



EXTENSION

Welcome to the last pest alert of the 2023 season!

A quick look outside...



Producers and consumers alike are preparing for a plethora of fall festivities, which, of course, includes lots of pumpkins! Here, a little one gathers them at a patch at Fair Weather Growers Farm in Rocky Hill. Happy fall everyone!

Towards the end of the season...

PREPARING FOR COLD

Most cool season crops will tolerate temperatures as low as 28°F. Cooler temperatures actually enhance the flavor of many cool season crops. Kale, collards, cabbage, Brussels sprouts, spinach, Swiss chard, carrots, onions, garlic, and leeks, are among the hardiest of cool season crops. However, warm season crops such as tomato, pepper, eggplant, squash can be injured when temperatures are below 36°F. Cold temperatures or frost can damage the surface of fruit vegetables. Light weight covers offer a few degrees of protection while the heavier grades protect plants from lower temperatures. PVC plumbing



Photo 1: Kabocha squash

tubing or metal electrical conduit bent over beds can be used to make hoops.

Pumpkins and winter squash are very chilling-sensitive when exposed to temperatures below 50°F. Research at Oregon State University showed that winter squash stored at 50-59°F, 90%, 70% and 50% were marketable after 9, 15 and 20 weeks, respectively. Green rind squashes should be stored at 50-55°F because 59°F or higher temperature may cause degreening, undesirable yellowing, and texture loss. High storage

temperature (>59°F) will result in excessive weight loss, color loss and poor eating quality. In a study, the best temperature for butternut squash storage for 7 months was 59°F. Besides weight loss and browning and drying of damage areas, higher storage temperatures also lead to more rapid breakdown of pulp tissue. 50-70% relative humidity with good ventilation is essential for optimum storage. High humidity will promote decay. Although 50-70% R.H. will reduce decay during storage, significant weight loss will occur. For example, mature Kabocha squash lose 1.0 and 1.5% of their fresh weight per week of storage at 59°F and 68°F, respectively. Weight loss of butternut squash stored at 55°F and 68°F is 2.5% and 5.5% per month, respectively.



Photo 2: Pumpkin abundance at Gresczyk Farms in New Hartford, CT

END OF SUMMER SEASON REMINDERS

Field clean-up for pest management

At the end of the season, field clean-up and removal of crop debris are important tasks that will help reduce diseases and insect carried over to the subsequent season. There are many pests of vegetable crops that can overwinter in New England. The table below can also be found on **page 9** of this volume of Crop Talk, describing overwintering stage and recommendations focused on cultural control of major insect pests of vegetable crops.

Table 1. Overwintering common insect Pests		
Insect Pest	Crop Host Plants	Overwintering Life Cycle Stage
Asiatic garden beetle	Beets, carrots, turnip, basil	Larvae or grubs descend deep into soil for overwintering.
Brown marmorated stink bug	Sweet corn, tomatoes, lima beans and green peppers	Adults overwinter in wooded areas, hedgerows and emerge late April to mid-May.
Cabbage maggot	Cole crops	Pupae buried about 4 inches deep in soil.
Colorado potato beetle	Potato, eggplant	Adults overwinter in soil.
Crucifer and striped flea beetles	Cole crops	Adults overwinter in crop and nn-brassica leaf litter and in soil.
European corn borer	Sweet corn, bean, pepper, potato and others in a list of over 200 host plants.	Larvae survive winter in stalks of corn and other host plants and pupate in the spring. Adults emerge in late May – early June.
Imported cabbageworm	Cole crops	Pupae hidden in surrounding vegetation.
Mexican bean beetle	Legume crops	Adults overwinter under plant debris, logs, under stones and hedgerows.
Onion thrips	Onions and other plants including alfalfa, clover, cucurbits or brassica crops	Overwinter as adults in crop residues, alfalfa, wheat and weeds along the border of crop fields.
Spinach leafminer	Swiss chard, beets, spinach	Leafminer overwinters as a pupa in the soil and flies emerge from late-April to mid-May.
Squash bug	Cucurbits, especially yellow summer squash, zucchini, Hubbard squash and pumpkin	Adults find shelter in crop residues and field margin vegetation.
Squash vine borer	Summer squash	The pupae overwinter 1 – 2 inches deep in the soil.
Striped cucumber beetle	Cucurbit crops	Adults overwinter under soil and plant debris near cucurbit fields. They become active in early spring.
Tarnished plant bug	Celery, lettuce, bean, eggplant and others in a list of over 300 host plants.	Overwinter as adults in crop residues and weeds. Active again in early spring.

