

CROP TALK



COMMERCIAL VEGETABLE AND FRUIT CROPS NEWSLETTER

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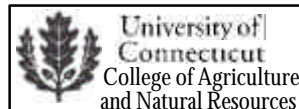
ASHLEY, Richard "Dick", of Coventry, beloved husband of Sandra (Dalton) Ashley, passed into Eternal Life surrounded by his loving family on Wed. (March 26, 2008), at Windham Community Memorial Hospital after a short illness. Born on March 20, 1941, in Wilmington, DE, son of the late Charles & Alice (Green) Ashley, he had lived in Coventry since 1968. He earned his B.A., M.A., and Ph.D. from the University of Delaware in 1963, 1965, and 1968, respectively. He served as a Professor of Horticulture and as Vegetable Crops Specialist for the Dept. of Plant Science and the Cooperative Extension System at the University of Connecticut from 1968 to 2003 and as Integrated Pest Management (IPM) Coordinator from 1996 until retirement in 2003. He twice served as Acting Department Head for the Department of Plant Science in 1995-1996, and again in 2002-2003. He specialized in weed-crop competition, nutrient management, protected vegetable culture, sustainable agriculture and developing IPM curriculum for primary school education. He served as the Secretary/Treasurer and chaired many different committees for the Northeast Weed Science Society and was awarded the Society's Distinguished Member Award. He authored, published and edited dozens of referred journal articles, manuals, proceedings articles, and curriculum, and taught courses on Horticulture Production, Garden Center Management and on Marketing. He also contributed to the New England Vegetable Management Guide and served as its editor for several years. He was a member of the Steering Committee for the New England Vegetable and Berry Growers' Conference and Trade Show since its beginning in 1979. He served as Registration Chairman, Local Arrangements Chairman, organized sessions, and presented numerous talks for the conference. In 2005, the New England Vegetable & Berry Growers' Association awarded him the Robert Young Award for years of dedicated service to the vegetable industry. He mentored many students and was a friend and valued colleague to those involved in the Vegetable Industry in Connecticut and New England. Dick was active in his community where he was elected to several terms on the Coventry Republican Town Committee; the Coventry Board of Education, where he served from 1973 to 1987 and as Chairman from 1979 to 1981 and again from 1983 to 1985; and two terms on the Coventry Town Council, where he served as Town Council Chairman from 1991 to 1995. He was a devoted member of the Presbyterian Church of Coventry

Calendar of Events

CT Pomological Society Twilight Meeting
 June 2, 5 PM, Hinderger Farm, Hamden, CT
 Contact Lorraine Los, 860-486-6449, lorraine.los@uconn.edu
 see page 9

'Zone-tillage Vegetable' Growers' Twilight Meeting
 June 5, 6 PM—8 PM, Cicarelli Farm, Northford, CT
 Contact Jude Boucher, 860-875-3331, jude.boucher@uconn.edu
 see page 10

New England Greenhouse Conference & Expo
 Nov. 5-7, DCU Center, Worcester, MA
 Contact www.negreenhouse.org
 see page 5



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where he served for many years as a Deacon. He also served on the Building Committees. A man of faith, Dick lived a wonderful life. He was highly respected by all who knew him and was always respectful of others. He brought out the best in people who knew him. He loved his work growing and nurturing living things of God's creation. He loved research and spent many hours in learning more about his many interests; horticulture and his greenhouses, war history and battle strategies, coins, stamps, sports and many other areas. His passion in life was learning and teaching. A quiet, soft-spoken generous and gentle man, he was most animated when sharing his knowledge with others. Of even temperament, he faced problems without anger, but as challenges that needed solutions. His generous joy was his family. His pleasure in his family, his wife, children and grandchildren, was evident to all. He loved to travel and was often off on cruises to islands in the Caribbean, traveling overseas or visiting other states in the U.S. In retirement he took great pleasure in planning trips for his grandchildren, especially their trip to the Denali Forest in Alaska. He was a devoted son, husband, father and grandfather. His greatest delight was being able to teach and guide his grandsons in everything from sports, to the world of nature, to his family traditions and values of honesty, integrity, and fairness. He is survived by his wife, Sandra; his daughter, Debra Ashley; his son, Robert and his wife Kristina and three special grandchildren, Richard Otto, Zachary Otto and Aidan Ashley all of Coventry. He also leaves his mother-in-law, Ruth Dalton and a nephew, Richard Dalton and his wife, Terry all of Newark, Delaware. This world was a better place with him in it and his presence will be sorely missed. Funeral services in Celebration of Dick's life were held on Monday, March 31, at the Presbyterian Church of Coventry, and he was buried at Center Cemetery, in Coventry. In lieu of flowers memorial contributions can be made to the American Cancer Society, PO Box 22718, Oklahoma City, OK 73123-1718 for online expressions of sympathy, please visit:

<http://www.legacy.com/HartfordCourant/GB/GuestbookView.aspx?PersonId=106472197>

Soil Health and Deep Zone-Tillage

Jude Boucher, University of Connecticut

Roadmap to a healthy soil

A "healthy soil" is one that is capable of sustaining crop productivity. It has to have adequate depth, drainage and nutrients, large populations of microbes and other beneficial organisms, low levels of pest organisms, adequate oxygen for root growth, few harmful chemicals, and be able to resist natural and artificial adversities.

