

Weather and Environmental Problems of Ornamental Plants in Ohio: 2003

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Introduction

This report includes a compilation of Ohio weather conditions and noteworthy environmentally induced plant problems in 2003. Observations were drawn from information provided in Ohio State University Extension's *Buckeye Yard & Garden Line*, the Ohio Department of Natural Resources *Monthly Water Inventory Report*, and the State Climatologist's Office for Ohio.

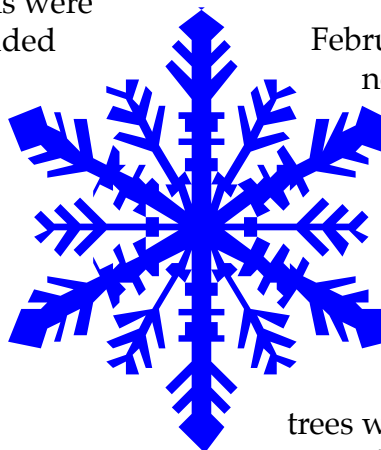
Weather Background

This section discusses precipitation and temperature reports for the season. Table 1 shows statewide precipitation from January through September. Table 2 shows average temperatures and departures from normal for three locations in the state, April through September.

Precipitation

Precipitation for January was below normal for nearly the entire state, except for southeastern Ohio. This resulted in the 20th driest January in the last 109 years of record-keeping. A few weather stations

reported significant snow amounts. For example, Chardon reported a record amount of 67" of snow in January, nearly three times the normal snowfall for the month.



February precipitation was above normal across most of the state. Rain, freezing rain, and snow made up the mix with a significant storm on February 14 through 17. The extreme southern portion of Ohio had an ice storm that caused severe damage to trees in the area. Cleaning up trees was still in process in forested areas in late 2003.

March precipitation was below normal statewide. By the end of these three months, precipitation was below normal statewide.

April precipitation was below normal statewide except for a few areas in south-central Ohio, along the Ohio River, where it was above normal. Central Ohio received a line of severe storms on April 20 with heavy rains, strong winds, and damaging hail.

Things changed in May, as precipitation was notably above normal statewide. For the state, this was the third wettest May during the past 121 years. Regional averages were variable. Showers and

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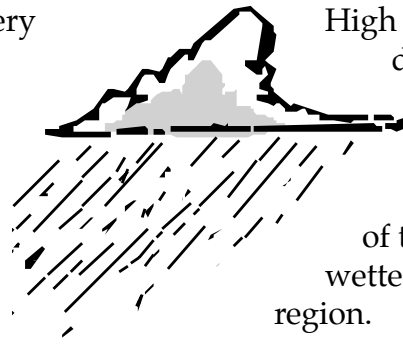
thunderstorms occurred every week of the month.

June precipitation was again generally above normal across most of the state. The greatest amounts of rainfall were in the southeastern part of the state, decreasing to the northwest. It was the 13th wettest June in the past 109 years for the south-central region.

Precipitation for the calendar year was near or above normal by the end of the first six months for the state.

July precipitation was also noticeably above normal across most of the state. However, it was near or below normal in the central and southeastern areas. For the state, this was the fourth wettest July in the past 121 years.

Heavy rains fell the week of July 4 through 11. The greatest amount of rain fell in northwestern and west-central Ohio and some areas of northeastern Ohio; some areas received in excess of 10" of rain.



High winds caused extensive tree damage in the Clark County area on July 4.

August was above normal except for the northeastern part of the state. This was the third wettest August for the west-central region.

September was also noticeably above normal statewide, making it the second wettest in the past 121 years. Eastern Ohio received remnants of hurricane Isabel on September 19. Precipitation for the calendar year was above normal by the end of September.

An example of how wet 2003 was in some areas of Ohio is affected by the fact that 51.14 inches of rain reported by the National Weather Service at the Akron-Canton Airport in northeastern Ohio made 2003 the third wettest year on record.

The wet weather contributed to infectious disease problems on plants. The period of leaf wetness was a factor in many parts of the state.

Month	Average Inches Precipitation	Above or Below Normal
January	1.73	-0.84
February	3.01	+0.75
March	2.23	-0.94
April	2.48	-1.10
May	6.66	+2.75
June	3.93	+0.08
July	6.91	+2.83
August	4.78	+1.34
September	6.10	+3.15

Source: Data from Ohio Department of Natural Resources – *Monthly Water Inventory Reports*.

Temperature

Overall, temperatures were cooler than last year (2002). For instance, Cincinnati had 37 days over 90°F last year and only five this year; Columbus had 30 in 2002 and five this year; and Cleveland had 21 in 2002 and five this year.

A final note, these statistics are averages and are obtained from Department of Natural Resources sites. Rainfall is variable across the state, and the data that one uses depends upon the collection site.

