The New York Berry News

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What's Inside

Late summer is usually the time of year when NY growers are looking to the sky for rain...but not this year. For fruit growers, summer rains are generally welcome. Strawberry fields recover well after renovation, summer raspberry and blueberry harvest are bountiful, and fall raspberries should benefit equally. Rainy weather, however, does create extremely favorable conditions for gray mold. Growers should be on a regular schedule to protect blossoms (fall bearing) and fruit (remaining summer bearing) from infection.

Elevate, Switch, and Rovral are excellent against gray mold. However, each of these materials should be used cautiously as they are prone to loss of control due to the development of resistant strains. Therefore, growers should not apply any of these fungicides more than what the label recommends, should always use the highest labeled rate, and should never apply these fungicides more than two times consecutively.

Late leaf rust is a problem on all red raspberries but can be particularly difficult to control on fall bearing varieties. Mike Ellis covers the basics of managing this disease.

The frequent rains may be leaving growers wondering just how long their fungicides are sticking to the plant. Below, Jim Travis gives some rules-of-thumb to help growers gauge how often growers should be applying fungicides in rainy seasons.

Current News and Events:

Register for the Blueberry and Fall Raspberry Twilight Meeting

You are invited to join area blueberry growers for a twilight meeting at the Garden Works, MacClan farm, in Salem, Washington County, from 6:00 p.m. to 8:00 p.m. on Monday, August 25. The program will be dedicated to blueberry and fall raspberries pest management concerns, cropping, and stand performance. Of particular interest will be discussions focusing on diagnostic testing, sanitation practices, and preventative measures taken when dealing with possible virus contamination; this is in response to a positive finding for Tobacco Ringspot Virus (TRSV) at a location in southern Washington County. The virus is responsible for necrotic ringspot disease in blueberries. I am inclined to believe that other locations may also have this disorder, or are disposed to the risk because of the activity of the dagger nematode, *Xiphimema americanum*, which spreads the ringspot virus through root feeding practices. Knowing what your risk is will allow you to adopt a scaled response of counter measures according to your risk situation - either undertaking a monitoring approach, or if your berries are contaminated, to take steps to limit additional planting damage. It helps to have a plan available for use.

Bill Turechek and Greg English-Loeb from the New York State Agricultural Experiment Station in Geneva will join us. Bill is with the Department of Plant Pathology, and Greg the Department of Entomology. I have also invited a representative from a commercial firm (Agdia) that is involved in the availability and sales of field virus assessment kits.

You will need to pre-register for this Twilight Program at the Garden Works. Please contact the office and ask for Nancy Kiuber. Please request to be placed on the Registration List for the Garden Works Twilight Meeting; and please register by Thursday, August 21.

Pre-registration will allow contact of attendees in case of program change. There will be no fee for those who pre-register. A $10 fee will be assessed at the farm on those who do not pre-register.

Twilight Meeting Directions: The Gardenworks at MacClan Farms is located on Washington County Route 30, 5 miles from the Salem village center. From whichever direction you are coming, enter Salem on State Route 22. At the traffic light in Salem, turn on to County route 30 by the Stewart's shop and proceed to the farm. Our host will farm owner Meg Southerland.

Arthropod Pest Management Update

Greg English-Loeb, Dept. of Entomology, Cornell University, Geneva, NY

In the previous edition of the NY Berry News I covered most of the arthropod pests that present a potential problem for summer and fall. Here I will just hit a few highlights. I have been receiving a number of calls about tarnished plant bug (TPB) in raspberries and also day neutral strawberries. Remember that this pest has several generations during the year and by August populations can be quite high and that is why it can be so problematic for day-neutral strawberries and fall raspberries. Scout for nymphs (the immature stage) and adults on inflorescences. For strawberries the economic threshold is pretty well worked out at about 0.5 nymphs per inflorescence. For raspberries the threshold has not been well worked out but if you are finding a nymph or adult on 10 to 20% of canes then you may want to treat. Malathion is labeled for TPB in both strawberries and raspberries. In strawberries we also have Danitol and Brigade available. Japanese beetles are still around and could be causing problems for blueberries and raspberries. In the Geneva area, however, it does not seem to be a very bad year for this pest. June-bearing strawberries should be growing out nicely after renovation, especially with the abundance of water we have been receiving. Note that during this time the plants are initiating fruit for next year and you want nice, healthy growth. Keep an eye out for feeding damage from two-spotted spider mite. Look for white stippling on new leaves and in severe cases, webbing. The mites themselves tend to be on the bottom side of leaves. Spider mites can also still be a problem in raspberries.

