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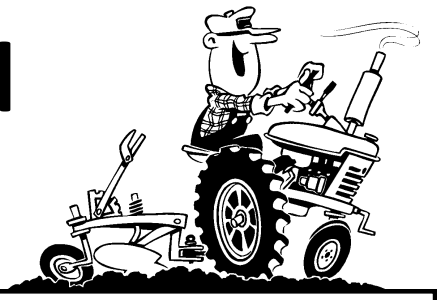
Cultivating Cumberland



March- 2020 VOL. 25, ISSUE 3

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Food and Drug Administration Fresh Herb Testing

"From 1996 to 2015, the FDA reported nine outbreaks linked to basil, parsley and cilantro, which resulted in 2,699 illnesses and 84 hospitalizations," according to the FDA quarterly report. "Four of the outbreaks were linked to basil, three to cilantro, and two to parsley. Of those same nine outbreaks, seven were attributed to *Cyclospora cayetanensis*; one was attributed to E. coli O157:H7; and one was attributed to *Shigella sonnei*. The FDA is seeking to obtain baseline estimates of the prevalence of *Salmonella* and Shiga toxin-producing *E. coli* (STEC) in cilantro, basil and parsley."

For the fresh herbs, the FDA plans to collect 1,600 samples, 761 domestic and 839 of international origin. As of Sept. 30, 2019, the agency had collected and tested 746 domestic samples and 468 import samples.

Of the samples, 13 tested positive for *Salmonella*, four domestic and nine imported. Nine tested positive for Shiga-toxin producing *E. coli*, four domestic and five imported.

"Further study showed that the STEC were incapable of causing severe illness. The FDA did not detect *E. coli* O157:H7 in any of the fresh herb samples," according to the report.

"The FDA also began testing its fresh herb samples for *Cyclospora cayetanensis* in July 2018, given that *Cyclospora*-related illnesses typically occur during the summer. The agency detected *Cyclospora* in 16 of the 666 fresh herbs samples tested, 4 domestic and 12 imported."

2020 South Jersey Commercial Tree Fruit Grower Meeting

Hemant Gohil

Date:	**March 5, 2020**
Time:	8:00 am – 3:00 pm
Location:	RAREC – 121 Northville Road, Bridgeton, NJ 08302
Pre-Registration:	Required, Contact: Karen Holton (holton@njaes.rutgers.edu) or (856) 455-3100 x 4104
Cost / person:	$15.00 (Checks preferred, made out to Rutgers University)
Lunch:	Included
Pesticide Credits:	Requested for – Core, PP2, 10, 1A, 3A and 3B

Program

8:00 am **Registration** Coffee and pastries

8:25 am **Welcome and Opening Remarks**

Daniel Ward, Director, Rutgers Agricultural Research and Extension Center

Hemant Gohil, Agriculture Agent, Rutgers Co-op. Extension, Gloucester County

8:30 am **Peach Bacterial Spot Management: Comparison of Copper Compounds and Rates**

Norm Lalancette, Extension Specialist in Tree Fruit Pathology, Rutgers NJAES

9:15 am **Pollinator Stewardship in Orchards**

Julianna Wilson, Academic Specialist, Tree Fruit Integrator, Michigan State University

10:00 am **Break** – *Coffee and pastries*

10:15 am **Integrating Management for Key Orchard Pests**

Anne Nielsen, Extension Specialist in Tree Fruit Entomology, Rutgers NJAES

10:45 am **Recommendation Updates for Tree Fruit Insect Management w/ Special Attention to Bee Safety.**

Dean Polk, Statewide Fruit IPM Agent, Rutgers NJAES

11:15 am **Pesticide Regulatory and Safety Update for 2020**

George Hamilton, Extension Specialist in Pest Management, Rutgers NJAES

11:45 am **Industry Updates and NJ Peach Promotion Council Updates**

12 Noon **Lunch**

1:00 pm **Updates on tree fruit soil fertility management in New Jersey**

Megan Muehlbauer, Agriculture Agent, Rutgers Co-op. Extension, Hunterdon Co.

1:30 pm **Soil Health – A Panel Discussion**

Daniel Ward, Extension Specialist, Pomology; Joseph Heckman, Extension Specialist, Soil Health; Thierry Besancon, Extension Specialist, Weed Science; Lewis DeEugenio, Fruit Grower, Summit City Farms; Robert Muth, Fruit and Vegetable Grower, Muth Family Farms; Megan Muehlbauer, Agriculture Agent.

2:30 pm **Updates on Peach and Nectarine Breeding Program**

Joseph Goffreda, Tree Fruit Breeding, Rutgers University

3:00 pm **Open Session – Grower Questions and Discussion**

Please contact Hemant Gohil (Program Organizer) at gohil@njaes.rutgers.edu or 856-224-8029 if you have any questions.

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BLUEBERRY GROWER FOOD SAFETY TRAINING

Wednesday, March 18th, 2020
9:00 AM – 4:00 PM
Register by 03/13/20

Philip E. Marucci Center
for Blueberry and Cranberry Research
125a Lake Oswego, Chatsworth, NJ 08019

$50 Lunch Provided

Topics discussed will include equipment sanitary design, equipment sanitation, and environmental monitoring program.

REGISTRATION and event details at
RutgersOnFarmFoodSafety.EventBrite.com

Contact **(856) 451-2800** ext. 1 KatieSi@co.cumberland.nj.us

Sponsored by The New Jersey Department of Agriculture (#5U18FD005877-04) and The National Addociation of State Departments of Agriculture (#5U01FD005334-04) *Funding for this program was made posible, in part, by the Food and Drug Administration through grant PAR-16-137. The views expressed in written materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does any mention of trade names, commercial practices, or organization imply endorsement by the United States Government.*

Theories on Managing Fungicide Resistance Development by Tank Mixing or Rotating Fungicides

Plant and Pest Advisory, Andy Wyenandt, Specialist in Plant Pathology, Rutgers Cooperative Extension

The question of whether to tank mix high-risk (HR) fungicides with low-risk (LR) protectant fungicides or the rotation of HR fungicides with LR fungicides remains an open debate. The tank mixing or alternation of fungicides has been widely advocated as a means to delay or minimize the risks of resistance development (Genet et al., 2006; McGrath 2011; Van der Bosch and Gilligan, 2008; van den Bosch et al., 2014; Elderfield et al, 2018), although differences in opinion on whether one is better than the other exist (Genet et al., 2006), or that either method may be an effective means at reducing resistance development (van den Bosch and Gilligan, 2008). The theories behind the rotation or tank mixing of different fungicides follows strategies analogous with managing antibiotic resistance, using methods known as complementary therapy or cycling therapy (van den Bosch and Gilligan, 2008). Fungicide resistance studies with tank mixes or alternations use similar densityindependent models as antibiotic resistance and assumes the sensitive and resistant strains to be at low initial densities. Resistance management studies incorporate what is often referred to as takeover time as the evaluation criterion (Van der Bosch and Gilligan, 2008). Take-over time is defined as the time-period in which the fraction of the resistant population passes a critical threshold level, thereby reducing the value of the fungicide for disease control (van den Bosch and Gilligan, 2008).

