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Fall Soil Testing – Basic but More Important than Ever

Eric Oesterling, Penn State Cooperative Extension

With current high fertilizer prices and no likelihood of relief, soil testing is a better investment than ever; and fall is a good time to get it done. You may be too busy during the month of October but once we get past Halloween soil testing should be high on your “to do” list.

Fall soil testing allows you time to spread lime and even phosphorus and potash this fall when soils tend to be drier and time more available. It also gives you a more accurate picture of fertilizer needs for the next season so you can order just what you need.

You can use a commercial lab or the soil testing service offered by Penn State’s Ag Analytical Services Lab. The advantage to using the Penn State lab is that recommendations are based on years of research and calibration on Pennsylvania soils.

Standard soil test kits may be purchased from [county offices of Penn State Cooperative Extension](#) or from commercial firms that sell them for the convenience of their customers. Alternatively, you can print [soil submission forms](#) (pdf format) from the Penn State Ag Analytical Services Laboratory web site (<http://www.aasl.psu.edu/>) and submit your soil sample(s), with payment, to the laboratory in your own sample container. Multiple sample information forms and kits are also available for individuals submitting three or more samples. The multiple sample forms allow for up to 6 samples per page, therefore, reducing paperwork. Whether you buy the individual soil tests or the multiple sample forms the cost is \$9 per sample.

The standard test checks pH, phosphorus, potassium, calcium and magnesium and gives recommendations for lime (or sulfur if pH needs to be lowered), nitrogen, phosphorus, potassium, as well as calcium and magnesium if needed.

The results are only as good as the sample submitted – for each sample you should to take 15 to 20 plugs or slices of soil 6 - 8" deep. Plugs should come from all over the area to be tested to get a representative sample. These are collected in a clean plastic bucket or plastic bag and then mixed thoroughly to get a good homogenized sample that represents the whole area. From this you take about a half pint of soil and air dry overnight or for a day or two. That dried sample is then put in the plastic bag included in the kit, put in the mailer along with background forms and mailed to the lab. It takes from 1 - 3 weeks to get the report back from the lab depending on how busy they are, but turnaround times tend to be faster in the fall because the lab is not as busy.

One soil test can be used for up to 10 acres if the soil is similar and has been limed, fertilized and cropped the same. On the other hand if areas are distinctly different separate tests should be done.

If you change your mind about what crop you are going to plant in a given field after you get your report you can request a new report from the lab for the for an additional \$2 or simply go to the Ag Analytical Services website, click on soil fertility test, then soil fertility recommendation handbooks then click on the handbook for commercial vegetable crops – to convert the recommendations yourself from one crop to another for the same report. Of course if you are not sure what crop will be in a given field you can submit the report using crop code 3041 - mixed vegetable crops. This will

give you general recommendations, but general recommendations are less accurate and less efficient than using the specific recommendations for each crop.

Keep soil test reports on file so you can refer back to the most recent report for any given field. Extension Educators can pull up any Penn State Soil test report on our computers - so if you have questions about a report give us a call.

There is nothing new or different here, you have heard this all before. But these soil testing basics are more important than ever -they can save you money and improve crop performance next season.

Changing Recommendations Accompanying Soil Test Results for a Different Crop

Elsa Sánchez and Kathy Demchak, Penn State Horticulture

Every year a summary of soil testing results for commercial vegetables is put together by Penn State's Agricultural Analytical Services Laboratory (to view them visit http://www.aasl.psu.edu/Com_SoilSum_main.html). In looking over the summaries we noticed that the two crop categories most commonly selected are "Mixed Vegetables" and "Other". The problem with using these categories is that reports for the "Other" category do not have recommendations for applying nutrients and using the "Mixed Vegetables" category can result in applying the wrong amount of certain nutrients, depending on what crop is being grown. This can increase production costs – the price of nutrients is sky rocketing – and over application of nutrients can result in an environmental hazard. The good news is that you can get crop-specific recommendations for applying nutrients relatively easily without changing your soil sampling protocols.

