
FINGER LAKES

Vineyard Notes

Newsletter #2

February 26, 2007

Cornell Cooperative Extension Finger Lakes Grape Program

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INTENSIVE SHORT COURSE ON BETTER SPRAYING TECHNIQUES OFFERED

The new course, developed by Dr. Andrew Landers of Cornell University and funded by the New York Farm Viability Institute, is a 11/2 day in-depth training course on better spray application techniques and will:

- improve your knowledge of spraying techniques leading to better deposition and less drift
- improve your timeliness of application resulting in better disease and insect control
- reduce off-target drift keeping you within the law
- show you how to modernize your existing sprayer
- inform you of new developments in sprayer design keeping you up-to-date
- help you potentially reduce pesticide use by 30-40%, improving your profitability.

The course will be offered March 19th and 23rd, and size is limited to 15 people in each class to allow for

good interaction and better studying. The session on March 19th will be held at the Hector Logan Fire Hall, while the March 23rd session will be at the Branchport Fire Hall. The course is aimed at sprayer operators to enable them to get the best from their machine. The course is tuition free due to a grant from the New York Farm Viability Institute. Coffee and lunch will be provided. For information and registration, contact Bill Wilsey, Cornell Cooperative Extension, Finger Lakes Grape Program at 315-536-5134 or email wtw2@cornell.edu. **A 2-page course brochure is included as part of this newsletter.**

VITICULTURE 2007 THANKS

Timothy E. Martinson

Viticulture 2007 and the 36th Annual Wine Industry Workshop are now over. This event, a cooperative effort by the New York Wine and Grape Foundation, Cornell Cooperative Extension's Finger Lakes and Lake Erie Regional Grape Programs, and the Cornell Enology Extension program, couldn't have taken place without the active support of many industry people who volunteered their time and efforts to put on a first-rate program.

Special thanks are due to Jim Bedient, Chair of the event, and the industry committee that directed this effort. Charlene Ryder of National Grape Cooperative was instrumental in arranging meals, negotiating contracts, and many other behind-the-scenes efforts; Donna Gridley and the NYS Women for Wine handled wine arrangements; Tim Moore put in an enormous effort in arranging the trade show; and Jennifer Cooper, Special Events Coordinator for the NY Wine and Grape Foundation did an exceptional job managing ar-

rangements for the entire event.

Thanks to the 89 speakers, including around 15 growers and winemakers who participated in the educational sessions, and the over 100 exhibitor businesses who brought 278 people in to staff the trade show. Total registration was 584, bringing the grand total attendance to 974.

WHEN AND HOW MUCH NITROGEN FERTILIZER SHOULD BE APPLIED IN MATURE 'CONCORD' VINEYARDS?

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Reprinted with permission of the authors from Lake Erie Vineyard Notes #2 (15 February 2007)

Concord growers must achieve and sustain high yields of quality fruit with environmentally sound practices to remain competitive in both domestic and international markets. Producing high yields of quality fruit requires optimal vine nutrition, especially for nitrogen. This is because the natural supply of soil N often does not provide enough N to produce a vine that is big enough to intercept sufficient sunlight for a high yield. However, available nitrogen is highly leachable. Too much nitrogen fertilization not only causes excessive vegetative growth that predisposes the vine to freezing injury and disease problems but also increases the chances of nitrate leaching into the environment.

To optimize nitrogen use in Concord production, the N demand-supply relationship throughout the season must be considered. In general, grapevines have a high demand for nitrogen from two weeks before bloom to veraison to support rapid shoot growth, leaf area development and berry growth. On the supply side, there are three sources. First is reserve nitrogen that has accumulated in the vine from the previous growing seasons. This source of nitrogen is readily available for initial shoot growth and further development of flowers during spring. The second source is the natural N supply from the soil mineralization process. The ca-