Below we have included an informative article written by Vern Grubinger of the University of Vermont on management of root weevils in strawberries with a particular emphasis on the use of entomophathic (= insect attacking) nematodes. The article is based on data and information from Dr. Richard Cowles from the Connecticut Agricultural Experiment Station. Rich has been a leader in the use of beneficial nematodes and has done numerous trials in strawberries. In the article Vern mentions three species of root weevils that attack strawberry roots, with black vine root weevil being most common in New England. The situation is similar in New York, although strawberry root weevil seems a bit more common. In any case, the important thing is these species show about the same life cycle so that timing for control decisions are similar. Note that Vern indicates the use of the pyrethroid Brigade (bifenthrin) for control of adult weevils. To be effective, it's important to time them shortly after you start seeing feeding damage by adults (the characteristic notching of leaves) in order to kill adults before they have a chance of laying many eggs. Emergence of adults in the summer can vary from place to place and among the different species, so timing an insecticide can be difficult. Note that adults are active at night so you are most likely to observe their feeding damage rather than the adults themselves. You may be wondering if you have root weevil problems. Symptoms include weak growth that is exacerbated by drought conditions. You might observe sections of a planting dying or looking very unthrifty. In the spring you can dig out some crowns and look for the cream-colored, legless larvae in the soil near the roots. You can find larvae in the later summer also, but they may be quite small.

Black Vine Weevil Management in Strawberry

Vern Grubinger, Univ. of Vermont from info supplied by Richard Cowles, CT Ag. Exp. St., Peter Shearer, Rutgers Coop. Ext., and others.

The larvae of several kinds of root weevils can cause serious damage to strawberry roots, leading to reduced yield and possibly complete demise of a healthy field. Black vine weevil (BVW) is probably more common than strawberry root weevil or rough strawberry root weevil in New England. The life cycle and management of these weevils are the same. Their larvae are whitish, crescent-shaped larvae and ¼ to ½ inch long with no legs. Adults emerge and feed from May through August, laying eggs as late as October that hatch and overwinter as larvae. Adult feeding causes characteristic scalloping or notching of the leaf edges, but rarely does this cause economic damage. (Feeding on the interior of the leaf, causing holes, is caused by Asiatic garden beetles or Japanese beetles.)

Adult weevils hide in the crowns during the day and feed at night. They are not easy to kill with insecticides so a better strategy is to kill the larvae with applications of beneficial nematodes. If adults are numerous (i.e. more than 50 out of 100 leaves sampled across the field have notching) then a spray may be warranted. The pyrethroid bifenthrin (Brigade)

provides some control if used at the highest labeled rates. The best timing for this spray is at night during the peak feeding activity of adults, before they start laying eggs, or about 1 week before harvest ends. Neem-based products containing azadiractin (such as Aza-Direct) may be acceptable for organic production, and while neem will not kill the adults it can disrupt egg-laying if applied at high rates at least twice. While Admire is very good for controlling some white grubs it is mediocre against Asiatic garden beetle and very poor against BVW.

Although bifenthrin claims to kill spider mites, many two spotted spider mite populations are resistant to pyrethroids. Spraying this product or other pyrethroids usually exacerbates spider mite problems by selectively killing off predatory mites. Growers challenged with black vine weevil problems should plan well ahead, and use horticultural oil (SunSpray UltraFine Oil) early in the growing season. If applied with an airblast mist blower, oil can be inexpensive, effective, and non-toxic to predatory mites. This strategy can then reduce the risk of spider mite problems later. Be sure to use oil ~2 weeks before any Captan sprays, because when the two products are combined they are extremely phytotoxic. Alternatively, Brigade may be applied with oil 2-3 days after mowing the foliage during renovation. This approach should jointly control spider mites and root weevil adults.

Beneficial Nematodes

The key to successful use of beneficial nematodes is timing the application to allow sufficient time for multiplication of the nematodes in hosts (weevil larvae) and dispersal of nematodes throughout the soil. Early- to mid-May application has given excellent results, especially when the numbers of larvae of the next weevil generation are evaluated in the autumn. Research in CT, NJ and elsewhere has shown that the appropriate nematode species properly applied can effectively infect and suppress weevil populations. *Heterorhabditis bacteriophora* (Hb) appears to be the best candidate for control of root weevils when the soil temperature is above 60 degrees ('J-3 Max Hb' from The Green Spot; 'GrubStake HB' from Integrated Biocontrol Systems; 'Larvanem' from Koppert Biologicals). *Beneficial nematodes can also be applied in late summer (August 15 -September 1)*, and in that case, *Steinernema feltiae* ('Nemasys' from Griffin Greenhouse Supply, 'Gnat Not' from Integrated Biological Control Systems, 'Entonem' from Koppert Biological) should be considered in northern locations since it tolerates cooler soil temperatures and completes its life cycle so quickly. Other beneficial nematodes may also control weevils but these 2 species were most commonly found established in CT strawberry fields. There is no point in applying beneficial nematodes in early or mid-summer since few larvae are present.

