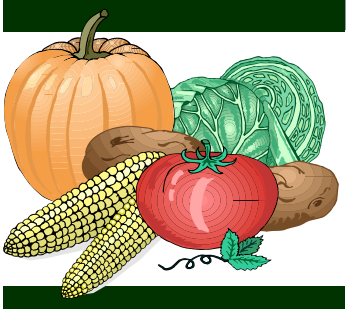


Veg Edge
Your Trusted Source for Research-Based Knowledge

Cornell University
Cooperative Extension
Regional Vegetable Programs

February 2013 **Volume 9, Issue 2**

Making the Most of Cover Crop Mixtures

Charlie White, Pennsylvania State University Extension

(Interest in planting cover crops has increased dramatically the past few years, not only in NYS but in ag regions across the US. Attendance at the Cover Crop & Soil Health session at the Empire State Producers' Expo has been ~90 the past few years. As growers returned to this practice they began to experiment with a wider range of cover crops, including brassicas like radish, turnip, mustard, etc. While two-way combinations of grasses and legumes are a well-established practice growers are now trying more diverse mixtures to meet the needs of their soils and crops. See Cover Crop Webinars on page 13. C. MacNeil, CVP)

Cover crops are an important tool that farmers can use to generate benefits and services on the farm and for society, including improved soil health, nutrient supply to cash crops, weed suppression, insect pest management, forage production, pollinator resources, and clean water and air. There are many different cover crop species to choose from, and each cover crop species has different abilities to provide the services described above. Planting a mixture of cover crop species is one strategy that can be used to enhance and diversify the benefits that a cover crop provides. This article will describe some of the basic concepts to consider when planning a cover crop mixture, such as meeting different farm management objectives, selecting complementary species, and methods for establishing cover crop mixtures.

Combining cover crops can provide more soil and cash crop benefits than any of them alone.
Photos: C. MacNeil, Cornell Vegetable Program

Cover crop mixtures for farm management objectives - Every farm is different, and even within a farm, management objectives for a given field and crop will vary based on weather, site history, crop rotations and many other factors. The design of a cover crop mixture must, therefore, take into account the current and future management objectives for each field. Individual species of cover crops often excel at providing only one or two functions, so meeting multiple objectives may require the inclusion of several species. Table 1 lists many of the common cover crop species used in the Northeastern US, their relative ability to provide different services, and recommended planting date windows. (See Table 1 on the Cornell Vegetable Program website: http://cvp.cce.cornell.edu/. Click on Soil Health in the top menu. Alternatively, call 585-394-3977 x426 to request a copy be mailed to you.)

continued on page 3

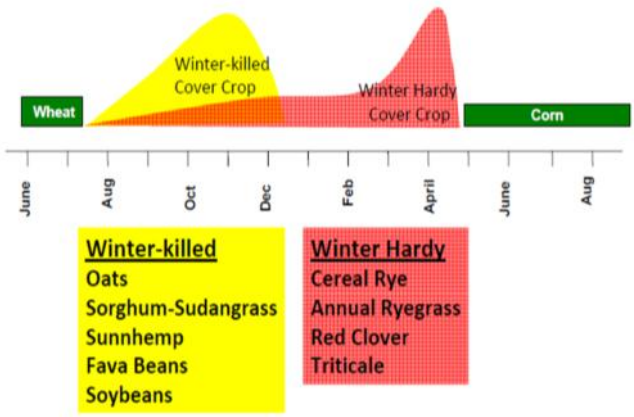
Contents

Veg Edge is a shared publication of two Cornell Cooperative Extension teams, the **Cornell Vegetable Program**, serving 11 counties in Western NY, and the **Capital District Vegetable & Small Fruit Program**, serving 11 counties in the Capital Region of NY

Enhancing benefits and services with increased cover crop biomass - Many of the services provided by cover crops, including nitrogen retention, nitrogen supply, weed suppression, and erosion control are regulated by cover crop biomass production. Increasing the rate, total quantity, and time period of cover crop biomass production will increase these services. To design a cover crop mixture with increased potential for biomass production, choose species with complementary growth periods, growth forms, and nutrient acquisition methods.

1. **Complementary growth periods.** Cover crops can be divided into winter-killed species and winter-hardy species. Winter-killed cover crops often exhibit the ability to grow rapidly in the late summer and fall before dying due to cold temperatures. Rapid fall growth increases nitrogen uptake, weed suppression, and erosion control in the fall and winter. However, after winter-killing, services provided by the cover crop begin to diminish. Cover crop nitrogen uptake ceases at winter-kill, and weed suppression and erosion control will diminish as residues from the cover crop decompose on the soil surface.

   Chart 1. Penn State complementary growth periods *(from Charlie White, Penn State)*

   Winter-hardy cover crops are the most common class of cover crops used in the Northeastern US. Depending on the planting date, winter-hardy cover crops will only produce a small-to-moderate quantity of biomass prior to going dormant for the winter, with the majority of growth occurring in the spring. When the cover crop planting date allows for successful establishment of a winter-killed species, mixing winter-killed and winter-hardy species creates a mixture with complementary growth periods that can continue providing benefits throughout the fall, winter, and spring.

2. **Complementary growth forms -** Different species in a cover crop mixture can compete with each other for space and light, reducing the potential for increased biomass production by a mixture. Selecting species with complementary growth forms helps reduce competition between species. Cover crop growth forms can be divided into several categories, including tall open canopies, short dense canopies, and vining (See Table 1). Species with the same growth habit are likely to be competitive while species with different growth habits are likely to be complementary. Tall open canopied species are especially compatible with vining species as the tall canopied species creates a ladder that the vining species can grow up. It is important that species with tall open canopies are not planted too densely, or they will shade out too much light for successful establishment of understory species. It should also be noted that some cover crop species will shift their growth form from a short dense canopy to a tall open canopy when maturing from vegetative to reproductive stages.

   As an example, cereal rye and crimson clover both have short dense canopies, so they are in competition for the same space. Replacing cereal rye with a tall open canopied grass such as sorghum-sudan grass (at a lower seeding rate), or replacing crimson clover with a vining species such as hairy vetch would create a more complementary mixture. The vetch-rye mixture has the added dynamic that the rye will shift from a short dense canopy to a tall open canopy as it enters reproductive phases in the spring, giving the vetch a ladder to grow up.

3. **Complementary nutrient acquisition methods -** Legume cover crops can obtain nitrogen from the soil and atmosphere while non-legume cover crops such as grasses and brassicas can only obtain nitrogen from the soil. Although legumes can take up soil nitrogen, they are less aggressive at doing so than grasses and brassicas. Because low soil nitrogen levels can limit cover crop and cash crop growth while excessive soil nitrogen levels can stimulate weed growth and contribute to nitrate leaching, the level of soil N availability should be taken into account when planning the cover crop mixture. Sometimes it is beneficial to pair species with different nitrogen acquisition strategies while other times only a single cover crop type may be best.

   For soil with low nitrogen levels, legume cover crops that can satisfy their nitrogen demand from the atmosphere will be most effective. For soils with excessive nitrogen levels, non-legumes that are aggressive at scavenging soil nitrogen should be used. Planting a legume cover crop in a soil with excessive nitrogen levels will lead to a weak cover crop stand that does not prevent nitrogen leaching and is susceptible to weed invasion. Conversely, planting a non-legume into a soil with low nitrogen levels will result in sub-optimal biomass production due to nitrogen deficiency. In soils with moderate nitrogen levels, a mixture of a legume and non-legume can work well, as the non-legume will take up the soil N, protecting it against leaching, while the legume brings in N from the atmosphere, adding it to the plant-soil ecosystem. If the N level of a soil is not known, planting a cover crop mixture can be a useful strategy, as the mixture will adapt to the existing soil conditions. This dynamic tradeoff between grasses and legumes allows the cover crop to adapt to the N management service needed most. *(If you grow legume cash crops, beans, peas, soybeans, etc. note that legume cover crops are susceptible to many of the same soil-borne diseases. Plan your rotation accordingly. C. MacNeil, CVP.)*

continued on page 4

continued from page 3 - Making the Most of Cover Crop Mixtures

Enhancing benefits/services with specific cover crop species - In the previous section we focused on how to achieve increased cover crop biomass production with mixtures. Some services provided by cover crops are not necessarily associated with biomass production, but rather with some characteristic unique to a certain species. An example of this might be the ability of forage radish cover crop roots to penetrate compacted soils, the high forage quality of annual ryegrass, or cover crop flowers that attract pollinators and beneficial insects.