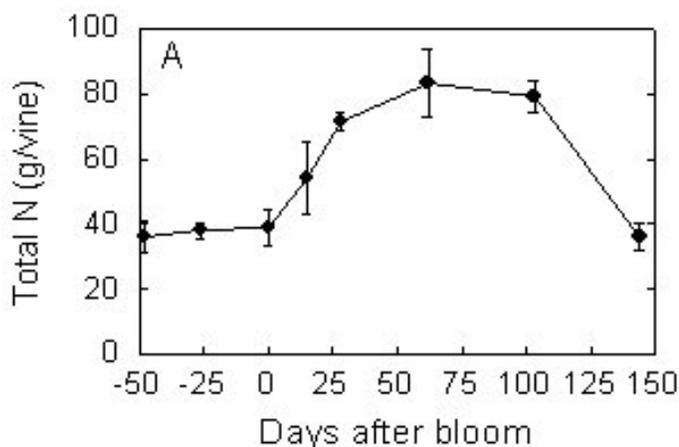
capacity of this source depends on soil organic matter, soil temperature, and soil moisture conditions. The third is fertilizer nitrogen applied to the soil or to the foliage. Effective N management also requires a good understanding of N uptake, partitioning and utilization, which provides the basis for targeting N fertilization to the vine needs while improving fertilizer use efficiency.

To understand the demand-supply relationship, and uptake, partitioning and utilization of nitrogen in mature 'Concord' vines, we took an approach of combining whole-vine destructive harvesting with the use of ¹⁵N-labeled fertilizer. In one experiment, 50 lbs of actual nitrogen as ¹⁵N-enriched ammonium nitrate was applied at budbreak in 2003. Five entire mature Concord vines were excavated at each of eight physiologically important stages over a full year, i.e. budbreak, 10-inch shoots, bloom, 15 and 30 days after bloom, veraison, harvest, and dormancy. Each vine was divided into thin and coarse roots, shank and trunk, cordons, canes, shoots, leaves and fruit. The samples were oven-dried for dry weight, and then ground for total N and ¹⁵N analyses in each organ type. Based on the dry weight of each organ type, the concentrations of total N, seasonal patterns of N accumulation were determined. In another experiment, the same rate of nitrogen fertilizer (50 lbs N in the form of ¹⁵N-enriched ammonium nitrate) was applied at budbreak, 2 weeks before bloom, 2 weeks after bloom or equally split between 2 weeks before and after bloom in 2005. Entire vines were excavated at fruit harvest, and each vine was divided, dried, ground and analyzed as above to determine the total fertilizer N uptake and nitrogen uptake efficiency. Use of ¹⁵N-labelled fertilizer allowed us to determine fertilizer nitrogen uptake and its contribution to the overall vine nitrogen economy.

We found that Mature 'Concord' vines maintained a relatively constant total dry weight and total nitrogen during dormancy from one year to the next after pruning. Total nitrogen in mature 'Concord' vines did not change significantly from budbreak to bloom. However, starting from bloom, total vine nitrogen increased very rapidly till one month after bloom, then continued to increase until veraison. The total net increase of vine nitrogen from budbreak to veraison (or the total nitrogen lost in harvested fruit, fallen leaves and pruned

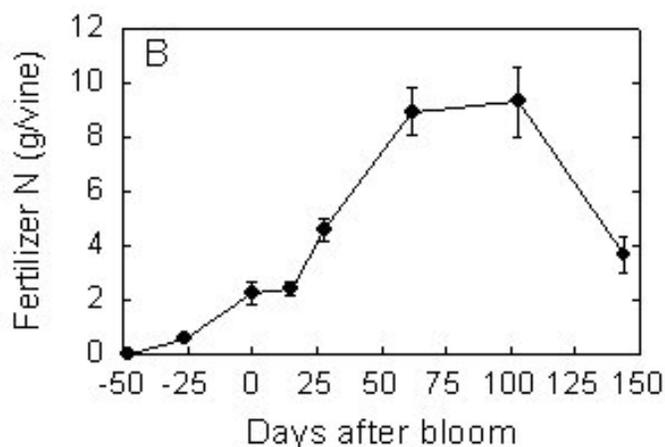
ings) was approximately 40 g/vine, which is equivalent to 50 lb actual nitrogen per acre.

Uptake of fertilizer nitrogen was low between budbreak and 10 inch shoot growth (Fig 1B), indicating reserve nitrogen was the primary source for the new growth during this period. Fertilizer nitrogen uptake increased from 10 inch shoots to bloom, but the most rapid uptake of nitrogen fertilizer was from shortly after bloom to veraison. The accumulative fertilizer nitrogen taken up by the vine at fruit harvest was 9 gram nitrogen per vine (equivalent to 12 lbs N per acre), which gives a fertilizer uptake efficiency of approximately 25% and contributes about 25% to the net vine nitrogen demand from budbreak to fruit harvest.



application in mature ‘Concord’ vineyards?

