



# Newsletter

Extension

## Fruit ICM News

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## Calendar

**February 25-26: Ohio River Valley Farm Marketing Conference**, Holiday Inn Lakeview, Clarksville, IN. For more info, please call 800-816-0019 or e-mail [mdweber@sdg.us](mailto:mdweber@sdg.us). Conference information is also posted at <http://www.sirdp.us>.

**February 27: Ohio Fruit Growers Society Committee Meetings**, 10:00 am - Small Fruit and Tree Fruit, 1:00 pm - Program & Forward Phase, 3:00 pm Juice and Public Affairs; Best Western, Wooster, OH.

**February 27: Ohio Apple Operating Committee Meeting**: 1:00 pm, Best Western, Wooster, OH.

**March 6: Labor Issues & Human Relations Workshop**, Tom's Country Place, 3442 Stoney Ridge Rd., Avon, OH. Attracting, recruiting, hiring, and maintaining permanent, seasonal, and non-traditional employees has become a concern in the horticulture industry. Our workshop leader, Dr. Bernie Erven, Extension Specialist, Human Resource Management, will take us through ideas to orient new program and build a package to maintain and retain good employees. Registration is required. Call Charles Behnke at 440-326-5851 by February 28.

**March 6-7: Ohio Fruit and Vegetable Food Safety Workshop**, ODA Bromfield Building at Reynoldsburg. Contact John Wargowsky, 614-246-8286 or [labor@ofbf.org](mailto:labor@ofbf.org), or Mary Donnell, 419- 354-6916 or [donnell.8@osu.edu](mailto:donnell.8@osu.edu) or visit <http://www.midamservices.org> and click on 'projects.'

**March 12: Ohio Fruit Growers Society Board Meeting**, Johnny Appleseed Heritage Center, Mifflin, OH, 9:30 am. (For map to JAHC: <http://www.jahci.org>)

**March 28-29: Berry School**, video sites include OSU Learning Center, South, Piketon, OH; 244

Kottman Hall, OSU Columbus Campus; and OARDC Wooster, 1680 Madison Ave. Contact Sandy Kuhns at 1-800-297-2072 (Ohio only) or 740-289-4591 or e-mail [kuhn.37@osu.edu](mailto:kuhn.37@osu.edu)

**June 25: Ohio Fruit Growers Society Summer Tour**, Glen Hill Orchard, 17156 Glen Road, Mt Vernon, OH. More details to follow later.

## **Mid American Ag and Hort Services Establishes Positive Record on Behalf of Employers**

*Source: John Wargowsky, Executive Director, Mid American Ag and Hort Services, Inc.*

Members and leaders of Mid American Ag and Hort Services (MAAHS) recently met in Vandalia, Ohio at the organization's second annual meeting. MAAHS is a unique, non-profit, membership-based consortium of associations, organizations, and employers organized to meet the educational, regulatory compliance assistance, and labor recruiting needs of agricultural and other employers in Ohio and Indiana.

Jack Schmidt of Timbuk Farms, Granville, Ohio; Tom Sachs of the Ohio Vegetable and Potato Growers Association, Columbus, Ohio; Tom Roney of Tuttle Orchards, Greenfield, Indiana; and Lisa Humphreys of Studebaker Nurseries, New Carlisle, Ohio were elected to three-year terms on the board of trustees. Immediately following the annual meeting, the new board selected the officers for 2003-2004: President, Tom Demaline of Willoway Nurseries, Avon Lake, Ohio; Vice President, Michael Baise of Indiana Farm Bureau, Indianapolis, Indiana; Secretary, Tom Roney and Treasurer, Mike Pullins, of Ohio Farm Bureau, Columbus, Ohio.

Members reviewed the educational accomplishments for members, such as providing labor law compliance manuals, newsletters, the new web site <[www.midamservices.org](http://www.midamservices.org)>, thirty-three educational seminars that have been presented or are scheduled, personal consultations, and writing and distributing articles to the organization's Sponsor Members. Sponsor Members include Ohio Farm Bureau, Indiana Farm Bureau, Ohio Nursery & Landscape Association, OFA - an Association of Floriculture Professionals, Ohio Fruit Growers Society, Ohio Vegetable and Potato Growers Association, Ohio Landscapers Association, Nursery Growers of Lake County, Ohio, and Fruit Growers Marketing Association.