Month	Cleveland		Columbus		Cincinnati	
	Avg. Temp. F°	Departure F°	Avg. Temp. F°	Departure F°	Avg. Temp. F°	Departure F°
April	48.9	1.3	54.9	2.9	55.7	2.0
May	57.8	-0.7	60.8	-1.8	61.8	-1.9
June	66.9	-0.6	67.3	-3.9	67.2	-4.8
July	72.6	0.6	73.4	-1.7	73.9	-2.4
August	73.3	3.0	73.6	0.2	74.6	0.2
September	63.7	0.4	64.4	-2.1	64.8	-2.6

Source: Average temperature is an average of all high and low temperatures recorded daily for the given location. Data for Cleveland were taken from: www.csuohio.edu/nws/climate/cle/climatecle.html
Data for Columbus and Cincinnati were taken from: www.nws.noaa.gov/er/iln/lcdpage.htm

Location	June	July	August	September	Season Total
Cleveland	2	2	1	0	5
Columbus	3	1	0	1	5
Cincinnati	0	3	2	0	5

Useful web sites for weather-related topics are listed here:

Ohio Department of Natural Resources
Division of Water, monthly water
inventory report:

<http://www.dnr.state.oh.us/water/>

National Oceanic and Atmosphere
Administration (NPOAA) drought report:

<http://www.drought.noaa.gov/>

USDA Topsoil Moisture Chart:

http://www.cpc.ncep.noaa.gov/products/monitoring_and_data/topsoil.html

Degree day, phenology update for Ohio:

<http://www.oardc.ohio-state.edu/gdd>

Environmental Problems of Ornamental Plants

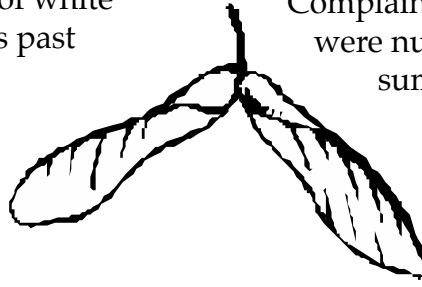
Reports of winter injury occurred in April. Plants that had some type of winter-related injury noted include white pine, fir, cotoneaster, pieris, rhododendron, viburnum, and evergreen euonymus. Younger trees exhibited frost cracks, usually on the south and west side.

Ohioans noticed browning of white pines along the freeway this past spring. Damage was from heavy use of road salt because of snow and ice this past winter. Other species that showed damage to some extent were spruces, yews, and junipers that were near roads, sidewalks, or driveways where salt was used.

There were numerous observations in May of red maples with new shoots that wilted and had blackened leaves. The cause of the problem was not determined, but it was suggested that it might have been due to delayed cold-temperature injury. The hypothesis is that cold temperature damage occurred earlier in the spring and did not show up until leaves expanded and required adequate water to continue development and to survive. No serious effects were reported.

Maple seed production in the spring was heavier than usual and resulted in numerous complaints and phone calls to Extension offices. A warm fall in 2002 followed by perfect conditions this year for bloom and pollination resulted in heavy seed production. There was a lack of normal leaf development while seeds matured, making the brown seeds quite obvious. When seeds turned brown, many misinterpreted brown plant tissue in the tree as a sign of plant problems.

Most maples produce their seeds in the fall; however, red and silver maples produce their seeds in the spring. Their seeds do not require dormancy to germinate; they can sprout right away, producing seedlings. Therefore, when seeds germinated this spring, new seedling trees were discovered everywhere, including flower beds, lawns, gardens, and even downspouts.



Complaints of vegetables not maturing were numerous due to the cooler summer temperatures and higher than normal rainfall amounts. Tomatoes, peppers, and other heat-loving vegetables were slow in forming fruits and ripening.

Arborvitae had heavier than normal cone set this year, making them almost unsaleable at the nurseries. Customers did not like the brown appearance. Some reported that cones were so heavy that the plants were bending to the ground. There is no research as to why this occurred, but some speculated that it was due to weather conditions.

There were reports of earlier than usual fall coloration in early September with maples the most notable trees showing color. Early fall color was not a definitive means of detecting problems in trees, but it did indicate that a tree may be stressed.

Some of the environmental factors that should be considered are too much or too little water, insect and disease problems, low nutrient availability, improper planting depth, or the wrong environmental conditions for the species.

Trees required pruning attention due to severe storms and winds throughout the summer as well as a severe ice storm in February. Owners determined first

whether to salvage or remove damaged trees. Remaining trees required pruning. Splits and cracks in trunks and major limbs may lead to structural instability, as well as uplifted soil or disturbed roots.

If the tree appeared relatively sound in structural integrity, then damaged limbs and branches required pruning. Pruning large trees should be left to professional, certified arborists.

Trees should be carefully pruned and not topped. Topping removes most of the canopy, leaving mostly branch stubs. These stubs are more prone to decay and may attract wood boring insects. Follow proper pruning practices to ensure continued tree health.

For additional information on pruning, refer to the article *20 Questions of Pruning* later in this publication.

References

1. Dr. Jeffery Rogers, State Climatologist, with the State Climatologist's Office for Ohio, provides current and archived weather information for several locations in the state. This information is available at:

<http://www.geography.ohio-state.edu/faculty/rogers/statclim.html>
2. The National Weather Service Forecast Office, Cleveland, Ohio.

<http://www.erh.noaa.gov/cle/climate/cle/climatecle.html>
3. The National Weather Service Forecast Office, Wilmington, Ohio.

<http://www.erh.noaa.gov/er/iln/lcdpage.htm>
4. The Buckeye Yard and Garden online is available at:

bygl.osu.edu