If you collected and submitted a soil test to Penn State's Agricultural Analytical Services Laboratory using the "Other" or "Mixed Vegetables" categories, or you've changed your mind about which crop you want to grow in a particular field, you may need a new set of recommendations for applying nutrients. What can you do?? Well, either you can call the lab and ask them to re-run the results, which they will do for \$2 per sample, or if you have Web access, you can get new recommendations yourself. This ONLY works for commercial fruit and vegetable crop changes (3000 or 4000 series codes) and for agronomic and potato crop changes (1000 series). If you submitted the sample as a home garden sample (5000 series codes) the capability doesn't yet exist to make the change.

How do you do this? First, you need to have a password to access your results. Contact the lab (either by email at aaalab@psu.edu or phone at 814-863-0841) and personnel there will supply you with a password. If you've submitted several samples, accessing their results works best if you've been consistent in the name and address under which they were submitted. If you used different names or addresses (for example, home vs. business) you may not see all of your results. Once you have your password:

1. Go to the Ag Analytical's Web site at <http://www.aasl.psu.edu/>.
2. Then, click on "View your soil fertility report" on the left.
3. On the next screen click on "Access soil test data" at the bottom.
4. On the next screen, click on "Individual User" or "Commercial User" depending on how you filled out the soil test form and set up your password.
5. Enter your password on the next screen, and you should get the message "Login successful. Click to continue". Do that. If the login is unsuccessful, contact the lab.
6. Then, you can search for the results you are looking for on the next page (sometimes this takes more than one try if you don't get the right info in the right spot) – enter your search term and click "search" at the bottom. This will pull up one or more soil test results, depending on how many are linked to your password.
7. Scroll up to the top of the page, and then click on "View Comm Fruit & Veg Crops" at the very top (this also works for agronomic crops, by clicking on "View Agronomic Crops" if those are what you are growing).

8. You'll then see a new column with the words "Change crop" and a little book icon for each sample. Click on the little book, and you'll then be able to choose the new crop code for which you want to view the results. You can choose from the scroll-down list near the words "Crop code" or view the list of crop codes and enter one – note that they are listed on multiple pages.
9. Then click on the words "view new recommendations", and then "print preview". Voila! - there they are.

Winter Annual Weeds in Strawberries

Kathy Demchak, Penn State Horticulture

Winter annuals can be a problem in strawberries. Typically strawberry fields are left undisturbed during the fall, so it's easy for winter annuals to become established, overwinter, and then surprise you with the amount of competition they can provide during harvest season when they flower and produce seeds.

Which ones are our biggest problems? Chickweed by far is the one on which I get the most complaints, and we covered the biology of that weed in two earlier articles (see April 2006 and Dec 2003 issues of the Vegetable and Small Fruit Gazette, available on-line). Other common problem winter annual weeds are shepherd's-purse, field pansy, yellow rocket, and annual bluegrass. We'll cover those here.

First, a word on these weeds' life cycles. Sometime you'll see the same weed classified as a winter annual, a summer annual, a biennial, or even a perennial, which can be confusing. Winter annuals are those that germinate primarily in the fall and then flower and produce seed in the spring, typically dying out during hot weather. However, weed seeds of most winter annuals can germinate at times of the year other than the fall, so their timing sometimes seems to be off. Also, in different sections of the country and climates, weeds may behave somewhat differently depending on local conditions. For example, winter annuals that may die here during a hot dry summer might continue to live in a cooler wetter climate.

Here are some specifics on biology of our problem winter annuals. When you look at how many seeds one plant can produce under optimal conditions, it's easy to see why these weeds can take you by surprise.

Shepherd's-purse: In this region of the country, seeds germinate in late summer, early autumn, or early spring. Plants flower and produce seeds in late spring and early summer. Seeds are produced in heart-shaped pods, shaped like purses shepherd's used long ago. Each plant can produce up to 38,500 seeds. Seeds can live in the soil for 35 years.

Yellow rocket: This weed is in the same family as shepherd's-purse. I've seen it germinate in large numbers in fields in the fall and flower like crazy the next spring. I've also seen it classified as a biennial or perennial, though from what I can tell in strawberry fields, it seems that the problem is more easily controlled after the first season. This one is also a prolific seed producer, at up to 24,000 seeds per plant. Not a problem everywhere, but when it is, you know it.

