

FACTS FOR

Fancy Fruit



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Crop Conditions

The sub-zero temperatures that occurred across central and northern Indiana in mid January caused significant damage to peaches, blackberries and grapes. Apples, raspberries and blueberries appear to be fine, as do matted row strawberries under straw mulch.

Luckily temperatures had been pretty cold for a while before this, so plants were cold acclimated by the time these minimum temperatures hit. Generally, minimum temperatures were around -10F in southern areas of the state and -15 to -20F in more northern areas. For peaches, the rule of thumb is that at -10F we start to get bud damage, and about 10% of buds are killed for each degree below this, so by the time it hits -20F, pretty much all the buds are dead. This rule is quite general and doesn't take into account previous year's crop load, the duration of cold or the temperatures prior to the cold snap – all of these can affect how buds respond to cold temperatures. The good news (if there is any) is that some bud loss is not necessarily a bad thing. The loss of a few buds during winter can be thought of as early thinning, and if even 20% of the buds remain alive, this is more than enough to produce a full crop. Bear in mind that we're not out of the woods yet – we still have to run the gauntlet of spring frosts, so stay tuned, and keep your fingers crossed.

Indiana Horticultural Congress

Thanks to those who made the recent Hort Congress such a great success. The Trade Show was the largest we've ever had with exhibits spilling out of the Hall of Champions down the hallways. Total registration was just over 500. Be sure to pencil in the date for next year's Hort Congress now, Tuesday – Thursday, January 19-21, 2010. Bookmark the Hort Congress webpage and look for details in the fall <http://www.inhortcongress.org> (Hirst)

If you're interested in looking at weather data a little closer to your site, the Indiana State Climate Office has a new interface to their webpage. It lists 20 different climate variables, by the half hour, hour or day. Go to:

<http://www.iclimate.org> and select "data request - automated" from the menu on the left. About a third of the way down the next page, select "click here" and follow the instructions. (Hirst)

Cider contest winners

The award for the best cider in Indiana this year was won by Brad Black of Apple Hill Orchard in Bruceville, IN. Also earning very high points for their ciders were Beasley's Orchard in Danville, IN and Butera Family Orchard right here in Tippecanoe County. This was our 12th year of holding the cider contest and with each passing year, the competition gets hotter. Congratulations to all three cider makers. (Hirst)

Winter temperatures

This winter has seen some very cold temperatures – cold enough to cause damage around the state. The coldest temperatures hit most of us on January 16-17.

Effect of this year's winter cold on grapes

As most growers are aware, the cold events of mid January caused considerable grape bud mortality, especially in the central and northern part of the state. Our preliminary estimates from Lafayette show up to 90% primary bud mortality on cold tender hybrids such as Vidal and Chambourcin. Winter injury in grapes can have a significant impact on fruit yield this year if growers do not adjust their pruning strategy. Growers should assess bud mortality prior to pruning so that adjustments in pruning severity can be made based on the amount of bud loss.

There are very thorough discussions of winter injury to grapes in publications and web sites. For the sake of brevity here, we suggest readers refer to: Winter Injury to Grapevines and Methods of Protection, Michigan State University Bulletin E2930, Zabada T. et al. 2007 available through MSU Extension (see www.grapes.msu.edu). A good on-line resource is the Cornell Grape Pages (see www.nysaes.cornell.edu/hort/faculty/pool/GrapePagesIndex.html). Finally, the Midwest Grape Production Guide (see www.hort.purdue.edu/fruitveg/) has a discussion of assessing and adjusting for winter injury.

Determining bud mortality

The first step is to determine the amount of bud mortality. A sample of buds must be collected in the vineyard. It is important to thoroughly sample the vineyard to represent all of the variability that is present. Collect a sample of 100 buds. Ten 10-bud canes are

usually sufficient. Samples should be collected after the end of the cold period has occurred, brought indoors, and allowed to warm for 24 to 48 hours to make the damaged buds easier to differentiate from live buds. Samples should be representative of the type of wood that will be left at pruning in terms of the node position on the canes.