If we take a closer look at the factors that make up a healthy soil we see that it is a balance of soil chemical, biological and physical attributes that makes a soil productive. Important chemical properties of the soil include things such as macro and micro nutrients, pH, organic matter (carbon), toxins or pollutants (herbicide carry-over), and cation exchange capacity. Biological properties include adequate populations of beneficial microbes,

nematodes, mites, insects and worms for nitrification, decomposition of organic matter, and just to compete with and occupy niches that pest organisms might otherwise occupy. Many of these organisms are also critical in maintaining the proper physical attributes of the soil. Fungi, earthworms and organic matter (OM) are particularly important in the formation and durability of soil aggregates, which provide both small and large pores for drainage, airflow, and water holding capacity. Earthworm channels also help transport air and water deep into the soil profile. Important physical properties of the soil include such things as surface hardness, subsoil compaction, aggregate stability, and porosity, which are all influenced by OM content and tillage practices.

What is the problem with conventional tillage?

The extensive tillage practices used on vegetable farms in the Northeast are expensive and result in problems with soil degradation, soil compaction, and soil erosion. Multiple tillage trips across the field are expensive and are becoming cost prohibitive as fuel prices continue to rise. There is also a substantial investment in machinery and labor associated with tilling.

Between plowing, harrowing (several times), subsoiling, cultipacking or bedding, and cultivating (several times), we are literally working the life out of our soils. Constant tillage oxidizes soil organic matter away as CO₂. With conventional tillage, more organic matter is lost than can be replaced by incorporating crop residues and through the use of winter cover crops.

As the organic matter (OM) disappears, so do the earthworms and other beneficial organisms that depend on OM to survive. Many of these organisms provide the "glue" that hold the soil aggregates together to give us good soil structure. As the aggregates are broken down by tillage, and not replaced due to loss of OM and soil organisms, the soil air pores associated with the aggregates disappear too. This chain reaction leaves the soil devoid of oxygen and with an inability to hold water, nutrients and pesticides (which may run off and become pollutants). Obviously, plant root health suffers in such a scenario, as do crop yields.

Loss of organic matter can also cause the soil on the surface to plate or crust, making an almost impenetrable barrier, which prevents seed emergence and leads to water pooling, low oxygen conditions and even lower biological activity. The horizontal pressure at the bottom of a plow or disk-harrow can produce sub-surface plow and disc-pans over time. Compacted plow pans often prevent root growth beyond 8-12 inches deep and lead to drainage problems, disease problems (think Phytophthora, etc.), reduce yields and additional tillage costs. A compacted soil depleted in OM retains too little water during dry weather and floods and ponds during wet periods.

Of all the problems associated with tillage, the most important problem is erosion, because soil lost, can not be replaced. The average U.S. farm losses about 3.1 tons of soil per acre each year. Contrary to what this statistic implies, there is not a constant loss of soil. As few as 5 major rainfall events over a 25 year period may cause 75% of the soil erosion. This illustrates why it is best to have the soil covered at all times.

Due to the hilly terrain in New England, high land values and urban sprawl, we have some other unique problems with tillage in our region. As the farms are handed down to new generations and divided among siblings, some of whom may or may not want to farm, new vegetable growers are often pushed off the bottom land and onto the slopes, where they continue to use bare-cultivation practices that result in severe soil loss. In 2006, one CT grower actually resorted to building rock "bridges" every 100 yards or so, across four-foot-deep erosion ditches, so that he could spray his sweet corn for insect pests, and then ended up rebuilding the bridges when they washed out.

As land trusts buy up open land in CT, they often institute policies that prevent farmers that rent the land from using conventional tillage techniques to help prevent damage to the property. Such policies limit future vegetable production in a state where land is expensive and land trusts control much of the open space.

As urbanization spreads across New England, farmers also have trouble with new neighbors along the farm boundaries who object to the dust and noise. Reduced-tillage systems are capable of reversing soil degradation and compaction problems, halting erosion, and even solving some of our urban/land value issues.

Why deep zone tillage?

Reduced-tillage is not new. It has been successfully used on farms in the mid-west and west for over 40 years and is currently used on more than 36% of the U.S. farmland. Of the different types of reduced tillage, deep zone tillage seems most appealing for our climate. This is a combination of strip tillage and zone building or subsoiling. Deep zone tillage systems can address all of the problems mentioned above and more. Unlike no-till, which relies on a heavy blanket of plant residue to protect the soil and delays the warming of the soil and crop growth in Northern climates, deep zone tillage uses a 5-inch-wide tilled strip to simultaneously break up plow pans, warm the soil and prepare a seedbed. A deep shank or subsoiler (zone-builder) breaks up the plow-pan while fluted coulters cut and prepare a strip in the killed residue/cover crop, and rolling baskets help break up soil clods to prepare the narrow seedbed. Crop roots grow deep through the slit made by the zone builder rather than just spreading out in the top few inches of soil. Coulters or (finger-like) residue managers in front of the planting shoe on the planter provide a finished seed bed.

Most of the ground between the crop rows retain the heavy surface residue from the killed cover crop. The 5-inch-wide tilled strip is slightly raised, warms faster than covered soils, and does not allow water to build up enough speed to erode a slope.

Residue that is allowed to buildup on the surface between rows does not break down as fast as when it is mixed in the soil, so OM levels tend to rise slowly over time. With the return of OM, comes the return of beneficial organisms, better soil structure and a healthier, more productive soil.

What can deep zone tillage do for you?

When combined with the use of cover crops, deep zone tillage helps replace lost OM, reverses the deterioration of the soil, improves soil drainage, increases soil water and nutrient holding capacity, and allows beneficial soil organisms to thrive. A CT vegetable grower that switched to zone tillage in 2007, made fewer trips across the field with his tractor, saved on fuel, reduced dust and noise when preparing fields near a crowded neighborhood, and had his best yields ever, despite a prolonged drought. He also preserved soil moisture which allowed his sequential corn plantings to go in the ground and emerge on time, had better plant stands than his bare-ground fields, prevented dry tips on his sweet corn (without irrigation), had his cleanest winter squash and pumpkins ever, and acquired new rental land from a nearby municipality that will no longer rent to farmers that use conventional tillage. Although the following benefits were not obvious in such a dry year, he also improved the drainage on his land and helped reduce his potential Phytophthora problem by breaking up the plow pan, added to his soil organic matter (instead of mining more away), created more soil aggregates and pore spaces, and provided insurance against soil erosion and the necessity of building "stone bridges," had it been a wet year. In short, he took the first step back to a healthy soil.