Cover crops

A fundamental goal of cover cropping is to avoid bare soil between cash crop plantings. This not only protects soil, but captures sunlight and produces biomass that enhances soil quality. Other benefits include improved trafficability of fields and reduced compaction, enhance aesthetics, and potential for animal feed production. See "<u>Cover Crops and Green Manures</u>" in the New England Vegetable Management Guide to get information about late summerseeded and fall-seeded cover crops.

The photo at right is from Cloverleigh Farm in Columbia, CT. They recently seeded a mix of common oats, peas and red clover. The oats look like a grass, the peas have just started to sprout and the clover is a tiny little set of leaves. All these cover crops will be winter-killed but will continue to serve as a mulch until bed preparation in the spring and add soil organic matter.



Photo 3: Late season cover crop. Photo: Susan Mitchell, Cloverleigh Farm, Columbia CT

Soil testing

This is also a good time of year to perform soil tests on your fields. It provides you time to add lime if needed and be ready for spring fertilizer bulk orders. Instructions to collect soil samples and other relevant resources can be found here.

Photo 4: Shuresh Ghimire collecting a soil sample using a soil probe.



Greenhouse sanitation

See the article "Start Clean and Stay Clean" in the <u>September issue of Crop Talk</u> for information on how to effectively and thoroughly clean indoor growing spaces. This is a crucial process to ensure a successful start to next year's growing season.

WINTER CUTWORM

Winter cutworm (*Noctua pronuba*), also referred to as snow cutworm, emerges even in deep winter to feed on vulnerable plants. This cutworm is cold-tolerant and can cause extensive damage to winter cash and cover crops, as well as hayfields. Cutworm damage appears as cut-off plants, typically at or close to the soil surface, but can extend to defoliation. When disturbed, cutworms curl into a tight "C" shape. Management of winter cutworm is similar to that of any type of cutworm and can include chemical insecticides, Spinosad, and Bt applications. Any treatment should be applied as late in the day as possible, as cutworms emerge to feed at night.



Photo 5: Winter cutworm (top) and damage (bottom). Photos: Michigan State University Extension

BIODEGRADABLE PLASTIC MULCH: A CLIMATE SMART AGRICULTURAL PRACTICE

Written by Stacey Stearns, College of Agriculture, Health and Natural Resources and UConn Extension. Originally published online on September 22, 2022 <u>here</u>. Find an informational video on biodegradable mulch <u>here</u>.

UConn is working with growers in the state to find alternatives to plastic mulch without eliminating the benefits it brings.

During the growing and harvest seasons, vegetable producers often begin their day before sunrise and finish as the last light is seeping into the horizon. These long days are normal but varied. Challenges such as pests, disease, climate change, and weather make each day and each growing season unique and unpredictable.

Vegetable farmers control some of the variables they face – like weeds and the temperature and moisture levels of their soil – by using a product that comes with pros and cons: plastic mulch.

Shuresh Ghimire, assistant extension educator for vegetable crops in the College of Agriculture, Health and Natural Resources (CAHNR), is working with producers in the state to find alternatives to plastic mulch without eliminating the benefits it brings.

"Farmers are among the first to feel the effects of climate change. A successful crop, especially outdoors, is heavily based on climate variables like temperature and precipitation. Farmers need a solution, but we know we can do better than traditional

plastic mulch," says Ghimire. He is leading efforts to introduce more biodegradable plastic mulch for Connecticut's vegetable producers.

"The goal is to address these challenges and increase food production closer to home," says Ghimire. "This provides greater food security and lessens our dependence on traditional agricultural regions like California that are facing their own climate-related challenges."

