



Newsletter

Extension

Fruit ICM News

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Calendar

February 15-17: Ohio Grape Wine Short Course Area vintners are invited to The Lodge at Sawmill Creek Resort in Huron, Ohio for the Ohio Grape Wine Short Course, offered February 15-17, 2004. There is also a special marketing session for new and potential wineries on Saturday, February 14. The program features six speakers, including Elizabeth Slater, marketing consultant to the California wine industry. The topics to be covered include ice wine production and technical subjects, such as managing the Asian Lady Beetle. Registration cost is \$175 for the first attendee and \$160 for each additional registrant. The event is sponsored by The Ohio Grape Industries Committee, The Ohio Wine Producers Association, and The Ohio State University. For a brochure or more information, call Terry Beck at Ohio State University Extension, Wayne County (330-264-8722), or visit the OWPA web site at: <http://www.ohiowines.org>.

February 17-18: 2nd Ohio River Valley Farm Marketing Conference, Holiday Inn Airport in Erlanger, KY. For more information, contact Travis West at 740-289-2071 or e-mail west.222@osu.edu. Conference information is also posted at <http://ocdc.osu.edu/>.

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, 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, or <http://www.ohioapples.org>.

March 4-5, 2004: Growing Your Business Through Fruit and Vegetable Food Safety Workshop (see article below).

Fruit & Vegetable Food Safety Workshop

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

The Ohio Specialty Crop Food Safety Initiative is sponsoring its third Food Safety Workshop on March 4th and 5th, 2004 in Waldo, Ohio at All Occasions Catering. Mary Donnell, Extension Agent, Ohio State University Extension Agricultural Business Enhancement Center and workshop coordinator, says the first day addresses basic good agricultural practices that improve the safety and marketability of fruit and vegetable production. The second day will address advanced good agricultural practices that lead producers from awareness to action.

The featured presenter is Dr. Trevor Suslow, Extension Research Specialist, Postharvest Quality and Safety, University of California Department of Vegetable Crops. Suslow has extensive experience in postharvest quality and food safety issues that will bring a fresh perspective to Midwest producers. Additional presenters include Mary Donnell; John Wargowsky, Executive Director, Mid American Ag and Hort Services; and Dr. Shari Plimpton, Program Manager, Industry Outreach, Center for Innovative Food Technology.

The workshop fee of \$30/day includes a continental breakfast, lunch, workshop materials and certificate of attendance. Those attending both days may register for \$55. Attendance at one or both days is welcome. The workshop registration deadline is February 25. Complete workshop information is available by contacting Jennifer Hungerford at 614-246-8289 or maahs@ofbf.org or visiting <http://www.midamservices.org> and clicking on "projects."

This Initiative is cooperatively managed by the Ohio State University Extension Agricultural Business Enhancement Center, Mid American Ag and Hort Services, and the Center for Innovative Food Technology and is financed in part through a partnership agreement with the United States Department of Agriculture's Risk Management Agency.

Small Fruit Congress Presentations on the Web

Source: Sandy Kuhn, Program Specialist/Berry, OSU South Centers

The Small Fruit Track Presentations from the 2004 Ohio Fruit and Vegetable Congress held in January in Toledo are now available on line. Here is the link for them:

<http://southcenters.osu.edu/hort/berry/congress03.htm>. Learn more about:

- Berry Marketing in Ohio
- The Matted Row System for Strawberries
- Health Aspects of Fruits & Vegetables
- The Ohio Wine Industry as An Alternative Buyer
- Table Grape Production
- Plasticulture Strawberry Production in Ohio
- A Year in the Life of a Blueberry Plant
- Growing Highbush Blueberry on Upland Soil
- Using Industrial By-Products as Substrates
- Blueberries - What's New and Tried and True
- Weed Control Options in Berries
- Wine Grape Growing in Ohio

- Transitional Organic Strawberry Production: Results After Two Fruiting Years
- Small Fruit Disease Management Update 2004
- Feasibility of Controlling the Raspberry Crown Borer with Parasitic Nematodes
- Strawberry Advanced Matted Row: Is it "Sustainable"?