The concept behind the alternation of fungicides with different modes-of-action is that cyclic selection pressure placed on the fungus should help reduce the buildup of resistant populations, however, this idea has been criticized by numerous authors (van den Bosch and Gilligan, 2008). The argument against the alternation of fungicide chemistries is that this method would only work if it comes with a fitness cost (e.g., the ability to reproduce) associated with the resistant population in absence of selection pressure against the target fungicide (van den Bosch and Gilligan, 2008). Thus, without a fitness cost, the fraction of the resistant pathogen population would not change during the time period when the target fungicide is not used (van den Bosch and Gilligan, 2008). This suggests that resistance development would continue as if there had been no alternation at all, and it would take exactly the same number of fungicide applications of the target fungicide to build up a given level of resistance to that fungicide, although the time for resistance buildup (i.e., take-over time) would be potentially delayed (van den Bosch and Gilligan, 2008). Birch and Shaw (1997) state that one of the advantages to alternation is the possibility of stabilizing selection pressure, if only one of the fungicides were applied at a time.

The concepts behind the tank mixing of fungicides closely follows the concept behind the alternation of fungicides with different modes-of-action. Van den Bosch and Gilligan (2008) using density-dependent models, showed that if no fitness costs exist, mixtures are no different from alternation strategies when comparable doses are used. Tank mixes can be useful if fitness costs exist, but is questionable whether fitness costs would ever be large enough to make mixtures a useful resistance management strategy. Van den Bosch and Gilligan (2008) suggested that tank mixtures deserve attention for their ability to act as insurance in the sense that large scale losses could be avoided if one component of the tank mixture (i.e., the HR fungicide) suddenly fails, and that this is especially important in pathogens where large-scale epidemics (e.g., cucurbit downy mildew)

may occur in one year, but not others. Van den Bosch et al. (2014) using empirical and theoretical modeling suggested the following conclusions with using mixtures as a fungicide resistance tactic: 1) adding a multi-site (i.e., LR fungicide) or a specific site (another HR) fungicide to a high-risk fungicide helps reduce the rate of selection against the fungicide(s) with the specific modeof- action, 2) adding a partner fungicide while reducing the dose of the high-risk fungicide reduces the selection pressure for resistance development without compromising effective control; and 3) while there were few studies done, evidence suggests that mixing two highrisk fungicides is also a useful resistance management strategy. The authors also pointed out that due to the limited research in this area of tank mixes, the lack of these studies should be a warning against over interpreting the findings in their review (van den Bosch et al., 2014). Elderfield et al. (2018) in exploring the alternation or tank mixing of low- and highrisk fungicide programs on lifetime yield (e.g., use) of the high-risk fungicide, in other words, the time period before the high-risk fungicide was no longer economically effective, showed through empirical and theoretical modeling that lifetime yield may be different for different fungicide-pathosystems and that alternation or tank mixing may lead to longer lifetime yields (i.e., use). The authors, based on their evidence, suggest that mixtures of low and high risk fungicides will always be the best resistance management tactic when the objective is optimizing the lifetime yield (i.e., use) of the high-risk fungicide (Elderfield et al., 2018). Gisi et al. (2006) determined in the testing of resistance development in P. viticola (down mildew of grape) using a QoI (FRAC group 11) and protectant (LR) fungicide tank mix that increasing the dose of the non-QoI partner (LR) fungicide in the mixture resulted in reduced selection pressure. The authors also suggested that the choice of non-QoI (LR) fungicide tank-mix partner and its dosage can significantly affect the success of QoI resistance management strategies under practical conditions.

Parnell et al. (2007) suggested that in-field strategies, such as the alternation or tank mixing of fungicides, used to combat fungicide resistance development may be more useful through the restricted deployment of fungicides over large areas. Restrictions on fungicide use in this manner may be extremely beneficial in controlling and managing fungicide resistance development in pathogens such as Podosphaera xanthii (cucurbit powdery mildew) and Pseudoperonospora cubensis (cucurbit downy mildew) which spread over vast geographic areas (i.e., the east coast of the U.S.) each year. Research in the mid-Atlantic region of the U.S. has confirmed the presence of cucurbit powdery mildew populations resistant to FRAC codes 3 and 11 fungicides in recent years. This suggests that QoI- and/or DMI-resistant cucurbit powdery mildew populations could be disseminating up the east coast from the southeast region of the U.S. each production season. Importantly, fungicides in FRAC code 11 are still widely recommended and used in some southern tier states, whereas recommendations and use of FRAC code 11 fungicides for cucurbit powdery mildew control in the mid-Atlantic region have been mostly discontinued in recent years. In order to help combat fungicide resistance development issues such as this in the future, more collaboration between extension personnel from different regions must be done to help establish more defined fungicide resistance management guidelines for large geographic areas such as the south- and northeast regions of the US.

Importance of risk management.

Because certain pesticide chemistries have specific MOA's there is always a much greater chance for pests (e.g., pathogens, weeds, or insects) to develop resistance. For example, fungi which produce a vast amount of

asexual inoculum (i.e. conidia), undergo multiple diseases cycles during a given production season (e.g., powdery and downy mildews), or fungi which have a high probability for sexual reproduction in a field population (e.g., *Phytophthora capsici*) often have a much greater chance for fungicide resistance development. Importantly, in controlling pathogens where there are but a few, HR fungicide chemistries available for use, selection pressure put on the pathogen may be increased through their overuse. Therefore, the lack of proper chemical rotations (i.e., pesticides with different modes-of-action) or improper tank mixes or rotations may have a dramatic effect on resistance development, especially if these high-risk pesticides are over used or used improperly according to the label.

The grouping of similar chemistries together by their modes-of-action (e.g., FRAC group) and the inclusion of resistance management guidelines on pesticide labels are designed to i) reduce the chances for resistance development and ii) help agricultural producers develop and follow resistance management programs. Although application restrictions and resistance management guidelines have been widely adopted by the chemical industry, the follow-through effects of such guidelines have been left solely to the individual applicator; or extension personnel or crop specialists who help train those applying agricultural pesticides. Jutsum et al. (1998) pointed out that the challenge was to develop fungicide resistance management strategies which were relevant to local production practices. In recent years, the use of FRAC, HRAC and IRAC codes has been widely included in state and regional vegetable commercial production recommendations and promoted and used by extension personnel and crop advisors as education and teaching tools in many production regions of the United States. Even with increased awareness and training, the proper use of these pesticides is ultimately placed upon the end-user (e.g., the farmer/applicator) to make sure that the pesticides are properly applied according to the label rate, its restrictions, and state and federal laws.

Take home thoughts

There is still a lot to learn in the understanding of tank mixing and rotating HR and LR fungicides with each other, and the rotation of HR fungicides with different modes of action on a weekly basis. First, growers need to follow the label. The label is the law. Where appropriate, growers need to rotate HR fungicides with different modes of action (i.e., from different FRAC groups) as much as possible to limit the overuse of any one FRAC group during the production season. In general, tank mixing HR fungicides with LR fungicides will help reduce overall section pressure for resistance development to the HR fungicide. In crops, where there are but one or a few HR fungicides labeled for control of a specific disease, the use of the HR fungicide(s) needs to be done judiciously.