Nematodes are living organisms and they can be killed if they are misapplied. Order nematodes ahead of time and be ready to apply them through a sprayer or irrigation soon after they arrive, refrigerating if delay is necessary. Do not apply nematodes using a sprayer with a piston pump. Use clean equipment, removing all screens finer than 50-mesh. Apply nematodes in early morning or evening in a high volume of water to already moist soil, pre-irrigating if needed. Apply another ¼ inch of irrigation after application to wash them onto and into the soil. Although references suggest rates of several billion nematodes per acre, I found researchers and suppliers recommended 250 (if banded in the row) to 500 million per acre, at a cost of about $100-200 acre depending on volume and source. Green Spot says their formulation requires lower numbers of nematodes but the cost ends up about the same. Paradoxically, nematodes probably work best in the worst weevil-infested fields. High populations of weevil larvae allow explosive growth in nematode populations, while low populations of larvae may not permit efficient nematode reproduction. Strawberry plants can recover their vigor remarkably well if crown feeding has not occurred and diseases haven't taken over the roots.

Root weevils cannot fly, so they infest new plantings by wandering into fields from surrounding weedy and woodland vegetation, or in large numbers from recently plowed, infested strawberry plantings. Even plantings several hundred feet away can become generally infested as a result of mass migration from plowed fields. A good rotation program with substantial distance between strawberry fields can help to manage root weevils. Also, when turning under old, infested strawberry plantings, it is critical to leave a row or two at the perimeter of the field as a trap crop to protect other plantings. Adult weevils will be intercepted in these rows before they leave the field and thus lay their eggs where the larvae will not do any damage. At the end of the season the trap rows should be turned under prior to planting winter rye. Do not spray the trap rows as this may repel weevils and result in more migration to other fields. (*Source:* Vermont Vegetable and Berry News, July 15, 2002)

Some Beneficial Nematode Suppliers:

1. Green Spot: 603-942-8925 or www.shopgreenmethods.com
2. Griffin Greenhouse Supplies: 978-851-4346 or www.griffins.com
3. Integrated Biological Control Systems: 888-793-4227 or www.goodbug-shop.com
4. Koppert Biologicals: 800-928-8827 or www.koppert.com

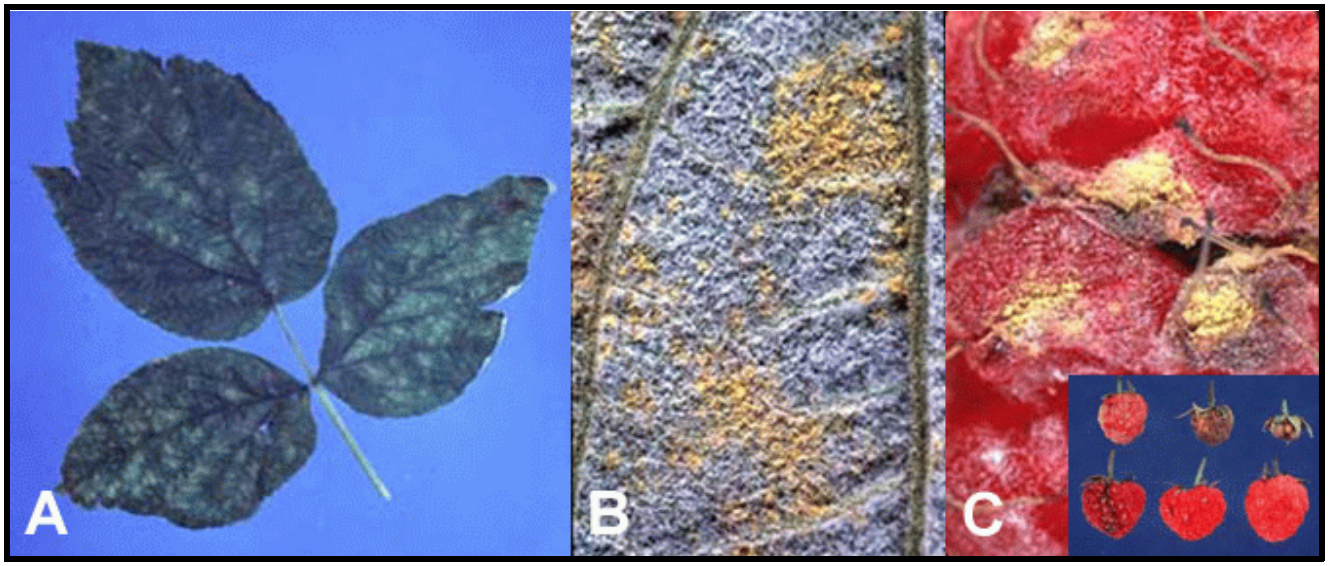
Late Leaf Rust of Raspberry

Michael A. Ellis and Omer Erincik, Department of Plant Pathology, OARDC, Wooster, OH

Late leaf rust is a potentially serious disease of red raspberries. Late leaf rust does not affect black raspberries or blackberries. The disease can affect leaves, canes, petioles, and fruit. Economic losses occur from fruit infection and premature defoliation. Because it usually appears late in the season, and only occasionally in a severe form, some consider it to be a minor disease. However, losses due to fruit infection have reached 30% in some commercial red raspberry plantings in Ohio. The wild red raspberry, *Rubus strigosus*, in the eastern United States is very susceptible to this disease. A number of cultivated varieties originating from this species also are highly susceptible. While late leaf rust occurs throughout the northern half of the United States and southern Canada, it is more common east of the Mississippi River. In recent years, its occurrence has increased in the northern areas of the Midwest, and it has caused significant losses.

