



# Newsletter Extension

## Fruit ICM News

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## Calendar

**January 21-23, 2004: Ohio Fruit & Vegetable Growers Congress, Ohio Roadside Marketing Conference, & Ohio Christmas Tree Association Winter Meeting**, SeaGate Convention Centre and Radisson Hotel, 410 Jefferson Avenue, Toledo. For more information contact Tom Sachs at Ohio Fruit Growers, 614-246-8292, e-mail [growohio@ofbf.org](mailto:growohio@ofbf.org). Check out the web site at <http://www.ohiofruit.org>.

**February 26, 2004: Ohio Fruit Growers Society Committee Meetings**, (Tree Fruit, Small Fruit, Program, Forward Phase, Juice, & Public Affairs), Best Western, Wooster, Ohio. Contact Tom Sachs at 614-246-8292, [growohio@ofbf.org](mailto:growohio@ofbf.org), or <http://www.ohiofruit.org>.

**February 26, 2004: Ohio Apple Operating Committee Meeting**, Best Western, Wooster, Ohio. Contact Tom Sachs at 614-246-8292, [growohio@ofbf.org](mailto:growohio@ofbf.org), or <http://www.ohioapples.org>.

## Ohio Growers Congress Presents Diverse General Sessions

*Source: Tom Sachs, Conference Coordinator*

The 2004 Ohio Fruit & Vegetable Growers Congress at the Toledo SeaGate Convention Centre and Radisson Hotel, January 21 to 23, has scheduled many interesting general sessions that will be of value to most growers or marketers. The Growers Congress is presented in cooperation with the Ohio Direct Marketing Association, Ohio Christmas Tree Association, and The Ohio State University. In addition to general sessions, the Congress sponsors sessions on small fruit, processing vegetable crops, tree fruit (apples, cider, stone fruit), greenhouse vegetable hydroponics, potatoes, direct marketing, Christmas trees, and truck crops.

General sessions kick-off on January 21 at 10 a.m. in the Radisson Hotel with a session titled "Safety Affects Your Bottom Line" presented by John Wargowsky, Executive Director, Mid American Ag and Hort Services. Wargowsky will review adult learning and tailgate training techniques as well as safety measures that lead to OSHA compliance. The sharing of successful safety training methods will help farm employers design successful on-farm safety programs and procedures. The session qualifies for Ohio Farm Bureau Workers' Compensation Program required safety training.

Sarah Fogleman, Extension Agricultural Economist, Kansas State University, is a keynote presenter with her first session titled "Keys to Workplace Communication." Fogleman is a leading expert on human resource management for production agriculture and will address implementing effective communication methods that create a more successful work environment. Her second presentation, "Creative Compensation," will review three basic principles all employers, large or small, should consider when establishing a compensation package to attract and keep a competent workforce:

- 1) Send the right message,
- 2) It's not about money, and
- 3) Use the right carrots.

Audience questions and discussion will allow participants to apply information to their individual businesses. Funding for the "Workplace Communication" and the "Creative Compensation" sessions was provided by the United States Department of Agriculture's Risk Management Agency through a partnership agreement with Mid American Ag and Hort Services.

Don Nugent of Graceland Fruit in Frankfort, Michigan, will discuss his value-added agriculture enterprise. Nugent has been a pioneer in food manufacturing and the tart cherry industry since 1973 and expanded Graceland Fruit into an international business that is now the largest processor of infused fruit in the world. Graceland also has increased research and development of other fruits and vegetables like blueberries, strawberries, apples, peaches, carrots, and more. He is an entertaining speaker who will discuss how and why he directed his farm toward a higher value-added business.

The Growers Congress is presenting more general sessions in the trade show to allow for more interaction among growers, marketers, and exhibitors. One session will be presented during the January 21 opening reception and is titled "Weather Prediction Technologies and Weather Forecasting." Christa Quinn, a weathercaster with WTVG-ABC 13, will describe weather forecasting technologies and how forecasts are developed. More in-trade show session titles are: "Produce Food Safety: What Have We Learned and Where Are We Going?"; "Weed Control in Pumpkins: Using Rye Mulch and Herbicides"; "Grower Recommendations for Fruit and Vegetable Research"; "The Need and Potential for Biorational Controls of Tomato Anthracnose"; "Engaging Producers in Conservation Planning: A New Environmental Self-Assessment Tool"; "NE-183 Apple Varieties: What Looks Promising?"; "Hot Water Treatment of Tomato Seeds for Bacterial Disease Management"; "Hot New Varieties for Retail Market Sales"; "Food Safety Demonstrations: See Why Produce Buyers Care About Food Safety"; "To Market, To Market: An Interactive Program for Economics Education"; "Creating Revenue From Your Surplus and Unmarketable Products."