What are some of the secrets to converting to deep zone tillage

As with any new system, there are a few details one must learn that help make it successful. Conversion to deep zone tillage begins by measuring the depth of the plow pan using an instrument called a penetrometer. A penetrometer is a steel soil probe with a gauge at the top which measures resistance as the tip of the probe is pushed into the soil. Plant roots will not penetrate compacted layers that register over 300 p.s.i. Therefore, it is important to identify the depth and the firmness of the plow pan, so that the subsoiler/zone builder on the deep zone till equipment can be set two inches below the compacted layer, to help break it up. The second season, planting rows are prepared midway between the rows of the previous year to continue the process of breaking up the plow pan throughout the field. Eventually, the compacted layer is destroyed and the zone builder is raised to approximately the 5" depth. This further reduces the drag, horsepower and fuel required to prepare ground to plant.

With silt, loam or sandy-loam soils, the deep zone till strips can be prepared in the fall, spring or throughout the summer as needed. With clay soils, fall preparation is usually recommended to allow the soil time to settle after the zone building and before planting. Growers usually find that preparing the seed bed "off-season" gives them more time during the season to attend to other chores. Some sandy soils do not need zone building and just a surface strip-till system is sufficient.

Deep zone tillage is most commonly used with large-seeded crops such as sweet corn, pumpkins, winter squash, beans and transplants such as cabbage and tomatoes. A team of Cornell researchers are working on refining systems for small seeded crops, root vegetables and for organic farms.

For early-season plantings, winter rye cover crops should be killed with herbicides (glyphosate or paraquat) when it is less than four inches tall so that the roots do not become too big and gnarly. Growers in NY have reported that paraquat is more successful at killing the rye during cool, wet springs. Roots from large rye plants (10-12") tend to pile up in the planting strip causing seeds to bounce off, rather than entering the soil, at planting. On late-planted crops this is not a concern because even large rye roots seem to break down or soften adequately if killed 2-3 weeks before the deep zone builder is used to prepare the seed bed, eliminating seeding problems.

Coulters or finger-like residue managers on the planter that clear the planting strip of excessive cover crop residue are important for proper placement of the seed and high yields. Residue managers tend to clear surface rocks from the seedbed as well, making it easier to transplant crops, although care should be taken not to remove too much soil, or water can accumulate in the depressions left behind and rot seeds. Some brands (i.e. Dawn) of residue managers have finer depth adjustments than others and may be preferable.

Growers should adjust the residue managers so that they remove debris and not soil to achieve the best plant stands.

I plan to conduct a penetrometer and soil survey on farms across CT this summer as part of a grant from the Sustainable Agriculture Research and Education (SARE) program. The goals of the survey are to assess how common plow and disk pans are in CT and what OM levels are like on our conventionally-tilled vegetable farms. Also, for farms converting to zone tillage, I will be taking additional soil samples to send off to Cornell University for the new Soil Health Tests. The Soil Health Tests go beyond the normal pH, macro/micro nutrient and OM measurements and also assess soil physical characteristics such as porosity, soil aggregate stability and root health. Results will be used as baseline data to help document changes over time for zone-tilled fields.

Seeing is Believing

This sounds interesting where can I get a look at it? On Thursday, June 5, you are invited to a twilight meeting at Nelson Cecarelli's Farm in Northford, CT from 6:00-8:00 PM. Nelson was very excited about the results of his initial zone till experience in 2007 and can't wait to see what the new season brings. Directions: **From the North:** Go south on I-91 to Wallingford and take the E. Center Street Exit (for Rt. 150). At the top of the ramp, take a left onto E. Center St. and cross back over the highway. Go 0.6 miles and turn right onto Northford Rd. Go 2.2 miles to the stop sign at Rt 17. Go right on Rt. 17 for 0.2 miles and take your first right onto Old Post Rd. The farm is ½ mile up on the right.

From the South: Go north on I-91 to Exit 8 (Rt 80 Exit). Take a left onto Rt. 17 (north) and proceed several miles to Northford town center (intersection of Rt. 22 and 17). Take a left at the second traffic light in the town center onto Rt. 22 and **immediately** (about 30 feet) take a right onto Old Post Road. The Cecarelli Farm is located on Old Post Road (bare right when the road forks) 0.8 miles north of the Northford town center.

References:

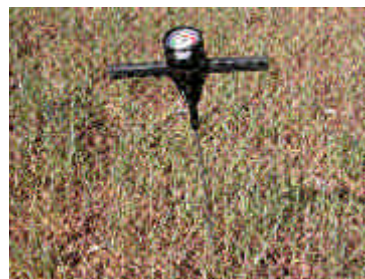
Duiker, S. W. and J. C. Myers. 2005. Better Soils with the No-Till System. Pennsylvania Conservation Partnership.

Gugino, B. K., O.J. Idowu, R.R. Schindelbeck, H.M. van Es, D. W. Wolfe, J. E. Theis and G. S. Abawi. 2007. Cornell Soil Health Assessment Training Manual. NYSAES, Geneva, NY

Idowu, J., A. Ranganjan, H. van Es and B. Schindelbeck. Reduced Tillage Fact Sheets: Fact Sheet #1 Zone Tillage. Cornell University, Ithaca, NY.

Magdoff, F. and R. R. Weil. 2004. Soil Organic Matter in Sustainable Agriculture. CRC Press, NY, NY.