On mature leaves, small chlorotic, or yellow, areas initially form on the upper surface of infected leaves (Figure 1A). These spots may eventually turn brown before leaves die in the fall. Unless the disease is severe, foliar infections may be difficult to see. Small pustules filled with yellow to orange powdery spores (not waxy like the spores of orange rust) are formed on the underside of infected leaves (Figure 1B). Badly infected leaves may drop prematurely, and in years when the disease is severe, canes may be bare by September. Flower calyces, petioles, and fruit at all stages of development may be attacked.

On fruit, pustules develop on individual drupelets, producing yellow a masses of spores, which make the berries unattractive and unacceptable for fresh market sales (Figure 1C). Infections may also occur on leaf petioles and canes.



Disease Development

Late leaf rust is caused by the fungus *Pucciniastrum americanum*. Unlike the fungus that causes orange rust (a common disease on black raspberry and blackberry), the late leaf rust fungus is *not* systemic. The fungus is heteroecious, meaning that it attacks two different hosts at different stages of its life cycle. The rust fungus produces two types of spores (urediniospores and teliospores) only on red raspberries. The alternate host for the rust is white spruce (*Picea americanum*), on which another type of spore (aeciospore) is produced.

Aeciospores are released from infected white spruce in mid-June to early July and are capable of infecting raspberry during this period. In early July, urediniospores (powdery-yellow to orange spores) start to form on the underside of infected raspberry leaves or flower parts. These urediniospores can continue to cause infections on raspberry leaves and fruit throughout the growing season.

Another type of spore (teliospore) develops on infected leaves in the fall and serves as the overwintering form of the fungus. In the following year, the teliospores germinate and form yet another type of spore (basidiospore), which infects white spruce needles during rainy periods from mid-May to early June.

Several recent studies indicate that the fungus apparently does not need the aeciospore stage to survive on raspberries, because the disease is found year after year in regions remote from any spruce trees. It is probable that the fungus overwinters on infected raspberry canes as urediniospores or teliospores that serve as the source of primary inoculum for new infections the following season.

Disease Management

1. *Use healthy, disease-free planting stock*. One of the best ways to avoid the disease is to start the planting with healthy planting stock. Since the fungus can be carried in or on planting material, inspection of the planting materials before planting is recommended.

2. *Site selection*. Select a site with good air movement and full sun exposure. Never plant raspberries in shaded areas. Good air movement and sunlight help the foliage and fruit to dry off quickly after a rain or heavy dew. Rapid drying will reduce the incidence of fruit and leaf diseases in general.

3. *Canopy management*. Keep row width between 1 and 2 feet in order to encourage air movement and faster drying. Cane density should not exceed three or four canes per square foot. Always select large, healthy canes when thinning. Control timing and the amount of nitrogen fertilizer to prevent excessive growth.

4. *Control weeds*. Good weed control within and between the rows is essential. Weeds in the planting prevent air circulation and increase drying time, resulting in wet fruit and foliage for longer periods.

5. *Sanitation*. Remove and destroy infected and old fruited canes. Previously infected plant parts serve as a source of inoculum for the disease. Removing and destroying old fruited and infected primocanes greatly reduces the amount of disease inoculum in the planting.

6. *Eradication of alternative and wild hosts*. As previously mentioned, the late leaf rust fungus requires white spruce trees as an alternate host to complete its full life cycle. Eradication of white spruce trees interrupts the life cycle of the fungus and should aid in disease control. Eradication of nearby wild red raspberries that serve as a reservoir for disease is also beneficial for control of the disease.

7. *Use of disease resistance*. Black raspberries and blackberries are immune to the disease. Unfortunately, there are no commonly grown red raspberry varieties that are resistant to the disease.

8. *Fungicide use*. Fungicides that are effective for control of late leaf rust are currently available and are commonly used in commercial plantings.

[***Editor's note:*** Nova 40W is the most effective fungicide labeled against rust. Where there is a history of rust and the alternative host is present (see #6), applications could begin in mid-June to early July when the aeciospores are beginning to infect raspberry and continue through harvest if symptoms are apparent on leaves. Applications after mid-July target the second spore stage (i.e., the uredinospores). Thus, applications after mid-July should be limited to periods when conditions favor disease development in plantings where the disease is present. However, more research is needed to learn how to manage this disease when urediniospores serve as the source of inoculum.] (*Source:* Ohio State University Fact Sheet SeriesHYG-3210-02 (http://ohioline.osu.edu/ hyg-fact/3000/index.html)).

Effect of Rain on Fungicide Wash-Off

Jim Travis, Dept of Plant Pathology, Pennsylvania State University, Biglerville, PA

If you are using protectant fungicides you need to consider the effect of rain on wash-off of the materials. The strobilurin (Quadris, Abound, Cabrio) and sterol inhibiting (Nova) fungicides are absorbed into the leaf and fruit tissue after application (once the residue has dried) and are not affected by rain wash-off. The protectant (Captan, Bravo, Copper) fungicide residues can be affected by rain.