Field pansy: This one looks a lot like Johnny jump-ups, though the flowers are less showy. Seeds germinate in late summer and early fall, and the plant flowers in spring. A really healthy one can produce 46,000 seeds per plant. Yikes.

Annual bluegrass: Seeds germinate in late summer, early fall, and spring. I've seen figures stating that it can produce 20,000 seeds per plant, though I've also seen numbers much lower. This plant doesn't always die out during the summer.

So, what's the best thing to do if you have these weeds on your farm? If you have only a few, be sure to pull them out before they have a chance to produce seed (re-read the seed numbers above if you need extra impetus).

Certain preemergent herbicides work well (see the table below), and can be applied around Labor Day where the label allows this timing (Sinbar in the establishment year, and Devrinol and Dacthal in any year) to keep weeds from establishing. If you missed applying an herbicide before the weeds emerged, Sinbar and Chateau (Chateau can't be used until the plants are dormant) both have some kickback activity, so they can burn down weeds while still in the cotyledon stage. Tillage when the weeds are young can disturb them enough to keep them from establishing between the rows, which then gives you a second chance to apply herbicides at a later time than Labor Day. Finally, preemergent herbicides can be applied in late fall, just before straw is applied over matted rows, which will prevent additional weeds from germinating during late fall, mild spells in winter, and early spring.

A word on rates on these materials – split applications work well with Devrinol and Sinbar. The maximum yearly rate for Devrinol 50DF is 8 lb/a and for Sinbar 80WP is 8 oz/a. With Devrinol, you can split the total, applying 4 lb/a around Labor Day and the balance before you put the straw down. With Sinbar, assuming that you may have applied 2 oz/a earlier in the establishment year (the labeled rates and timing are more restricted in later years), you can apply an additional 2 oz/a around Labor Day, and 4 oz/a or whatever amount you haven't used for the year before putting the mulch on. Also, with Sinbar, see the label for different rates allowed depending on the amount of organic matter you have in your soil.

Stinger, Poast, and Select are postemergent materials. Stinger has little or no activity on these weeds, while Poast and Select are postemergent grass herbicides that don't work all that well against annual bluegrass once established – so you may want to concentrate on preventing that one from establishing in the first place through preemergent materials and shallow tillage.

As always, follow the label. It's the final word on allowable use.

Herbicide efficacy on certain winter annual weeds for preemergent (Chateau, Dacthal, Devrinol, and Sinbar) or postemergent activity (Stinger, Poast and Select)

	Chateau	Dacthal	Devrinol	Sinbar	Stinger	Poast	Select
Chickweed	Good	Good	Good	Good	None	None	None
Field pansy	No data	Good	None	Good	None	None	None
Shepherd's-purse	Good	Poor	Fair	Good	None	None	None
Yellow rocket	No data	None	None	None	Poor	None	None
Annual bluegrass	Poor	Fair	Good	Fair	None	Poor	Fair*

*label indicates improved control at up to the 4-leaf stage

Food Safety: Its Effect on Marketing

Kristen S. Park and Debra Perosio, Food Industry Management Program, Cornell

This article originally appeared in Veg Edge, Oct 2008

The subject of food safety has never been so publicized and so sustained. In the last 24 months we have lived through *E. coli* in packaged spinach; *E. coli* at Taco Bell; dog food contaminant (found later in other sectors of the animal industries); the pesticide aldicarb found in imported ginger from China; the *E. coli* beef recall that shuttered Topps meat processor; and the list goes on.

The associated food safety recalls have drawn attention to weaknesses in food security. Individual food industries and the government are working to improve certification programs, testing programs, production practices, and traceability practices. Consumers are asking for transparency and results. But as the industry supply chains become more complex, encompassing greater geographies, farms, suppliers, product formulations, etc., the problems - and the solutions - also become more complex. Outside of very real changes needed in production through retail, what marketing practices can we use *now* to help our business?