Cornell University Reduced Tillage Project Team Website, <http://www.hortcornell.edu/reducedtillage>



Penetromter



Zone Builder



Residue Manager on Planter



Zone Tillage

New England Greenhouse Conference & Expo

Come to the largest nationally recognized floriculture industry show in New England. Mark your calendar for the New England Greenhouse Conference & Expo, which will be held from November 5 to November 7th at the DCU Center in Worcester, MA. If you are a garden center or greenhouse retailer, or grower of bedding plants, perennials, outdoor cut flowers, or potted plants, don't miss this event!

Each day will feature consecutive tracks of educational programs. Educational sessions focusing on advanced perennial production, advanced propagation, strategies for growing & marketing green, special in-depth symposiums on retail marketing strategies and time management considerations for the retail grower, and a biological control symposium will be featured on Wednesday, November 5th. The program on November 6th & 7th will feature seminars on various greenhouse and perennial crop production tips, fertility & water management, various pest & disease control issues, retail marketing, energy efficient greenhouse crop production tips and alternative energy options, marketing trends, and many other topics.

There will also be two days of tradeshow shopping and learning with demonstrations on the show floor. Over 175 exhibitors including "incubator" displays for companies new to the industry will be featured in the trade show.

New England Greenhouse Conference & Expo is sponsored by the Extension programs of the six New England State Universities and New England Floriculture, Inc. For more information about the New England Greenhouse Conference and Expo, visit the web site, <http://www.negreenhouse.org>

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Powdery Mildew Resistant Melon

Varieties Provide Excellent Control and Quality Fruit

By Meg McGrath, Cornell University Long Island Horticultural Research & Education Center (LIHREC),

Reprinted from the *Long Island Fruit & Vegetable Update*, No. 2, February 2008

Six resistant muskmelon varieties and four resistant specialty types were evaluated at the (LIHREC) in 2007. All six muskmelon varieties have resistance to races 1 and 2, which have been the only races known to be occurring in the region. Four exhibited a very high level of suppression: at least 99% on both leaf surfaces compared to 'Superstar', the susceptible check variety, on 14 Aug, which was just before the first main harvest. While this excellent degree of control was achieved without applying fungicides, an integrated program should be used in commercial fields to ensure effective control in the event a new pathogen race appears,

which is expected to eventually occur considering the pathogen's demonstrated ability to evolve to overcome management tools, most notably fungicides.

One of these four, 'Wrangler', was rated the best muskmelon variety by Sandy Menasha and by all four commercial growers who evaluated fruit from the experiment. Two others, 'Strike' and 'Goddess', contain two different sources of resistance whereas there is one source in Athena, which exhibited 65% and 85% control on the upper and lower leaf surfaces, respectively. 'Maverick' was the fourth variety providing excellent disease control. Strike yielded as much as Superstar (14.6 lb/plant) which was significantly more than Goddess, Wrangler, and 'Lil' Loupe' (10.2-11 lb), but not Maverick and Athena (12-12.6 lb). The other varieties exhibited at least 48% suppression of mildew on the upper leaf surfaces.

The honeydew 'Crème de Menthe' was the only variety with similar levels of powdery mildew as Superstar on lower leaf surfaces. The specialty melons, most of which are not advertised as having resistance to both race 1 and 2, exhibited less suppression of powdery mildew than the muskmelons, which all have resistance to both races. The other specialty type varieties evaluated were 'Bolero' (Crenshaw melon), 'Dorado' (canary melon), and 'Vicar' (Galia). Seeds of these varieties were provided by Siegers, Harris Moran, and Hollar Seeds.

A detailed report on this work is in the March issue of the *Suffolk County Agricultural News* and posted on-line with photographs at <http://vegetablemdonline.ppath.cornell.edu/Tables/TableList.html>.

Avoiding Fertilizer Injury

Steve Reinert, Dept. of Horticulture, NYSAES, edited by SM
Reprinted from the Long Island Fruit & Vegetable Update, No. 6, April 18, 2008

All nitrogen and potassium fertilizers add soluble salts to the soil. These salts can burn tender roots of germinating seeds.

Some crops are especially sensitive such as snap and dry beans, carrots, and onions; while other crops like corn, cabbage and lettuce are moderately sensitive.

Fertilizer injury will occur most often in dry springs and when fertilizer bands are placed too close to the seed.

In order to avoid fertilizer injury, the amount of N + K₂O in the fertilizer band should not exceed 80 to 100 pounds per acre. Phosphorus will not cause burning and does not need to be figured into the equation. Make sure the band is placed 2 inches below and 2 inches to the side of the seed furrow. Also, liquid fertilizer is just as hazardous as dry fertilizer. Many growers incorrectly assume that liquid starter is safer due to extra water applied. But the amount of water actually added on a per acre basis is miniscule, far below the amount of water necessary to prevent salt injury.

In addition to salt injury, materials containing nitrogen may produce an injury due to a high concentration of ammonia.

These include fertilizer containing urea, diammonium phosphate (DAP), or anhydrous ammonia. Exceeding 30 lbs of N as urea or DAP (either in combination or alone) in bands at planting may cause seedling injury.

If you realize there is a problem after planting, irrigating as soon as possible is recommended. The water will dilute the fertilizer salt and leach some of it away from the seed.

Updated Fruit and Vegetable Management Guides

2008-2009 New England Vegetable Management Guide. Now with colored pictures of all the pests! Still only \$15.

2008 New England Tree Fruit Management Guide. The cost is \$35.

2008-2009 New England Small Fruit Pest Management Guide. The cost is \$15.

Price includes shipping and handling. All are available from the UConn Communications and Information Technology office; U-4035; 1376 Storrs Rd.; Storrs, CT 06269 or 860)486-3336.