The organization's Executive Director, John Wargowsky, listed the regulatory compliance assistance provided to members over the past year that included labor housing, minor labor, posting, Ohio commercial bus inspection program, public water system licensing, transportation, I-9 employment verification, Social Security number mismatches, OSHA injury & illness recordkeeping requirements, Migrant and Seasonal Agricultural Worker Protection Act, immigration-related issues, securing legal workers, wage-hour issues and more. This compliance assistance is provided by building working relationships and effective communication with the state and federal agencies charged with enforcing the numerous regulations that affect employers.

Current Employer Members of this employer organization include producers of fruit, vegetables, nursery products, floriculture products, bedding plants, and Christmas trees, as well as landscapers, recyclers, and food processors. Wargowsky says that livestock, poultry, grain, and dairy farmers, in addition to other small business employers, are welcome to join the organization. Employers wanting more information are welcome to contact MAAHS at 614-246-8286, [labor@ofbf.org](mailto:labor@ofbf.org), or <http://www.midamservices.org>.

# Organic Strawberry Production Systems

*Source: Marvin Pritts, Cornell University, and Joe Kovach, Ohio State University via February 2003 Massachusetts Berry Notes; Original Source: The New York Berry News, Vol. 02, No. 01, January 22, 2003*

Demand for organically grown produce has been increasing significantly over the past decade, as the public often perceives organic produce to be healthier than conventional fruits and vegetables. Although no data exist to support this belief, a portion of consumers is willing to pay extra for organics. Tomatoes, sweet corn, lettuce, onions, carrots, melons, and strawberries are already produced by organic growers in significant quantities.

Can strawberries be grown organically for a profit? Organic strawberry systems have five characteristics in common, regardless of the location in which they are grown:

1. Several years between successive crops
2. Short production cycle (1-2 fruiting years)
3. High labor requirements
4. Lower yields
5. Greater variability in yields.

All of these characteristics result in a greater expense for the organic grower than the conventional grower, but if the price of berries is higher, then production can be profitable.

For example, organic and conventional annual strawberry production systems were examined in California over a three year period (Table 1). Both systems cost a similar amount to establish (\$22,000/acre/year), and the organic system yielded less (27,100 vs. 40,200 lb/A), but the organic system averaged a higher return because the price received for fruit was 50% higher (Calif. Ag. 50:24-31).

In an attempt to determine the costs of production and breakeven price for organic, matted row strawberries, a comprehensive spreadsheet developed by Alison DeMarree (Cornell Cooperative Extension) and Regina Rieckenberg (Valent USA) was used to calculate production costs and profit for matted row strawberries, and the assumptions were changed to conform to organic production.

For example, any costs for synthetic inputs such as fertilizers and pesticides were eliminated, but yields were reduced by 30-70% as well, with the greatest decrease in later years; i.e. in fruiting years 1-4, conventional yields were set at 7,000; 7,000; 4,000; and 3,000 qts/A, whereas organic yields were set at 5,000; 4,000; 2,000; and 1,000 qts/A. Spreadsheet developers assigned 104 hours of labor to weed the organic fields, but only 52 hours per year to weed the conventional fields. All fruit was hand harvested for sale. Conventional prices were set at \$1.75/qt. Organic prices were set at \$2.00, although significantly higher prices can be obtained at urban markets (up to \$3.50/qt.).

The breakeven price for the conventional system was \$1.10/qt., whereas the breakeven price for the organic strawberries was 34% higher at \$1.47/qt. By the 4th bearing year, however, organic strawberries were losing money. This supports the practice of many organic growers of fruiting their fields for only 2 years. If fields are rotated out of strawberries after 2 fruiting years, then a positive cash balance is obtained.

The enterprise budget for organic strawberries does not include the costs of a fallow period between

cropping cycles, which is a real expense for organic growers. On the other hand, the fixed costs of both systems were set at equivalent values, even though an organic grower is likely to have less equipment (e.g. herbicide sprayer). Regardless of the details of the budget, one can conclude generally that organic strawberry production can be as profitable as conventional production if the price differential for fruit approaches 35 to 40%. This is consistent with the price differential required in the annual production system as well. The size of the market for \$2.40/qt. berries is limited in many regions of North America, but not all. Therefore, a profit opportunity does exist for organic strawberries in certain marketing niches.

## **Organic Production Systems of the Future**

New techniques of nutrient and pest management are under development that could be used by organic strawberry growers to enhance their production and improve soil quality.

### **Use of specialized rotational cover crops:**

Planting berries through strips in a rye residue can enhance weed control in lighter soils. Recent work with marigolds, sudangrass, brassicas, and certain native prairie species (e.g. *Rudbeckia*) have found them to be suppressive to nematodes, pathogens, and weeds. Certain of these may be particularly suited for rotations with strawberries, but might be too expensive for lower-value crops.