Summary of Tree Fruit Insecticide and Acaricide Groups Based on Target Site of Action

Sources: 2004 Ohio Commercial Tree Fruit Spray Guide and US EPA. Thanks to Dick Wander for the inquiry.

Group	Trade Names
1A	Carzol, Lannate, Sevin, Vydate
1B	Diazinon, Dimethoate, Guthion, Imidan, Lorsban, Malathion, Metasystox-R, Supracide
2A	Marlate, Thiodan
3	Ambush, Asana, Capture, Danitol, Pounce, Warrior
4A	Actara, Assail, Calypso, Provado
5	Entrust, SpinTor
6	Agri-Mek
7C	Esteem
8 - 9	none listed for Ohio tree fruit
10A	Apollo, Savey
11	Dipel,
12 - 17	none listed for Ohio tree fruit
18	Confirm, Intrepid
19	Mitac
20	Kelthane
21	Pyramite
22	Avant
23 - 24	none listed for Ohio tree fruit
25	Acramite
26	Neemix

Tree Fruit Fungicide/Bactericide Groups Based on Activity Group/Target Site of Action¹

Sources: Ohio 2004 Commercial Tree Fruit Spray Guide and http://www.epa.gov/opppmsd1/PR_Notices/pr2001-5.pdf

Group	Activity Group/Target Site of Action	Chemical Group	Active Ingredient	Labeled Crops
1	Inhibition of tubulun formation	benzimidazoles	benomyl	Ap, Pr, Pe, Ch, PI*
			thiophanate-methyl	Ap, Pr, Pe, Ch, PI
2	Affect cell division, DNA & RNA synthesis, & metabolism	dicarboximides	iprodione	Peach, Cherry, Plum
3	DMI (demethylation inhibitor): inhibition of sterol synthesis	imidazoles	triflumizole	Apple, Pear, Cherry
		pyrimidines	fenarimol	Ap, Pr, Ch
		triazoles (includes cocazoles)	fenbuconazole	Peach, Cherry
			myclobutanil	Ap, Pe, Ch
			propiconazole	Pe, Ch, PI
			tebuconazole	Peach, Cherry
triadimefon	Apple, Pear			
4	phenylamides-affect RNA synthesis	acylamines	metalaxyl	Ap, Pe, Pr, PI
5	morpholines - none listed for Ohio tree fruit			
6	phosphorothiolate - none listed for Ohio tree fruit			
7	oxathiin - affect mitochondrial transport chain	not available	boscalid (along with pyraclostrobin)	Peach, Cherry, Plum
8	hydroxyprimidine none listed for Ohio tree fruit			
9	anilinopyrimidine	anilinopyrimidine	cyprodinil	Ap, Pr, Pe, Ch, PI
10	N-phenyl-carbamates - none listed for Ohio tree fruit			
11	quinone outside inhibitors (QOI)	strobilurins: methoxyacrylate	trifloxystrobin	Apple, Pear
		not available	pyraclostrobin (+boscalid)	Pe, Ch, PI (see #7)
		oximinioacetate	kresoxim-methyl	Apple, Pear
12	phenylpyrroles - none listed for Ohio tree fruit			
13	quinolines - none listed for Ohio tree fruit			
14	aromatic hydrocarbons - none listed for Ohio tree fruit			
15	cinnamic acids - none listed for Ohio tree fruit			
16	melanin biosynthesis inhibitors (MBI) - none listed for Ohio tree fruit			