Trunk Diseases in Connecticut Vineyards

Dr. Philippe Rolshausen University of Connecticut - Grape IPM philippe.rolshausen@uconn.edu - (860) 486-6867
Grapevine trunk diseases are often overlooked due to their slow development relative to the more common foliar annual diseases such as powdery and downy mildews, bunch rot, black-rot and *Phomopsis*. The history of trunk diseases in the long-established grape growing regions worldwide (Europe, Australasia, South Africa and California) shows that they worsen as a growing region matures. The resulting economic losses due to reduced vineyard longevity, combined with the decrease in yield and quality mean that the high start-up costs for vineyard establishment are unlikely to be repaid over the shortened life of a diseased vineyard. As an example, the cost of trunk diseases to the wine grape production in California was estimated to be in excess of \$260 million in 2001. This figure has certainly been augmented since then, due to the increase of the total acreage of planted grapevines and the aging of vineyards. This situation in established growing regions of the world serves as a warning to new grape production regions. The economic importance of trunk diseases is likely to increase in young vineyards, like in Connecticut, as the plantings increase and the vineyards continue to age. Several trunk diseases are reported in grapevines. *Eutypa dieback* (causal agent *Eutypa lata*) was the first identified and was considered for a long time the sole cause of canker diseases in vineyards. However, recent studies have demonstrated that several other wood decay fungi are also associated with grapevine cankers.

These fungi include diatrypaceous fungi (fungi closely related to *Eutypa lata* and associated to *Eutypa dieback*) *Botryosphaeria* species (causing Bot canker), *Phaeoacremonium aleophilum*, *Cadophora* sp., *Phaeoacremonium* species *Phaeomoniella chlamydospora* (causing Esca disease), plus several others that have not been studied extensively such as *Phomopsis viticola*, *Pestalotiopsis* sp. and *Trametes versicolor*. The wood decay caused by these fungi sometimes looks similar and several of those fungi can inhabit wood cankers concomitantly as a "disease complex" leading to a faster decline of the vine. Crown gall is also a common trunk disease of cold climate vineyards. However, this disease is caused by a bacterium (*Agrobacterium vitis*) and won't be addressed further in this article.

The life cycle and epidemiology for all these fungi causing trunk diseases is very similar. Fungal spores are released after rainfall and disseminated by wind and infect grapevines through exposed wood vessels. Spore inoculum comes from fungal reproductive structures found on dead or dying wood, within the vineyard on grapevines or outside the vineyard on neighboring trees (forest, orchards, woody ornamentals). These fungi are known to have a broad host range. Thus following rainfall disease pressure is always high in any given vineyard. Infections are initiated when spores enter freshly made wounds caused by frost injury, mechanical damage or pruning. Trunk diseases develop slowly, and no symptoms are seen during the first one or two growing seasons after infection. By the third or fourth season, a canker is usually apparent (Figure 1). Several more years may elapse before the affected arm or trunk is killed (Figure 2). Because of the slow progress of the disease, its full economic impact is not likely to be felt until a vineyard reaches 8 to 10 years.

In eastern U.S. vineyards little is known about trunk diseases. In collaboration with Dr. Wayne Wilcox at Cornell University, the University of Connecticut has developed a research program to address the problem and determine the occurrence, diversity, and geographic distribution of the causal agents of trunk diseases. We initiated a survey in 2007 in 18 vineyards combining *Vitis vinifera* and inter-specific hybrids across 4 eastern states (New York, Connecticut, Rhode Island and Vermont). We identified fungi present in grapevine wood cankers based on morphological characters and DNA sequencing. Here we present the results (Table 1) obtained from 5 Connecticut vineyards for a total of 85 wood samples covering 4 grape varieties (Marechal Foch, Seyval Blanc, Chardonnay, Cabernet Franc). Our data indicated that the same pathogen known to cause grapevine trunk disease in vineyards grown in other regions around the world are also present in Connecticut vineyards. *Eutypa dieback* disease incidence was higher than Esca or Bot canker. *Phomopsis* incidence was highly variable from vineyard to vineyard.

The incidence of trunk diseases in Long Island (New York) and Rhode Island was identical to Connecticut. Only Vermont showed a different pattern of diseases. Furthermore, additional surveys in fruit orchards of Connecticut indicated that the causal agents of Bot canker, *Botryosphaeria parva* and *B. dothidea* were also present in black currant and apple orchards, respectively.

Table 1: Percent Recovery of Fungi Associated with Trunk Diseases in Connecticut Vineyards

Disease	Fungal species	% Recovery
Eutypa dieback	<i>Eutypa lata</i>	22
	Diatrypaceous fungi	7
Bot canker	<i>Botryosphaeria parva</i>	9
	<i>Botryosphaeria dothidea</i>	4
Esca	<i>Phaeoconiella chlamydospora</i>	6
	<i>Phaeoacremonium aleophilum</i>	4
	<i>Phaeoacremonium</i> sp.	4
	<i>Cadophora</i> sp.	11
Others	<i>Pestalotiopsis</i> sp.	7
	<i>Phomopsis</i> sp.	28
	<i>Trametes versicolor</i>	4

Young growing regions are at risk from trunk diseases. Because the first infection starts years before symptoms appear, preventing infection in young vineyards is critical to reducing disease later on. Control of these diseases can be achieved partially by sanitation and cultural practices. The cultural requirement for regular pruning provides a multitude of entry points for the pathogen each year. The removal of dead or dying wood from vineyards is a requisite to keep inoculum as low as possible. However, in regions where inoculum is produced abundantly on many alternative hosts, it is challenging to manage trunk diseases effectively by sanitation methods alone. For example, the recovery of the same *Botryosphaeria* species from grapes, black currant and apples suggests that in Connecticut vineyards inoculum causing Bot canker could originate from neighboring orchards and vice versa.