First, optimal timing of nitrogen fertilizer application should match the period of high nitrogen demand by the vine and should also give high nitrogen uptake efficiency. It is very obvious that the high nitrogen demand period is from bloom to one month after bloom for mature Concord vines (Fig 1A). In the first experiment, the nitrogen fertilizer was applied at budbreak because we wanted to determine the accumulative nitrogen fertilizer uptake during the entire growing season. Timing of nitrogen application experiment showed that the later the nitrogen application from budbreak to a couple weeks after bloom the higher the nitrogen fertilizer uptake efficiency. However, applying dry nitro-



Figures 1A & 1B. Total vine nitrogen (A) and accumulative fertilizer nitrogen uptake (B) of mature ‘Concord’ vines fertilized with 50 lb N as ¹⁵N-enriched ammonium nitrate at budbreak.

In the nitrogen timing experiment, we found that the total uptake of fertilizer nitrogen and nitrogen uptake efficiency by mature Concord vines from the time of N application to fruit harvest increased as the application time was delayed from budbreak to 2 weeks after bloom. Split application between 2 weeks before and after bloom appears to have similar total uptake as the application at 2 weeks before bloom. The N uptake efficiency in this experiment was lower than in the first experiment. We think this is due to the very dry conditions during the 2005 growing season.

What are the implications of these findings for nitrogen

gen fertilizer beyond 3 weeks after bloom may run the risk of lack of rainfall or adequate soil moisture, which is needed for incorporating nitrogen fertilizer into the root zone of the soil profile. Therefore, the best timing for nitrogen fertilizer application is from a couple weeks before boom to shortly after bloom. A split application is desirable if you need to apply more than 50 lbs actual nitrogen per acre.

Second, optimal amount of nitrogen fertilizer for mature ‘Concord’ vines on soils that are similar to the vineyard lab soil (3% organic matter) is around 50 lbs actual nitrogen per acre. The amount of nitrogen fertilizer we applied (50 lbs/acre) was based on the ‘West Tier’ study over the last 40 years, which showed that there is no additional benefit in terms of vine size and yield by increasing nitrogen fertilizer rate from 50 lbs to 100 lbs per acre. The amount of nitrogen fertilizer

we applied also balances the net loss of nitrogen due to fruit harvesting, leaf fall and pruning. However, we need to keep in mind that any fertilizer rate trial is site-specific, and the optimal nitrogen fertilizer rate for your vineyard depends on your soil type, organic matter content, soil moisture conditions, vine size and vine nitrogen status. As a rule of thumb, every 1% soil organic matter provides about 10 to 20 lbs of actual nitrogen per year and the mineralization of organic matter is the primary source of nitrogen to satisfy vine growth and development (In the first experiment, 75% of the vine nitrogen demand was satisfied by mineralization of soil organic matter.). Generally speaking, since most of the vineyards in the Lake Erie grape belt have 2.5% organic matter or higher, the optimal rate of nitrogen for most vineyards should be somewhere between 30 to 80 lbs actual nitrogen per acre. To fine-tune your nitrogen fertilization program, regular leaf petiole sampling and monitoring your vine size and vigor are needed.

TOPSIN LABELED FOR PRUNING WOUND APPLICATION FOR EUTYPA CONTROL

From Dr. Wayne Wilcox, NYSAES

Topsin is a replacement for the SLN label New York growers had for years which allowed the use of concentrated Benlate on fresh pruning wounds to 'prevent' Eutypa infections. Although Benlate and Topsin are different chemicals, they break down into the same active ingredient in the vine. Topsin has stepped in to fill the small niche once held by Benlate.

It's likely too expensive and labor intensive to treat all pruning wounds routinely, but if a grower is making major cuts (i.e. the number of cuts is relatively limited but the risk and consequence of cankers forming at the large pruning wounds is relatively high), Topsin can be a valuable tool. 'Major cuts' includes practices such as top-working to a new variety, converting to a new training system, and decapitating winter-injured vines to bring up new suckers and start over.

2006 CROP STATISTICS RELEASED

*Timothy E. Martinson
Senior Extension Associate
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NYS Agricultural Experiment Station*

The New York Agricultural Statistics Service (NASS) has released their annual grape processing report, detailing tonnage by variety and region for the 2006 growing season. NASS's Table 2, *NY Grown Grapes Processed*, is reproduced from their report. Here are some highlights:

Natives. The Concord crop declined by 28,000 T from last year's record 137,000 T crop, a 21% decline, but still 4,000-9,000 T above the 2003 and 2004 crops. Elvira is down 24% from last year at 3,800 T compared to around 5,000 T in 2005, as well as 2003 and 2004. Niagara yields held steady, increasing slightly from 18,000 to 18,500 T.