For more information on fungicide resistance management strategies using cucurbit powdery mildew and cucurbit downy mildew as examples, please click on the hyperlinks.
For more information on the specific fungicides recommended for disease control please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendations.
Fungicide Resistant Management Guidelines for Vegetable Crops grown in the mid-Atlantic Region for 2020/2021 will be available soon.
Author citations in parenthesis are from peer-reviewed journal publications.
February 15, 2020 Andy Wyenandt

The ABCs of Cucurbit Powdery Mildew Control

Plant and Pest Advisory, Andy Wyenandt, Specialist in Plant Pathology, Rutgers Cooperative Extension

Cucurbit powdery mildew (CPM), caused by *Podosphaera xanthii*, is one the most important diseases of cucurbit crops throughout the world. The pathogen is an obligate parasite, just like cucurbit downy mildew, meaning it needs a living host in order to survive. In northern regions that have a killing frost in the fall the pathogen will die out when the crop freezes. Not being able to overwinter, the pathogen must be re-introduced each spring or summer in the mid-Atlantic region. The pathogen accomplishes this by re-infecting cucurbit crops in the spring as they are planted up the east coast starting in Florida, then the Carolina's, Virginia, and so forth. By late May, as soon as cucurbit crops begin to germinate in the mid-Atlantic region, the potential threat for potential powdery mildew infections begin.

The first step in mitigating CPM begins with planting powdery mildew tolerant (PMT) or resistant (PMR) cultivars if they meet your needs. It is important to remember that these cultivars are not "immune" to CPM; they will become infected at some point in the growing season depending on disease pressure. Hopefully, this will occur later in the season when compared to CPM susceptible cultivars. Organic growers hoping to mitigate losses to powdery mildew should always chose CPM tolerant or resistant cucurbit cultivars first. There are a number of OMRI-approved fungicides labeled to help suppress CPM development, these should always be used in concert with CPM tolerant or resistant cultivars and a preventative fungicide program. Cultural practices such as increasing in-row plant spacing to improve air flow and cultivation to keep weeds to a minimum will also be advantageous. Avoiding the use of overhead irrigation will help reduce disease pressure from another important pathogen, cucurbit downy mildew. Thus, growing cucurbits on a mulch with drip irrigation has its advantages, but also increases costs.

In the past, a typical conventional fungicide program consisted of rotating two different FRAC group fungicides every other week, such that the pattern looked like:

A – B – A – B – A – B

Often a protectant fungicide such as chlorothalonil or mancozeb is added to the tank mix on a weekly basis to 1) help control other important fungal diseases, such as anthracnose or gummy stem blight and 2) to help reduce selection pressure on the high-risk fungicide that was being applied. This type of preventative program was used for many years, because, in most cases there were just a few effective fungicides available for CPM control depending on the crop. An example of this would be:

A = (azoxystrobin [FRAC group 11] + chlorothalonil (MO5) rotated weekly with B = (myclobutanil [FRAC group 3] + chlorothalonil (MO5)

This type of control strategy worked extremely well as long as the pathogen didn't develop resistance to either the FRAC group 11 (azoxystrobin) or FRAC group 3 (myclobutanil) fungicide. To better understand modes of action and how fungicide resistance develops in FRAC group 11 and FRAC group 3 fungicides please click here. Unfortunately, because of fungicide resistance development this type of program is no longer effective and is no longer recommended for CPM control.

Over the past 10 years, there have been a number of new fungicides released with new modes of action (i.e., new FRAC groups) for CPM control in cucurbit crops. Unfortunately, all have a moderate to high-risk for resistance development because of their specific modes of action. The good news are these new fungicide chemistries have less effects on humans, non-target organisms, and the environment.

These fungicides include:

- FRAC group 13 (quinoxyfen)
- FRAC group 39 (fenazaquin)
- FRAC group 50 (metrafenone)
- FRAC group U06 (cyflufenamid)
- FRAC group U013 (flutianil)

Not all of the fungicides listed above are labeled for all cucurbit crops. Growers will need to refer to local recommendations and the label for crop specifics. Remember, the label is the law.

These fungicides offer new strategies when it comes to controlling and mitigating losses to CPM. Instead of rotating two fungicides with a moderate to high-risk for resistance development every other week (A – B – A – B), growers now have option to reduce the total number of times any single fungicide might be applied during the production season; further reducing the risk for resistance development to any one mode of action. For example, in pumpkin, a new CPM preventative fungicide program may look like this:

A – B – C – D – E – A – B – C – D – E

Where A=(FRAC group 3);B=(FRAC group 13); C=(FRAC group 50); D=(FRAC group U013); E=(FRAC group 11)

In this type of CPM preventative program any one high-risk fungicide would only be applied twice per growing season and 5 weeks apart greatly reducing the risk for fungicide resistance development. Importantly, for cucurbit growers, the easiest method to mitigate the potential for fungicide resistance development are to reduce the total number of applications of any one high-risk fungicide during the production season.

When to start spraying for CPM

Initiating a preventative spray programs begins with paying attention to Extension reports, scouting, and when the crop was seeded. If the crop is seeded the early-spring (i.e., early to late May) there is a very good chance CPM is not present in the mid-Atlantic region. If CPM is not present, there is no need to initiate a spray program using high-risk fungicides. In this instance, general protectant fungicides such as chlorothalonil will help mitigate other foliar diseases. As cucurbit crops are seeded into early to mid-June (and afterward) the risk for CPM development will rise in the mid-Atlantic region. This is when scouting and paying close attention to Extension reports becomes important. The first application should be done when CPM has been detected in the immediate region or when it is detected by scouting (e.g., with one lesion found on the underside of 45 mature leaves per acre). This will help reduce the use of unwarranted high-risk

fungicide applications early in the production season. Importantly, the use of PMR or PMT cucurbit varieties will also help delay the onset of CPM development as well. Once CPM preventative fungicide programs are initiated, applications need to occur at every 7 to 10 days (at the latest) for as long as you expect to harvest (e.g., summer squash) or hold the crop (e.g., pumpkin and winter squash). During harvest, growers need to pay careful attention to pre-harvest intervals because they may vary significantly between different FRAC groups or fungicides within the same FRAC group (a good example are fungicides in FRAC group 3). Once harvest is complete, those blocks or fields need to be destroyed immediately to help reduce the spread of CPM to other blocks or fields that are scheduled to be harvested later in the production season. This is especially important for other diseases such as cucurbit downy mildew.

In some instances, rotating between many different FRAC group fungicides are not an option because the chemistries aren't available for use. An example would be leaf spot control in spinach, where FRAC groups (7, 11, 7 + 11, 7 + 12, and 9 + 12) are available. In this example, options for control might look like this:

A – B – C – D

Where A=(FRAC group 7); B=(FRAC group 9 + 12); C=(FRAC group 11); D=(FRAC group 7 + 12)

Here, we have maximized the use of as many different FRAC groups as possible and spread their use as far apart as we can during the production season. Its important to remember that fungicides with more than one active ingredient (e.g., 7 + 11) should also be rotated as far apart as possible with fungicides that contain the single active ingredient (e.g., FRAC group 7 or FRAC group 11).

Monitoring fungicide efficacy

With the use of high-risk fungicides, all growers need to monitor fungicide efficacy accordingly. Once the lack of efficacy is detected there is a chance that fungicide resistance might be present. Importantly, the lack of efficacy should not be misconstrued with poor applications or waiting too long between fungicide applications. Reports of poor efficacy from Extension personnel from one region may not reflect fungicide efficacy in another region. Therefore, fungicide efficacy needs to be done at the farm level and the only way to accomplish this is to scout your fields and know what is and isn't working for you.

The principles mentioned above also extend to other important diseases in vegetable production where there are multiple FRAC groups with high-risk fungicides available to control specific diseases. As a general rule, growers need to rotate as many different modes-of-action (i.e., fungicides from different FRAC groups) as possible during the production season to help mitigate fungicide resistance development in conjunction with best management practices.