Consumer Perceptions

First, it is useful to know what consumers think about food safety. In a national shopper survey in June 2007, the Food Industry Management Program at Cornell asked shoppers their perceptions about some food safety issues specifically in fresh fruits and vegetables (since this study surveyed shoppers specifically about produce, caution is needed before assuming that the results apply to other industries). A table summarizing some of the results is presented below (Table 1).

TABLE 1. CONSUMER CONCERNS OVER FOOD SAFETY ISSUES IN FRESH FRUITS AND VEGETABLES

Food Safety Concerns	Percent Responding "Agree" or "Strongly Agree"
"I am concerned about pesticide residues on my fresh fruits and vegetables"	83.8%
"I am worried about germs on my fresh fruits and vegetables"	50.2%
"I am concerned about the safety of fresh fruits and vegetables imported from other countries"	72.6%
"I would pay extra for fresh fruits and vegetables certified as being grown under safe farming practices"	73.3%
"I believe organic fresh fruits and vegetables are safer than regularly grown produce"	53.3%
"I feel that locally grown fresh fruits and vegetables are safer than produce that is transported long distances"	66.4%

Source: *Inside the Minds of Retailers and Consumers*, McLaughlin, Edward W., Kristen Park, and Debra Perosio. Food Industry Management Program working paper, September 2007.

- A large majority of respondents are concerned about pesticides, 83.8% agreed to the statement (Table 1).
- About half, 50.2%, of respondents are concerned about germs.
- We also included a statement about imports, and almost 73% of respondents agreed or strongly agreed that they were concerned about imports. We might guess that the impact of the numerous recalls for products produced in China will last quite a while and that these recalls have shaded opinions about imports from other countries as well. One consumer responding to the Cornell survey said, “Imported produce makes me nervous to the point where I will not buy anything from China for me or my animals.”
- Some consumers, 73.3%, say they are willing to pay more for produce certified as “safe”.
- Over 53% of all respondents say they believe organics are safer than regularly grown produce. And some consumers perceive they are paying for “safety certification” in the form of price premiums for certified organics.
- At least some consumers, 66.4%, correlate food safety and the distance food has traveled and feel that “local” is safer. One shopper commented that they feel that anything shipped is somehow “preserved” or treated with hormones. One shopper said she preferred “local” produce because it wasn’t “gassed”. A focus group participant in the study said, “I feel local produce is safer. It is not packaged with chemicals to make it last longer.”

Marketing PRO-actions

Many companies in the supply chain have acted swiftly in response to the recent food safety Challenges — most of these efforts are focused on changes in production practices and monitoring and testing for contamination along the supply chain. Traceability needs to be improved significantly.

In general, all efforts are totally opaque to the general public and there is a significant opportunity to tell consumers about efforts made to ensure a safer food supply. THIS is your marketing opportunity.

- Retailers receive their point of sale information primarily from suppliers. Actively engage with your own promotion/advertising group or trade association to provide a well-researched statement of industry actions in providing consumers with safe food. Proactive information provided in supermarkets — AND OTHER PLACES — about pesticide safety and judicious use might help alleviate or reduce consumer concerns. Certified grower programs such as Integrated Pest Management could be highlighted proactively by retailers to inform consumers about efforts to reduce pesticide usage. At the very least, providing consumers with more information about current food safety practices could not hurt. It could be that reassurance and information is really what the consumer is looking for.
- Major U.S. growing regions, with arguably the best technology and safe growing programs in the world, need major help in communicating this to the consuming public. They are losing the confidence of consumers to local establishments.

- Whether from the farm down the road or halfway around the world most consumers are interested in knowing where their produce is grown. In addition, as people no longer grow what they eat nor have a close connection with where their food comes from, they may feel a loss of control over what they eat. Imported food is a concern for 72.6% of shoppers surveyed, AND “local” is sought by almost 70% of shoppers. Since consumers embrace local programs and feel that local is “safer”, NYS producers should take advantage of this opportunity to work with markets to establish or expand local, in-store programs. Simultaneously, retailers should only be working with local producers that employ the safest production and distribution practices from farm to store.
- Give consumers the certification that they have asked for. It is up to you to do your best to provide a safe food supply, and there are certification programs available that can help you do this. You can contact Elizabeth Bihn, National GAP (Good Agricultural Practices) program coordinator, at:

Cornell University, Department of Food Science
9 Stocking Hall, Ithaca, NY 14853
Ithaca phone: 607-254-5383
Geneva phone: 315-787-2625
Fax: 607-254-4868
E-mail: eab38@cornell.edu
<http://www.gaps.cornell.edu/contacts.html>

Increasing consumer perception of the relevance of local or regional foods and shorter supply chains and the desire to know the source of their food represents a major opportunity for NYS agriculture. The challenge for NY’s agriculture sector will be to seize the opportunity by delivering food with the quality and security that the State’s consumers expect.