Cultural practices should be employed to limit infections. Pruning must be done in absence of rain and if possible during a dry period (several days of no rain following pruning), so disease pressure is low. Furthermore, pruning should be done as close to bud break as possible. Indeed, wound susceptibility is affected by the age of the wound and the time of pruning.

The susceptibility of wounds diminishes markedly during the two weeks following pruning (and after four-six weeks the wounds are unlikely to be infected) and the decline is even faster with high-degree day accumulation. The main drawback to this type of treatment is that if growers wait to prune late, they may not be able to get across the vineyard in time for bud-break. Therefore a double pruning system was developed in California whereby the top growth of the vines is cut in late fall/early winter using a tractor-mounted blade. The growth is removed to the top wire and the vines over-winter in that state (Figure 3). Before bud-break, the vineyard is further hand pruned to two bud spurs. In the absence of all the cane growth, the later pruning is accomplished rapidly.

Nonetheless, trunk diseases are best controlled with preventative treatments applied directly on fresh wounds. There are only a few fungicides registered or known to be effective to control these diseases. Topsin M WSB is effective but only has a 24© (Special Local Need) label for Eutypa dieback in New York and California. Another drawback is that the treatments are washed off the wound during rain. Thus, several fungicide applications are required to achieve full control. Alternative treatments to conventional fungicides have also been developed to limit the establishment of the pathogens in the wood. Boron is an efficient way to control Eutypa dieback and is applied as a fertilizer on grapevines. To achieve long-term protection of the wounds boric acid is mixed in a grafting paste, which allows the fungicide to stay on the wound surface even in rainy weather. However, precaution has to be taken when applying this product because boron phytotoxicity may occur as the buds fail to push. Biocontrol agents can also be applied on wounds.

Trichoseal is a commercial product containing the fungus *Trichoderma harzianum* that prevents pruning wound infection from wood decay fungi. Finally control of *Phomopsis* can be done with fungicides such as captan, mancozeb and azoxystrobin.

UConn Pest Messages

UConn Vegetable Pest Message—Available from June to September online at www.hort.uconn.edu/ipm or by calling the recorded message at (860)870-6954.

UConn Fruit Pest Message—To receive by email, contact Lorraine Los at (860)486-6449 or lorraine.los@uconn.edu. They are also available online at www.hort.uconn.edu/ipm.

UConn Greenhouse Update—To receive by email, contact Leanne Pundt at (860)626-6240 or leanne.pundt@uconn.edu. They are also available online at www.hort.uconn.edu/ipm

Regional

The New England Greenhouse Update—Timely reports about what's happening in MA, CT, and RI with pests, nutrition, greenhouse engineering, marketing, and other issues. Available online at www.negreenhouseupdate.info or by email or fax by contacting Leanne Pundt at (860)626-6240 or lleanne.pundt@uconn.edu.

Once again, efficient control of the foliar disease could limit the establishment of the pathogen in the wood. Unfortunately, to achieve good control for trunk diseases each wound must be treated to ensure that the chemical covers the exposed vessels at the wound surface, rendering treatments tedious and time consuming. Applications of fungicides by conventional spray machines have not been tested. Another challenge is for these treatments to be effective against the whole spectrum of fungi causing trunk diseases.

Trunk diseases are a serious problem. However, the research on control methods has remained fragmented and limited in scope. Because of the complexity of the problem it is difficult to use one treatment that is effective against the whole spectrum of organisms causing trunk diseases. However, it is critical to determine the cause of trunk diseases in Connecticut and Northeastern U.S. vineyards so adaptive control measures can be deployed effectively. In the meantime, sanitation and cultural practices are the best way to manage these diseases until adequate alternative methods are developed and implemented.

Figure 1: Evidence of canker development in the trunk of a grapevine.



Figure 2: Dead arm caused by trunk diseases



Figure 3: Double-pruning; grapevines are pre-pruned mechanically before hand pruning



Pesticide Label Updates for Fruit Crops

Lorraine Los, University of Connecticut

Changes to Existing Labels:

Assail (acetamiprid)

More fruit crops have been added to the Assail 30SG and Assail 70WP labels. In addition to pome fruits and grapes which were on the existing label, the following crops are now included: stone fruit; strawberries and other low growing berries; and blueberries and other bush and cane berries. Read the label to see the list of fruit included in these categories. The label includes a wide array of insect pests including aphids, leafminers, leafhoppers, codling moth, Oriental fruit moth, European apple sawfly and apple maggot. Note that plum curculio is listed as a target pest, but it has not proven to be very effective. Therefore, it would not be a good choice when this pest is active (usually begins around petal fall).

Avaunt (indoxacarb)

The old Avaunt label included apples and pears. The new label has added stone fruit (apricot, sweet cherry, tart cherry, nectarine, peach, plum, prune) for plum curculio, peach twig borer and suppression of Oriental fruit moth. The restricted entry interval (REI) is 12 hours for all of these crops. The preharvest interval (PHI) is 14 days for stone fruit and apples (and various other pome fruits except pear). The PHI for pears is 28 days.

Diazinon 50W, AG600

The REI is now 4 days for all tree fruit crops: apples, apricots, cherries, nectarines, peaches, pears, plums, prunes. The use on apples is restricted to San Jose scale and woolly apple aphid; a maximum of two applications per year. The REI is 5 days on blueberries.