For more information on fungicide use, FRAC groups, and specific control recommendations please see the 2020/2021 Mid-Atlantic Commercial Vegetable Production Recommendation Guide.

Options for Controlling Basil Downy Mildew in the Field

Plant & Pest Advisory, Andy Wyenandt

For over a decade, basil downy mildew (BDM) has caused significant losses in basil grown in organic and conventional field and greenhouse production across the United States. At the time of its introduction, there were very few fungicides labeled for its control making it nearly impossible to grow a successful crop in many areas of the country. The pathogen, *Peronospora belbahrii*, is an obligate parasite, meaning it needs a living host in order to survive. Thus, in more northern regions of the country that experience a freeze (i.e., winter), the pathogen will die when the host freezes during the fall. Because of this, the pathogen must be re-introduced the following spring or summer from southern regions of the country. This is similar to cucurbit downy mildew, where the pathogen can survive on the host that is growing in the field during the winter months (e.g., southern Florida or Mexico). The exact timing of when basil downy mildew may show up in your geographic region depends on a number of factors. The more southern you are located in the continental US, the more likely the pathogen will show up earlier in the spring or summer. In New Jersey the pathogen has been reported as early as 12 June and as late as 2 August. The first step in mitigating losses to basil downy mildew is in your selection of the best varieties. In recent years, there have been a number of new commercial sweet basil varieties released with a high level of resistance to basil downy mildew. Sweet basil varieties without BDM resistance should always be grown prior to the expected arrival of the pathogen in your region. There is a BDM monitoring website, led by Cornell University, which tracks the movement of the pathogen across the country each year. Growers can use the website to see where BDM has been reported across the country. Once BDM has been detected in your area you can expect it to remain active until the end of the production season. BDM resistant sweet basil varieties should always be grown after BDM has been detected in your region to help mitigate losses due to the disease. If you are located in the southern US, the easiest approach would be to use BDM resistant sweet basils the entire production season. All basil growers must remember that any of the new BDM resistant sweet basils are not “immune” to the disease. If disease pressure becomes extremely high or environmental conditions become highly conducive for disease development over a long period of time BDM resistance will break down for that season. Thus, it is extremely important to **still initiate** a fungicide program when using any DMR resistant sweet basil, especially if disease pressure is expected to be high.

For several years, the IR-4 Project has been working diligently with stakeholders and registrants to facilitate the registrations for a number of fungicide products (conventional, biopesticide, and organic) to control basil downy mildew. These efficacy studies have been done by Extension personnel at many Universities across the country. The following is a comprehensive list of conventional, organic, and biopesticides currently labeled for the control of BDM in the US.

Conventional fungicides currently labeled for basil downy mildew control:

- Ranman 400 SC, FMC Agricultural Products
  - cyazofamid, FRAC Group 21
  - Can be used in a greenhouse, 0-day PHI
- Revus, Syngenta Crop Protection,
  - mandipropamid, FRAC Group 40
  - Micora labeled for use in the greenhouse; 1-day PHI
- Ridomil Gold, Syngenta Crop Protection
  - mefenoxam, FRAC Group 4
  - Field use only; 21-day PHI

- Orondis Ultra, Syngenta Crop Protection (not yet approved by EPA)
  - oxathiapiprolin (FRAC Group 49) + mandipropamid (FRAC Group 40)
  - Field use only (foliar); 0-day PHI
- Segovis, Syngenta Crop Protection
  - oxathiapiprolin, FRAC Group 49
  - Greenhouse use only; transplants for retail sale
- Presidio, Valent USA
  - fluopicolide, FRAC Group 43
  - Field use only; 1-day PHI;
  - Adorn labeled for use in the greenhouse
- Reason 500SC, Gowan Company and Bayer CropScience LP
  - fenamidone, FRAC Group 11
  - Field and greenhouse use; 2-day PHI

Organic Materials Review Institute (OMRI Listed) federally registered fungicide products for basil downy mildew control include:

- Actinovate AG (*Streptomyces lydicus*, Novozymes BioAg Inc.)
- Double Nickel 55 and LC (*Bacillus amyloliquefaciens* strain D747 Certis U.S.A.)
- Aviv (*Bacillus subtilis* strain IAB/BS03, STK Bio-Ag Technologies)
- Regalia (extract of *Reynoutria sachalinensis,* Marrone Bio Innovations)
- Trilogy (neem oil, Certis U.S.A.)
- Milstop, Carb-O-Nator (potassium bicarbonate, BioWorks Inc., Certis USA LLC)
- Oxidate (hydrogen dioxide, BioSafe Systems LLC)
- Oxidate 2.0 (hydrogen dioxide; peroxyacetic acid, BioSafe Systems LLC).
- Cueva Fungicide Concentrate (copper octanoate, Certis USA, LLC)
- Romeo (cell walls of *Saccharomyces cerevisiae* strain LAS117, Lesaffre Yeast Corporation)

Biopesticide products federally registered for basil downy mildew control that are not OMRI listed include:

- mono- and di-potassium salts of phosphorous acid (K-Phite, Plant Food Systems)
- phosphorous acid, mono- and dipotassium salts (Confine Extra, Winfield Solutions LLC)
- phosphorous acid, mono- and dibasic sodium, potassium, and ammonium salts (Alude and Phostrol, Nufarm Agricultural Products)
- potassium phosphite (Fosphite, JH Biotech, Inc.; Fungi-Phite, Plant Protectants, LLC; Prophyt, Helena Chemical Company; Rampart, Loveland Products, Inc.)
- potassium bicarbonate (Armicarb 100, Helena Chemical Company)
- a combination of potassium phosphate and potassium phosphite (Phorcephite, Loveland Products, Inc.)
- sodium tetraborohydrate decahydrate (Prev-Am Ultra ORO Agri, Inc.)
- hydrogen peroxide, peroxyacetic acid (Rendition, Certis USA LLC)
- hydrogen peroxide; phosphorous acid; mono- and dipotassium salts (Oxiphos, BioSafe Systems LLC)
- citric acid (Procidic, Greenspire Global Inc.)
- hydrogen peroxide; peroxyacetic acid (Sanidate 12.0, BioSafe Systems, LLC)
- Sodium tetraborohydrate decahydrate (Prev-Am Ultra, ORO Agri, Inc.)
- Laminarin (Vacciplant, UPL NA Inc.)

Some important points to consider:

1. Some of the conventional fungicides listed above are sold under different product names, depending on

whether the product can be used in the field or greenhouse or for greenhouse transplant use. Other products have both a field and greenhouse use on the same product label.

2. Although a product is listed as a biopesticide, it does not mean it has an OMRI-approved label. All growers should follow labels accordingly. Remember, the label is the law.

Proper control of BDM depends on a number of factors including the environment, disease pressure, and the timing of fungicide applications. Prolonged periods of wet weather and high relative humidity during the production season will make BDM control more difficult regardless of the products used to control it. The amount of disease pressure present in your field will also have an impact on your ability to control BDM. This is especially important in organic production systems where organic products often have better chance of working if disease pressure remains low. This is why growing a basil downy mildew resistant sweet basil is so important; as many organic products as reported by growers have not shown to be as effective as needed.