Migratory Beekeeping – Second Thoughts...

Alex Surcica, Penn State Cooperative Extension Horticulture Program Assistant

Honeybee keeping is woven through many cultures throughout history, with evidence of honey gathering dating as far back as 15 thousand years ago. Comparatively, the New World is indeed a new world for honeybees. Colonists brought what the Native Americans named ‘the white man’s fly’ less than four centuries ago. In the beginning, beekeeping was mostly a side income. However, the twentieth century’s industrial achievements facilitated the means and techniques that allow today’s beekeeping to be an industry. Currently, the migratory beekeeping business, like any other industry, is pushing biological barriers in order to meet commercial demands. Moreover, the industry’s expectations are no longer quantified in just honey, but in the billions of dollars of pollination services. In today’s monocrop agriculture, almost every third bite requires managed and therefore, no longer free pollination.

Industrialized agriculture, with its reliance on monocropping and pesticides, is a prominent reason triggering the native bee population decline. The economics of efficient production has encouraged, over time, fewer and bigger farms that are specialized in a handful of crops. As a result, these farms sustain almost no indigenous plant and animal diversity, and are thus vulnerable and exposed to pests and diseases. Another significant factor in the native bee population decline is consumer expectations. Spoiled over time with a diversity of produce, consumers have grown detached from local and in-season offerings. In response, markets do not revolve around produce seasonality. The demand for produce grown elsewhere puts more strain on places that are suitable for growing earlier and exotic produce. This results in more monocrop cultures that have to rely on commercial pollination.

--- One example of the magnitude of a monocrop is the massive 615,000 acres of almond groves in California. This industry yields more than \$2 billion in income and produces 80% of the world’s almond production, making almonds the number one horticultural export for the United States. With all the almond orchards concentrated in California’s Central Valley on little more than a 500-mile stretch, the profitability and economics have little to do with plant and animal diversity. To meet the hefty pollination needs, the industrialized almond industry relies exclusively on migratory honeybee pollination, demanding about 1.2 million colonies—about 60% of all the commercial colonies in the U.S. ---

In today’s modern agriculture, the migratory honeybee has become a “hero”. For a fee, the keeper can box her up and ship wherever and whenever pollination is necessary. ***Why should we start changing this?***

- Some scientists are concerned with the honeybee’s ability to harvest rewards--pollen and nectar. For commercial pollination of crops, standard recommendations suggest, depending on the crop, one to four colonies of honeybees per acre—a honeybee hive can have anywhere from ten to 60,000 workers. These recommendations do not take in consideration the number and diversity of native pollinators already living in and around each field. *Is it possible that this temporary and artificial infusion of millions of honeybees could out compete the native bees by depleting their rewards?* (Bumblebees, for example, do not gather reserves of pollen and nectar for more than a week. As result, fluctuations in rewards availability for more than a week can affect them). If so, the decline of native bees could trigger a vortex-like phenomenon

in the rest of the existing flora and fauna in the area. This will force the producer to grow increasingly addicted over the years to the services provided by the migratory honeybee.