When the traits of a specific species are desired, it is necessary to evaluate the extent to which that species is needed in the mix to provide its service, and adapt the companion species as necessary. For example, if high quality forage is needed from annual ryegrass in the mix, the annual ryegrass should not be diluted too much by other species. On the other hand, just a few canola plants or sunflower plants scattered throughout a cover crop mixture can supply significant floral resources for pollinators and beneficial insects. When evaluating the extent to which a certain species will be able to compete in a mixture, look to the rules of thumb on complementarity described in the previous section to determine compatible species for the mixture.

Methods to establish cover crop mixtures - The common tools and methods of cover crop establishment, such as drills and broadcasting, can all be adapted for the successful establishment of cover crop mixtures. Some of the challenges and opportunities associated with establishing cover crop mixtures include: achieving the correct seeding depth; preventing seed separation and settling in the drill box; selecting different row configurations; and, determining the right seeding rate of each species in the mixture.

1. **Seeding depth -** Cover crop species vary in their optimum seeding depth from ¼ inch to 1 ½ inches. When species with different seeding depths are mixed together, there are several strategies that can be used to aid in successful establishment of each species.

   Many drills have a large and a small seed box. The large box, sometimes called the grain box, is designed for large seeded crops and the drop tubes from the large box direct seeds to the deepest point in the furrow created by the disc openers. The small box, called the legume or "grass-seed" box, is designed for small seeded crops. The drop tubes from the small seeded box can be directed to drop seed at the rear of the disc openers, resulting in a shallower seed placement. The drop tubes from the small box can also be left hanging straight down to dribble seed on the soil surface. This can be a useful strategy in tilled soil where a cultipacker will be used to firm the soil after seeding. Small seeded species with shallow planting depths can be placed in the small seed box while large seeded species with deeper planting depths can be placed in the large seed box. This approach has been the most effective strategy at obtaining optimum seeding depths for various species in the mixture.

   An alternative approach to seeding depth management that has been proposed is to mix the seed of all species in the mix in one drill box and to set the seeding depth to approximately ¾ to 1 inch. The suggestion has been made that in a mixture, the larger seeded species planted to such a depth will break open the seed furrow as they germinate, allowing the smaller seeded species to then emerge. This approach sometimes works, and may be the only solution for drills with a single seed box. However, on occasion, it has led to less than optimal stands of smaller seeded species, particularly when the depth of the furrow is likely to change across a field due to variations in soil type and soil moisture.

   A final approach that has been used, which is more time and equipment intensive than other approaches, is to seed the large seeded species to depth with a drill and then to make a second pass with a broadcast seeder, broadcasting the small seeded species onto the soil surface and firming in with a cultipacker.

2. **Preventing seed separation and settling.** Seeds of different sizes, mixed together in a drill box, may be subject to separating and settling as the drill travels across a field. While this concern is commonly raised as a question, it has rarely been a significant issue in practice. The seed sizes that are most likely to separate from each other when mixed together are small round seeds and large round seeds. When intermediately sized or differently shaped seed are introduced to a mix such as this, the packing arrangement becomes stabilized and seed separation is greatly reduced. If a diversity of different seed sizes and shapes are mixed together, seed settling is unlikely to occur. Another approach to minimize seed settling would be to separate seeds into the small and large boxes of a drill as discussed in the seeding depth section.

3. **Selecting different row configurations.** One of the opportunities that arises with using cover crop mixtures is to plant different component species of the mixture in specific row configurations. This strategy can be used to minimize competition between species in a mixture. One common example is to plant forage radishes in alternating rows with a companion species. On a drill with 7.5" spacing between rows, a good row configuration might be 1 row of radish alternating with 3 rows of the companion, or 2 rows radish alternating with 2 rows of the companion. Because forage radish has the tendency to outcompete other species in a mix, segregating the radishes and companion species into different rows allows the companion species to establish.

   Another reason to use specific row configurations is to concentrate the impacts of a certain species in the mix in strips across the field. An example of this approach would be to drill forage radish in strips 30 inches on center and then plant rows of a cash crop on top of the radish strips the following year. Because forage radish residues decompose quickly and the taproots alleviate compaction, the strips of soil where

radish were growing will be warmer, more friable, and with greater nutrient availability, creating favorable seedbed conditions for the next crop. A different species could be planted between the radish rows, such as cereal rye, which could make up for some of the forage radish's drawbacks by continuing to grow in the spring, taking up nutrients, and providing more persistent residue cover.

Alternating rows can easily be created in a drill with two seed boxes. Simply place duct tape over openers inside each seed box to create the desired pattern and then place the set of seeds for each row type in the appropriate box. In a drill with one seed box, vertical baffles between openers, spanning front to back of the drill box, can be created with cardboard and duct tape. Fill each compartment created by the baffles with the appropriate seed to create the desired row configuration.

4. **Determining seeding rates in the mixture.** Determining appropriate seeding rates of each species in a mixture can be difficult. Start with the suggestions below, plant a small acreage, observe the results, and then make adjustments as needed. Be aware that results will vary across fields, years, and climate zones.

   Certain species are highly competitive against other species in a mix, including forage radish, canola, oats, and sorghum-sudan grass. Seeding rates of these species must be dramatically reduced to prevent them from dominating the mixture. Successful seeding rates for these species in mixtures are 2 - 3 lbs/acre for forage radish, 3 - 4 lbs/acre for canola, 15 - 20 lbs/acre for sorghum-sudan grass, and 20 - 40 lbs/acre for oats.

   Seeding rates for other grasses in a mixture can safely be reduced to between half and one-quarter of monoculture seeding rates to achieve a balanced stand with legumes and other broadleaf cover crops. Legume components of a mixture, which tend to be weak competitors, are more safely kept towards their monoculture rates to ensure establishment in the stand.

   When two or more species that share a similar growth period, growth form, and nutrient acquisition strategy are included in a mix with other types of cover crops, seeding rates of the similar cover crop types should be reduced even further. For example, to determine seeding rates of the winter-hardy grasses annual ryegrass, cereal rye, and triticale in a mixture with crimson clover and oats, first consider the winter-hardy grasses as a group of grasses whose seeding rate should be reduced in half from a monoculture rate. Then, because the 3 similar species of grasses share essentially the same functional properties, divide the half rate for each species by the number of similarly functioning species, in this case 3, to obtain a final seeding rate in the mix. In this case, monoculture rates of 20 lbs/acre for annual ryegrass, and 120 lbs/acre for cereal rye and triticale would first be cut in half and then divided by 3, such that final rates of approximately 3.3 lbs/acre annual ryegrass, and 20 lbs/acre each of cereal rye and triticale would be used.

Conclusions - The benefits of cover crops have been known for decades, and as more and more farmers adopt cover cropping, innovations such as using cover crop mixtures will continue to occur. By tailoring the selection of cover crop species to meet farm management objectives, understanding complementarity between species, and following some basic management guidelines, an endless array of cover crop mixtures can be designed and used in any farming system. As with any new practice, observing the results and making adjustments based on previous experience are important keys to long-term success when using cover crop mixtures.

(Charlie White, Penn State Extension, 501 ASI Building, University Park, PA 16802, cmw29@psu.edu , is the Northeast SARE Program Coordinator for Pennsylvania, and directs training on cover crop innovations for farmers and ag professionals.) ■

Is it Worth Supplementing Pumpkin Fields with Bees?

Jessica Petersen and Brian Nault, Cornell University - Geneva

Vine crops such as pumpkin, squash, cucumber and watermelon are some of New York State's most valuable vegetable crops. These crops require pollination by bees, the most well-known of which is the honey bee, *Apis mellifera*. Honey bee hives are placed in vine crops during the time they need to be pollinated. Unfortunately, Colony Collapse Disorder (CCD), parasitic mites, viruses and other pathogens continue to cause significant losses in populations of honey bees throughout the US. Fewer honey bee hives are now available for vine crop growers and the cost of renting hives has increased from approximately $30 per hive to ≥$75 per hive. With no relief in sight, growers will continue to pay more for renting hives, unless alternative pollinators are identified to service their vine crops. Previous research has shown that on an individual basis, the common eastern bumble bee, *Bombus impatiens* **(Fig. 1)**, was the most efficient pollinator of pumpkin compared with other common species including the honey bee and squash bee, *Peponapis pruinosa*. Not only are bumble bees efficient pollinators, but they are also naturally abundant and available commercially making it a perfect candidate as an alternative pollinator to honey bees in pumpkin fields.