Research has shown that fungicide applications (e.g., conventional, bio-, or organic) initiated after the start of disease development most often leads to poor control and crop loss. Therefore, it is important to anticipate the arrival of BDM and initiate a fungicide program prior to the onset of disease development. This is also why monitoring the progress of the pathogen in the US is so important. In some areas, the disease might arrive on infected basil transplants from southern states. If this happens, the basil downy mildew will be in present long before the anticipated arrival of the pathogen due to weather patterns.

How products work against basil downy mildew

Conventional fungicides often work by inhibiting spore germination or spore production. Thus, the importance of having them applied prior to the arrival of the pathogen. Some of these products, such as mefenoxam or oxathiapiprolin, move within the plant, giving them an advantage when applied as drip applications. Biopesticides, such as the phosphites, are truly systemic and move up and down within the plants vascular system; however, research has shown that phosphites are more effective as foliar applications than when applied as drip applications. Some biopesticides, such as Oxidate and hydrogen peroxide, act as disinfestants killing spores they come into direct contact with. Because BDM sporulates on the underside of the leaf, these products (and most other fungicides) must reach the undersides of leaves during application in order to be effective. The same holds true for copper products. Copper is a protectant fungicide inhibiting spore germination. Therefore, it must reach the undersides of leaves. Organic products, such as those containing *Bacillus* and *Streptomyces*, act as an antigonist against BDM on the leaf surface and must be remain present in high enough populations on the leaf surface to provide control. This is often difficult to do because it requires multiple applications per week with short retreatment intervals. Often, these products are ineffective due to unfavorable environmental conditions. For growers trying to reduce conventional fungicide use, these products as well as disinfectant products will also kill off any biological control agents, so beware.

For information on Rutgers DMR sweet basils, where to purchase seed, as well as control strategies, and ongoing research efforts please follow the Rutgers basil downy mildew breeding program on Instagram at #Rutgersbasil.

Additional Resources:
Tracking basil downy mildew in the US
Managing basil downy mildew
Fungicides for the control of BDM
Controlling basil downy mildew in the greenhouse

By: Andy Wyenandt, Kathryn Homa (IR-4 Project), and Jim Simon, Department of Plant Biology, NJAES, Rutgers University

'Scarlet Sunrise' Bicolor Grape Tomato is latest from Rutgers plant breeding program

PUBLISHED ON FEBRUARY 26, 2020

NEW BRUNSWICK, N.J. — The Rutgers New Jersey Agricultural Experiment Station (NJAES) tomato breeding team that developed the 'Rutgers 250' tomato, has created a new and unique bicolor grape tomato, 'Scarlet Sunrise'. Developed by traditional (non-GMO) plant breeding methods, this cultivar has firm, crack-resistant red/yellow fruit, and–representative of New Jersey's legacy of tasty tomatoes–an intense sweet flavor balanced by moderate acidity. The indeterminate plants are high yielding, with mid-late season fruit maturity.

Rutgers NJAES has a robust plant breeding program – with new and novel releases enhancing selections of classic Garden State favorites like peaches, strawberries and tomatoes, or enhanced disease resistance for disease prone varieties like sweet basil, hazelnuts and turfgrass.

There are a number of traits that tomato breeders focus on when developing a new cultivar. When growing for commercial markets, firmness and disease resistance are often priorities. The thing that sets the tomato breeding program apart at Rutgers is the focus is on flavor–nothing less would be expected from the home of the Jersey tomato. Two historic tomato releases from Rutgers breeding program are the Rutgers tomato (1934) and Ramapo tomato (1968).

In today's market, that long-lost flavor eludes most tomato breeding programs. Rutgers NJAES started investigating people's preferences to determine tasty tomato varieties when it launched the annual Great Tomato Tasting at the off-campus Rutgers Snyder Research & Extension Farm in the early 1990s, with this year's event being held on August 26. Tomato tastings have become a regular part of Rutgers agricultural outreach programs and they provide insight into what people consider a flavorful tomato. This in turn drives the breeding efforts.

Rutgers NJAES plant breeders–extension specialist in vegetables Tom Orton and Pete Nitzsche, agriculture and natural resources county agent of Morris County, selected grape and cherry tomatoes that tested well in Rutgers performance and taste tests and used them to cross-breed for a unique flavorful grape tomato. After eight years of field and taste testing, the promising result is being launched in 2020 as 'Scarlet Sunrise' bicolor grape tomato *(Plant Variety Protection Certificate pending).*

In addition to rating well in taste tests, Scarlet Sunrise showed notable results in field trials. Orton remarked, "While 'Scarlet Sunrise' has high yields of attractive, firm, good-tasting fruits, I am most impressed by the extended window of harvest and absence of fruit cracking under high moisture conditions."

The 'Scarlet Sunrise' tomato seeds are available through the Rutgers NJAES Rediscover the Jersey Tomato program at https://breeding.rutgers.edu/tomato-availability/ and commercial sales of Rutgers 250, Ramapo, and/or Scarlet Sunrise through Rohrer's Seeds, Smoketown, PA. The contact person is Jim Gamber at (717) 299-2571 ext. 2 or jgamber@rohrerseeds.com.

Cornell University Survey on Food Safety and Conservation Practices Used by Produce Growers

If you grow fruits, or vegetables in the Eastern US, **please fill out the survey** at https://bit.ly/2t6EQsO

You will be asked about your operation's farm management practices and costs associated with these practices. The survey will focus on food safety, wildlife management, conservation, and agricultural water use. The person most directly in charge of managing food safety should take the survey, which **takes 20-30 minutes**. All responses will be kept **strictly confidential**. The first 300 respondents to complete the survey are eligible to **receive a $15 gift card**.

The following fact sheets are now available on NJAES Publications:

FS1316 Attracting Ruby-throated Hummingbirds to Your Yard. Kerwin, K. and Maslo, B.

njaes.rutgers.edu/fs1316

FS1302 Industrial Hemp Production in New Jersey: FAQs has been updated to reflect that the NJ Hemp Plan has been approved by the USDA.

njaes.rutgers.edu/fs1302

Update on Fire Regulations

State of New Jersey

DEPARTMENT OF AGRICULTURE
HEALTH / AGRICULTURE BUILDING
PO BOX 330
TRENTON NJ 08625-0330

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DOUGLAS H. FISHER
Secretary

February 5, 2020

Dear Grower:

The Director of the Division of Codes and Standards provided the attached letter that outlines the Uniform Construction Code (UCC)'s fire protection requirements for seasonal farm labor housing. A summary of the letter appears below, but please take care to read the entirety of the enclosed letter carefully. Please note that these requirements do not apply to farms that provide agricultural labor housing on the property on a year-round basis.

In Summary:

Existing pole barns, sheds or similar structures that are being used as temporary labor housing must meet the requirements of the UCC Rehabilitation Code identified below. New buildings constructed for labor housing must meet the requirements of the UCC for a new building.

When structures built for farm storage are being used as living quarters, this is considered a "change of use" per the UCC. Utilizing a single-family home to house more than 5 unrelated people is also a "change of use". These buildings are classified as Residential Group R-2 structures and must meet the following fire suppression requirements of the UCC Rehabilitation Subcode:

- The structure must have an automatic sprinkler system;
- The structure must have hard-wired interconnected smoke alarms;
- No commercial cooking operations[1] without an approved Type 1 hood;
- A fire extinguisher must be located within 50 feet of any point within the building;
- Bathroom facilities (temporary or permanent) must be within 200 feet of the structure.[2] ; and
- Hard-wired carbon monoxide (CO) alarms must be installed when a fuel burning appliance is within the building or there are garage facilities attached to the building.