- While the migratory honeybee is able to reap more rewards than any other bee, she is providing just satisfactory pollination services. For example, only 250 female orchard mason bees are required to pollinate an acre of apples, a task that would need 1.5 to 2 honeybee hives. The native pollinators, about 4,000 species in North America, can pollinate better, faster, and in inclement conditions, resulting in increased qualitative and quantitative produce yields. Research has shown that if a field that is cultivated with canola has a portion preserved as a bee habitat it will yield much more than if no habitat was provided.
- Sources of pests and pathogens have been and are likely to be imported along with new colonies needed for pollinating the monocrops cultures, such as the almond industry. The honeybee is able to contract and share them at the places where she is employed to pollinate. Once she is back home, she will share her “souvenirs” with the non-migratory honeybees. This is one reason why pests and pathogens have had such success spreading through honeybee colonies all over the country.
- Because she is shifted around the country and has the ability to readily harvest rewards up to 1.5 miles from her hive, the migratory honeybee can spread various plant pathogens, such as Phytophthora or Fire Blight. The native bees cannot be managed and therefore shifted around, and have shorter flight ranges, a couple hundred yards for a solitary one.
- The migratory honeybee’s versatility could be in itself a culprit. Theoretically, we could argue that if she were not able to provide migratory pollination services we would not need to pay for pollination. The monocrop agriculture, incapable of sustaining native pollinators, would not have grown to the present dimensions. Likewise, a more local and diversified agriculture could have been developed, which would have a sustainable population of pollinators. In the case of the continuously expanding almond industry, at least one estimate shows that by 2012 it will require more honeybee colonies than are currently available for commercial pollination. If additional colonies cannot be supplied from outside of the country, the almond industry will have to become more environmentally minded and, consequentially, native bee friendly.
- CCD has put a big dent in agriculture economics and is posing a big threat to our food and fiber supply. With millions of dollars invested in research, scientists have yet to reach a consensus after more than two years of investigations. More importantly, even if we could pinpoint and fix this problem, it is more than likely that other major crises will occur in the future.

The recent national and international economic crises, emphasizes more than ever the need to start making changes in our pollination management for creating a sustainable agriculture. One long-term goal should be the *conservation* and restoration of the native bee habitat. However, even more importantly will be to educate and guide the consumer and grower alike to make informed choices. The demand and offering of local and in-season produce should be of a greater importance than organic or non-organic produce that is grown elsewhere. Ultimately, this will help stop wildlife habitat loss, reduce the use of pesticide, decrease fuel usage, increase the number of jobs, and create a stronger sense of community, thus improving the quality of life in our society.

Please visit <http://www.xerces.org/> for more information on conservation of native pollinators.

The author of this article recognizes that some of the statements may be controversial and he will gladly share the sources of information upon request. Please feel free to contact him at aps15@psu.edu.

Reminder – Day Neutral Strawberry Workshop Oct. 16th at Rock Springs

Kathy Demchak, Penn State Horticulture

Folks – last month there was a longer article about this workshop. A quick recap:

What: Workshop with information on all aspects of day-neutral production including a walk-through of our day-neutral variety trial.

When: October 16th, 2008 from 10:00 a.m. to 3:30 p.m.

Where: At Penn State's Horticulture Research Farm at Rock Springs, PA, which is located on Rt. 45, about 2 miles west of Pine Grove Mills, PA. Turn in at Gate H.

Who: For all current or potential growers of day-neutral strawberries. Presenters are Harry Swartz and Willie Lantz from the University of Maryland (and me).

How to Register: Call 814-863-7716 by October 9th and leave a message that states that you'll be attending the day-neutral workshop, your name, how many will be attending, and contact information, preferably an email address or a phone number. A mailing address is third preference. There's no registration fee, and lunch is included.

Biodegradable Plastic Mulch and Paper Mulch: Where Do We Stand!

Mike Orzolek, Penn State Horticulture

Vegetable growers in the Mid-Atlantic and the Northeast regions of the U.S. grow almost all of their warm season vegetable crops on plastic mulch to enhance early growth and total yield as well as minimize/eliminate weed problems in the row. Use of plastic mulch with raised beds and drip irrigation (environmental modification) enables growers in these regions to extend their marketing seasons when commodity prices are higher or grow vegetables in their plasticulture system that otherwise would not produce a crop when grown on bare ground/conventional production. If we examine plasticulture on the larger scale, the use of plastic film (mulch) in North America has increased approximately 5% per year since 2000. The increase in mulch film in part has been due to the dry to droughty weather in North America over the last 5 years. The plastic film reduces evapotranspiration rates and the total amount of water required to grow the crop. Use of plastic film will also increase the marketable fruit yield at harvest with a concurrent reduction in cull fruit from crops growing on plastic film, raised beds with drip irrigation. The introduction of new colors of mulch by most of the manufacturers in North America has also contributed to the increase in mulch film use in the last 5 years. Many growers are now trying various colors with their vegetable crops including: red, blue, metallized silver, green IRT and brown IRT. Current use of plastic film for the production of horticultural crops in North America is estimated at 600,000 acres per year.