Figure 1. Common eastern bumble bee covered in pumpkin pollen.

Will Fruit Yield Increase if Bumble Bee Colonies are Placed in Fields? In the Finger Lakes Region of New York in 2011 and 2012, we explored the potential of increasing pumpkin yield by supplementing fields with commercially produced common eastern bumble bees, compared with the yield resulting from fields supplemented with locally rented honey bees. A total of 12, 17 and 14 commercial pumpkin fields were supplemented with bumble bees, honey bees or no bees, respectively. Fields ranged in size from 1 to 25 acres; fields of similar size were grouped and randomly assigned one of the three supplementation treatments (i.e., bumble bees, honey bees or no bees). Numbers of bumble bee colonies and hives placed in each field depended on its size. For bumble bees, one QUAD (= four colonies in a box) was placed for every 2 acres and 1 honey bee hive placed for every 3 acres. All fields were separated from each other, and other fields that had honey bee hives, by at least 1 mile.

The jack-o-lantern variety, 'Gladiator', was planted in all commercial fields. Ten seedlings were transplanted into each of three locations in the field (=30 plants per field). In September, when the crop was mature, all marketable fruit were counted and weighed. Data were analyzed. The average fruit weight per pumpkin plant in fields supplemented with commercial bumble bees did not differ significantly from fruit weight in fields supplemented with honey bees or those that were not supplemented (**Fig. 2**).

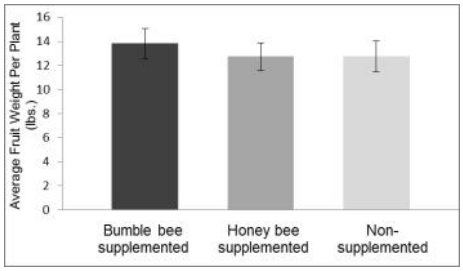


Figure 2. Mean pumpkin, var. 'Gladiator', fruit yield from fields supplemented with commercial bumble bee colonies, honey bee hives or were not supplemented in New York in 2011 and 2012.

Do bumble bees and honey bees visit more pumpkin flowers in fields in which they are supplemented? Bees visiting pumpkin flowers were recorded at three locations in each field and three times during the blooming period in both 2011 and 2012. Bee visits to pumpkin flowers in bumble bee-supplemented, honey bee-supplemented and non-supplemented fields were statistically analyzed. Contrary to our expectations, there were no more visits to flowers by bumble bees in fields supplemented with bumble bees than in fields that were not supplemented (**Fig. 3**). Likewise, there were no more honey bee visits to flowers in fields supplemented with honey bees than in fields that were not supplemented.

What are the bees foraging on if not pumpkin? Pollen on the legs of bees returning to their hives in bee-supplemented pumpkin fields was identified to determine where the bees were foraging. Bumble bees were sampled from 6 bumble bee-supplemented fields (152 bees) and honey bees were sampled from 4 honey bee-supplemented fields (146 bees) three times during bloom. A random sample of 100 pollen grains from each bee was counted and identified to the lowest taxonomic rank feasible. For each bee species, the pollen data were pooled across all collection sites and collection times and represent the percentage of pollen collected from each plant species. Surprisingly, very few bees foraged for pumpkin pollen (**Fig. 4**). Pumpkin pollen only consisted of 2.5% and 0.2% of the total pollen collected from honey bees and bumble bees, respectively (**Fig. 4**). Both bee species foraged on pollen from many different weed species including ground cherry (Solanaceae), clover (Fabaceae), Queen Anne's lace (Asteraceae), dandelion (Asteraceae), goldenrod (Asteraceae), English plantain (*Plantago*), and pokeweed (Phytolacca) (**Fig. 4**). Most surprising was that 30% of the pollen collected by honey bees was from corn (*Zea mays*)

and nearly 50% of the pollen collected by bumble bees was from solanaceous plants, which may have included crops such as tomato, peppers and potato.

Later in the season, around August 1st, we began observing bees returning to their hives with pollen covering their bodies (**Fig. 1**). We sampled these bees (*n*=28 honey bees, *n*=61 bumble bees) and confirmed that 100% were covered with pumpkin pollen. After August 1st, 33% of bumble bees and 13% of the honey bees returning to their hives were covered in pumpkin pollen. These results indicate that honey bees and bumble bees were likely foraging for nectar in male flowers and accidentally contacted pollen. This foraging activity likely contributed to pollination of pumpkin fruit. We continued to observe pollen-coated bees long after the majority of fruit in the field was set, suggesting that most of these bees were not playing an important role in pollination.

Among the most common bee species that pollinate pumpkin, which ones have the greatest impact on pumpkin yield? The relationship between bee visits to pumpkin flowers and fruit yield was described for each of the most commonly encountered species in pumpkin fields (i.e., common eastern bumble bee, honey bee and squash bee). Bee visit data and pumpkin yield from the 2011 and 2012 studies were combined (*n*=43 fields) and used in the statistical analysis. Results indicated that the number of bumble bee visits to pumpkin flowers had a significant impact on fruit yield; yield increased as the number of flower visits in a field increased (**Fig. 5**). In contrast, the frequency of honey bee and squash bee visits to pumpkin flowers was not correlated with yield. Although supplementing pumpkin fields with bees did not increase bee visits to flowers, more bumble bee visits to flowers in certain fields resulted in greater yield. These results support previous research suggesting that bumble bees are efficient pollinators of pumpkin. Additionally, some landscapes near pumpkin fields may support larger bumble bee populations than others. Results of our landscape study from 2011 indicated that greater levels of semi-natural grassland (e.g., weedy ditches, fallow fields, etc.) in the landscape supported more bumble bee visits to pumpkins.

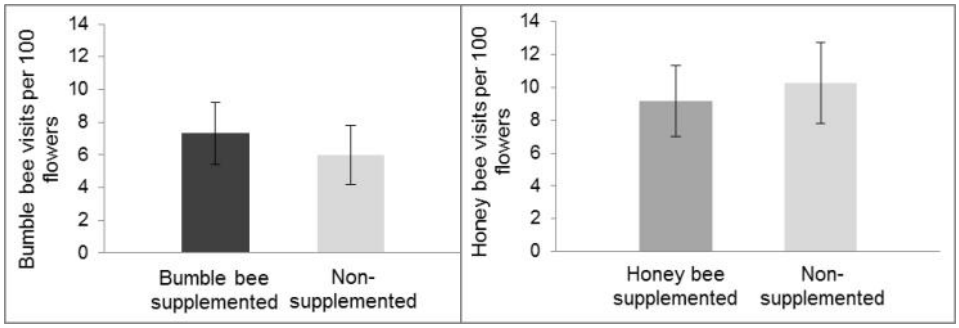


Figure 3. Bumble bee and honey bee visits to pumpkin flowers in bumble bee supplemented, honey bee supplemented and non-supplemented fields in 2011 and 2012.

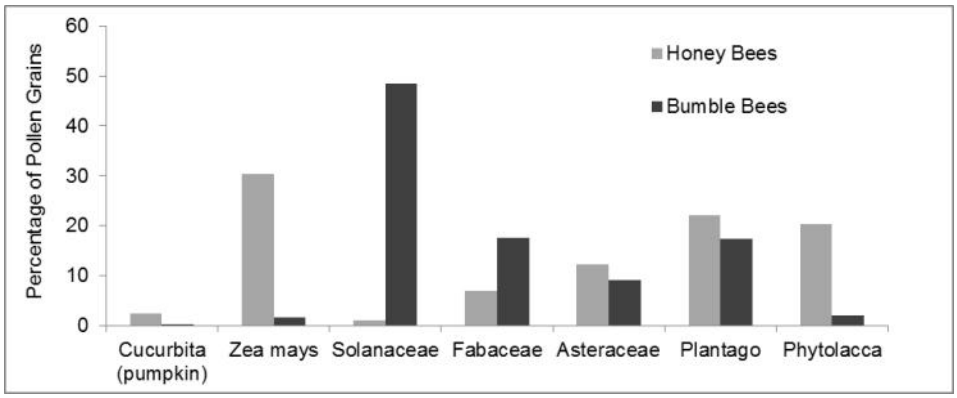


Figure 4. Overall percentage of pollen grains returned to honey bee hives (146 bees) and bumble bee colonies (152 bees).