Hybrids. Aurora yields were double those of last year, rebounding to 3,300 T from 2005's 1,600 T. They were back to pre-2004 (year of the big freeze) levels. Cayuga White yields also doubled from 500 T in 2005 to 1,020 T in 2006. This is well above the 600 T recorded in 2003 and may reflect new plantings coming into production. Seyval blanc also increased by a third from 430 to 650 T – well above the 2003 level of 480 T. Other hybrids listed (Baco noir, DeChaunac, and Rougeon) were about the same in 2005 as in 2006. However Baco noir was well below 2003 (pre-2004 freeze) levels of 1,200 T. Several Baco noir blocks were heavily damaged in 2004, and some of these have been removed or replanted. In addition, rapid fruit breakdown which occurred in both '05 and '06 may have reduced the Baco noir tonnage.

V. vinifera. Vinifera tonnage has rebounded from 1,274 to 3,274 T in the Finger Lakes and from 3,500 to 5,200 T statewide. For comparison, the statewide total in 2003 (again, pre-2004 freeze) was 4,550 T, with 2,695 T in the Finger Lakes. Since most of the additional acreage is on Long Island, it looks like the vinifera crop there was about 1,926 T (this may include somewhere in the neighborhood of 200 T harvested elsewhere in NY), down from about 2,226 T in 2005,

Table 2. NEW YORK GROWN GRAPES PROCESSED
*Tonnage by Variety and Production Area Received by Wineries and Processing Plants,
 2005 and 2006; Prices Paid to Growers, 2004-2006 1/*

	New York Production Areas										
	Chautauqua-Erie		Niagara County		Finger Lakes		State Total 2/		Average Prices Paid By Variety (\$ per ton)		
	2005	2006	2005	2006	2005	2006	2005	2006	2004	2005	2006
American Varieties:											
Catawba	947	527	30	30	4,073	3,563	5,000	4,120	234	225	4/
Concord	118,385	93,079	2,324	1,619	16,207	13,902	137,000	108,600	189	170	4/
Delaware	3/	3/	-	-	267	411	375	510	338	331	4/
Ives	3/	3/	-	-	86	135	100	150	371	346	4/
Elvira	1,103	855	-	-	3,922	2,965	5,025	3,820	259	264	4/
Niagara	12,277	12,554	1,308	1,841	4,413	4,102	18,000	18,500	293	172	4/
French Hybrids:											
Aurora	3/	3/	-	-	1,574	3,270	1,600	3,300	279	333	4/
Baco Noir	-	-	-	-	398	344	400	350	470	528	4/
Cayuga White	-	-	3/	3/	442	952	500	1,020	375	432	4/
DeChaunac	-	-	-	3/	129	109	130	110	301	460	4/
Rougeon	3/	-	-	-	431	320	440	320	433	467	4/
Seyval Blanc	3/	3/	-	-	366	573	430	650	388	486	4/
Vitis Vinifera:											
All	3/	3/	3/	3/	1,274	3,274	3,500	5,200	958	932	4/
Other Varieties:											
All	221	296	3/	3/	2,196	2,853	2,500	3,350	362	450	4/
TOTAL	133,143	107,628	3,681	3,529	35,728	36,773	175,000	150,000	226	193	242

1/ Includes New York grown grapes received at out of state plants.
 2/ Includes Hudson Valley, Long Island, and other areas not listed.
 3/ Not published to avoid disclosure of individual operations.
 4/ Official estimates of prices for 2006 will be published in January 2008.
 Estimates of future payments by cooperatives have been included based upon historical data.

S.C. Ropel, B.L. Smith, A.N. Dawson, Statisticians R3 07 Mar.150

but close to the 1,855 T reported in 2003. Since few of the ‘replants’ from the 2005 growing season would have been in production last year (I estimate about the equivalent of 300 acres of replants were needed after the 2004 freeze), it would seem that the increased vinifera production reflects new plantings kicking into production. With a conservative estimate of 200 non-bearing acres in the ground (and 300 acres of replants), we should see the total vinifera tonnage continue to climb over the next few years.