Bud mortality is relatively easy to detect. Using a sharp single edged razor blade, make a series of cross-sectional cuts across the dormant buds, getting deeper with each cut until the primary bud is exposed. Cutting too shallow reveals only the brown bud scales, and cutting too deeply misses the center of the bud and reveals the basal tissue, which may appear alive even if the bud is not. Live buds appear bright green while dead buds appear brown or black. Sequentially deeper cuts will reveal the secondary and tertiary buds. Secondary buds are often a bit more hardy than primary buds, and often are alive when the primary is dead. Many grape varieties are quite fruitful on secondary buds, so even nodes that have dead primary buds may produce a crop on the secondary shoots. After a bit of practice, it is easy to quickly assess damage to primary and secondary buds. Record the results on a data sheet.

Adjusting pruning strategy

There are methods for calculating exactly how many buds to retain based on bud mortality, but this approach is, at best, a rough estimate of the potential crop from those buds. Nevertheless, it does give some guidelines to follow. This approach does not take into

consideration the potential fruitfulness of secondary buds.

-If less than 15% of the buds are damaged you can prune normally.

-If 15-50% of the buds are damaged then you'll want to adjust the number of buds retained accordingly. For example, if 25% of the buds are damaged then 75% are live. If you need 40 buds per vine for the proper crop load then you'll have to leave extra buds to end up with 40 primary shoots. To determine how to many buds to leave, multiply the inverse of the percent live buds ($1/.75$) times the desired number of buds ($1/.75=1.3$; $1.3 \times 40 = 52$ buds).

-If more than 50% of the buds are dead, we advise growers to do minimal pruning now and wait until after bud break to determine where live buds occur in order to have an adequate number for balancing the vines. Prune away only the canes that are unmanageably low to the ground, in the row space, etc. This approach will require considerable extra labor later in the season, but is the only way to assure a full or partial crop this year.

It is important to recognize that vines that have suffered significant bud mortality also likely have significant winter injury to the tissues of the cordons and trunks. This may affect vine management decisions as growth occurs this year and the full extent of the damage is revealed. There may be a need to replace trunks or cordons.

Spring freeze damage can also be a significant economic problem for grape growers. Damage has occurred in Indiana sporadically over the

Facts for Fancy Fruit is a newsletter for commercial and advanced amateur fruit growers. It provides timely information on pest control, production practices, and other topics likely to be of interest to fruit growers. All growers and interested persons are welcome to subscribe.

Subscriptions are \$15 per year. Subscribers will receive 12-15 issues biweekly during the growing season and monthly otherwise.

To subscribe, send your name, mailing address, and check for \$15 (payable to Purdue University) to:

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past few years. Damage was severe statewide in 2007. A technique called long pruning or double pruning helps avoid spring frost and freeze damage, especially on varieties that tend to bud out early. The procedure utilizes the apical dominance of buds on the cane. The first buds to begin growing are those on the tip of the cane, while buds closer to the base begin growth later. To perform long pruning, select canes to be used for fruiting spurs during the normal pruning practice, but leave those canes long, with 10-15 more buds than desired. Spurs are normally pruned to 4 to 6 nodes for fruiting, but if they are not cut back, then the extra buds will help delay the development of the desired basal 4 to 6 buds, which helps avoid frost injury. After the date of the last probable spring freeze has passed, the canes are shortened to the desired length to properly adjust the bud number for the vine. Growth of the basal buds can be delayed by as much as two weeks if weather conditions are favorable. While this procedure requires an extra trip through the vineyard, it can mean the difference between a full crop and little or no crop. (Bordelon)

IPM to reduce apple scab ascospore production

There is still time to reduce your overwintering inoculum and turn your high-inoculum orchard into a low inoculum orchard! The fungus that causes apple scab overwinters on fallen leaves and develops fruiting bodies in the spring. A key step in apple scab management involves preventing this fruit body formation. Unfortunately, removing all fallen leaves is impossible, even in a home orchard. Mulch mowing or flail mowing in late autumn to shred leaf litter in November or April can reduce the risk of scab by 80 to 90% if all of the leaf litter is shredded. Additionally, applications of 5% urea (42 lb/A of urea dissolved in 100 gal of water) to autumn foliage can increase leaf decomposition, thereby reducing the amount of fungus that will survive the winter. Urea applications must be made just before, or immediately after, leaf

fall to fallen leaves to avoid stimulating tree growth and predisposing the trees to winter injury. Alternatively, urea can be applied prior to, or during silver tip as a ground spray with an airblast sprayer using only the bottom nozzles to deliver a spray that completely covers the orchard floor. This urea application will reduce ascospore production by 60 to 90% further minimizing ascospore production. When applying urea to control scab, nitrogen fertilization of the trees must be reduced to prevent over-fertilization. (Beckerman)

TRAC software for pesticide use tracking is available as FREE download

Last year, the New York State Integrated Pest Management's pesticide record-keeping software 'TRAC' was made available as a free download (Figure 1).