These general sessions offer increased educational value and are great additions to the traditional direct marketing, fruit, vegetable, and Christmas tree sessions. Detailed conference information may be found by visiting the Ohio Fruit Growers Society and Ohio Vegetable and Potato Growers Association Web sites at <http://www.ohiofruit.org> or <http://www.ohiovegetables.org>, by calling 614-246-8292 or by e-mailing [growohio@ofbf.org](mailto:growohio@ofbf.org).

## Ohio Direct Marketing Conference Presents High Powered Workshop

The Ohio Direct Marketing Conference will feature Jane Eckert of Eckert AgriMarketing at the Toledo SeaGate Convention Centre and Radisson Hotel on Wednesday, January 21. The conference will be held in conjunction with the Ohio Fruit & Vegetable Growers Congress and the Ohio Christmas Tree Association Winter Meeting. The workshop is from 9 a.m. to 4 p.m. with a catered lunch. Cost is \$50.00 per person plus Growers Congress registration.

Eckert works with farmers who want to become better direct marketers to grow profits on their farms. Using innovative ideas, she helped transform her family's fruit farm into a sophisticated retail operation of diverse profit centers and a venue for special events that attracts more than 300,000 guests annually. She is passionate about saving the family farm and believes future success depends on the family's ability to profitably market the products they grow.

Today's family farmers have to know much more than how to achieve success in planting and cultivating crops. With the problems they face in commodity pricing and co-op sales, successful farmers realize they must sell what they produce directly to consumers. But most farmers have not been educated about marketing and the particular savvy it takes to sell farm products to sophisticated consumers. Whether they're selling at a farmers' market, a roadside stand, or a deluxe retail building on their property, all farmers have to develop marketing tools and strategies.

Eckert is an expert on farm marketing. As vice president of marketing for her family farm, she increased revenue by more than 300 percent through a special approach called The Eckert Farm Marketing Plan. In working with hundreds of farmers through her consulting business and speeches, she knows that too often they waste their very limited funds for advertising, which is rarely effective on a small budget. Instead, Eckert teaches marketing strategies that use creativity more than dollars for a high return in revenue. Her winning approach to promotions, customer communications, publicity, and sales techniques is designed to increase revenues, even with a minimum marketing budget. After attending her seminars, family farmers are empowered to make easy and immediate changes for positive financial results. Whether novice or advanced marketers, everyone will learn key strategies to help them grow, thrive, and survive for future generations.

Funding for the "Developing a Farm Marketing Plan" was provided by the United States Department of Agriculture's Risk Management Agency through a partnership agreement with Mid American Ag and Hort Services.

In addition to the one-day workshop, Growers Congress registration provides extra direct marketing education value on January 22 and 23 with featured speakers Charlie Touchette, North American Farmers' Direct Marketing Association, and Brent Warner, British Columbia Ministry of Agriculture. Their first session is titled "Agritourism Ventures that Increase Family Farm Profitability." Agritourism is a general term often used to describe non-traditional income streams on farms. In this presentation they will detail more than 40 different activities employed by conventional farmers that have diversified their farm businesses in ways that effectively increased profitability. Many of the ventures can be adapted from no-till pumpkin farms to dwarf tree apple orchards to organic grain farms to conventional cattle ranches.

Another session title is "Farmers' Markets: Tightening-up the Nuts and Bolts." This is about meeting up with consumers closer to their urban settings, a strategy to increase sales without committing to

increased capital investment or unknown liabilities on the farm. Farmers' markets are an ideal way to accomplish these goals. This presentation will provide farmers and groups who have an understanding of farmers' markets and Community Supported Agriculture (CSA's) an opportunity to expand on their development and efficiency.

Touchette and Warner wrap up their presentations with a session titled "Starting and Advancing Associations and Your Own Farms." Agritourism, farmers' markets and on-farm retailing are intensive ways to make a living. This session focuses on steps toward developing associations and keeping them running. Participants will learn how becoming board members and volunteering for association activities are among the best kept secrets to advancing your farm operations.