The full NASS report is available at: http://www.nass.usda.gov/Statistics_by_State/New_York/Publications/Statistical_Reports/02feb/wine0207.htm

CORNELL BEGINS ‘NEW ERA’ IN LAKE ERIE REGION GRAPE RESEARCH

*Aaron Goldweber
 (Reprinted from Lake Erie Vineyard Notes #2,
 15 February 2007)*

PORTLAND, N.Y. -- Nearly 100 years have passed since the New York state legislature appropriated

\$10,000 to the New York State Agricultural Experiment Station (NYSAES) to establish a grape research laboratory in Fredonia, N.Y. With a new site chosen and more than \$5 million of state funding appropriated in May 2006, Cornell University is poised to break ground for a new laboratory that will conduct innovative research and extension programs to serve grape growers in Western New York and beyond.

The lab will be built on 53 acres of land recently purchased by Cornell from Jim and Penny Deakin. Cornell made the purchase based on the recommendations of a task force of leading growers, processors, and researchers. Planning for new experimental research vineyards will begin this winter. Groundbreaking for the laboratory itself will occur next spring.

“This state-of-the-art facility will begin a new era in Cornell’s rich history of commitment to the grape and wine industry in the Lake Erie region,” said Susan A. Henry, the Ronald P. Lynch Dean of Agriculture and Life Sciences.

The facility will provide expanded field research; modernized laboratory space for research on juice and wine

quality; additional office space for research and extension staff, and visiting scientists; and meeting space for grower education and training.

Rick Dunst, manager of the lab, said researchers at the current facility have made major advances in the areas of vineyard mechanization, grapevine physiology, development of economic thresholds, and effective control programs for insect and disease pests of these grapes. Researchers have increased yields, improved quality, and lowered production costs of grapes grown in the Lake Erie region, especially Concord and Niagara.

Tom Davenport, director of viticulture for the National Grape Cooperative, said, "The new facility represents the realization of an industry initiative that began in 1991 when the Lake Erie Regional Grape Research and Extension Program was formed. The new facility will be the foundation for the development of new technology that will be transferred to grape producers throughout New York state and enable them to successfully compete in today's global marketplace."

State Senator Catharine Young led the recent effort to secure state funding for the project with major support from Assemblyman Bill Parment, who has been working to find funds to modernize the lab for more than 10 years.

"Cornell University has provided premier research and services through the Vineyard Lab for many years, not only to local farmers, but to growers across the state and the Great Lakes region," said Young, chair the Senate Agriculture Committee.

"The key to success for the grape industry has been a combination of hard work on the part of our growers with applied research and extension coming from the grape experiment station. A new facility will give the industry a basis for productivity gains going forward. I'm pleased that we have reached this important milestone," said Parment.

Cornell researchers such as the late Nelson Shaulis, who is internationally renowned as one of the fathers of modern viticulture, and E. Frederick Taschenberg, a research entomologist whose career at Fredonia

spanned five decades, dedicated their careers to grape growers and processors in Western New York. Since 1961, Cornell has conducted research and extension programs on a 30-acre vineyard and converted potting shed in the Village of Fredonia. The existing laboratory and field research acreage will be sold. Proceeds will be invested in the long-term operations of the new facility in Portland.

UPCOMING EVENTS

March 19 and 23, 2007. Effective Spraying of the Vineyard – A 1 1/2 day intensive short course on better spraying techniques for pesticide applicators. March 19th meeting will be at the Hector Logan Fire Hall, and the March 23rd meeting will be at the Branchport Fire Hall. See earlier article for further details.

March 6-9, 2007. Wineries Unlimited, Valley Forge Convention Center – King of Prussia, PA.

The largest wine and vineyard meeting and trade show east of the Rockies moves to the Valley Forge Convention Center in King of Prussia, PA this year. Sessions cover a wide range of viticulture, enology and wine marketing topics. A one-day seminar "Managing a Winery Laboratory" will be led by Dr. Barry Gump from CSU-Fresno. News, information and registration for the conference can be found at:

<<http://www.vwm-online.com/>><http://www.vwm-online.com/>

March 19th and 22nd, 2007. DEC Applicator Certification Preparation

March 19th and 22nd, 12:30 – 16:30 each day. Exam Date: March 28th, 12:30 – 16:30. Cost for both days is \$35 and one day is \$20. Contact: Mike Dennis, CCA CU Cooperative Extension Seneca County, 308 Main St Shop Centre, Waterloo, NY 13165-0748, email: mgd3@cornell.edu or call 315 539 9251.