17	hydroxyanilide - none listed for Ohio tree fruit				
18	Antibiotics	oxytetracycline		Pear, Peach	
		streptomycin		Apple, Pear	
19	polyoxins - none listed for Ohio tree fruit				
20	phenylurea - none listed for Ohio tree fruit				
21	plant host defense inducers	benzothiadiazole (BTH)	fosetyl-aluminum	Apple, Pear	
U ²	unknown miscellaneous - none listed for Ohio tree fruit				
M ³	multi-site activity	phosphonates	fosetyl-aluminum	Apple, Pear	
			phosphorous acid	Ap, Pr, Pe, Ch, Pl	
		inorganics	copper, sulfur		Ap, Pr, Pe, Ch, Pl
			dithiocarbamates & relatives	ferbam	Apple, Pear, Pe, Ch
		mancozeb		Apple, Pear	
		metiram		Apple	
		thiram		Apple, Peach	
		ziram		Ap, Pr, Pe, Ch	
		chloroalkythiosd	captan	Ap, Pe, Ch, Pl	
		chloronitrile	chorothalonil	Pe, Ch, Pl	
guanidines	dodine	Ap, Pe, Ch			

Ap, Pr, Pe, Ch, Pl* = apple, pear, peach, cherry, plum

1. This list is based on the fungicide listing compiled by the Fungicide Resistance Action Committee (FRAC). FRAC is a specialist technical working group of the Global Crop Protection Federation (GCPF) (See <http://www.gepf.org>.) Microbial fungicides, e.g. *Bacillus subtilis*, or *Agrobacterium radiobacter* K84 and K1026, are not included.
2. The unknown group, designated by symbol "U," comprises a set of miscellaneous compounds for which that biochemical mode of action may or may not be known, but are not able to be placed with certainty in any other grouping.
3. The multi-site activity grouping, designated by symbol "M," comprises a collection of various chemicals that act as general toxophores with several sites of action. These sites may differ between group members.

Summary of Tree Fruit Fungicide/Bactericide Groups by Trade Names

Sources: Ohio 2004 Commercial Tree Fruit Spray Guide and http://www.epa.gov/opppmsd1/PR_Notices/pr2001-5.pdf

Group	Trade Names*

1	Benlate, Topsin-M
2	Rovral
3	Bayleton, Elite, Indar, Nova, Orbit, Procure, Rubigan
4	Ridomil
7 & 11	Pristine
9	Vangard
11	Flint, Sovran
18	Agri-strep, Mycoshield
M	Agri-Fos, Bravo, Captan, Carbamate, Dithane M-45, Manzate 200, Penncozeb, Polyram, Sulfur, Syllit, Cyprex, Thiram, Ziram

* as included on page 34 of the *2004 Ohio Commercial Tree Fruit Guide* along with following note:

Note on Fungicide Resistance Management

For fungicide resistance management, avoid successive applications of fungicides within the same group or with the same types of chemistry.

Strobilurin fungicides include: azoxystrobin (Abound), trifloxystrobin (Flint), and pyraclostrobin (Pristine), and kresoxim-methyl (Sovran).

Sterol-inhibiting fungicides include: tridimefon (Bayleton), tebuconazole (Elite), fenbuconazole (Indar), propiconazole (Orbit), and fenarimol (Rubigan).

Benzimidazole fungicides include: benomyl (Benlate) & thiophanate - methyl (Topsin-M).

The following fungicides are also at risk for resistance development: metalaxyl (Ridomil), mefenoxam (Ridomil Gold), iprodione (Rovral), and cyprodinil (Vangard).

The following fungicides are broad spectrum protectants and are not considered at risk for fungicide resistance: chlorothalonil (Bravo), captan (Captan), ferbam (Carbamate), mancozeb (Dithane, Manzate, Penncozeb), metiram (Polyram), sulfur, thiram (Thiram), and ziram (Ziram).

The Elements of Produce Food Safety Programs

By Shari L. Plimpton, Ph.D., Food Safety Educator, Ohio Specialty Crop Food Safety Initiative. Article provided by John Wargowsky

Ah, yes. All of this talk about produce food safety programs. How valuable they are. How you can operate more safely and minimize your risks. How the consumer and the market benefits from increased safety awareness. How you can sell to more buyers by demonstrating that you have an active food safety program. So just what is a food safety program?