Guthion (azinphosmethyl)

The only remaining tree fruit uses include apples, pears and cherries, which are supposed to remain on the label until 2012. The current Guthion Solupak 50% label includes maximum use rates for years 2008-2012. These rates change depending on year and crop. For 2008, the maximum use rate is 6.0 lbs. formulation per acre per year for apples and pears; and 3.0 lbs. formulation per acre per year for cherries. The REI is 14 days for apples and pears and 15 days for cherries. The preharvest interval (PHI) is 14 or 21 days for apples and pears (depending on rate) and 15 days for cherries. "Pick-Your Own" harvesting is prohibited on pears and cherries if Guthion is used. On apples, the REI for "Pick Your Own" varies from 33 to 44 days, depending on rate used. There are also restrictions regarding spray drift and buffer zones for water bodies. Be sure to read this label very carefully!

New Products:**Mustang Max (zeta-cypermethrin)**

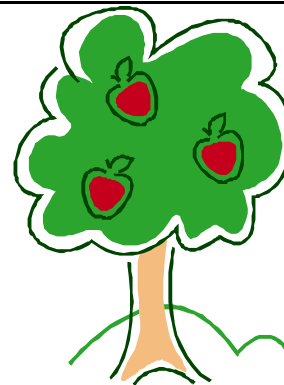
This is a pyrethroid insecticide labeled for pome fruit, stone fruit, grapes and berries (includes blackberry, raspberry, blueberry, currants, gooseberry and others). The label includes a wide array of pests for these crops. The REI is 12 hours; PHI depends on crop.

Portal (fenpyroximate)

Portal insecticide/miticide is the same as Fujimite. Portal is marketed on the east coast and Fujimite on the west coast. It is labeled for use on pome fruits (apples, pears). Target pests include leafhoppers, mealybugs, mites (including European red mites, twospotted spider mites), and pear psylla. It is limited to two applications per season. The REI is 12 hours; PHI is 14 days.

Phase-Outs/Cancellations:**Mitac (amitraz)**

This insecticide was voluntarily cancelled by the manufacturer. It was an old standard for pear psylla. The last date for use was November, 2007.



Second Twilight Meeting of the Connecticut Pomological Society

Scheduled for Monday, June 2 at 5 PM at Hindinger Farms,
835 Dunbar Hill Road, Hamden, CT

A diversified farm since 1893, the Hindinger family invites you to share with them this spectacular scenery, friendly atmosphere, and farm fresh fruits and vegetables.

They are committed to the concept of offering their customers the freshest home-grown produce available, in a clean, friendly environment. The Hindinger Farm practices Integrated Pest Management, allowing them to prevent pest damage to their fruits and vegetables while curbing pesticide usage.

Their fresh juicy peaches, strawberries, apples, nectarines and delicious sweet corn attract choosy families from far and wide, just a few of the great variety of fresh vegetables and fruit they have throughout the year.

Refreshments will be served after the tour with a short business meeting to follow. Visit their web site for more information and directions. www.hindingersfarm.com

From Hartford:

Interstate 91 S to exit 10, the route 40 connector

Take first exit off the connector (State Street)

Take left at light at end of exit

At next light, (Hartford Turnpike) turn left

At the light under the connector, turn right onto Dixwell Ave

Take Dixwell Ave thru the Hamden shopping district
(Past Dunkin Donuts, turn right on Benham St

Follow Benham to top of 2nd hill (thru 4 traffic lights)

At stop sign, turn right onto Dunbar Hill Rd

Follow Dunbar Hill to Hindinger Farm, on right side

Zone-tillage on the Cecarelli Farm, Northford, CT

Vegetable Growers' Twilight Meeting

Sponsored by the UConn Cooperative Extension System & NE SARE

June 5, 2008 6:00-8:00 PM

Pizza and beverages will be provided free.

Nelson Cecarelli grows approximately 100 acres of sweet corn, squash, cucumbers, peppers, tomatoes, eggplant, lettuce, peas, beans and cabbage. He experienced severe erosion problems with all the rain in 2006, and in 2007, transitioned to a form of reduced tillage called deep zone tillage on his corn and winter squash. This system combines strip tillage with zone building/subsoiling. It produces a slightly-raised, narrow seedbed (5-8" wide), that warms faster than conventional or no-till fields, but still protects the soil between rows with a surface residue. When combined with the use of winter cover crops, deep zone tillage helps replace organic matter lost through years of conventional tillage, reverses the deterioration of the soil, improves soil structure and drainage, increases soil water and nutrient holding capacity, and allows beneficial soil organisms, such as earthworms, to thrive.

Come hear Nelson and others describe their experiences using deep zone tillage and see this system in action. Eben Weil an equipment dealer, from S. C. Hansen, Inc. in Horseheads, NY, will be there to describe the hardware needed to make this transition. Hope to see you there.

Jude Boucher, UConn Cooperative Extension, 860-875-3331 or jude.boucher@uconn.edu

Directions:

From the North: Go south on I-91 to Wallingford and take the E. Center Street Exit (for Rt. 150). At the top of the ramp, take a left onto E. Center St. and cross back over the highway. Go 0.6 miles and turn right onto Northford Rd. Go 2.2 miles to the stop sign at Rt 17. Go right on Rt. 17 for 0.2 miles and take your first right onto Old Post Rd. The farm is ½ mile up on the right.

From the South: Go north on I-91 to Exit 8 (Rt 80 Exit). Take a left onto Rt. 17 (north) and proceed several miles to Northford town center (intersection of Rt. 22 and 17). Take a left at the second traffic light in the town center onto Rt. 22 and **immediately** (about 30 feet) take a right onto Old Post Road. The Cecarelli Farm is located on Old Post Road (bare right when the road forks), 0.8 miles north of the Northford town center.