Structures built after 1977 with a valid Certificate of Occupancy for R-2 use do not require fire suppression. Structures built after 1977 with a valid Certificate of Occupancy for any use other than R-2 use must have an automatic sprinkler system.

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[1] "Commercial cooking" has been defined as a person(s) cooking and serving meals to workers. In these situations, a Type 1 hood is required over the stove.

[2] This relates only to UCC requirements. All other applicable state and local laws and regulations must be also be obeyed.

Structures that were approved for residential construction prior to May 1, 1990 do not require fire suppression, but those approved for residential construction after May 1, 1990 do require fire suppression.

For structures built prior to 1977 that are currently used as labor housing, the retrofit requirements of the Uniform Fire Code apply if the structure was originally built and designed for housing. If the structure was not initially intended for housing, a change-of-use is required, along with all of the aforementioned fire suppression requirements.

Please note that all fire protection contractors working in New Jersey must possess the proper permits. A list of permitted sprinkler contractors can be found at the following State website: https://www.nj.gov/dca/divisions/dfs/pdf/contractor_certified_january_2020.pdf.

Page two of the enclosed letter addresses the process by which a property owner may apply for a variation from the UCC Rehabilitation Subcode requirements identified above. Variations may be granted when compliance with the UCC would result in practical difficulty for the property owner. However, under no circumstances will a variation be granted if it will jeopardize the health, safety, or welfare of the intended occupants.

As noted in the enclosed letter, compliance with the change-of-use provision of the UCC Rehabilitation Subcode must be initiated by the beginning of the 2020 growing season. To be in compliance, property owners must submit a "schedule of compliance" to the local code enforcement agency by June 1, 2020 that identifies:

- The date by which the property owner will receive proposals and estimates;
- The date by which the owner will enter into a signed contract for the required work;
- The date by which a UCC permit will be submitted;
- The date by which the work will begin; and
- The date by which the work will be completed.

A construction permit must be obtained from the appropriate local authority prior to the commencement of work on the property.

Progress inspections will be performed by the local code enforcement agency.

If you have any questions, please contact Monique Purcell by phone at (609) 292-5532 or by e-mail at Monique.Purcell@ag.nj.gov.

Sincerely,

Douglas Fisher
Secretary of Agriculture

State of New Jersey
DEPARTMENT OF COMMUNITY AFFAIRS
101 SOUTH BROAD STREET
PO BOX 800
TRENTON, NJ 08625-0800
(609) 292-6420

PHILIP D. MURPHY
Governor

LT. GOVERNOR SHEILA Y. OLIVER
Commissioner

February 4, 2020

RE: Seasonal (Temporary) Farm Labor Accommodations

Dear Secretary Fisher:

This letter outlines the Uniform Construction Code (UCC) requirements, N.J.A.C. 5:23, for seasonal (temporary) farm labor housing (180 days or less) and specifically the need for the installation of an automatic sprinkler system. Existing pole barns, sheds, or similar structures that are being used as temporary farm labor housing must meet this requirement. New buildings being constructed for use as farm labor housing must also meet this requirement.

By way of background, it is necessary to understand the UCC requirements for an existing building being converted, or that has already been converted, to temporary farm labor housing. When a structure built for the storage of farm equipment and/or supplies is to be used as living quarters, it is considered a *change of use* per the UCC at N.J.A.C. 5:23-6.31. It is also a change of use when a single-family home is utilized to house more than five roomers or lodgers who are unrelated. All such buildings are classified as Residential Group R-2 structures, and must meet all of the requirements of the UCC rehabilitation subcode, N.J.A.C. 5:23-6.1 et seq.

The requirements include:

- The structure must have an automatic sprinkler system.
- The building must have hard-wired interconnected smoke alarms.
- No commercial cooking operations without an approved Type 1 hood (commercial cooking means there is a person cooking and serving meals to the workers).
- A fire extinguisher is to be located within 50 feet of any point within the building.
- Bathroom facilities (temporary or permanent) are to be within 200 feet of the structure.
- Hard-wired carbon monoxide (CO) alarms must be installed when a fuel burning appliance is within the building or there are garage facilities attached to the building.

Compliance with the change of use provisions of the rehabilitation subcode must be initiated before the start of the 2020 growing season. Compliance is considered to be initiated if a schedule of compliance is signed by the property owner and approved by the local code enforcing agency by June 1, 2020. The schedule of compliance must include the date by which the property owner will receive proposals and estimates for the work being performed, the date by which the property owner will enter a signed contract for the required work, the date by which an application for a Uniform Construction Code permit will be submitted, the date by which the required work will commence, the date by which progress inspections will be completed by the local code enforcing agency, and the date by which the required work will be completed. The timeline and content of each schedule will vary from farm to farm; the local enforcing agency will work with owners to establish schedules of compliance as appropriate. The schedule of compliance must state that failure to meet the agreed upon timelines may result in monetary penalties and/or an order to vacate

the structure. Finally, the schedule of compliance must also provide a provision that if circumstances beyond the control of the property owner cause the failure to meet the deadlines in the schedule of compliance, the schedule will be reconsidered on a case by case basis. As an alternative to the entry of a schedule of compliance, the use of a building for residential purposes can always be discontinued.

The UCC does permit an owner to apply for a variation from the UCC requirements. Such a request must satisfy the standard set forth in N.J.A.C. 5:23-2.9: that strict compliance with the subcode provision would result in practical difficulty for the owner, and that if granted, the variation would not jeopardize the health, safety and welfare of intended occupants of the structure or the public. The construction official determines whether or not a *variation* should be granted for any structure. If a variation is denied, the applicant may appeal the decision to the local Board of Appeals; this process typically happens at the County level.

The Department has determined that an acceptable *variation* request from seasonal farms should include, at a minimum, the following:

- A fire sprinkler system designed and installed in accordance with NFPA 13R;
- The system must have a Fire Department Connection;
- The system must be monitored;
- Water supply for the system may be reduced to a NFPA 13D (non fire-rated) tank(s) containing 10 minutes of water supply and pump system; and
- The building must be inspected annually pursuant to Department of Community Affairs, Division of Fire Safety regulations.

This letter and the guidance set forth herein does not apply to farms that operate on a year-round basis. The variation noted above cannot be applied to housing on year-round farms.

The requirements set forth herein relate only to UCC requirements. All other applicable federal, state and local laws, regulations, and permits must be adhered to.

If you have any questions regarding this matter, please contact Justin Henry of the Division's Office of Regulatory Affairs at (609) 984-7672.

Sincerely,

Edward M. Smith, Director
Division of Codes and Standards

Cumberland County Board of Agriculture Scholarship

Student must be a Cumberland County resident pursuing a degree in Production Agriculture/Horticulture, Agricultural Education, Agronomy or related field.

The purpose of this scholarship is designed to support the general welfare of agriculture in Cumberland County. Through this program, the board wishes to encourage the scientific study of agriculture and promote as a useful, profitable, and dignified career. Education in production agriculture is a necessary tool in today's intensified agriculture field. The scholarship program hopes to encourage students to avail themselves of agriculture and related programs in higher education.