Complete workshop, direct marketing, fruit, vegetable, and Christmas tree session information may be found by visiting the Ohio Vegetable and Potato Growers Association and Ohio Fruit Growers Society web sites at <http://www.ohiovegetables.org> or <http://www.ohiofruit.org> by calling 614-246-8292 or by e-mailing [growohio@ofbf.org](mailto:growohio@ofbf.org).

## Plant Patents

(Excerpted from *General Information Concerning Patents* print brochure) *Source:* <http://www.uspto.gov/web/offices/pac/doc/general/plant.htm>

The law provides for the granting of a patent to anyone who has invented or discovered and asexually reproduced any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber-propagated plant or a plant found in an uncultivated state. Asexually propagated plants are those that are reproduced by means other than from seeds, such as by the rooting of cuttings, by layering, budding, grafting, inarching, etc. (See following article about grafting and inarching).

With reference to tuber-propagated plants, for which a plant patent cannot be obtained, the term "tuber" is used in its narrow horticultural sense as meaning a short, thickened portion of an underground branch. Such plants covered by the term "tuber-propagated" are the Irish potato and the Jerusalem artichoke.

An application for a plant patent consists of the same parts as other applications with the addition of a plant color coding sheet. The term of a plant patent shall be 20 years from the date on which the application for the patent was filed in the United States or, if the application contains a specific reference to an earlier filed application under 35 U.S.C. 120, 121 or 365(c), from the date of the earliest such application was filed.

The application papers for a plant patent and any responsive papers pursuant to the prosecution must be filed in duplicate, but only one need be signed (in the case of the application papers the original should be signed); the second copy may be a legible copy of the original. The reason for providing an original and duplicate file is that the duplicate file is sent to the Agricultural Research Service, Department of Agriculture for an advisory report on the plant variety.

The specification should include a complete detailed description of the plant and the characteristics thereof that distinguish the same over related known varieties, and its antecedents, expressed in botanical terms in the general form followed in standard botanical text books or publications dealing with the varieties of the kind of plant involved (evergreen tree, dahlia plant, rose plant, apple tree, etc.), rather than a mere broad non-botanical characterization such as commonly found in nursery or seed catalogs. The specification should also include the origin or parentage of the plant variety sought to be

patented and must particularly point out where and in what manner the variety of plant has been asexually reproduced. Where color is a distinctive feature of the plant, the color should be positively identified in the specification by reference to a designated color as given by a recognized color dictionary. Where the plant variety originated as a newly found seedling, the specification must fully describe the conditions (cultivation, environment, etc.) under which the seedling was found growing to establish that it was not found in an uncultivated state.

A plant patent is granted on the entire plant. It therefore follows that only one claim is necessary and only one is permitted. The oath or declaration required of the applicant in addition to the statements required for other applications must include the statement that the applicant has asexually reproduced the new plant variety. If the plant is a newly found plant, the oath or declaration must also state that the plant was found in a cultivated area.

Plant patent drawings are not mechanical drawings and should be artistically and competently executed. The drawing must disclose all the distinctive characteristics of the plant capable of visual representation. When color is a distinguishing characteristic of the new variety, the drawing must be in color.

Two duplicate copies of color drawings must be submitted. All color drawings should be so mounted as to provide a 1-inch margin at the top for office markings when the patent is printed. Specimens of the plant variety, its flower, or fruit should not be submitted unless specifically called for by the examiner.

The filing fee on each plant application and the issue fee can be found in the fee schedule. For a qualifying small entity filing and issue fees are reduced by half. All inquiries relating to plant patents and pending plant patent applications should be directed to the Patent and Trademark Office and not to the Department of Agriculture.

The Plant Variety Protection Act (Public Law 91577), approved December 24, 1970, provides for a system of protection for sexually reproduced varieties, for which protection was not previously provided, under the administration of a Plant Variety Protection Office within the Department of Agriculture.

Requests for information regarding the protection of sexually reproduced varieties should be addressed to Commissioner, Plant Variety Protection Office, Agricultural Marketing Service, National Agricultural Library Bldg., Room 0, 10301 Baltimore Blvd., Beltsville, MD 20705-2351.