What You'll Need To Start a Scouting Program

Amanda Brown, UMass Extension
Reprinted from UMass Extension Vegetable Notes
Vol. 19, No. 1, May1, 2008

Are you interested in starting your own sweet corn IPM program this year? If so now is the time to start ordering supplies you will need to get started for the 2008 season. Throughout the season, trap captures and field infestation levels can be very different from one location to the next. By monitoring flight patterns and caterpillar activity on your own farm you may be able to save yourself some time, money and stress! Now it is easier than ever before to get your own scouting kit that will get you started with traps and lure for an entire season by requesting the New England sweet corn scouting kit from Great Lakes IPM. By ordering the kit, you will have everything you need to start monitoring for the typical pests of sweet corn including European corn borer, corn earworm and fall armyworm. Soon to be included in the kit is a free UMass Vegetable Program publication entitled Using IPM in the field a Sweet Corn insect field Management Guide along with a record keeping book. Our hope is that through the availability of the kit and scouting tools, more growers will adopt scouting programs of their own and see the many benefits a scouting program can have. For information on how to set up a scouting program feel free to contact Amanda Brown, UMass Vegetable Extension Program at 413-577-3976 (or in Connecticut contact Jude Boucher, 860-875-3331) or visit the Great Lakes IPM website at www.greatlakesipm.com. Specifics on ordering information is below or inquire about the New England sweet corn scouting kit when you call.

The following items are available from:

Great Lakes IPM, Inc.
10220 Church Rd NE
Vestaburg, MI 48891
989-268-5693/989-268-5911 phone
800-235-0285/989-268-5311 fax
e-mail: glipm@nethawk.com
www.greatlakesipm.com

Below is a list of the traps and lures that will be included in the New England Sweet Corn Kit, which provides 2 traps for ECB, 2 traps for CEW, 1 trap for FAW and enough lures for one season (16 weeks for ECB, 10 weeks for CEW and FAW), for a package price of \$265. Store lures in the freezer until use; if kept in the freezer, lures will stay fresh for many years. Brands listed have proven reliable in the New England. The thresholds listed in this guide are based on using these trap and lure combinations.

1. Scentry Heliothis net traps for monitoring both European corn borer (2 traps) and corn earworm (2 traps) (total: 4 traps)
2. Universal Moth Trap for monitoring fall armyworm (1 trap)
3. Trécé lures for European corn borer (Iowa strain, IA or ZI; and New York strain, NY or EII)
4. Scentry lure for Fall armyworm (type: 2 component PSU lure)
5. Hercon lure tape for corn earworm (pack of 10 lures)
6. Hercon vapor tape for Unitrap

Saving Your Fertilizer Dollar

Steve Reiners, Cornell University, NYSAES edited by SM
Reprinted from Long Island Fruit and Vegetable Update,
No.8, May 2, 2008

The cost of fertilizers has reached record levels this spring and growers are rightfully asking how they can maintain yields and save on their fertilizer bill. Here are some suggestions.

1) Soil test. Soil pH between 6.0 to 6.8 (for most vegetables) will utilize fertilizer most effectively. 2) Take nitrogen credits. Cover crops, manures, previous crops and even the soil organic matter (SOM) provide about 20 pounds of N for every one percent SOM. For fields with rye cover crop, figure on 10-20 pounds of N once the rye begins to break down. 3) Don't apply N preplant. Vegetables only need about 25 pounds of N/A during the first four weeks of growth. Better to apply 25% at planting and the rest split over a couple of sidedressings later in the season. 4) Don't let N blow in the wind.

Any tillage or applicator that puts the nitrogen in the soil rather than on the soil improves efficiency of the nutrient, decreasing the chances of being lost through volatilization. 5) Pre-Sidedress Nitrate Test (PSNT). Test your soil prior to sidedressing to see if any N is needed. The PSNT is an in-season test that measures the nitrate level in the top ft. of soil. Check with your local CCE office for details. 6) Reduce tillage. The quickest way to burn off organic matter is with conventional tillage. This puts lots of oxygen into the soil and microbe populations explode, at the expense of SOM. Check with your local CCE educator for advice on ways to reduce tillage. 7) Don't over apply P. If your soil level is high and you are planting when soils are still cool, use no more than 20 pounds of actual P/A as a starter. This will help the plants get established until soil P becomes available as the soil warms. If planting in warm soils after June 10 on high P soils, no additional P may be needed. 8) Fertilized Mulched Acre. When using plastic mulch, think "Fertilized Mulched Acre" or FMA. Say you are planting on 5 foot centers, with the plastic mulch covering 3 feet and bare ground between the rows covering 2 feet. To figure the FMA, take the area of soil covered by mulch (3') and divide by the row center distance (5'), which gives 0.6 or 60%. If the soil test calls for 100 pounds of actual N per acre, you can cut this amount to only 60 pounds if you apply the N only to the area covered by the plastic. In this situation, you are only applying fertilizer where it will be used by your crop, not by weeds growing between rows. 9) Grow your own N in-season. Plant a clover between rows of plastic mulch. It could add 20-30 pounds of N for next season. 10) Soak up residual N this fall. Planting a rye (or rye/vetch) cover crop can hold on to nitrogen that would otherwise be lost.

New Dean of Agriculture Joins UConn from Arkansas

Gregory Weidmann of the University of Arkansas has been named the new dean of UConn's College of Agriculture and Natural Resources. He will begin in July.

Weidemann is currently dean of the Dale Bumpers College of Agriculture, Food, and Life Sciences in Arkansas, where he also serves as associate vice president for academic programs.

"I am so pleased to be joining the leadership team at UConn and serving the needs of the faculty, staff, and students at this great university," Weidemann says. "I was very much attracted to the ambitious vision that has been set for the University and the important role the College of Agriculture and Natural Resources will play in achieving that vision. The college is central to the history of UConn and will be an integral part of its future success."

At Arkansas, Weidemann served as dean and associate vice president for research and as the director of the University of Arkansas's Agriculture Experiment Station. A native of Wisconsin he holds a bachelor's degree in zoology and a Ph.D. in plant pathology from the University of Wisconsin.

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