TRAC is a Microsoft Excel based workbook that contains between 10-20 spreadsheets that provides built-in information to make tracking pesticide and fertilizer applications easier, and also assists in preparing the EPA Worker Protection Standard (WPS) Central Posting form and the Applicator/Technician Pesticide Annual Report. Now would be a great time to familiarize yourself with the software prior to the start of the growing season!

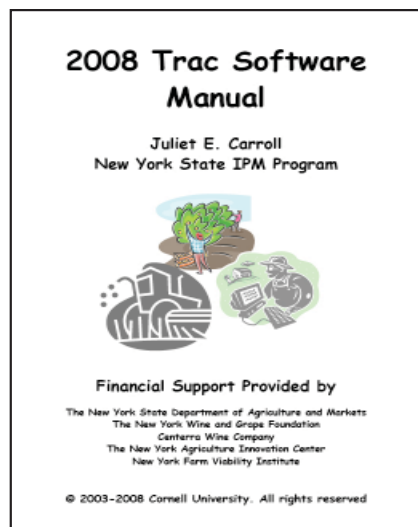


Figure 1. The Trac Software Manual is easy to use and only 21-pages long.

There are TRAC versions for apples, pears, cherries, other stone fruit (peach, nectarine, plum), grapes, and berries. The TRAC workbooks come with a 21-page manual that is free to download.

As this spreadsheet was developed in New York state, the built-in pesticide information ('Chem Table'; Fig 2) contains only products registered in New York. Pesticide registrations in New York are more restrictive than in Indiana and the Midwest. If you don't find a pesticide of interest, you can manually add additional products that are labeled for use in Indiana and Midwest.

To find out more about TRAC and download the software go to:

<http://www.nysipm.cornell.edu/trac/about/default.asp>

Please note that if you are running the 2008 version of Office for Mac, Microsoft disabled Visual Basic, making it much less user-friendly. However, based upon the tremendous amount of information and easy to use interface, TRAC is still very much worth its free price. (Beckerman)

In Tough Budget Environment Support for Specialty Crops is Strong

In late January, Agriculture Secretary Tom Vilsak announced that he would not carry forward plans by Bush Agriculture Secretary Schafer to move \$3.18 million from specialty crop block grants to fund implementation of country of origin labeling (COOL) requirements. At that time, USApple and other members of the Specialty Crop Farm Bill Alliance (SCFBA) sent a letter to then-Secretary Schafer and members of the House and Senate Appropriations Committees stating our strong opposition to the proposal. "Funding for specialty crops make up a minimal amount of funding in the overall Farm Bill, despite our sector's contribution of almost half of all crop farm-gate value." Therefore "it is simply wrong for USDA to consider raiding these