Conclusions. Bumble bees are important pollinators of pumpkin and fruit yield will increase when visited more by bumble bees. Yet, supplementing pumpkin fields with bumble bee colonies will not necessarily increase pumpkin yield. These seemingly contrasting results may be explained by differences in the local abundance of native common eastern bumble bee populations near pumpkin fields. For example, a pumpkin field near a locally abundant bumble bee population would not need to be supplemented because the native population would provide sufficient pollination of the crop. Conversely, a pumpkin field that is near a low population of bumble bees may benefit from supplementing with commercial bumble bees to increase pollination and therefore fruit yield. To address this point, we intend to identify landscape features near pumpkin fields that were positively associated with bumble bees visiting pumpkin flowers. This information will be used to develop a Decision-Making Guide for use in deciding whether supplementing fields with commercial bumble bees could be economically advantageous or that the native bee population will likely be large enough to provide maximum pollination and high fruit yields. ■

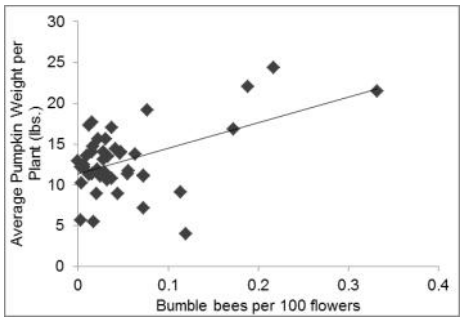


Figure 5. Bumble bee flower visitation frequency is significantly positively correlated with pumpkin yield.

Upcoming Meetings

Farm Food Safety Training with GAPs

February 7 - 8, 2013

8:30 am Registration & Refreshments; 9:00 am - 3:30 pm Training

Fire Training Center
7690 State Street Road, Batavia 14020

This two day training, including the new "Harmonized" GAPs, will teach you about good ag practices to reduce the risk of microbial food-borne illness. You will develop a food safety plan for your farm. **Laptops are required for the second day.** If you need a loaner check the box on your mail-in registration, or contact Angela Parr at aep63@cornell.edu or 585-394-3977 x426. (General info on trainings, Craig Kahlke: cjk37@cornell.edu or 585-735-5448. For the National GAPs Program go to: http://www.gaps.cornell.edu/eventscalendar.html)

Cost: $60 per person, includes lunch; $10 more for each additional farm member. **Pre-register ASAP** by visiting http://cvp.cce.cornell.edu/event.php?id=67 or call Angela Parr at 585-394-3977 x426. Payment is due in advance of the event.

Sponsored by Genesee Valley Regional Market Authority, Cornell Cooperative Extension, Cornell University, Produce Safety Alliance and NYS Dept. of Ag & Markets.

Western NY Farm Show

February 7 - 9, 2013

Fairgrounds, 5600 McKinley Parkway Hamburg, NY

Visit http://www.wnyfarmshow.com/ for details.

CDL Commercial Truck Training for Ag Producers

February 7, 12, and 13

7:30 pm

CCE Genesee Co., 420 E. Main St., Batavia

This training program is designed for producers and farm employees who have some experience with commercial truck operation.
February 7 - Informational meeting; pick up training materials and medical forms.
February 12 and 13 - Classroom training

Cost: Class A - $625; Class B - $475. Register by February 6: Contact Jan Beglinger at 585-343-3040 x132 or jmb374@cornell.edu. *Offered by CCE of Genesee County, in collaboration with Genesee Valley Educational Partnership*

Drip Irrigation: Systems, Techniques, and Tips for Small Farms

Tuesday, February 12

8:30 am - 3:00 pm

CCE Ontario County, 480 N Main St, Canandaigua 14424

After a dry season, growers realize climate change might change their needs for water. Drip irrigation is the most efficient use of water, but only if the system is set up right. Cornell Cooperative Extension of Ontario County and the Cornell Vegetable Program are offering this in-depth intro to drip irrigation. Penn State specialist Bill Lamont will present strategies for designing an irrigation/fertilization system. Includes water sources and food safety considerations.

Registration - $50, includes lunch. Register and pay online at http://cvp.cce.cornell.edu/event.php?id=64. **Payment for this event must be received in advance.**

Questions? Contact Nancy Anderson at (585) 394-3977 x427 or nea8@cornell.edu.

Marketing for Profit: Market Assessment and Customer Assessment Webinars
This webinar was designed to provide critical marketing insights for farmers and farm marketers. The webinar is free, 90 minutes long, and easy to access. To register or for more info go to: http://www.nyfarmersmarket.com/work-shop-programs/webinars/program.html Scroll down and click on Full Three Year Curriculum or Register for Webinars. Or contact Diane Eggert at: deggert@nyfarmersmarket.com
Sponsored by the Farmers Market Federation of NY, the NY Farm Viability Institute, and USDA Northeast SARE

Market Assessment & Analysis - February 12, 11:00 am–12:30 pm; or February 13, 6:00 - 7:30 pm

NOFA - VT Winter Conference

February 15 - 17, 2013

University of Vermont, Burlington

Go to: http://nofavt.org/annual-events/winter-conference/?utm_source=WC+1%2F3&utm_campaign=WC+2013&utm_medium=email

Culinary Connections: Farm to Restaurant Workshop & Networking Opportunity Monday, February 18, 2013 9:00 am - 12:00 pm Cibi deliziosi 3894 Rush Mendon Rd, Mendon	This workshop and networking session is a chance for culinary professionals to connect with some of our regional farmers to get fresh, local grown produce on their menus. Panels of farmers and chefs will explain how they are making beneficial culinary connections through communication and insights. Workshop fee: $10.00 per person, includes handouts, networking and refreshments. *Hosted by the Cornell Vegetable Program and Cornell Cooperative Extension, in cooperation with Finger Lakes Culinary Bounty.* Register for the event now online or, for more information or to register contact Angela Parr at 585-394-3977 x426.
Potato Short Course: Potato Genetics, Breeding, Variety Development and Pest Management Monday, February 18, 2013 9:30 am - 4:15 pm Holiday Inn, Ballroom West 441 Electronics Pkwy (I-90 Exit 37) Liverpool 13088	Meeting includes: Potato genetics, breeding, variety development; Foliar/tuber diseases and management; New virus strains and implications; and Seed production, certification and documentation, by Michigan, Idaho and Cornell experts. DEC pesticide credits will be available. **No fee!** Lunch - ordered off menu and paid by attendees. Contact Don Halseth at: deh3@cornell.edu or 607-255-5460 **by Wed, February 13,** for arrangements and refreshments. *Sponsored by Empire State Potato Growers, Inc.*
NYS Potato Seed Growers Meeting Tuesday, February 19, 2013	Contact Alan Westra at 607-255-9869.
Winter Wednesday Webinars February 20 1:00 - 2:00 pm March 13 1:00 - 2:00 pm March 27 1:00 - 2:30 pm	Penn State's Extension Vegetable & Small Fruit Program Team presents a series of webinars to keep you informed on critical production issues. **February 20 - Good Ag Practices (GAPs) Farm Food Safety Update** **March 13 - Recognizing & Protecting Pollinators for Vegetables & Small Fruit** **March 27 - Cucurbit Pest Management: Organic, Biorational & Conventional** **Register at:** http://agsci.psu.edu/vegetable-production-webinars Or call 724-627-3745. When you register you'll get instructions for accessing the webinar(s). **Cost:** $10 per webinar, payable by check or credit card.
New York Farm Show February 21-23, 2013 NYS Fairgrounds, Syracuse	http://newyorkfarmshow.com/
Potato Processors & Growers Meeting Thursday, February 21, 2013 12:30 Registration; 1:30 Meeting Club 57, 7465 Seneca Rd, Hornell	Contact Gary Mahany at 607-725-1956 or Stephanie Mehlenbacher at 607-664-2307.