$2,000 Scholarship

Return to:
Cumberland County Board of Agriculture 291 Morton Ave. Millville NJ 08332 by April 15th

Name: _____ Age:_____

Address: _____

High School / College: _____ GPA: _____

Phone: _____ Email: _____

Clubs and or volunteer work in the community: _____

_____

_____

_____

Name of College or Technical School: _____

Address: _____

Course of Study:_____

Why have you chosen a career in agriculture:

_____

What are your plans after college:

_____

Why should the scholarship committee select you for this scholarship:

References: (at least 3)

Name: _____ Phone:_____

Name:_____ Phone:_____

Name:_____ Phone:_____

Please provide one letter of recommendation

Payment of the scholarship will be made directly to the college or technical school pending acceptance and enrollment

Signed: _____ Date:_____
(Applicant)

Signed: _____ Date:_____
(Parent/Guardian)

_____

Calendar of Important Events

✓ Indicates a newly added event since the last calendar

✓ **March 9, 2020**
Central Jersey Vegetable Growers Meeting; Monmouth County Ag Building, RCE of Monmouth County, 4000 Kozloski Road, Freehold, NJ 07728; 8:00 AM—3:30 PM; $30 per person, includes breakfast and lunch; Pesticide credits available, CORE– 2 units, PP2– 3 units, 1A– 3 units, 10– 3 units ; Please register by filling out the attached brochure and mail to RCE of Monmouth County. Please call 732-431-7260 x 7280 for questions or email william.errickson@njaes.rutgers.edu

March 11, 2020
Central Jersey Turf & Ornamental Institute; Battleground Country Club, 40 Millhurst Rd., Manalapan, NJ; $100 per person and includes breakfast and lunch; A broad range of topics are presented on turfgrass, landscape, and nursery crops by Rutgers faculty and staff, as well as representatives from state agencies and organizations; Pesticide credits available: CORE - 2 units, 1A - 3 units, 2 - 3 units,3A - 4 units, 3B - 7 units, 7A - 1 unit, 8A - 1 unit, 8B - 1 unit, 8C - 8 units, PP2 - 9 units; To find more information or to sign up online go to http://www.cpe.rutgers.edu/cjtoi/

March 12, 2020
2020 South Jersey Nursery Meeting; Rutgers Cooperative Extension of Cumberland, 291 Morton Ave., Millville, NJ 08332; 9 AM - 4 PM; Meet the new Rutgers Extension Agents working with the nursery industry: Tim Waller, of RCE Cumberland County, and Bill Errickson, of RCE Monmouth County. Educational presentations on spotted lantern fly, pesticide safety and regulations, irrigation schedules, weeds, and pathogens. Pesticide credits requested for: CORE, PP2, 1A, 3A, and 10.

March 17 — 19, 2020
HACCP Plan Development for Food Processors; New Brunswick, NJ; $895; A 3 day hands-on course that teaches you how to write and implement an intelligent and effective HACCP plan, so your facility can avoid costs and liability associated with food contamination. Register at www.cpe.rutgers.edu/FOOD

✓ **March 18, 2020**
Blueberry Grower Food Safety Training; Phillip E. Marucci Center for Blueberry and Cranberry Research, 125a Lake Oswego, Chatsworth, NJ 08019; 9 AM — 4 PM; $50 Lunch provided; Register online at RutgersOnFarmFoodSafety.Eventbrite.com by March 13th

✓ **March 24 — 26, 2020**
The Inaugural Northeastern Cider Conference (NCC); Albany, New York; An opportunity for cider makers to network, share knowledge and learn from each other. Hosted by the New York Cider Association (NYCA) in partnership with the Glynwood Center for Regional Farming and Angry Orchard Hard Cider, the NCC was created with the intention of meeting the unique regional needs of the Northeastern cider community. For more information and to register, visit the NYCA's website: newyorkciderassociation.com/event-calendar

✓ **April 4th, 2020**
The Dandy-Line Dance & Dinner; Merighi's Savory Inn; 6 PM—10 PM; $65 register online at vinelandchamber.org or call 856-691-7400

Farm Succession Planning Workshop

March 31, 2020

5-8pm

RECKLESSTOWN
· FARM DISTILLERY ·
2800 US 206
Columbus, NJ 08022

Guest Speaker:
Keith Dickinson
Farm Credit East

&

An informal roundtable discussion with local farmers regarding their farm transition experiences.

Food will be served.

Register through link below. Workshop registration includes dinner.

www.nj.gov/agriculture/sadc/

If you have any questions, please contact the SADC at (609) 984-2504.

CULTIVATING CUMBERLAND
A PUBLICATION OF RUTGERS COOPERATIVE EXTENSION OF CUMBERLAND COUNTY
VOL. 25, ISSUE 3

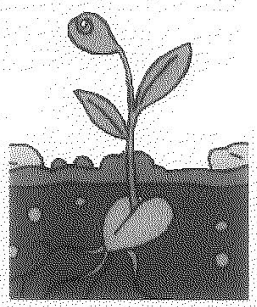
This annual event is brought to you by Rutgers Cooperative Extension of Middlesex, Mercer, and Monmouth Counties. Seminar topics will benefit Farmers, government employees and research staff.

The course will provide important research-based information on many relevant topics in agriculture including new crop varieties, invasive species, Integrated Pest Management, Pesticide Safety, and agriculture marketing and promotional opportunities.

You will receive an e-mailed confirmation the day after you register. In case of severe weather, contact the Monmouth County, RCE office for information 732-431-7260.

Pesticide Credits:

Core	2
PP2	3
1A	3
10	3



Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

Directions to Monmouth County Ag Building RCE of Monmouth County 4000 Kozloski Rd. Freehold, NJ 07728-5033

(Note: For GPS use 3000 Kozloski Road)

From North via Rt 18:

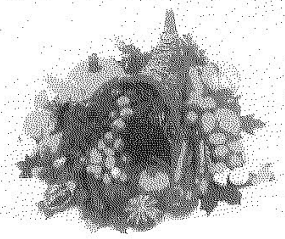
Take Rt. 18 South to Exit 22-B (Freehold /537 west)
*Go 1.3 miles on Rt. 537 West follow signs for Kozloski Rd. jughandle on right
* Stay left for Kozloski Rd. South
* Go .4 mile and make right for Burlington Rd.

From South via Garden State Parkway:

Take GSP North to Exit 98
*Exit on ramp for Rt. 34 North/I-195 West/Trenton
*Continue on Rt. 34 North for 4 miles
*After Collingswood Auction on left, stay left for Rt. 33 West
*Continue on Rt. 33 for 5 miles
*Stay right for Rt. 33 Business for 2 miles
* Make left onto Kozloski Rd. North
*At second light, make left - the sign will say Burlington Rd.

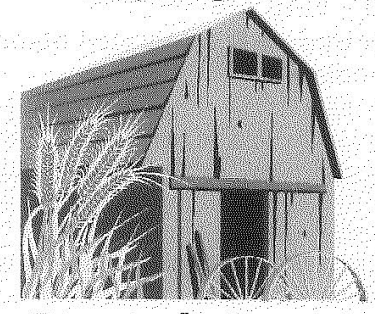
From West via Turnpike & Rt 537:

Take NJ Turnpike to Exit 7-A
* I-195 East (Shore Points) to Exit 16-B (Rt. 537 East/Freehold)
*Follow Rt. 537 east for 9 miles, bear right onto Rt. 33 Business (Rt. 9/Asbury Park)
*Stay on Rt. 33 Business for 2.5 miles.
*Exit onto ramp for Halls Mill Rd. North.
*Continue on Halls Mill Rd. for 2.3 miles. (Halls Mills turns into Kozloski Rd.)
*At second light, make left - the sign will say Burlington Rd.