## **Bridge-Grafting and Inarching Damaged Trees**

*Source: University of Connecticut IPM <http://www.hort.uconn.edu/ipm/homegrnd/htms/28graft.htm>*

Bridge-grafting and inarching is used to repair trees that have been girdled by mice, rabbits, other rodents or by mechanical injury. Bridge-grafting consists of connecting the cambium layers above and below the girdled area. This process restores the flow of carbohydrates from the leaves down to the roots, thereby allowing the tree to continue its normal life processes.

The connection or bridge is usually made with scions. However, uninjured suckers growing from the base of the tree may be inarched or young trees can be planted near the base of the tree and inarched. Trees normally grafted in this manner are apples, pears, walnuts, and cherries.

### **First Aid for Girdled Trees**

Partially or completely girdled trees should be protected to prevent drying out of the wood by covering the wound with grafting wax or a water-base asphalt emulsion or asphaltum material. The protection may also help prevent small pieces of remaining living bark from drying out which may then heal, thus helping the tree to survive. Do not use roofing tar, oil base paints, or other oil-based products, as they will only further injure the tree.

### **Collecting the Scions (Bridge Wood)**

Scions (the piece that will form the bridge) must be collected while the wood is dormant. The scions must be of the previous season's growth and should be about the thickness of a pencil. Store them in a sealed plastic bag in the refrigerator. The scions must be of the same or compatible species.

### **Materials Needed for Grafting**

The following material will be needed to complete a bridge graft:

- Previously collected scions.
- Grafting wax or water-base asphalt emulsion to protect the grafts from drying out.
- A sharp knife to shape the scions, trim the wound, and cut the bark.
- Small brads about one inch long to hold the scions in place.
- A short block of wood or dowel 3/4 of an inch in thickness to help form a bow.

### **Time to Graft**

Sometime after the buds begin to swell in the spring, the bark will peel back or slip easily. The tree is now ready to be grafted. Growth is going on at this time and the scions are less likely to dry out. Occasionally scions are inserted during the summer to replace some that failed.

### **Preparing the Wound for Grafting**

Trim loose and dried bark from the tree. Reshape the girdled area so as to leave a smooth edge. It does not have to be straight across the tree but can be gently curved to follow the shape of the wound.

Mark two parallel cuts in the tree bark about two inches long and the width of the scion. Remove about 1 1/2 inches of the bark leaving a small flap. Repeat the process on the opposite side of the girdled area.

### **Shaping the Scion**

Make a long, smooth, slanting cut 1 1/4 to 1 1/2 inches long on one end of the scion and then a short slanted cut on the opposite side. Repeat the procedure on the other end of the scion. The finished scion should be 1/4 to 1/2 inch longer than the height of the girdled area plus four inches. Do not allow the cut surfaces to dry out on the scion wood.

### **Placing the Scion**

Place the long cut of the scion against the wood, slipping the end under the flap. It is very important that

the scion be placed with the buds in an upright position. Inverted scions will not take. Fasten the scion in place using the brads. Nails are too thick and are apt to split the scion. Put one brad through the flap to secure it to the scion and the other through the scion.

The bridge is completed by repeating the process on the other side. Place the dowel or piece of wood near the midpoint of the scion, bend the scion over it and slip the scion into place.

The bow is necessary to prevent the grafts being pulled out when the tree sways. Remove the dowel after the scion is tacked in place.

Scions are placed about two inches apart over the wounded area. When all the scions in place, cover the grafts with grafting wax or a water-base asphalt emulsion dressing to prevent them from drying out. Check the scions during the growing season and rub out any buds that sprout.

### **Inarching**

It is necessary to resort to inarching when the roots as well as the trunk have been girdled. Undamaged suckers, seedlings, or rooted cuttings with a stem diameter between 1/4 to 1/2 inch can be used to form the bridge. Trim the wound and cover it with an asphalt emulsion tree paint.

Descriptive diagrams for all the above procedures are available at the web site listed under this article's title.

## **2002-2003 Strawberry Plasticulture Cultivar Evaluation**

*Source: Brad R. Bergesford, Thomas Harker, Dr. Shawn Wright, The Ohio State University South Centers* <http://southcenters.osu.edu/hort/data/2003/spcultivar0203.pdf>

Plasticulture strawberry production is a relatively new innovation for Ohio growers. One of the primary advantages of the system is a potentially earlier harvest, providing a competitive edge in the marketplace, relative to conventional matted-row production systems. Another potential advantage is reduced environmental impact arising from a simpler pest management system. In certain settings there is the potential for higher yields, relative to traditional matted-row production systems.