### **Use of interplanted cover crops:**

Interseeding oats and sudangrass between rows after harvest can supplement weed control, help improve soil structure, and improve winter mulching practices.

### **Use of entomopathogenic nematodes and fungi to manage insect pests:**

Special strains of nematodes are being developed that will attack grubs and weevil larvae in strawberry fields. Similarly, pathogens of insect pests are being developed and tested in strawberry fields. Once robust delivery methods are identified, then the use of these organisms will become routine.

### **Use of parasites/parasites to manage insect pests:**

Parasites of tarnished plant bug and sap beetle have already been tested in strawberry fields. The use of predatory mites is routine in some areas of Florida and California where the climate is mild. Development of hardy, adapted predators is a next step in achieving acceptable control. The techniques of molecular biology are being used to improve the adaptation of predatory mites in Florida.

### **A better understanding of thresholds:**

Strawberries appear to be able to tolerate more weed pressure in late August and September than earlier in the season. Also, recent work has suggested that strawberry plants can compensate for clipper injury by increasing the size of remaining fruit, indicating that for most growers in most years, strawberry clippers are not economically important pests. Improved scouting techniques, such as the use of white pan samples rather than sticky cards, have enabled growers to identify more precisely when tarnished plant bug damage actually occurs. This knowledge allows organic growers to make better management decisions.

### **Improvements in varieties:**

Many of the new strawberry varieties are resistant to several races of red stele and verticillium wilt, show tolerance to nematode feeding, and resist gray mold infection. Some show tolerance to feeding by tarnished plant bugs, and certain selections appear to be tolerant to black root rot. Most of these newer varieties have improved postharvest qualities, yet have maintained a high degree of flavor.

**Use of analytical techniques to monitor nutrition:**

Soil and leaf testing services are available and are being refined to enable organic growers to determine if nutrient levels are adequate, and to monitor long-term trends in soil fertility.

**Apple Coloring Book Available**

*Source: Jennifer Hungerford, Program Assistant, Ohio Fruit & Vegetable Growers*

Once again, The Ohio Apple Marketing Program (OAMP) is ordering the special version of the popular 32-page coloring book with the message *Ohio Apples - Favored for Flavor*, which lists the Ohio Apple web address <http://www.ohioapples.org> on the back cover. Orders must be prepaid by Friday, March 21, 2003 and mailed to the OAMP. All Ohio apple growers subject to the OAMP assessment will receive an order form in the mail. If you would like to obtain the order form over the Internet you may go to <http://www.ohioapples.org> and select 'What's New' from the left navigation. To receive the order form by fax or mail you may call the OAMP office at 614-246-8292.

If you would like to view this Internet link as a reference you may click on the link below:  
[http://www.ohioapples.org/oamp/oampwebengine.nsf/\\$LookupPageID/CARE-4ZDHCF/?OpenDocument](http://www.ohioapples.org/oamp/oampwebengine.nsf/$LookupPageID/CARE-4ZDHCF/?OpenDocument)

**Table 1. Characteristics of two production systems in California after three years.**

<b>Organic</b>	<b>Conventional</b>
More insect pests	Fewer insect pests
More insect predators	Fewer insect predators
More harmless nematodes	Fewer harmless nematodes
Decreasing soil organic matter	Decreasing soil organic matter
Smaller plants	Larger plants
Lower yields	Higher yields

**What Does This Cold Weather Mean for Fruit Growers?**

*Source: John Stang, University of Kentucky Extension Horticulturalist, Kentucky Fruit Facts, February 2003*

Growers, experiencing below normal temperatures this winter, are asking about possible fruit damage. On the plus side, the weather has stayed relatively cold since fruit crop chilling requirements were

satisfied. Thus, the fruit crops were at their hardiest levels for the winter. However, in some areas temperatures dropped below the critical temperatures for flower and wood survival on several crops as shown in the following table.

If the temperatures have or will reach -9 to -10 degrees F, expect to have lost the floricanes, or the canes that should produce fruit in the coming year on thornless blackberries. It is very difficult to look at these canes and determine that they are injured prior to bud break. Injured canes will have a drier pith, and in some cases the epidermis will wrinkle as the canes dry out. These can be cut out during pruning and the 2003 crop will be lost. Go a little easy on applying fertilizer to injured plants, as they will not be producing fruit and a little extra fertilizer will produce substantial growth in the coming season.

If the temperature reached or will reach -8 degrees F or lower, there could be damage to the trunk and canes of European or *vinifera* grapes. Beneath the bark, injured trunks and canes will have a tan to brownish color. Hopefully the graft union on these vines were covered to avoid injury. Assess bud survival before pruning so that increased bud numbers can be left to compensate for bud losses. Watch for crown gall development.

