily damaged. Later, the secondary and tertiary grape buds sprouted however, so the crop was not a total loss. Above normal high and low temperatures and below normal precipitation continued during the spring.

*Summer 2012.* Precipitation was below normal in June, July, and August. Temperatures were above normal with 23 days above 90 degrees. Drought conditions caused significant damage to non-irrigated crops. The high temperatures caused damage to the tomato crop as well. Over 6 million gallons of water was pumped from the lake for irrigation in 2012.

*Fall 2012.* Drought conditions continued into the fall allowing for an uninterrupted harvest. More normal low temperatures in September and October allowed perennial crops to go dormant. Drought conditions continued into the fall.

### **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, Jeff Braland, Marcus Jones, and Dan Strey for their efforts. Thanks to grad students Brandon Carpenter and Leah Riesselman and student interns Kyle Tester, Jesse Worth, Taylor Goetzinger, and Shannon Woodford, and all of the other student workers for their hard work. Thanks to Jeff and Shelley Taylor for the hospitality they showed to the Kosovo delegation.

**Table 1. Horticulture Research Station, Ames, monthly rainfall and average temperatures for 2012.**

Month	Rainfall (in.)		High 2012	Temperature (°F)			Days 90° or above
	2012	Deviation from normal		Deviation from normal	Low 2012	Deviation from normal	
March	1.9	-.1	58.6	+12.6	41.4	+15.5	0
April	3.9	+4	62.1	+2.0	43.6	+6.3	0
May	2.5	-2.0	74.3	+4.0	55.7	+7.3	0
June	3.3	-1.7	81.4	+2.8	62.3	+4.6	4
July	2.2	-1.6	88.6	+7.2	68.2	+6.8	12
August	1.8	-3.3	80.8	+1.6	61.2	+2.1	7
September	1.9	-1.2	76.5	+2.7	48.7	-2.1	2
October	<u>2.4</u>	-1.0	58.0	-3.1	38.7	-.7	<u>0</u>
Total	19.9	-10.5					25

### Research Station Projects

#### Project

Soil temperatures of overwintering nesting sites  
 Mosquito-borne encephalitis surveillance  
 Biochar study

#### Project Leader

R. Ackerman  
 L. Bartholomay  
 B. Carpenter

Increasing shoot density with green Ncrease	N. Christians/A. Hoiberg
Plant surfactant/wetting agent trial	N. Christians/A. Hoiberg
Potassium fertilizer trial	N. Christians/A. Hoiberg
Acidification of corn gluten meal trial	N. Christians/D. Strey
Applying fertilizer to drought affected turf	N. Christians/D. Strey
Comparison of industry standard organic fertilizers	N. Christians/D. Strey
Fungicide/greens program trial (located at Hyperion F.C.)	N. Christians/D. Strey
Glyphosate resistant ryegrass (2)	N. Christians/D. Strey
Kentucky bluegrass germination trial (Becker-Underwood)	N. Christians/D. Strey
Kentucky bluegrass germination trial (confidential)	N. Christians/D. Strey
National Kentucky bluegrass test	N. Christians/D. Strey
National perennial ryegrass test	N. Christians/D. Strey
National tall fescue test	N. Christians/D. Strey
Phytotoxicity of corn gluten meal trial	N. Christians/D. Strey
Plant growth regulator trial	N. Christians/D. Strey
Postemergence control of crabgrass trial (confidential)	N. Christians/D. Strey
Postemergence crabgrass control trial (FMC)	N. Christians/D. Strey
Progressive rates using urea on sand based green	N. Christians/D. Strey
The reduction of <i>Poa annua</i> using amino acids	N. Christians/D. Strey

Organic rotations for vegetable and field crops	K. Delate/M. Al-Kaisi
Grape off-gassing study	M. Dharmadhikari

**Project (continued)**

Honeycrisp apple trellis  
 NC140 apple rootstock trial  
 NE1020 wine grape trial