Challenges include higher per acre cost, acclimation of suitable varieties to Ohio, and general lack of experience with the system among producers, researchers, and Extension personnel.

This trial compared four strawberry cultivars ('Camerosa', 'Chandler', 'Sweet Charlie', and 'Gaviotta') for the plasticulture growing system.

### **Methods**

Strawberry tips, obtained from Strawberry Hill Inc., Bunn, NC, were planted in 50 cell trays containing Metro Mix 360 soilless media and placed in the greenhouse at Southern State Community College on August 19th. Tips were grown for four weeks with an average day temperature of 75° F and an average night temperature of 65° F.

Planting media was kept continually moist with a mist system to promote root development. The resulting plugs were transplanted to the field (OSU Enterprise Center, Hillsboro) using a three-point



hitch water wheel planter and were watered in with Peters 20-20-20 starter fertilizer. The soil is a Haubstadt Silt loam.

Field preparation included preplant application of 60 units each of nitrogen, phosphorus, and potassium; plowing; and disking. A raised bed was formed with a Redick Fumigation bed shaper and covered with black plastic mulch. Trickle irrigation tape was installed under the mulch.

Strawberry plants were planted on September 18, 2002 in double rows with 12 inches between rows. The 1.5oz. floating row cover was put in place on November 12th over all four cultivars. Plant growth was monitored throughout the winter. To control weed growth between rows, annual rye grass was seeded prior to berry planting. The rye grass was then killed off in the spring with an application of Poast EC (sethoxydim) at 2.5 pints/ac + 2 pints of a crop oil concentrate. A standard commercial fungicide program was followed to control disease.

Petiole nitrate levels were monitored and calcium nitrate injected through the trickle tape in the spring as necessary and through harvest to maintain optimum plant growth and berry production.

## Results

'Camerosa' was consistently the leader in terms of marketable fruit, based on weight and number, and average fruit weight. 'Chandler' performed similarly to 'Camerosa' and 'Sweet Charlie' fell between the two in ranking. 'Gaviotta' was the lowest yielding and had the lowest average fruit weight.

**Table 1. 2002-2003 Cultivar Evaluation Yield**

Cultivar	Marketable lbs. per plant	Marketable lbs. per acre	Marketable fruit per acre	Average fruit weight (oz.)
Camerosa	0.43 a	7419	175227	1.24 a
Chandler	0.24 ab	4217	118864	1.10 ab
Sweet Charlie	0.05 b	891	28409	0.99 abc
Gaviotta	0.04 b	671	27045	0.78 c
<b>LSD</b>	<b>0.23</b>	<b>4022</b>	<b>87222</b>	<b>.027</b>

## Discussion

The winter of 2002-2003 was significantly colder than the winter of 2001-2002. We are continuing this project to evaluate performance during what we hope to be a more typical winter weather season. Based solely on the results of this test, we would recommend 'Camerosa' and 'Chandler' over 'Gaviotta' for yield. This does not take into account consumer preference. 'Sweet Charlie' is preferred for fresh consumption by many of the evaluators over 'Chandler' or 'Camerosa'. Growing conditions during the spring were excellent, with mild temperatures and adequate rainfall. The authors wish to thank the Ohio Vegetable and Small Fruit Research and Development Program and the Ohio Fruit Growers Society for providing funding.

## 2003 Strawberry Plasticulture Winter Protection Study

Source: Brad R. Bergesford, Thomas Harker, Dr. Shawn Wright, The Ohio State University South



Centers, Piketon, Ohio Phone: (740) 289-3727

This trial compared four winter protection methods: straw, 0.9 oz. and 1.5 oz. floating row covers, and a no-cover control.

## Methods

'Chandler' strawberry tips, obtained from Strawberry Hill Inc., Bunn, NC, were planted in 50 cell trays containing Metro Mix 360 soilless media and placed in the greenhouse at Southern State Community College on August 9th. Tips were grown for four weeks with an average day temperature of 75° F and an average night temperature of 65° F.

Planting media was kept continually moist with a mist system to promote root development. The resulting plugs were transplanted to the field (OSU Enterprise Center, Hillsboro) using a three-point hitch water wheel planter and were watered in with Peters 20-20-20 starter fertilizer. The soil is a Haubstadt Silt loam.