Upcoming Meetings…continued

NYS Onion Industry Council Winter Meeting

Thursday, February 21, 2013

10:00 am - 3:00 pm

Morrison Hall Rm 348 (Turk Rm)
Cornell, Ithaca

Pre-registration required: Paul Ruszkiewicz - 845-988-6326; Maire Ullrich/Cathy Hughes - 845-344-1234.

Pay-parking diagonally across from Morrison Hall at Tower and Judd Falls Rds. See maps at: http://www.cornell.edu/maps/

DEC Recertification Credits have been applied for.

Cost ~$15, lunch included.

Capital District Small Fruit & Vegetable Growers Winter Meetings

Wednesday, February 27, 2013

8:00 am - 4:00 pm

Best Western Albany Airport Inn
200 Wolf Rd, Albany

A full agenda can be found online at http://cdvsfp.cce.cornell.edu/event.php?id=34

3.5 DEC recertification credits have been approved for categories 1A, 10, 22, and 23.

$30 for CDVSFP enrollees; $50 for non-enrollees. Additional attendees from the same farm can attend for $20 each. Contact Marcie at 518-272-4210, or register and pay online at http://cdvsfp.cce.cornell.edu/event.php?id=34

Niagara Region Winter Vegetable Training

Tuesday, March 5, 2013

9:00 am - 1:30 pm

CCE Niagara Co
4487 Lake Ave, Lockport

Focus: Sprayer technology and calibration. DEC pesticide credits will be available.

Visit http://cvp.cce.cornell.edu/event.php?id=72 for more details.

Contact Robert Hadad at rgh26@cornell.edu or 585-739-4065.

Farmers Market Manager Training Conference: The Science of Farmers Markets

March 5 - 7, 2013

La Tourelle Resort and
August Moon Spa, Ithaca

Topics: food safety, crisis management, working with volunteers, understanding consumers, and working with a board of directors. Includes a discussion with experienced managers.

Registration: http://www.nyfarmersmarket.com/work-shop-programs/annual-conference-ditto-with-the-annual-conference/registration.html

Conference agenda, hotels: http://www.nyfarmersmarket.com/work-shop-programs/annual-conference-ditto-with-the-annual-conference/program.html

Questions? Contact the Federation office at 315-637-4690; deggert@nyfarmersmarket.com. *Hosted by the Ithaca Farmers Market*

Farm Food Safety Training with GAPs

March 6 - 7, 2013

8:30 am Registration & Refreshments;
9:00 am - 3:30 pm Training

CCE Yates County
417 Liberty Street, Penn Yan 14527

This two day training, including the new "Harmonized" GAPs, will teach you about good ag practices to reduce the risk of microbial food-borne illness. You will develop a food safety plan for your farm. **Laptops are required for the second day.** If you need a loaner check the box on your mail-in registration, or contact Angela Parr at aep63@cornell.edu or 585-394-3977 x426. (General info on trainings, Craig Kahlke: cjk37@cornell.edu or 585-735-5448. For the National GAPs Program go to: http://www.gaps.cornell.edu/eventscalendar.html)

Cost: $60 per person, includes lunch; $10 more for each additional farm member. **Pre-register by Thursday, February 28** by visiting http://cvp.cce.cornell.edu/event.php?id=68 or call Angela Parr at 585-394-3977 x426. Payment is due in advance of the event.

Sponsored by Genesee Valley Regional Market Authority, Cornell Cooperative Extension, Cornell University, Produce Safety Alliance and NYS Dept. of Ag & Markets.

Northeast Beginning Farmers Online Courses
5 – 7 week courses for growers in their first 10 years. Cost is $200 each. Go to: http://nebeginningfarmers.org/online-courses/

March
BF 103: Taking Care of Business – Understanding the Business, Regulatory, and Tax Implications of Your Farm
BF 105: Machinery and Equipment – Evaluating What's Right for Your Operation

2013 NYS Dry Bean Meeting Wednesday, March 13, 2013 9:00 am - 3:00 pm LeRoy Country Club 7759 E. Main Rd, LeRoy	$20 for current Cornell Vegetable Program enrollees/subscribers, $30 for all others **SAVE $5** over walk-in registration if you: **Preregister by March 6th -** Contact Angela Parr at 585-394-3977 x426 or aep63@cornell.edu DEC and CCA credits will be available Sponsor opportunities: Contact Angela Parr at 585-394-3977 x426 or aep63@cornell.edu.
Identification, Assessment & Management of Soilborne Plant Pathogens in Vegetables Wednesday, March 20, 2013 8:30 am - 4:15 pm NYS Ag Experiment Station, Jordan Hall, 630 W. North St., Geneva	Topics: Understanding pathogen biology; How to identify soilborne diseases on vegetable crops in the Northeast; Methods for assessing soil pathogen levels and crop loss; and, Disease management. Cost: $20, includes lunch 4.5 DEC credits and CCA credits will be available **Pre-registration required by March 12.** Contact Angela Parr, Cornell Vegetable Program: aep63@cornell.edu or (585) 394 – 3977 x426. Make checks payable to: *Cornell Vegetable Program,* memo: "3/20 Veg Disease Workshop". Or register and pay online at: http://cvp.cce.cornell.edu/event.php?id=63

Pesticide Classes

2013 DEC Pesticide Core Competency/Recertification Classes February 14 and 21, 2013 CCE Monroe County 249 Highland Ave, Rochester	February 14, 8:00 am - 12:15 pm: **Water Quality - Ecology and Environmental Considerations of Pesticides** February 14, 1:00 pm - 4:15 pm: **Pesticide Core Competency –** Transportation, storage, disposal, safety, and residues. February 21, 9:00 am - 12:15 pm: **Personal Protective Equipment and Interpreting Pesticide and Fertilizer Labels** Cost/session: $40 for Monroe County enrollees, $47 otherwise. Contact Karen @ 585.461.1000x225 or ksk8@cornell.edu for registration or info.
Certified Pesticide Applicator Training and Test Wednesday, March 13 and Monday, March 18, 2013 1:00 - 4:00 pm CCE Wayne Co. 1581 Rt. 88 North, Newark EXAM: Friday, March 22, 2013 12:30 - 5:00 pm	Participants must have experience working with pesticides to become certified. Training classes cost: $50 (additional cost for manuals). Pre-registration for the training classes is required by February 22. Call 315-331-8415. Be sure to order the manuals you'll need. To register for the exam, contact Chris Wainwright at 607-776-2165. Exam cost: $100 payable to DEC on the day of the exam.

High Brown Marmorated Stink Bug Populations Last Fall, Its Winter Hideout

Chris Gonzales, Northeastern IPM Center at: http://www.northeastipm.org/

(The invasive Brown Marmorated Stink Bug (BMSB) has been identified in 39 states and in Ontario, Canada. This Asian pest was first detected in eastern PA in the late 1990's. In 2010, it caused serious damage in most mid-Atlantic states, with total losses in some sweet corn, pepper, tomato, apple and peach plantings. In 2012 the second generation caused the first economic injury in the Hudson Valley, according to Peter Jentsch, Extension entomologist at Cornell's Hudson Valley Lab, where the majority of damage was found on field and orchard edges. Unfortunately BMSB populations rose sharply last year. If a high percentage of the bugs over-winter BMSB pressure could be high in 2013. For details on the Brown Marmorated Stink Bug go to:http://www.stopbmsb.org/ Researchers from several Northeastern and Middle Atlantic are teaming up to learn how to control it. C. MacNeil, CVP)

Brown marmorated stink bug adult. *Photo: T. Leskey, USDA Appalachian Fruit Research Station*

Researchers believe they have identified where the brown marmorated stink bug (BMSB) gathers in natural landscapes during winter, and their findings could help farmers manage this invasive insect. Doo-Hyung Lee, USDA Agricultural Research Service, works with a team of scientists led by Tracy Leskey at the Appalachian Fruit Research Station, West Virginia. "We know BMSB gather inside human-made structures in very high numbers," Lee explains. "However, in the natural landscape, BMSB are spread out." They explored forests in Maryland and West Virginia for BMSB hideouts and zeroed in on where the pest hides. BMSB's preferred over-wintering site is large, dry, dead standing trees, more than 20 inches in circumference, particularly oak and locust, with porous dead tissue and peeling bark that gives them a place into which to crawl. Targeting only trees that matched that profile they found BMSB in 33% of trees examined. BMSB poses a huge risk to agriculture, Lee says, because 11% of trees in the natural landscape have the potential to harbor BMSB. Therefore, improving our ability to track BMSB movement from woodlands into agricultural areas is critical. He is studying the speed and distance that a stink bug can fly using a flight mill, and is tracking them with radar, attaching tiny antennae to their backs. Dogs can be trained to detect the scent of BMSB to monitor and manage BMSB in agricultural areas.