Apple - Crop Protection Chemicals - Apple												
Enter the unit and cost per unit for each chemical you use in the columns below. The cost of each chemical applied will then calculate on the Spray Data worksheet.												
Trade Name	Applied Unit	Cost Per Applied Unit	Formulation	EPA Reg #	Active Ingredient	REI-Hrs	PHI-Days	Type	% A.I.	Company	Labeled Crops	
2,4-D Amine 4	3.8 lb Algal		3.8 lb Algal	1381-103	2,4-D	48	14	H	39.3%	Agriance LLC	A, P	
Acramite 50WS	50WS		50WS	400-503	bi/enazate	12	7	IA	50.0%	Chemtura	A, P	
Actara 25WDG	25WDG		25WDG	100-938	triamethoxam	12	35	IA	25.0%	Syngenta	A, P	
Agree 3.8WG	3.8WG		3.8WG	70051-47	Bacillus thuringiensis (aizawai)	4	Zero Days	IA	3.8%	Certe USA	A, P	
Agricultural Streptomycin	17% streptomycin		17% streptomycin	73220-4	streptomycin sulfate	12	50	B	22.4%	FarmSaver.com LLC	A	
Agri-Mek 0.1SEC	0.1SEC		0.1SEC	100-898	abamectin	12	28	IA	0.2%	Syngenta	A, P	
Agri-mycin 17	17% streptomycin		17% streptomycin	100-899	streptomycin sulfate	12	50	B	22.4%	Syngenta	A	
Agri-mycin 17 (Nufarm)	17% streptomycin		17% streptomycin	55146-96	streptomycin sulfate	12	50	B	22.4%	Nufarm Americas, Inc.	A	
Agrisolutions Cornerstone	4 lb Algal		4 lb Algal	71388-20-1381	glyphosate	12	1	H	41.0%	Agriance LLC	A, P	
Agrisolutions Diuron 4L	4 lb Algal		4 lb Algal	9779-329	diuron	12	Follow Label Use	H	40.0%	Agriance LLC	A, P	
Agrisolutions Diuron 80DF	80DF		80DF	9779-318	diuron	12	Follow Label Use	H	80.0%	Agriance LLC	A, P	
Agrisolutions Simazine 4L	4 lb Algal		4 lb Algal	9779-296	simazine	12	Follow Label Use	H	41.9%	Agriance LLC	A, P	
Agrisolutions Simazine 80DF	80WDG		80WDG	9779-295	simazine	12	Follow Label Use	H	80.0%	Agriance LLC	A, P	
Aim EC	EC		EC	279-3241	carfentrazone-ethyl	12	3	H	22.3%	FMC	A, P	
Aim EW	EW		EW	279-3242	carfentrazone-ethyl	12	3	H	21.3%	FMC	A, P	
Alifette WDG	80WDG		80WDG	264-516	phosetyl-Al	12	14	F	80.0%	Bayer CropScience	A, P	
AlPro Lime Sulfur Solution	29% A.I.		29% A.I.	769-558	lime sulfur	48	Follow Label Use	F	29.0%	Value Garden Supply	A, P	
Ambush 25W	25WP		25WP	5481-502	permethrin	12	Follow Label Use	IA	25.0%	AMVAC Chemical Corp.	A, P	
Amid-Thin W	8.4WP		8.4WP	5481-426	1-naphthaleneacetamide (NAD)	48	Follow Label Use	GR	8.4%	AMVAC Chemical Corp.	A, P	
Amine 4	3.7 lb Algal		3.7 lb Algal	34704-120	2,4-D	48	14	H	38.6%	LoveLand Products, Inc.	A, P	

Figure 2a. The ChemTable from the TracApple workbook.

congressionally directed mandatory funds for COOL enforcement.”

This week a bipartisan group of Senators sent a strong message to the Appropriations Committee that cuts to Farm Bill programs in the FY09 Omnibus appropriations bill would be unacceptable. The letter signed by Senators Mike Crapo (R-ID), Stabenow (D-MI), Casey (D-PA), Schumer (D-NY), Brown (D-OH), Cantwell (D-WA), Snowe (R-ME), Boxer (D-CA), Levin (D-MI) and others, said that “specialty crop funds should not be considered for any other purpose than what was intended in the Farm Bill negotiation process.”

E-Verify Debate in Stimulus Bill

The House Appropriations Committee included a provision in the stimulus bill that would require any business receiving funds to enroll in the E-Verify system. USApple and other members of the Agriculture Coalition for Immigration Reform (ACIR) and the larger business community (including the U.S. Chamber of Commerce) strongly oppose expansion of the E-Verify system in the absence of comprehensive reforms. The E-Verify program, which is currently a pilot program being utilized by about one percent of U.S. businesses, has a very high error rate.

Senator Charles Grassley (R-IA) indicated plans to offer a similar amendment during the Senate Finance Committee’s markup of the bill on Tuesday. USApple reached out to apple members of the Committee to urge opposition to the Grassley amendment and USApple President & CEO sent a letter to all members of the Committee explaining that the apple industry is dealing with a perishable crop and does “not have the option of waiting to harvest, pack or process the crop until E-Verify errors have been resolved.”

In the end, Senator Grassley decided not to offer the amendment, which all the apple state members of the Committee indicated they would vote against. USApple and other members of the ACIR coalition will continue to follow this issue closely and work to ensure the final legislation does not contain an E-Verify requirement.

Apple Slice Recall Expanded

Richland Hills/Sunset Orchard issued a press release announcing the expansion of its voluntary recall of fresh sliced apples with use-by dates prior to 2/11/09. The initial recall focused on products with use-by dates prior to 1/30/09. There have been no illnesses associated with any apple slices. USApple continues to be in close contact with

Sunset Orchard/Richland Hills and other impacted USApple member companies as we continue to monitor the situation. USApple has not received any media inquiries thus far. USApple is closely monitoring media and blog coverage of the situation.