RUTGERS
New Jersey Agricultural Experiment Station

Cooperative Extension presents 2020



Central Jersey Vegetable Growers Meeting

Monday, March 9

Monmouth County Ag Building
RCE of Monmouth County
4000 Kozloski Rd.
Freehold, NJ 07728-5033

For more information on this program, please call 732-431-7260 x7280

8:00 am Registration & Welcome

8:35 - 9:00 am
Farm Services Agency Update
Gabi Grunstein, County Executive Director
FSA, Freehold Regional Office

Natural Resource Conservation Service
Helena DeMarco, Soil Conservationist
NRCS, Freehold Regional Office

9:00 - 9:45 am
Deer Update & Integrated Management Roundtable
Larry Katz, Ph.D
Professor in Wildlife Management/Animal Welfare
Dept. of Animal Sciences, Rutgers, NJAES

Joseph Paulin
Educator, Wildlife Conservation & Management
Conservation Mgr., Hutcheson Memorial Forest
Honors College Teaching Fellow Rutgers University

9:45 - 10:45 am
Pesticide Safety for Applicators & Handlers
George Hamilton, Ph.D.
Specialist in Pest Management
Rutgers, NJAES, RCE

10:45 - 11:30 am
Spotted Lanternfly Update & Roundtable
Paul Kurtz, Entomologist,
NJ Dept. of Agriculture

11:30 am - Noon
The Nuts & Bolts of Growing and Harvesting High Quality Hops in New Jersey
Megan Muelhbauer Ph.D.
Ag & Natural Resources County Agent
Hunterdon County
Rutgers, NJAES, RCE

12:00- 12:45 pm Lunch

12:45 - 1:15 pm
Highlights of the RU Vegetable IPM Program
Kris Holmstrom
IPM Program Associate – Vegetable
Rutgers, NJAES, RCE

1:15 - 1:45 pm
Produce Safety in 2020:
FSMA Inspections & Third Party Audits
Clinton Shontz, Food Safety Inspector
NJDA, Bureau of Inspection and Grading

1:45 - 2:15 pm
Soil Disturbance
Jeffrey Everett, Deputy Executive Director
NJ SADC

2:15 - 2:35pm
New NJAES Vegetable Crops (Yacon, Tomato)
Peter Nitzsche
Ag & Natural Resources Agent, Morris County
Rutgers, NJAES, RCE

2:35 - 2:55pm
Weed Control Update
Thierry Besancon Ph.D.
Specialist in Weed Science
Rutgers, NJAES

2:55 - 3:30 pm
Direct Marketing and CSA Models
William Errickson
Ag & Natural Resources Agent, Monmouth County
Rutgers, NJAES, RCE

Lauren Errickson
New Brunswick Community Farmers Market
Rutgers, NJAES

3:30 pm
Pesticide Credits and Adjourn

Central Jersey Vegetable Growers Meeting

Sign-Up Form

Monday, March 9, 2020

Fees: $30 per person
(includes breakfast & lunch)

To register by mail:
see below address.

Name(s):_____

Business Name:_____

Address:_____

State & Zip :_____

Phone:_____

E-mail:_____

# of Attendees__X $30 = $ ____

READ THIS! IMPORTANT INFORMATION
All NJ Pesticide applicators must show a photo ID and Pesticide License #.

Payment is required with your registration.
Make checks payable to:
Rutgers, the State University of NJ.
Remit to:
RCE of Monmouth County
4000 Kozloski Rd. Freehold, NJ
07728-5033

Questions about your registration?
Phone: 732-431-7260 x7280
e-mail: william.errickson@njaes.rutgers.edu

Sign Up Deadline is Monday, March 2

The Greater Vineland Chamber of Commerce

is proud to host the 47th year of:

Join in the fun for a variety of line dances!
This event will also have a full buffet, featuring the Dandelion Salad!

CITY OF VINELAND
WHERE IT'S ALWAYS GROWING SEASON

Dandy-Line Sponsors

F&S Produce Co., Inc.
Freshness and Safety are Our Commitment

Sam's fresh salsa

April 4th
6:00–10:00 pm
Merighi's Savoy Inn
Tickets $65/person – ALL inclusive
Cash bar will be available
Reserved seating only for parties of 6+

Your ticket Includes:
Door Prizes!
Dandy Candy Station
Music by BME Event Group
Selfie Station with Fun Props
Commemorative glass by Arc International

Register online at www.vinelandchamber.org or call the GVCC at (856) 691-7400.

Tickets will NOT be sold at the door

Place your ad in our Program Book!

Size	Dimensions	Cost
Half Page	4.5" wide x 3.75" high	$60
Full Page	4.5" wide x 7.5" high	$100

Placing an ad in the program book is a great way to promote your business and support the GVCC!
Over 300 people attend the Dandelion Dinner!
All advertisements must be submitted electronically in JPEG FORMAT to dhunter@vinelandchamber.org no later than March 26th.

Wish to donate a door prize? Contact us today!

We accept cash, all major credit cards and checks made payable to "GVCC." Send payments to: Greater Vineland Chamber of Commerce. 2115 S. Delsea Drive, Vineland, NJ 08360

If you have any questions about this event, please contact Dawn Hunter at dhunter@vinelandchamber.org.

REGULARLY SCHEDULED MEETINGS

✓ Indicates meeting will be held at RCE of Cumberland County

Extension Education Bldg., 291 Morton Ave, Rosenhayn, NJ (Between Carmel and Rosenhayn)

✓

Cumberland County Pesticide Certification Exam Schedule

RCE of Cumberland County
291 Morton Avenue
Millville, NJ 08332
(Between Rosenhayn & Carmel)

2020

Mar 25 Apr 8 May 6

To Register call 609-984-6614

Information call 856-451-2800

Cumberland County Agriculture Development Board

County Administration Bldg.
Freeholder Room
164 W. Broad Street
Bridgeton, NJ 08332

2020

Mar 10 Apr 14 May 12 Jun 9
Jul 14 Aug 11 Sep 8 Oct 13
Nov 10 Dec 8

Reg. Meetings start at 7 p.m.

Information call 856-453-2211

✓

Cumberland County Board Of Agriculture

RCE of Cumberland County
291 Morton Avenue
Millville, NJ 08332
(Between Rosenhayn & Carmel)

2020

Mar 19 Apr 16 May 21 Sep 17
Oct 15 Nov 19 Dec 17

Meetings start at 7 p.m.

Information call Lew DePietro, President at 856-981-9843

The program in Cumberland County is suspended until further notice.

Cumberland County Improvement Authority (CCIA)
Pesticide Container Recycling
9:00 a.m. to 12 Noon
Cumberland County Solid Waste Complex
169 Jesse's Bridge Rd. (located off Route 55 Exit 29)
Deerfield Township, New Jersey
Questions? Call Division of Ag & Natural Resources, NJ Dept. of Ag 609-292-2242

Sincerely,

Wesley L. Kline, Ph.D.
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Environmental and Resource Mgt. Agent
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Have you visited the Cumberland County website for the

Present and/or past issues of “Cultivating Cumberland”? It’s a great

resource for information and dates...

http://Cumberland.njaes.rutgers.edu/

Cooperative Extension of Cumberland County

Since 1915

RUTGERS
New Jersey Agricultural
Experiment Station

Cooperative Extension of Cumberland County
Extension Education Center
291 Morton Avenue
Millville, NJ 08332-9791

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