The use of plastic mulch for the production of vegetable crops in the United States has doubled in the last 10 years. While energy costs have risen dramatically in the last 3 years, plastic film manufacturers have saved money on the production of mulch film by reducing the thickness of the film. Film thickness has gradually gone from 1.5 mil to 0.5 to 0.7 mil in the last 3 years. The thinner mulch film does reduce the amount of resin required to make the product and in most cases, also reduces the cost of the roll compared to the 1.5 mil material. The one disadvantage of the thin plastic film is the retrieval potential for growers after the crop has been harvested in the field. Thin films 0.7 mil or less do not retrieve from the field very easily and thus difficult to recycle.

A true biodegradable plastic mulch has been developed and is being sold commercially in Europe and also in North America. This new, innovative plastic film does truly biodegrade in the field and can be rototilled into the soil at the end of the season and a savings of at least \$100/A by not having to pick up and dispose of the plastic mulch at a landfill. Field research has demonstrated that the biodegradable mulches will produce as much crop yield compared to non-degradable plastic mulch. Two issues that growers may be apprehensive about are the initial cost of the biodegradable mulch compared to non-degradable mulch and the sometimes unpredictability of the degradation rate of biodegradable mulch.

As for paper mulch, the original paper formulations were found to tear easily from wind once holes were made for transplanting in the field. Where the paper remained intact, however, plants grew well. Two questions appeared to have been answered by many years of research by Land Grant Universities including Penn State; 1) yields of vegetables are similar between paper and plastic when the paper remains intact during the first 30-40 days after transplanting the crop, and 2) commercial use of paper mulch will require mechanical laying for large field applications. The original formulations of paper mulch did not fit this criterion. It appears that the newest formulation being tested will have the tear

strength necessary for use with standard mulch layers. However, until we can obtain a 48" roll (standard for mulch layers) we will be unable to test this material accurately. Future research should address the mechanical strength question and the use of dyes or colorants to develop new paper mulch products capable of competing with plastics in the industry.

That's a Berry Good Question!!!

Kathy Demchak, Penn State Horticulture

Q1. Years back, recommendations on floricanes removal simply said to remove floricanes from raspberries and blackberries as soon as the canes were finished fruiting. Lately, I've read information that says to wait to remove the floricanes until dormant pruning. Which is right, and what should I do? (Anon., PA grower)

Q2. What should raspberry and blackberry growers be doing this fall to help with managing diseases next spring? (Alex Surcica, PSU Coop. Ext. in Franklin Co.)

A. We can cover both of these questions in one answer! Prior to the mid 1990's, recommendations said to remove floricanes right after fruiting. Around that time, research with 'Titan' red raspberries showed that the plants had less winter injury when canes were removed during either December or early March, rather than in September. This was presumably because the plants had the opportunity to move carbohydrates from the spent canes to the crown, thus increasing the plants' carbohydrate reserves, which increased the plants' ability to tolerate cold temperatures. This is probably of most value in situations where winter injury is a problem.

However, in certain other situations, such as when cane diseases are an issue, it may be more valuable to remove the floricanes along with the disease inoculum on them, and improve air circulation. This is especially important for growers who are growing under low-spray, no-spray, or organic systems where cultural controls to manage diseases take on critical value.

So, here's what I'd like growers to do, both to decide whether to remove canes now, and to help with managing diseases. Take a look at your planting, and see whether you can see symptoms of cane diseases. Look for gray sunken lesions on canes (anthracnose), purplish to dark brown areas (cane blight or spur blight on various brambles and Gnomonia stem canker on blackberries). Lesions that are large, expanding, or numerous are especially worrisome. If your canes look healthy, you can leave the floricanes there. If you have disease symptoms out there or you've been delaying floricanes removal in past years but suspect that disease symptoms are getting worse over time, take the floricanes out now. This practice should be re-evaluated each year, as conditions for disease development will differ from year to year.