A general rule-of-thumb for the effect of rain on washing-off protectant fungicides follows:

1). Less than one inch of rain since the last spray will not significantly affect residues.

2). One to two inches of rain will reduce the residue by one half. Reduce the number of days until the next spray by one half.

3). Over two inches of rain since the last spray will remove most of the spray residue. Renew the fungicide deposit as soon as possible.

This rule has been used for many years to provide growers with general guidance. Newer protectant fungicide materials may be less subject to wash-off, but information is limited. (*Source:* Fruit Times Newsletter Vol. 21, No.7)

Research on Controlled Atmosphere Storage for Ribes

Steven McKay, Extension Educator, Cornell Cooperative Extension of Columbia County, Hudson, NY

Gooseberries and currants (Ribes) have been rapidly earning their place on fruit farms as a crop for diversification. Cultivars have been developed that are quite disease resistant, and in some cases completely eliminate the need for sprays. As such, the crops are relatively low-input, and an alternative that can produce an additional profitable crop. Prices this year have ranged from twenty to twenty-eight dollars wholesale price to the grower. With this kind of incentive, growers are increasing plantings. Our recommendations are to plant only to satisfy confirmed market demand [see article below]. At the same time, over-planting usually does take place among eager farmers.

In light of the potential for over-planting, and a need to spread the marketing season over more months, we have begun to research the alternatives available using CA (controlled atmosphere) storage. I have been able to hold gooseberries and red currants at 32 F for as long as three months with no special provisions for CA. The Dutch have been holding red currants for as long as eight months using traditional CA techniques. This is a special advantage of Ribes, since such long storage periods are not achieved with more common berries such as strawberries and raspberries. CA storage could become a very useful tool for Ribes growers and marketers if, 1. there is an excess of supply at harvest time, or 2. if marketers would like to hold a portion of the crop until a holiday season when prices are high, and berries are in demand.

The method currently used for CA of red currants involves palletizing quart containers of fruit, covering the fruit with a huge plastic bag, (sealed at the bottom by placing the pallet in a tray of water), and connecting the bag to a manifold system which regulates gas concentrations (lowering oxygen, and raising carbon dioxide concentrations). These pallets are placed in a 32 F room, and can be taken out, repacked and sold according to market demand. Gooseberries can be held similarly, but they have a ripening sequence different from red currants which requires that they be placed in storage at a "green mature" stage, or the stage just as natural ripening on the bush would take place. Red currants, on the other hand can be placed in storage when ripe.

The research being done this year is a cooperative project between local Northeast farmers, Dutch farmers, and Cornell Cooperative Extension. The research has been sponsored by Northeast SARE through a Partnership Grant for Agricultural Professionals, which has the purpose of supporting agriculture that is profitable, environmentally sound, and beneficial to the community. The grant is being used for two main projects. One is to find the ideal stage to harvest gooseberries for optimal storage life. The other is to improve methods of storage of red currants and explore an economical method of storage using self-conditioning reuseable plastic CA bags. The system to regulate the atmosphere in the Dutch storage chambers is costly, and involves a complicated computerized system to regulate gases. We are hoping to avoid this investment by replacing the system with simple plastic bags that fit over each box of fruit.

Research is taking place this year and next, and final results of the project are expected in 2005. If you would like more information on this project or on Ribes in general, please contact me (Steve McKay) at 518-828-3346.

Growing for Profit - Managing Crop Mix According to the Market

Wen-fei Uva, Senior Extension Associate, Dept. of Applied Economics and Management, Cornell University, Ithaca, NY

There are no magic answers for running a profitable horticulture business. Everything you do in business must start with a "marketing philosophy" to MEET YOUR CUSTOMERS' NEEDS, not merely to sell products. Making cropping decisions plays an important role in carrying out this marketing philosophy, and you should not be simply growing what you grew last year. Your crop mix is the primary vehicle by which to transform your marketing opportunity into customer loyalty, growth in sales and, most importantly, profits. However, the process can be complex. There are more varieties than ever for growers to choose from. Today, growers can find more than 30 varieties of tomatoes in seed catalogs and choose from more than 80 poinsettia varieties in many shades and patterns. The key is to keep focus on the opportunities, select new products and be willing to change your product lines to develop the sales and profits these opportunities offer.

Knowing the Trends
Knowing industry trends is the first step to identifying opportunities in the market. The market for horticultural products is becoming more diversified. Increasingly consumers are buying more of their basics from discount merchandisers for the competitive prices. Nonetheless, more consumers are also willing to pay higher prices for desired services and product features - quality, uniqueness, convenience, locally grown, organic, etc. For instance, while competition from mass marketers is intense, sales of more expensive options, such as bigger perennials, potted annuals, antique or unusual fruit and vegetable varieties, or branded products, are stronger than ever with independent garden centers and farm markets. Knowing market trends will help you segment your customer base and decide how to satisfy their needs and wants.