BMSB is characterized in Asian studies as an outbreak pest, which means that the insect might go undetected for months or years before suddenly bursting on the scene in an agricultural area and causing much devastation. Now that we better understand the sites that provide winter refuge for BMSB, Lee believes, we will be better prepared to address future invasions of nearby farms. The research is part of a broader Coordinated Agricultural Project entitled "Biology, Ecology and Management of the Brown Marmorated Stink Bug in Specialty Crops" that has been funded through the USDA-NIFA Specialty Crop Research Initiative. ■

Cover Crop Innovations Webinar Series

Charlie White, Penn State Extension and Northeast SARE - PA

This series of webinars on cover crop innovations is hosted by Penn State Extension and Northeast SARE – PA. They take place on Mondays, 12 – 1 pm, are free, and open to the public. Attend via the internet from your own computer. A high-speed connection is recommended and headphones or speakers are needed. Links for the webinar descriptions/registration form, and instructions for logging in, are at: http://extension.psu.edu/cover-crops/webinars Contact Charlie White at cmw29@psu.edu or 814-863-9922 for more info. Presentations will be posted to the website after each webinar.

February 4 – Seeding Spring Vegetables After a Winter-killed Forage Radish Cover Crop

February 11 - Cover Crop Interseeding (incl. compatible herbicides), and Cover Crops for Soil Health and Nutrient Management

March 11 – Managing Invertebrate Pests in High-Residue Reduced Till Systems, and the Natural Enemies Present

March 25 - Nitrogen Management with Cover Crop Mixtures ■

Effectiveness of Tomato Fungicides Against Common Diseases

Tom Zitter, Plant Pathology, Cornell; January 2013

Trade name	Common name	Fungicide Grp(s)	PHI days	Late blight	Early blight	Sept.* leaf spot	Gray mold	Leaf mold	Bacteria Spck, Spot, Canker
I. Conventional grower fungicides (all rated "+" unless specified)									
1. Protectant Mode of Action - used alone or as Tank Mix (TM) partner									
Bravo Weather Stik or OLP	*chlorothalonil*	M5	0	Yes	Yes	Yes	No	Yes	No
Dithane DF, OLP	*mancozeb (mz)*	M3	5	Yes	Yes	Yes	No	Yes	No; TM w\ copper
Coppers, many	*copper*, type varies	M1	0	Yes	Yes	Yes	No	Yes	Yes; can TM w\ *mz*
2. Translaminar Mode of Action (moves from upper to lower leaf surface) ***Must tank-mix all strobilurins with a protectant fungicide due to resistance to early blight!***									
Quadris Opti	*azoxystrobin + chlorothalonil*	11 + M5	0	Yes	Yes ++	Yes ++	No	No	No
Quadris Top	*azoxystrobin + difenoconazole*	11 + 3	0	No	Yes +++	Yes ++	No	Yes	No
Other Strobilurins, ie. Flint	varies + TM protectant	11 + M1, 3 or 5	Can vary	Yes	Yes	Yes TM	No	No	No
3. Late Blight Specific Fungicides - Systemic in bold; TM = with protectant of your choice**									
Presidio + TM	*fluopicolide* + ?	43 + ?	2 or ?	Yes	Yes TM	Yes TM	No	No	No
Revus Top	*difenoconazole + mandipropamid*	3 + 40	1	Yes	Yes	Yes	No	No	No
Previcur Flex + TM	*propamocarb* + ?	28 + ?	5	Yes	Yes TM	Yes TM	No	No	No
Ranman + TM	*cyazofamid* + ?	21 + ?	0 +	Yes	Yes TM	Yes TM	No	No	No
Gavel	*zoxamide + mancozeb*	22 + M3	5	Yes	Yes ++	Yes TM	No	No	No
Ridomil Gold Bravo	*mefenoxam + chlorothalonil*	4 + M5	14	US22 US23	Yes	Yes	No	No	No
II. Organic grower approved fungicides (all protectants)									
Champ WG or OLP	*copper hydroxide*	M1	0	Yes	Yes	Yes	No	No	Yes
III. Home Garden fungicides (all protectants)									
Bonide Copper fungicide, OLP	*basic copper sulfate*	M1	0	Yes	Yes	Yes	No	No	Yes
Bonide Fung-onil or OLP	*chlorothalonil*	M5	0	Yes	Yes	Yes	No	No	No

*Abbreviations – PHI = preharvest interval; Fungicide Groups - if M before I, 3 or 5 implies multisite activity; Sept. = Septoria leaf spot; OLP = other labeled product; TM = tank mix; Other fungicides

****Systemic or Locally Systemic (moves from leaf base to tip) - Curzate, Tanos, phosphorous acids (TM all);** Translaminar – Forum TM.

Effectiveness of Potato Fungicides Against Common Diseases

Tom Zitter, Plant Pathology, Cornell; January 2013

Fungicide Information							Tuberborne								Foliar						Comments below are to assist in the appropriate use of these products. Read the label for rates, uses and specific diseases.
Fungicides if UNDERLINED, are registered in NYS. * = Restricted for use by certified applicator. OLP = other label products exist; See complete OMRI at http://vegetablemdonline.ppath.cornell.edu/NewsArticles/OMRI.							Black Dot-*C. coccodes*	BlkScf/Canker-*Rhizoctonia*	Com.Scab/Pow.Scab=*Streptomyces/Spongospora*	FusariumDryRot-*F.spp.*	Late Blt. Tuber Blt *P.i.*	Leak-*Pythium*	PinkRot-*P.erythroseptica*	Silver Scurf-*H. solani*	Black Dot-*C. coccodes*	Early Blight-*A. solani*	Brown spot-*A. alternata*	Gray Mold-*B. cinerea*	Late Blight-*P. infestans*	WhtMld-*S. sclerotiorum*	
Trade Names	MOA Code	*Common Name*	Uses	Activity	REI (hrs.)	PHI (Days)															Comments
Protectants - Conventional, Organic, Home																					
C Bravo WS or OLP	M5	*chlorothalonil*	F	C	12	7					P				G	G		G	G		Alone or TM partner.
C Dithane DF or OLP	M3	*mancozeb*	SP, F	C	24	3		F	F=CS	F	P			F		G			G		Seed piece; alone or TM
C Polyram 80DF	M3	*metiram*	SP,F	C	24	3					P					G			F		Alone or TM partner.
C Agri-Tin* SuperTin*	30	*triphenyltin hydroxide*	F	C	48	7					OK					G			F		Alone/TM partner; Su Beetles.
C Ranman 400SC	21	*cyazofamid*	IF, F	C	12	7					G		OK, IF						G		TM for EB control.
C Gavel 75DF*	22+M3	*zoxamide + mancozeb*	F	C	48	3					G					G			G		* *Restricted.*
O Champ WG or OLP	M1	*copper hydroxide*	F	C	24	0					P					G			F,G		7 other OMRI coppers registered.
H Bonide Copper	M1	*basic copper sulfate*	F	C	12	1					P					G			F,G		Other coppers exist.
H Bonide Fung-onil	M1	*chlorothalonil*	F	C	4	7					P					G		G	G		Other chlorothalonils exist.
Translaminar - Conventional only; Others Headline SC (aerial except w/in 100ft surface water) (IF, F), Gem (F, no aerial), †Reason(F, not LI).																					
C Quadris Opti	11+M5	*azoxystrobin + chlorothal.*	F	TL	12	14	G				P				E	G			F		EB *Res.* resolved by mix.
C Quadris Top	11+3	*azoxystrobin + difenocon.*	F	TL	12	14	G				P				E	G	G		F		EB *Res.* resolved by mixture
C Cabrio Plus	11+M3	*pyraclostrobin + metiram*	F	TL	24	3	G				P				G	G			F	Su	EB *Res.* resolved by mixture
C Revus Top	40+3	*mandipropamid + difeno.*	F	TL	12	14	G				F				G	G	G		F		Quite broad spectrum
Systemic or Locally systemic (leaf base to tip) in BOLD - Conventional only; Others Tanos (*cymoxanil* + *famoxadone*) (Foliar)																					
C **Curzate, TM**	27+?	*cymoxanil + protect.*	SP, F	Sy	12	14					SpOk, FolP								F-G		Needs mod. temps & active growth for LB Fol. trt. to be effective.
C Presidio*, TM	43+?	*fluopicolide + protect.*	IF, F	C	12	7					E		G,IF			G			E		TM requirement.
C **Previcur Flex***, T	28	*propamocarb + protect.*	F	Sy	12	14					Su					G			G		Needs partner other dis.
C Quash	3	*metconazole*	F	LS	12	1	G								G	G	G	Su		G	Needs partner for LB control
C **Ridomil Gold** Bravo	4+M5	*mefenoxam + chlorothalonil*	F	Sy	48	14					G	F	F		F	G		G	G		Only US22$^{P\&T}$,US23$^{P\&T}$,US24^{P}.