Field preparation included preplant application of 60 units each of nitrogen, phosphorus, and potassium; plowing; and disking. A raised bed was formed with a Redick Fumigation bed shaper and covered with black plastic mulch. Trickle irrigation tape was installed under the mulch.

Strawberry plants were planted on September 13, 2002 in double rows with 12 inches between rows.

The floating row covers were put in place on November 12<sup>th</sup>; straw was put down on November 26<sup>th</sup>. Plant growth was monitored throughout the winter. To control weed growth between rows, annual rye grass was seeded prior to berry planting. The rye grass was then killed off in the spring with an application of Poast EC (sethoxydim) at 2.5 pints/ac + 2 pints of a crop oil concentrate. A standard commercial fungicide program was followed to control disease.

Petiole nitrate levels were monitored and calcium nitrate injected through the trickle tape in the spring as necessary and through harvest to maintain optimum plant growth and berry production.

## Results

There were no statistically significant differences among treatments for marketable pounds per plant, marketable pounds per acre, marketable fruit per acre, or average fruit weight either in the early harvest (Table 1) or total season (Table 2). Early yields ranged from 1764 - 3134 lbs per acre, and total season yields ranged from 7204 - 11235 lbs per acre. Average fruit weight for the season ranged from 1.29 oz. to 1.36 oz.

**Table 1. Early Season Harvest (May 21-May 30)**

Treatment	Marketable lbs. per plant	Marketable lbs. per acre	Marketable fruit per acre	Average fruit weight (oz.)
Control	0.17	3134	62955	1.54
Straw	0.1	1764	37955	1.43
0.9 oz. Cover	0.14	2502	57045	1.38
1.5 oz. Cover	0.15	2717	61364	1.32

LSD	NSD	NSD	NSD	NSD
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**Table 2. Total Season Harvest (May 21 - June 17)**

Treatment	Marketable lbs. per plant	Marketable lbs. per acre	Marketable fruit per acre	Average fruit weight (oz.)
Control	0.62	10806	246818	1.36
Straw	0.64	11235	267045	1.35
0.9 oz. Cover	0.341	7204	187045	1.22
1.5 oz. Cover	0.51	8890	207955	1.29
<b>LSD</b>	<b>NSD</b>	<b>NSD</b>	<b>NSD</b>	<b>NSD</b>

### Discussion

While the winter of 2002-2003 was significantly colder than the winter of 2002-2003, we did not see any yield advantage from covering the plants. This was probably due to the fact that there was significant snow cover throughout the season, insulating the plants and preventing winter injury, desiccation, and heaving.

Growing conditions during the spring were excellent, with mild temperatures and adequate rainfall. The authors wish to thank the Ohio Vegetable and Small Fruit Research and Development Program and the Ohio Fruit Growers Society for providing funding.

## Preliminary Monthly Climatological Data for Selected Ohio Locations, December, 2003

Weather Station Location	Monthly Precip	Normal Monthly Precip	Year-to-Date Precip	Normal Year-to-Date Precip	Avg High	Normal High	Avg Low	Normal Low	Mean Temp.	Normal Mean
Akron-Canton	2.91	2.98	51.11	38.47	37.0	37.7	25.3	23.6	31.2	30.6
Cincinnati	2.26	3.28	42.90	42.60	41.9	42.7	28.1	26.4	35.0	34.5
Cleveland	4.01	3.14	42.61	38.70	38.9	37.4	28.3	24.9	33.6	31.1
Columbus	2.78	2.93	48.95	38.50	39.8	41.0	27.7	25.9	33.8	33.5
Dayton	2.44	3.08	43.53	39.58	39.2	38.5	26.7	24.4	33.0	31.4
Mansfield	3.27	3.26	41.63	43.23	36.4	37.2	25.2	22.0	30.8	29.6
Norwalk	3.33	2.77	43.55	35.64	38.0	37.4	27.1	22.9	32.5	30.1
Toledo	3.25	2.64	37.28	33.21	38.0	36.0	25.6	22.3	31.8	29.1
Youngstown	2.64	2.96	46.01	38.02	37.8	37.3	25.5	23.4	31.6	30.3

Temperatures in degrees F, Precipitation in inches

*Table Created by Ted W. Gastier, OSU Extension from National Weather Service, OARDC and local data*

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