Develop a Process
What does all this mean to growers when selecting crops to grow for the coming season? Selling customers what they want to buy is an easier task than selling customers what you grow. Your production plan, what you plant, when you grow, and how you merchandise must be a process of identifying: (1) who your customers are (discount chains, independent retailers, or consumers); (2) your customers' needs; (3) an intuitive understanding of what your customers might need and buy if it were available to them; plus (4) which of the identified crops you can grow. This is an entirely different marketing philosophy than growing what you like or what you prefer to grow and trying to sell them.

The Product Portfolio
Your product mix is like an investment portfolio. As you study your investments and the return they bring, you often transfer one investment to another, or you increase the amount of investments by adding new investments to manage the portfolio for optimum return. The same principles apply to managing your product mix. One solution to guarantee profitability is to know your costs and be able to set the selling price to generate a profit. However, today's growers are often faced with the reverse in some market sectors. The large retail chain buyers often set a price they'll pay, and growers must figure out how to produce the product at that price for a profit.

Moreover, growers often need to carry a broad product line including some unprofitable products to remain an attractive supplier to big chain buyers or to become a destination site for retail shoppers. Therefore, if a low-margin product that is important to the product mix, it needs to be evaluated to see if it can be purchased less expensively than you can grow it. If so, that might be a good option for you. It is important to know the profit margin of each product and to optimize your return by selecting a good balance between low-margin or unprofitable but highly desirable crops and high-margin crops to satisfy your customers' needs. You should not carry the product mix if you cannot sell it at a reasonable margin. Remember, sales generating zero margins cannot offer you any profit no matter how much more you sell.

Knowing the Competition
Finally, it is becoming more important to keep tabs on your competition to stay ahead. If you offer only what your competitor offers, there is little reason for a customer to deal with you unless you have the lowest price. In today's economy, positioning your business as the low-price leader is a vulnerable competitive position. As you plan your crop mix for the coming season, remember that you can't carry everything for everybody. Knowing what your target market wants and providing a mix of crops and services that will differentiate you from your competitors will ensure that you are growing for profit. (*Source:* Smart Marketing, August 2003)

"Smart Marketing" is a monthly marketing newsletter for extension publication in local newsletters and for placement in local media. It reviews the elements critical to successful marketing in the food and agricultural industry. Articles are written by faculty members in the Department of Applied Economics and Management at Cornell University.

Questions or Comments about the New York Berry News?

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, JULY 20th, 2003

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	86	52	70	-3	143	1286	67	0.37	-0.33	11.55	-0.53
Glens Falls	84	47	66	-5	114	1047	-8	1.27	0.62	10.27	-1.33
Poughkeepsie	83	54	69	-4	132	1119	-156	0.47	-0.44	14.33	0.11
Mohawk Valley											
Utica	85	50	68	-3	129	1087	-3	0.34	-0.5	14.42	0.59
Champlain Valley											
Plattsburgh	85	51	68	-3	129	1069	-11	0.19	-0.48	10.59	-0.03
St. Lawrence Valley											
Canton	85	50	68	-2	127	1049	104	0.62	-0.15	11.33	0.1
Massena	86	50	67	-3	118	1020	11	1.26	0.56	12.59	2.26
Great Lakes											
Buffalo	85	53	68	-4	128	1109	-45	0.8	0.14	10.04	-1.45
Colden	82	49	65	-3	110	927	5	0.95	0.18	13.32	-0.53
Niagara Falls	83	51	68	-4	128	1084	-83	0.61	-0.01	11.14	-0.17
Rochester	86	52	69	-2	136	1171	39	0.53	-0.04	9.24	-0.79
Watertown	85	47	67	-3	120	1008	64	0.17	-0.23	8.83	-0.27
Central Lakes											
Dansville	83	49	66	-5	113	951	-176	1.02	0.36	13.16	1.59
Geneva	85	54	69	-3	133	1094	-13	0.19	-0.44	11.61	0.07
Honeoye	83	46	68	-4	128	1081	-69	0.27	-0.33	11.79	0.45
Ithaca	83	47	68	-2	125	1010	9	1.59	0.82	12.82	0.58
Penn Yan	84	54	70	-2	137	1172	65	0.96	0.33	10.18	-1.36
Syracuse	87	53	70	-1	140	1213	70	0.28	-0.56	12.24	-0.67
Warsaw	80	49	65	-3	106	842	-14	0.57	-0.18	13.98	0.58
Western Plateau											
Alfred	83	43	64	-4	100	918	0	1.3	0.48	14.07	0.55
Elmira	84	47	67	-4	124	1069	3	1.23	0.46	10.11	-1.81
Franklinville	81	46	62	-4	88	786	25	1.42	0.64	14.24	0.79
Sinclairville	80	49	65	-3	103	857	-9	0.88	-0.01	14.92	-0.02
Eastern Plateau											
Binghamton	80	50	67	-3	120	1011	-20	1.01	0.24	13.7	1.32
Cobleskille	83	48	67	-2	120	980	25	0.21	-0.56	12.93	-0.51
Morrisville	81	49	66	-3	111	866	-38	1.67	0.9	18.07	4.85
Norwich	84	47	66	-2	116	961	8	1.23	0.46	13.49	0
Oneonta	83	50	68	1	126	1064	183	0.9	0	14.68	0.1
Coastal											
Bridgehampton	85	58	71	-2	146	1101	-14	0.33	-0.3	22.27	8.95
New York	90	66	76	-1	186	1549	-58	0.15	-0.8	17.37	3.55