A PARTNERSHIP TO SAVE LIVES – ROLLOVER PROTECTION REBATE PROGRAM LAUNCHED FOR NEW YORK FARMERS

Julie Sorensen, New York Center for Agricultural Medicine and Health

(From an article on the NYCAMH website: www.nycamh.com)

The New York Center for Agricultural Medicine and Health (NYCAMH) has announced a rebate program to help farmers purchase tractor rollover protection. The rebate program is the result of \$200,000 in funding secured by State Senators James L. Seward and Catharine Young and has the support of the New York Farm Bureau and the Northeast Equipment Dealers Association.

Tractor rollovers are the most frequent cause of death in the U.S. farming community and rollover rates in the Northeast are the highest in the country. In 2006, rollover incidents claimed the lives of at least 5 New York farmers.

The rebate program has the potential to significantly reduce these tragedies in New York State. Farmers who qualify can receive a rebate of 70% of the cost (up to \$600) of installing rollover protective structures on tractors lacking such protection. A toll-free hotline has been established (1-877-ROPS-R4U) to provide advice and assistance in locating the most affordable roll bar or cab, setting up an appointment for installation, and tracking rebates.

TRACTOR ROLLOVER STATISTICS:

- Farming is a dangerous occupation. Farming has the highest rate of work-related fatalities – eight times higher than the national average. (US Department of Labor, 2005 <http://www.bls.gov/iif/oshwc/foi/cfch0004.pdf> page 10).
- Tractors account for roughly half of these agricultural fatalities (New York injury data 1988-1996).
- 44% of tractor fatalities are attributed to rollovers (National Safety Council, 2001, Injury facts).

- The highest rates of tractor rollover fatalities occur in the Northeast (8.4 per 100,000 workers vs. 6.1 in the Midwest, 6.2 in the South, and 1.9 in the West) (National Institute for Occupational Safety and Health data).
- ROPS are 99% effective in preventing injury and death to the operator in the event of a tractor rollover.
- More than half of New York tractors lack these protective devices.
- Almost 90% of small crop and livestock farms in New York have rollover protection on only one (or fewer) tractor on their farm.
- 80% of U.S. rollover fatalities involve experienced or very experienced tractor operators.
- Approximately 6% of rollover fatalities involve hobby farmers.
- In countries such as Sweden, rollover protection is legislatively mandated and rollover fatalities are virtually non-existent.
- Many New York farmers feel that the cost of rollover protection is the largest prohibitive factor in retrofitting unprotected tractors.

Much has changed in recent years regarding application techniques. Course members will learn how to:

- find out how their sprayer works
- make effective adjustments
- place the spray on-target
- calibrate their sprayer
- select the correct nozzles for the correct droplet size
- change airflow and speed to keep the spray in the canopy
- prepare the sprayer for work
- decontaminate the sprayer for winter storage
- monitor where their spray is going using cards and tracer dyes



Course size is limited to 15 people in each class to allow for good interaction and better studying. The course is aimed at sprayer operators to enable them to get the best from their machine.

Course tuition is free due to a grant from the NY Farm Viability Institute.

Course instructor is Dr Andrew Landers, application technology specialist based at Cornell University, NYSAES, Geneva, NY

Contact your local Cornell Cooperative Extension viticulturalist for dates and venues.

Alice Wise, 631-727-3595

Tim Martinson, 607-592-2616

Steven McKay, 518-828-3346

Hans Walter-Peterson, 716-672-5296

Effective spraying of vineyards

A 1 1/2 day intensive short course on better spraying techniques for pesticide applicators



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College of Agriculture and Life Sciences
New York State Agricultural Experiment Station

A Strong Future for New York Agriculture



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Factors Involved in Effective Spraying

A new course, developed by Dr Andrew Landers of Cornell University and funded by the New York Farm Viability Institute is a 1 1/2 day in-depth training course on better spray application techniques and will:

- improve your knowledge of spraying techniques leading to better deposition and less drift
- improve your timeliness of application resulting in better disease and insect control
- reduce off-target drift keeping you within the law
- show you how to modernize your existing sprayer
- inform you of new developments in sprayer design keeping you up-to-date
- help you potentially reduce pesticide use by 30% - 40%, improving your profitability.

This innovative course is unique, providing an intensive, one day applied course in the winter with a half day, hands-on follow-up demonstration in the Spring. It will be held in your home region.





Cornell University
Cooperative Extension

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FINGER LAKES VINEYARD NOTES

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