If you see disease symptoms, fungicides applied after taking the floricanes out will help. Certain Captan formulations, Pristine, and Cabrio are labeled for use in the fall for anthracnose and spur blight control. Additional information on disease symptoms and epidemiology, along with rates and labeled formulation of fungicides for post-harvest use are listed in the Mid-Atlantic Berry Guide for Commercial Growers.

This guide is available as a hard copy through most county Extension offices (\$18), or on-line for free at <http://pubs.cas.psu.edu/freepubs/MABerryGuide.htm> You can also order a printed copy from Penn State's Publication Distribution Center by calling 814-865-6713 for \$18 plus tax and a \$5 shipping and handling.

Got a question? Chances are that someone else has the same question, but isn't asking! Send your question to Kathy Demchak, at 102 Tyson Bldg., University Park, PA 16802, or via email to kdemchak@psu.edu. You will be credited with the question, or can remain anonymous, as you wish.

Upcoming Meetings

If you have a meeting you would like to announce, please send the meeting title, date, location and contact information to esanchez@psu.edu.

Local

- ✓ Nov. 13, 2008. **Vegetable and Small Fruit Agricultural Educators Roundtable**, Sam Hays Livestock Evaluation Facility, Rock Springs, PA. For more information contact Bill Lamont at (814) 865-7118 or wlamont@psu.edu.
- ✓ Nov. 18, 2008 (tentative date). **Western Pennsylvania Vegetable & Berry Seminar**, Butler, PA. For more information contact Eric Oesterling at (724) 837-1402 or reol@psu.edu or Lee Young at (724) 228-6881 or ljs32@psu.edu.
- ✓ Nov. 18, 2008. **Diagnosis, Visual Assessment and Management of Plant-Parasitic Nematodes of Vegetables and Small Fruit in the Northeast**, Lehigh County Cooperative Extension Office, Allentown, PA. For more information contact Beth Gugino at bkgugino@psu.edu.

Regional

- ✓ Oct. 10, 2008. **Diagnosis, Visual Assessment and Management of Plant-Parasitic Nematodes of Vegetables and Small Fruit in the Northeast**, Hyatt Regency Hotel, Newport, RI. For more information contact Beth Gugino at bkgugino@psu.edu.
- ✓ Oct. 21, 2008. **Diagnosis, Visual Assessment and Management of Plant-Parasitic Nematodes of Vegetables and Small Fruit in the Northeast**, Hyatt Regency Hotel, Newport, RI. For more information contact Beth Gugino at bkgugino@psu.edu.
- ✓ Jan. 13 – 15, 2009. **Atlantic Coast Agricultural Convention and Trade Show** (NJ Vegetable Meeting); Trump Taj Mahal. For more information contact Mel Henninger at (732) 932-9711 x 120 or henninger@aesop.rutgers.edu.
- ✓ Feb. 3-5, 2009. **2009 Mid-Atlantic Fruit and Vegetable Convention**, Hershey Lodge and Convention Center, Hershey, PA. For more information contact William Troxell at 717-694-3596 or visit www.mafvc.org.
- ✓ Nov. 6-8, 2008. **Southeast Strawberry Expo**, Charlotte, NC. Workshops (“Strawberry Plasticulture for New Growers” and “Are You Making a Profit”), tour, educational sessions and trade show. For more information call 919-542-4037, email info@ncstrawberry.com or visit www.ncstrawberry.com.

National

International

- ✓ Dec. 8-9, 2008. **North American Raspberry & Blackberry Conference**; Grand Rapids, MI, in association with the Great Lakes Fruit & Vegetable Expo (Dec. 9-11). For more

information email info@raspberryblackberry.com, call 919-542-4037 or visit www.raspberryblackberry.com.

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The newsletter is also posted within three days on the Department of Horticulture Vegetable program website at: <http://hortweb.cas.psu.edu/extension/veg crops/newsletterlist.html>.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Cooperative Extension is implied.

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