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, JULY 27th, 2003

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	87	60	74	3	173	1459	85	2.68	1.98	14.23	1.45
Glens Falls	84	57	71	1	150	1197	2	2.65	1.95	12.92	0.62
Poughkeepsie	86	59	74	2	166	1285	-151	3.35	2.48	17.68	2.59
Mohawk Valley											
Utica	83	58	70	-2	141	1228	-9	1.71	0.87	16.13	1.46
Champlain Valley											
Plattsburgh	84	60	71	0	147	1216	-8	0.96	0.23	11.55	0.2
St. Lawrence Valley											
Canton	80	56	70	2	142	1191	113	1.37	0.6	12.7	0.7
Massena	80	61	70	1	141	1161	12	0.93	0.21	13.52	2.47
Great Lakes											
Buffalo	80	58	69	-3	136	1245	-62	1.71	1	11.75	-0.45
Colden	79	54	67	-2	119	1046	-2	3.23	2.46	16.55	1.93
Niagara Falls	81	56	69	-3	136	1220	-98	0.59	-0.04	11.73	-0.21
Rochester	83	57	70	0	143	1314	36	1.15	0.52	10.39	-0.27
Watertown	83	59	71	3	152	1160	83	1.46	1.02	10.29	0.75
Central Lakes											
Dansville	80	54	67	-4	122	1073	-201	4.88	4.25	18.04	5.84
Geneva	81	58	70	-2	140	1234	-20	2.06	1.43	13.67	1.5
Honeoye	82	46	68	-4	129	1199	-105	3.03	2.43	14.82	2.88
Ithaca	82	56	69	0	133	1143	9	3.71	2.94	16.53	3.52
Penn Yan	81	61	70	-2	139	1311	57	2.47	1.84	12.65	0.48
Syracuse	85	61	71	1	151	1364	74	1.69	0.85	13.93	0.18
Warsaw	77	56	65	-3	105	947	-28	1.94	1.21	15.92	1.79
Western Plateau											
Alfred	80	48	65	-3	109	1027	-13	3.25	2.48	17.32	3.03
Elmira	82	52	68	-3	127	1196	-10	3.85	3.15	13.96	1.34
Franklinville	78	50	66	0	112	898	25	3.55	2.78	17.79	3.57
Sinclairville	78	54	67	-1	118	973	-12	1.99	1.11	16.91	1.09
Eastern Plateau											
Binghamton	80	57	68	-2	130	1141	-30	2.68	1.91	16.38	3.23
Cobleskille	82	60	71	3	149	1129	47	1.51	0.74	14.44	0.23
Morrisville	81	48	66	-3	112	978	-52	2.8	2.03	20.87	6.88
Norwich	83	51	69	0	134	1095	10	2.46	1.74	15.95	1.74
Oneonta	86	58	70	3	143	1207	207	2.24	1.4	16.92	1.5
Coastal											
Bridgehampton	86	61	74	3	170	1271	2	0.89	0.23	23.16	9.18
New York	90	70	79	2	203	1752	-44	3.61	2.7	20.98	6.25

1. *D*eparture *F*rom *N*ormal
2. Season accumulations are for April 1st to date

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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, AUGUST 4th, 2003