In the colder areas, peach flower buds may have been lost, particularly on less hardy varieties. Wait until late in the season to prune trees that have lost substantial numbers of flower buds and prune these lightly.

### Fruit Mid-Winter Hardiness Levels

Crop	Critical Temperatures for Injury (degrees F)
Apple	-30 to -35
Pear	-15
Plum, American Japanese & European	-20 to -30 -15 flowers
Cherry, Tart Sweet	-20 to -30 flowers -30 wood, -15 flowers
Peach	-15 flowers, -20 wood
Grape, Concord European	-20 -8 to -14
Raspberry, Red Black Purple	-25 -20 -15
Blackberry, Thorny Thornless	-10 to -15 or -20 -5 to -10
Blueberry	-20 to -25

## Pruning Considerations for Grapes in 2003

Source: Dave Ferree and Dave Scurlock, OARDC Horticulturalists, *Vineyard Vantage*, January 2003

Periderm development looks good on most cultivars, due to the improved moisture in late summer and fall. Those of you that had frost damage (last spring) which caused a significant reduction in crop likely have more vigorous growth than usual. As you approach the pruning season, we would offer the following reminders:

### Begin pruning on the most hardy cultivars

- American first, followed by hybrids and lastly vinifera.
- Within each group start with the hardiest.
- Normally it is best to prune older vines first and young, non-fruiting vines last.
- Spring pruning does not harm vines, even when sap bleeding occurs.

### Select the best exposed, most fruitful wood to leave as your bearing wood

- With excessive vigor resulting from frost, select modest-sized canes, avoiding the large "bull" canes.
- The best wood will have a rich, red-brown color rather than the grey-white color of wood that matured late or was in shaded areas. Diameter should be pencil-sized, and internodes 4 to 6 inches long.
- The retained canes should be distributed across the vine and as close to the main arm or cordon as possible. Remember to leave renewal spurs intermixed to produce next year's fruiting wood.

**Balanced Pruning - the vine's capacity for vegetative growth and fruit production is a function of vine size.** Thus, to create this balance, more buds should be left on a vigorous vine than on a weak vine.

- Normally leave 4 to 6 nodes per linear foot of row (32 to 48 nodes for vines spaced 8-feet).
- Cluster size - use lower number for large clustered cultivars and higher number for small clustered cultivars.
- Formulas have been developed to adjust node number optimally by weighing prunings from representative vines. The first number represents the number of nodes to leave for the first pound of prunings, and the second number is the number of nodes to leave for each additional pound of cane prunings. Following are several representative examples:

Cabernet franc	20 + 20
Riesling	20 + 20
Seyval	5 + 10
Vidal	15 + 10
Concord	30 + 10

Pruning is probably the single most important cultural practice, as it has both short-term and long-term effects on the quantity and quality of the crop and on vine growth.

## Balancing Yield With Quality In Grape Production

*Source: Dave Ferree, Todd Steiner, OARDC Hort.*

Ohio State University researchers are looking for ways to balance yields with a quality product in

vineyard production in the hopes of countering the impacts overcropping can have on some grape varieties.

Todd Steiner, an Ohio Agricultural Research and Development Center enology outreach specialist, and Dave Ferree, an OARDC fruit specialist, chose Chambourcin for the three-year study. The French-American red wine hybrid, gaining popularity in Ohio because of its exceptional wine quality and taste, is notorious for producing too many fruit clusters, thus destroying the quality it's so famous for.

"The trick to the study was to see at what crop load levels we could produce the grape variety while still maintaining its quality and still produce enough yield to be economical for the growers' market," said Ferree. "In the study we found that as we increased the crop load size, the cluster size and berry size also increased."

The researchers grew grapes with 10, 20, and 30 clusters per vine and found that expert panelists chose the wine from the 10- and 20- cluster groups as having the highest quality in aroma, red color and taste. "We hope to identify at what crop level we should be shooting for the best vine survival and the best quality product," said Steiner. He added that each grape variety reacts differently to crop loads. Grapes for red wines, for example, are more sensitive to crop loads than grapes for white wines. And grape varieties, like Concord and Catawba, grown for juice production are able to produce higher crop loads and are also much hardier during winter.

"With red wines, like Chambourcin, there is less color intensity with higher crop levels, because the fruit is competing with each other on the vine," said Steiner. "This impacts the phenolics in the product. Anthocyanins are lower, sugar levels are lower, and carbohydrates are lower, and that results in a lower quality of wine."

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