Miscanthus trial  
 Pollinators in soybeans

Extended-duration row covers in muskmelon  
 Floral provisioning study  
 National Elm tree trial  
 Perimeter trap crop study  
 Phenology of cucumber beetle  
 Strawberry anthracnose study  
 Garden plant study  
 Bio plastic study  
 Redbud breeding trial

Populous cultivar biomass study  
 Seed dispersal and life history effects on spatial coexistence  
 Effects of biochar on ornamental and food crops  
 Home Demonstration Garden  
 Dollar spot trial

Japanese Beetle control on roses  
 EarthKind rose trial  
 EarthKind hydrangea trial

Ash pollination study  
 Bald cypress trial  
 Flowering crab trial  
 Shade tree trial

Common garden painted turtle nesting experiment  
 The adaptive significance of temperature-dependent sex  
 determination in the painted turtle  
 Horticulture Club fall festival pumpkin production

Potassium fertilizer trial  
 Summer patch disease trial (conducted at Jester Park G.C.)  
 Summer patch resistant KBG varieties  
 Tazo-B trial  
 Aquaculture/fish projects

**Project Leader**

P. Domoto  
 P. Domoto  
 P. Domoto

S. Fei  
 K. Gill

M. Gleason  
 M. Gleason  
 M. Gleason  
 M. Gleason  
 M. Gleason  
 M. Gleason  
 W. Graves  
 W. Graves  
 W. Graves

R. Hall  
 W. Harpole  
 C. Haynes  
 C. Haynes  
 A. Hoiberg

N. Howell  
 N. Howell  
 N. Howell

J. Iles  
 J. Iles  
 J. Iles  
 J. Iles

F. Janzen  
 F. Janzen  
 J. Kiwala

D. Minner/A. Hoiberg  
 D. Minner/A. Hoiberg  
 D. Minner/A. Hoiberg  
 D. Minner/A. Hoiberg  
 J. Morris

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

Buckwheat, cucumber production study	A. Nair
Cover crop demonstration	A. Nair
DDGS study	A. Nair
Fall lettuce production study	A. Nair
Herbicide lettuce study	A. Nair
High tunnel cover crop study	A. Nair
Mini tunnel fall crop production study	A. Nair
Mini tunnel spring crop production study	A. Nair
Plastic mulch and sweet corn study	A. Nair
Row cover plastic mulch (lettuce)	A. Nair
Rye-brassica cover crop study	A. Nair
Summer cover crop fall production study	A. Nair
Sweet potato spacing trial	A. Nair
Sweet potato variety trial	A. Nair
Vegetable cover crop study	A. Nair
Blackberry training study	G. Nonnecke
Small fruit teaching planting	G. Nonnecke
USDA June bearing strawberry trial	G. Nonnecke
Student orchard	G. Nonnecke
Hardy/disease resistance pear trial	P. O'Malley/L. Schroeder
Hardy peach trial	P. O'Malley/L. Schroeder
Aphid/soybean cyst nematode interaction	M. O'Neal
Native pollinators for cucurbit production	M. O'Neal
Preemergent herbicide on soybeans	M. Owens
Grape growing system vineyard	L. Riesselman
Mini tunnel raspberry study	L. Riesselman
Effects of glyphosate on corn susceptibility to fusarium	A. Robertson
Horticulture 465 Field Management	M. Robertson
Horticulture 465 Tunnel Production	M. Robertson
Orchard replacement	L. Schroeder
Safe food handling study	A. Shaw
Civitas fungicide demonstration	D. Strey
Converting the NCERA green to 007 bentgrass fairway	D. Strey
Golf course tee construction	D. Strey
Student Organic Farm	Student Leaders
Bee research	A. Toth
Tree Swallow nesting	C. Vleck
Edible bean project stock plants	M. Westgate
Physiology of iron and zinc in common beans	M. Westgate
Prairie cover crops	B. Wilsey