Apple slices have been mentioned in news reports this week about the peanut butter recall, specifically sliced apples packaged with peanut butter.

USApple will distribute updates on any new developments that occur. If you are contacted by the media, or have any questions or need more information, please contact USApple at 703-442-8850. Following is a link to the FDA website: <http://www.fda.gov/oc/opacom/hottopics/salmonellatyph.html>

USDA Pesticide Data Program Results - Apple Juice Among Products Tested

The latest USDA Pesticide Data Program (PDP) report included testing of 368 samples of apple juice, along with a wide variety of fruits and vegetables and produce products, for pesticide residues. In its reference category of “Processed Fruits and Vegetables,” the apple juice samples had the highest percentage of

“non-detects” where no residue is found. No residue was detected in 99.4 percent of the apple juice samples.

While the analysis identified 13 pesticides in the apple juice samples, none of the samples in which a pesticide residue was found exceeded the EPA tolerance level for that compound in food; in fact, the amounts detected were generally a small percentage of the EPA tolerance.

The PDP is a national pesticide residue database program that was begun in 1991 by the USDA. The report is published annually. In a cooperative effort with state agriculture departments and other federal agencies, PDP manages the collection, analysis, data entry, and reporting of pesticide residues on agricultural commodities in the U.S. food supply. The newly published PDP report covers sampling and testing conducted in 2007. A copy of the report may be obtained at <http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5074338>

New Spray Guides Available

The 2009 Commercial Tree fruit Spray Guide (ID-168) and the 2009 Midwest Small Fruit and Grape Spray Guide (ID-169) are available. These are included free as one of the benefits of membership in the Indiana Horticultural Society. They can also be ordered from Peter Hirst or Bruce Bordelon, or they can be ordered from Purdue’s Media Distribution Center (phone 1-888-398-4636). They can also be downloaded (free) from the Purdue Fruit and Vegetable Connection website (look under Bulletins): <http://www.hort.purdue.edu/fruitveg>

Indiana Horticultural Society

If you haven’t paid your dues for Hort Society membership, they are now due. Dues are \$30 per year. Included in your membership are copies of the Tree fruit and/or Small fruit and Grape Spray guides. Please send your check made out to Indiana Horticultural Society to Peter Hirst, Hort Society secretary. If you are not a member and would like to join, email Peter and he will send you a membership application.

Upcoming meetings:

March 5-6 - Advanced Organic Grower Retreat, Kellogg Center, East Lansing, Michigan.

This Retreat is a 1.5-day event that features grower-to-grower sharing and discussion to help growers improve their organic production and marketing of tree fruits in the Midwest. Growers will also discuss their value-added tree fruit businesses. Advance registration is required. For more information go to: www.mosesorganic.org/treefruit/events.htm. Contact Deirdre at the Midwest Organic Tree Fruit Growers Network at deirdreb@mindspring.com or 608-967-2362. This Retreat immediately precedes and is held in the same venue as the MOFFA Organic Conference.

Facts for Fancy Fruit

Subscription Notice for 2009

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Approximately 12-15 issues will be published during 2009, bi-weekly during the growing season and monthly otherwise. The subscription price of \$15.00 includes only the basic costs of printing and mailing at first class rates. The newsletter is also available free of charge electronically through the World Wide Web at <http://www.hort.purdue.edu/fff/> or by e-mail. If you have e-mail and would like a copy sent electronically, send your name and e-mail address to hirst@purdue.edu and we will include you on the list, or subscribe yourself through the web at

<http://www.hort.purdue.edu/fff/fff.html>.

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We hope that you will benefit from the information contained in the newsletter. We welcome your comments and suggestions.

Peter M. Hirst

Please send me "Facts for Fancy Fruit" for the 2009 season. Enclosed is my check for \$15.00 (tax included). Make checks payable to purdue university.

Name _____	Please Check:
Address _____	_____ Grower
City _____	_____ Sales
State _____ Phone# _____	_____ Other
Zip _____ County _____	

I would like to see information on the following fruit crops:

_____ Apple	_____ Blueberries	_____ Grapes
_____ Peaches	_____ Strawberries	_____ Cider
_____ Pears	_____ Raspberries	_____ Other

Please Return to: Facts for Fancy Fruit
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