MOA= if M then multi; Uses: IF=InFurrow, F=Foliar, SP=seedpiece; Activity: Sy=systemic, LS=local sys; Rating: P=poor, F=fair, G=good, Su=suppresssion, TM=TankMix.

Marketers Can Stay Profitable While Helping Consumers Eat Better

Article summary by Brooke Pearson and Kristen Park, Cornell

Food marketers are masters at getting people to crave and consume the foods that they promote. Often their marketing tools are used in response to consumers' desires for tastier, more convenient and less expensive foods. Unfortunately, much of the food that is advertised may be high in fat and sugar. With the obesity epidemic at an all-time high, we need to look for marketing solutions that can have positive outcomes for both businesses and consumers.

The following is from an academic article that describes how food marketing may be influencing consumption and over consumption. It then provides food marketers with some promising ideas on how they might meet their business objectives of profitable sales and at the same time help consumers eat better. The authors are Pierre Chandon and Brian Wansink and the full article can be found at: *http://foodpsychology.cornell.edu/pdf/market_fat.pdf*

Summary

It is important to understand that marketers are torn between satisfying the desires of various consumers, the demands of their shareholders, and the concerns of public health organizations that largely perceive the food industry as the new tobacco industry. Looking for solutions that would work in today's fast-pace culture, we scoured a host of marketing studies and examined current marketing trends. We then identified changes that food companies can use to continue to grow their profits without growing their customer's body mass index (BMI). In our exploration we chose to focus on key marketing tools, all of which have powerful effects on consumers.

Pricing is one of the strongest marketing factors that predicts energy intake and obesity and explains why obesity mainly plagues lower-income consumers. Studies suggest that lower food prices have led to increased energy intake. Within the last thirty years the price of food has drastically declined which in turn may have caused people to eat more. People accelerate the consumption of products they believe were purchased at a lower price. We suggest applying this principle to healthier foods by offering quantity discounts or bonus packs. This can induce consumers to increase their purchases of fruits and vegetables, for example. Other win-win considerations include:

- Reduce retail price of healthy food through more efficient production and distribution, e.g., lower spoilage with better packaging.
- Give coupons or discounts on fruit and vegetables, such as $1 off salads, buy-one-get-one-free.
- Use social media to promote healthy food choices.

Marketing **promotion,** or communication, enhances consumers' expectations of taste, quality, and social value. Today, 72% of television advertising for food promotes candy, cereal, and fast food. A study in Montreal proved that banning television advertising in children's programming reduced consumption of sugared cereal and trips to fast food restaurants. Promoting healthy foods in and of itself to consumers may not be effective though because of the stigma that they will taste worse. We propose re-branding healthy foods on non-health related positive benefits. Some win-win considerations include:

- Increase the use of social media and adver-gaming for healthy products.
- Increase healthy eating in the media; in movies and TV shows, portray characters eating healthily, especially in media geared towards kids.

The tastiness and package size of a food **product** can have an effect on how much a person ultimately consumes. Increasing the flavor complexity and number of components in a food improves its overall tastiness rating. Offering healthy foods that have more complexity, such as a fruit salad instead of a whole fruit, can increase consumption because of both variety and convenience. Larger package sizes can lead people to eat more. Reducing package sizes of less healthy foods by elongating the packages makes the size reduction less visible, which in turn can make choosing a smaller size more likely.

Eating is often more than just food intake; it is a social activity, a cultural act, and a form of entertainment. The eating environment, or **placement**, can promote behavior that causes people to eat more food than they realize. For example, studies have suggested that the increased availability of fast food (but not full-service restaurants) is a strong predictor of local obesity. Visibility matters. When jars of 30 chocolate candies were placed on the desks of secretaries, those in clear jars were consumed 46% more quickly than those in opaque jars. The more visible and accessible a food is the more of it will be consumed. Displaying healthy foods in highly visible areas will increase consumption. For example, fast food restaurants could more prominently display an attractive picture of a salad, and grocery stores might replace candy with fruit and healthy snacks at the register. This and previous research shows that small changes in the eating environment can cause a significant difference in the width of our waistlines. Other win-win considerations include:

- On dining tables at home or in restaurants, replace foods that are easy to eat, such as chips or bread, with food that is more time-consuming to eat, like peanuts *(or raw vegetables? C. MacNeil, CVP)*
- Ask customers if they want to add a salad or another healthy item that brings in more money

Food companies are already trying some solutions to decrease overconsumption. Some of the initiatives include:

- Chili's $20 dinner for two – each per-

son gets an entrée but they split an appetizer.

- A Bunch of Carrot Farmers has fun, innovative advertising for produce, "Eat 'em like junk food" campaign for baby carrots on YouTube.
- Positioning chocolate milk in the school lunchrooms so it is less convenient to take than white milk.

Food marketers can use these and other suggestions located in the complete article as a winning formula to make money while promoting healthier foods!

"Smart Marketing" is a marketing newsletter for extension publication in local newsletters and for placement in local media.It reviews elements critical to successful marketing in the food and agricultural industry. *Please cite or acknowledge when using this material*. Past articles are available at http://marketingpwt.aem.cornell.edu/publications.html ■

Tomato/Potato Late Blight Risk on YOUR Farm - An Advanced Forecast Tool

Tomato/Potato Late Blight Risk on YOUR Farm - An Advanced Forecast Tool

Tuesday, March 19, 2013

1:00 – 4:00 pm

CCE Monroe Co.

249 Highland Ave, Rochester

Free, but preregistration required by March 11. DEC pesticide credits will be available.

In 2012 growers and consultants used the advanced Late Blight Decision Support System (DSS) forecast on 12 tomato and/or potato farms for part or all of the season. The email/text spray alerts and broad base of fungicide info made the LB DSS easier to use and more helpful than ever before. It provided scientific information to help them make better fungicide spray decisions, and in some cases safely stretch their spray schedule during the hot, dry weather. Learn how to use this new late blight forecast tool on your farm at the March 19th online workshop.

Participants will receive usernames and passwords for the Late Blight Decision Support System (DSS) website, will designate the location of their farm/fields on their personal account, and can input their varieties, at the workshop. They can also sign up for email/text fungicide spray alerts. In addition to using weather station data, the system uses point National Weather System forecasts for their farm for predicting blight weather and fungicide weather several days into the future. The DSS forecasts take into account varietal susceptibility to late blight and the relative effectiveness of a wide range of fungicides growers may choose to use.

Contact Angela Parr at aep63@cornell.edu or 585-394-3977 x426. A laptop computer capable of wireless internet access is needed for the workshop. Be sure to tell Angela if you need to borrow one. If you have questions about the workshop or the late blight Decision Support System contact Carol MacNeil at 585-394-3977 x406.

Reduced Tillage Grower Discussion Group Forming

Reduced Till Grower Discussion Group

Monday, February 25 (tentative)

1:00 – 4:00 pm

CCE Genesee County
420 East Main Street, Batavia

A grower-led Reduced Till Grower Discussion Group is forming in Western New York. All growers interested in reduced tillage are invited. Bring your experience and/or your questions!

Preregistration is requested by February 22nd for this first meeting in case we need a larger room. Contact Carol MacNeil at crm6@cornell.edu or 585-313-8796. Questions regarding the discussion group? Contact Donn Branton at Brantonfarm@rochester.rr.com or 585-739-9463.