Developing a food safety program requires a basic understanding of Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs). Attempting to develop a program without some form of training is like trying to write a legal contract without any legal training or experience. You may know what you want and how your operation runs, but it might not hold up to inspection if you don't know what it's to do and what it's to cross.

A food safety program consists of several key elements:

- A listing of GAPs and GHPs from the field to the packing house to the buyer
- A systematic listing of GAPs/GHPs with their respective control procedures, control limits, corrective action, responsible party and method of documentation
- Standard Operating Procedures (SOPs) based on the GAPs and GHPs that have been identified
- Standard Sanitation Operating Procedures (SSOPs) as needed for packing house operations
- Documentation procedures to show you are doing what you say you are doing, and to provide the information needed for a traceback/recall program
- A Traceback/Recall system

Every food safety program begins with the basics, such as your company name, address, phone numbers, email addresses, owner(s) names, legal description, and maps. One particularly critical piece of basic information is the name of the individual who oversees the food safety program. A food safety program on paper is meaningless without some one individual who is responsible for making sure it all happens. Maps and floor plans are considered an essential part of the basics as well. A map of the overall operation including buildings, field, wells and water location, as well as packing house floor plans indicating product flow, are central to laying out your unique operation's GAPs and control points from field to market.

Next, identify and list the key GAPs and GHPs using the flow chart(s) of your operation, which layout each operation. Begin with the land itself (land use history, adjacent property use), and then review water usage (irrigation, spraying, and equipment cleaning), sewage (treatment systems on or adjacent to the farm), animals (livestock and wildlife control), fertilizers (manure and municipal biosolids), and pest control (including pesticide use). Use a numbering system for each GAP you identify so you can list them numerically. Once you've covered the land and field practices, proceed with the harvesting activities this time looking at worker sanitation and hygiene, as well as, container and equipment use and sanitation.

GAP development continues for the packing house scrutinizing water usage, chemical use and storage, worker sanitation and hygiene, equipment condition and sanitation, facility condition, pest control, and general housekeeping. GHPs should be developed for storage and transportation, focusing on storage facilities and temperature control, containers and pallets, pest control, water sanitation (if ice is used), cleanliness, and temperature control during transport.

Once you have the GAPs and GHPs and their accompanying measures and corrective actions, you can use them to develop the SOPs that describe how you maintain each GAP/GHP. An SOP simply describes how things should be done in sufficient detail for the task, whether it is describing good worker hygiene practices or how to calibrate a thermometer. Usually one page will do and the identity of

the approving supervisor and date approved should be included.

SSOPs are just like SOPs only they describe specific sanitation procedures usually associated with the packing house. Typical SSOPs include cleaning procedures for equipment (including frequency), how to manage the pest control program, and training requirements for employees.

Now that your procedures are identified and written down, you will need documentation forms to help you document everything you say you are doing. Document cleaning, testing for chlorine, water testing where needed, training, production, storage temperatures, and shipping to name a few. As far as any outside party is concerned, if it isn't documented you haven't done it.

Finally, maintain harvest, production, storage, and transportation records so you may traceback any produce that has left your operation. The beginnings of a traceback/recall program can take form with simple date codes applied to containers and written on existing records. The important issues are being able to identify your produce, know when it was packed, and know when it was harvested. Strong identification records not only are essential for food safety; they also are useful management tools.

So there they are, the elements of a food safety program. If they seem daunting, fear not. The Ohio Specialty Crop Risk Management Initiative is here to assist Ohio growers develop their food safety programs. The Initiative is a cooperative effort managed in partnership by Mid American Ag and Hort Services, The Ohio State University Extension Service ABE Center, and CIFT/EISC, Inc., the Center for Innovative Food Technology. The Initiative is financed in part through a partnership agreement with the United States Department of Agriculture's Risk Management Agency. For more information on the Initiative, contact John Wargowsky, 614-246-8286 or labor@ofbf.org, or visit <http://www.midamservices.org> and click on "projects."

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Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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