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	85	55	71	-2	149	1608	80	1.41	0.66	15.64	2.11
Glens Falls	83	50	68	-2	129	1326	-9	2.15	1.4	15.07	2.02
Poughkeepsie	86	57	71	-3	149	1434	-163	0.35	-0.49	18.03	2.1
Mohawk Valley											
Utica	85	54	70	-1	139	1367	-14	0.81	0	16.94	1.46
Champlain Valley											
Plattsburgh	85	55	68	-2	130	1346	-18	0.41	-0.4	11.96	-0.2
St. Lawrence Valley											
Canton	85	52	69	1	134	1325	118	0.9	0.06	13.6	0.76
Massena	83	51	68	-2	128	1289	7	0.64	-0.13	14.16	2.34
Great Lakes											
Buffalo	84	55	71	-1	146	1391	-63	0.28	-0.52	12.03	-0.97
Colden	81	52	68	0	126	1172	-2	1.38	0.56	17.93	2.49
Niagara Falls	84	54	70	-2	141	1361	-104	0.3	-0.43	12.03	-0.64
Rochester	84	55	70	0	144	1458	40	0.24	-0.44	10.63	-0.71
Watertown	86	49	68	-1	131	1291	81	1.31	0.77	11.6	1.52
Central Lakes											
Dansville	82	51	68	-4	126	1199	-217	1.45	0.81	19.49	6.65
Geneva	84	57	70	-2	139	1373	-27	0.78	0.15	14.45	1.65
Honeoye	84	51	68	-4	132	1331	-123	1	0.37	15.82	3.25
Ithaca	83	50	68	-1	127	1270	3	0.89	0.13	17.42	3.65
Penn Yan	84	58	70	-1	140	1451	51	0.97	0.34	13.62	0.82
Syracuse	88	58	71	0	147	1511	77	0.75	-0.05	14.68	0.13
Warsaw	79	52	66	-1	116	1063	-31	0.77	0	16.69	1.79
Western Plateau											
Alfred	82	48	67	-1	116	1143	-16	1.45	0.74	18.77	3.77
Elmira	83	50	68	-2	131	1327	-19	1.13	0.43	15.09	1.77
Franklinville	80	48	65	-1	108	1006	27	1.67	0.84	19.46	4.41
Sinclairville	79	51	66	-1	116	1089	-15	1.98	1.07	18.89	2.16
Eastern Plateau											
Binghamton	80	54	67	-3	125	1266	-39	1.32	0.55	17.7	3.78
Cobleskille	84	50	67	-1	122	1251	43	2.62	1.86	17.06	2.09
Morrisville	84	52	66	-3	109	1084	-69	0.82	0.05	21.69	6.93
Norwich	85	52	67	-1	123	1218	7	0.8	0.1	16.75	1.84
Oneonta	86	53	69	3	131	1338	219	2.04	1.2	18.96	2.7
Coastal											
Bridgehampton	85	57	73	1	162	1433	7	0.28	-0.42	23.44	8.76
New York	92	66	77	-1	187	1939	-46	0.97	0.06	21.95	6.31

1. *D*eparture *F*rom *N*ormal
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WEATHER REPORTS OF TEMPERATURES AND PRECIPITATION THROUGHOUT NEW YORK STATE FOR WEEK ENDING SUNDAY 8:00am, AUGUST 11th, 2003

	Temperature				Growing Degree Days (Base 50)			Precipitation (Inches)			
	High	Low	Avg	DFN[1]	Week	Season[2]	DFN	Week	DFN	Season	DFN
Hudson Valley											
Albany	87	68	78	7	194	1802	125	1.31	0.54	16.95	2.65
Glens Falls	86	62	76	7	181	1507	39	1.76	0.96	16.83	2.98
Poughkeepsie	86	66	76	4	180	1614	-137	4.08	3.24	22.11	5.34
Mohawk Valley											
Utica	87	61	75	6	174	1541	20	3.47	2.66	20.41	4.12
Champlain Valley											
Plattsburgh	86	61	75	7	176	1522	24	1.4	0.5	13.36	0.3
St. Lawrence Valley											
Canton	85	61	74	7	168	1493	162	3.17	2.26	16.77	3.02
Massena	83	63	74	7	170	1459	48	1.08	0.26	15.24	2.6
Great Lakes											
Buffalo	82	64	72	3	157	1548	-50	1.09	0.2	13.12	-0.77
Colden	82	60	70	3	144	1316	21	2.28	1.43	20.21	3.92
Niagara Falls	82	62	72	3	156	1517	-91	1.49	0.67	13.52	0.03
Rochester	83	63	73	5	162	1620	67	2.3	1.55	12.93	0.84
Watertown	86	61	74	6	168	1459	120	1.22	0.56	12.82	2.08
Central Lakes											
Dansville	83	60	71	2	148	1347	-209	2.47	1.77	21.96	8.42
Geneva	84	60	73	4	162	1535	-5	3.3	2.62	17.75	4.27
Honeoye	84	59	72	1	154	1485	-116	3.29	2.59	19.11	5.84
Ithaca	84	59	73	5	161	1431	36	1.81	1.04	19.23	4.69
Penn Yan	84	64	73	3	161	1612	72	1.52	0.84	15.14	1.66
Syracuse	89	63	75	6	178	1689	116	2.16	1.39	16.84	1.52
Warsaw	80	58	68	3	128	1191	-15	2.9	2.07	19.59	3.86
Western Plateau											
Alfred	84	52	69	4	136	1279	3	2.94	2.24	21.71	6.01
Elmira	85	61	74	5	167	1494	15	1.71	1.01	16.8	2.78
Franklinville	81	59	69	5	135	1141	57	2.97	2.13	22.43	6.54
Sinclairville	81	60	70	4	140	1229	10	1.93	0.97	20.82	3.13
Eastern Plateau											
Binghamton	82	61	72	4	155	1421	-16	0.47	-0.27	18.17	3.51
Cobleskille	85	60	74	7	167	1418	86	0.39	-0.38	17.45	1.71
Morrisville	82	61	72	6	157	1241	-31	2.19	1.42	23.88	8.35
Norwich	86	61	74	7	167	1385	50	1.18	0.48	17.93	2.32
Oneonta	86	62	75	9	174	1512	278	1.92	1.08	20.88	3.78
Coastal											
Bridgehampton	84	69	77	5	188	1621	41	3.42	2.68	26.86	11.44
New York	87	71	78	2	196	2135	-36	4.46	3.62	26.41	9.93

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