Contact the Cornell Vegetable Program

Cornell Vegetable Program (CVP) Specialists

Robert Hadad
Extension Specialist
Food safety; Western region fresh market vegetables; marketing; organic

Phone: (716) 433-8839 x228
Cell: (585) 739-4065
Email: rgh26@cornell.edu

Julie Kikkert*
Extension Specialist
Processing crops: sweet corn, snap beans, peas, beets and carrots

Phone: (585) 394-3977 x404
Cell: (585) 313-8160
Email: jrk2@cornell.edu

Judson Reid
Extension Specialist
Greenhouse production; small farming operations; Eastern region fresh market vegetables

Phone: (315) 536-5123
Cell: (585) 313-8912
Email: jer11@cornell.edu

Christy Hoepting
Extension Specialist
Onions, cabbage, field research and pesticide training

Phone: (585) 798-4265 x38
Cell: (585) 721-6953
Email: cah59@cornell.edu

Carol MacNeil
Extension Specialist
Potatoes, dry beans and soil health; Editor of Veg Edge

Phone: (585) 394-3977 x406
Cell: (585) 313-8796
Email: crm6@cornell.edu

Megan Fenton
Regional Ag Economic Development Specialist, Harvest New York

Cell: (315) 694-1306
Email: mef46@cornell.edu

Elizabeth Buck, Field Technician
Phone: (607) 425-3494
Email: emb273@cornell.edu

John Gibbons, Field Technician
Phone: (585) 394-3977 x405
Email: jpg10@cornell.edu

CVP Administration

Mark Giles*, Regional Ag Team Leader
Cornell University
Phone: (607) 255-6619
Email: fmg4@cornell.edu

Angela Parr, Administrative Assistant
Veg Edge, Enrollment, & Sponsorships
Phone: (585) 394-3977 x426
Email: aep63@cornell.edu

Steve Reiners*, Co-Team Leader
Cornell University
Phone: (315) 787-2311
Email: sr43@cornell.edu

** Member of the Cornell Vegetable Program Administrative Management Team*

Cornell Cooperative Extension Offices of the CVP

Allegany County CCE
Phone: (585) 268-7644

Cattaraugus County CCE
Phone: (716) 699-2377

Erie County CCE
Phone: (716) 652-5400

Genesee County CCE
Phone: (585) 343-3040

Monroe County CCE
Phone: (585) 461-1000

Niagara County CCE
Phone: (716) 433-8839

Ontario County CCE
Phone: (585) 394-3977

Orleans County CCE
Phone: (585) 798-4265

Seneca County CCE
Phone: (315) 539-9251

Wayne County CCE
Phone: (315) 331-8415

Yates County CCE
Phone: (315) 536-5123

Visit our website at http://cvp.cce.cornell.edu

CVP Region Berry Program

Deborah Breth, Lake Ontario Fruit Program Team Leader
Monroe, Niagara, Onondaga, Orleans, Oswego & Wayne Co.
Phone: (585) 798-4265 x36
Email: dib1@cornell.edu
Website: http://lof.cce.cornell.edu

Cathy Heidenreich, Berry Extension Support Specialist
Allegany/Cattaraugus, Erie, Genesee, Ontario, Seneca & Yates Co.
Phone: (315) 787-2367
Email: mcm4@cornell.edu
Website: www.fruit.cornell.edu/berry.html

Contact the Capital District Vegetable & Small Fruit Program

Capital District Vegetable and Small Fruit Program (CDVSFP) Specialists

Chuck Bornt, Team Leader
Extension Specialist

Vine crops, sweet corn, potatoes, tomatoes and reduced tillage

Office: (518) 272-4210 ext 125
Cell: (518) 859-6213
Email: cdb13@cornell.edu
Address: 61 State Street
Troy, NY 12180

Laura McDermott,
Extension Specialist

Small fruits, leafy greens, labor, high tunnels, and food safety

Office: (518) 746-2562
Cell: (518) 791-5038
Email: lgm4@cornell.edu
Address: 415 Lower Main Street
Hudson Falls, NY 12839

Crystal Stewart,
Extension Specialist

Small and beginning farms, organic, root crops, brassicas, and garlic

Cell: (518) 775-0018
Email: cls263@cornell.edu
Address: 141 Fonclair Terrace
Johnstown, NY 12095

Abigail Foster, Field Technician
Email: aef225@cornell.edu

CDVSFP Administration

Mark Giles, Regional Ag Team Leader
Cornell University
Phone: (607) 255-6619
Email: fmg4@cornell.edu

Steve Reiners, Co-Team Leader
Cornell University
Phone: (315) 787-2311
Email: sr43@cornell.edu

Cornell Cooperative Extension Offices of the CDVSFP

Albany County CCE
William Rice Jr. Extension Center
24 Martin Road
Voohreesville, NY
Phone: (518) 765-3500

Columbia County CCE
Education Center, 479 Rte. 66
Hudson, NY 12534
Phone: (518) 828-3346

Fulton & Montgomery Counties CCE
50 E. Main Street
Canajoharie, NY 13317
Phone: (518) 673-5525

Greene County CCE
Agroforestry Resource Center
6055 Route 23
Acra, NY 12405
Phone: (518) 622-9820

Rensselaer County CCE
61 State Street
Troy, NY 12180
Phone: (518) 272-4210

Saratoga County CCE
50 West High Street
Ballston Spa, NY 12020
Phone: (518) 885-8995

Schenectady County CCE
Schaffer Heights
107 Nott Terrace, Suite 301
Schenectady, NY 12308
Phone: (518) 372-1622

Schoharie County CCE
Extension Center
173 S. Grand Street
Cobleskill, NY 12043
Phone: (518) 234-4303

Warren County CCE
377 Schroon River Road
Warrensburg, NY 12885
Phone: (518) 623-3291

Washington County CCE
415 Lower Main Street
Hudson Falls, NY 12839
Phone: (518) 746-2560

Advisory Members

Albany:	Tim Albright and Tim Stanton
Columbia:	John Altobelli, Bryan Samascott, Jody Bolluyt (organic)
Fulton:	Eric and Stephanie Grey
Greene:	Pete Kavakos, Jr. and Jim Story
Montgomery:	Jim Hoffman and Ken Fruehstorfer (organic)
Rensselaer:	Larry Eckhardt and David Mesick
Schenectady:	Al Lansing and Keith Buhrmaster
Saratoga:	Cyndi Pastore and Craig DeVoe
Schoharie:	Bob and Linda Cross, and Jake Hooper
Warren:	Kim Feeney
Washington:	George Armstrong and Rich Moses
Industry Representatives:	Jay Matthews and Paul Peckham

Visit our website at http://cdvsfp.cce.cornell.edu

If you have questions or comments about this publication or the Capital District Program in general, please contact your county's grower advisory member or the Agricultural Program leader of your local Cornell Cooperative Extension office.

Cornell Cooperative Extension
of Ontario County
480 North Main Street
Canandaigua, NY 14424

Non-Profit
U.S. Postage Paid
Canandaigua, NY 14424
Permit #22

SUCCESS FACTORS IN FARMING

giving you the long-term edge with wisdom from your fellow farmers

Jason Condon of Isabelle Farm in Lafayette, CO believes that the sustainability advantages of being classified as a "small farm" are rather limited. In his view, staying small can be a mistake. At some point, **a farm manager must make a deliberate choice about how big they should be to serve many marketing relationships as well as possible**. One success factor he noted during a recent farm tour is knowing to question the benefits of staying small in certain markets:

"Any time you think the size of your operation gives you magic powers, you will fail. Being a small farm does not give you strength or improve your product. But it does give you opportunity."

With a team approach, Isabelle Farm is now working 80 acres of certified organic vegetables in a challenging, semi-arid climate. They expanded to the point where they could meet as many markets as possible from CSA to farm markets and wholesale accounts. It is a well-run farm with a sustainable, long-term view. Learn more about their approach at http://www.isabellefarm.com.

Success Factors in Farming provides tips and advice from the vast collective knowledge found among farmers in our area. These thought-provoking commentaries have been collected by Extension agent Jim Ochterski, and are presented exclusively in the Cornell Vegetable Programs award-winning newsletter, *Veg Edge* to offer real-life insights about sustainability and long-term success in agriculture.