Why is mulch necessary? Mulch reduces the need for herbicides, conserves soil moisture, moderates soil temperature, and can increase both crop yield and quality. This helps keep more profits in the growers' pockets when margins are tight.

However, there are negatives that come with plastic mulch. Most plastic mulch products are non-recyclable. Ongoing research highlights the negative environmental impacts of plastic mulch. It is also costly and labor-intensive for producers to remove at the end of the growing season.

These drawbacks have a big impact at the state and national levels. Connecticut has over 5,500 farms, including about 1,000 that produce vegetables on more than 9,000 acres. There are about 4.4 million acres used for vegetable production in the United States, roughly the size of Connecticut and Rhode Island combined. Plastic mulch becomes an unwieldy annual problem at this scale when it goes to a landfill at the end of each growing season.

Biodegradable plastic mulch was introduced as a solution in the 1990s. Today, it's an environmentally friendly and sustainable alternative to regular plastic mulch.

Biodegradable plastic mulch is plowed into the ground at the end of the growing season. This eliminates the recycling, environmental, and labor issues of traditional plastic mulch. The biodegradable mulch is applied at the same rate as the traditional plastic mulch, although slightly more loosely. At the end of the season, producers simply till the crops and biodegradable mulch into the soil, then plant their cover crop.

This is the biggest return on investment when switching to this innovative mulch, since it requires far less labor and eliminates removal costs. Composting and biodegradability tests ensure the biodegradable mulch used in vegetable production meets required environmental parameters. It must be 90% biodegraded into carbon and water within two years of plowing into the soil. The remaining 10% is microbial biomass, bacteria and fungi that help decompose organic matter into the soil.

Ghimire is currently conducting research trials on biodegradable plastic mulch in Connecticut and with national collaborators. This work has shown that biodegradable mulch and other forms of environmentally friendly mulching help with vegetable production because they modify the microclimate. This helps with crop growth and addresses climate change issues.

Ghimire is also conducting field trials to evaluate different aspects of biodegradable mulch use. One trial will evaluate the effect of biodegradable mulch on different crops, including tomatoes, since there is concern that their skin will adhere to the biodegradable mulch. His team is also studying long-term soil health after using biodegradable mulch.



Photo 6: Crop rows with biodegradable plastic mulch. Photo: Remsberg Inc

After first being introduced to biodegradable mulch five years ago, Steve Bengtson has expanded his farm's use of the product. Bengtson owns Cold Spring Brook Farm in Berlin, where he grows a variety of vegetable crops.

"Cleanup at the end of the year with traditional plastic mulch involves mowing all the crops down, loosening the edges of the plastic, and pulling it up. A lot of the time the plastic is wet and there are weeds all over the place, making it hard to remove. Using biodegradable mulch, you just remove the irrigation drip line and harrow it in. I recommend people try it on their farm with different crops. That's how we did it," Bengtson says.

Connecticut crops grown with biodegradable mulch include sweet corn, eggplant, pepper, summer squash, broccoli, Brussels sprouts, and greens. Research on melons and other crops that sit on the mulch may follow if the results from Ghimire's tomato studies show promise. Organic vegetable production currently cannot use biodegradable mulch, although research is ongoing to determine acceptability in that setting.

"Biodegradable plastic mulch enhances vegetable crop quality, saves time for agricultural producers, and reduces labor costs," says Ghimire. "It's one of many climate-smart innovations helping agricultural producers adapt and increase resilience while ensuring a safe and abundant food supply locally, regionally, and globally."

Agricultural producers can use these questions and answers from Ghimire to determine if biodegradable plastic mulch is right for their operation. Support for this work was provided by the Linda Brughelli Fund for Excellence in Extension Services. Brughelli is a parent of a member of the class of '06.

SAVE THE DATE: CONNECTICUT AGRICULTURAL EXPO 2023 ON NOVEMBER 8TH 8:00 am – 2:00 pm at Aquaturf, 556 Mulberry Street, Southington, CT

To register <u>click here.</u> Questions? Please call 860-768-1100 or email <u>Traceym@cfba.org</u>

Event Partners:

- Connecticut Farm
 Bureau
- Connecticut
 Department of
 Agriculture
- Farm Credit East, ACA
- UConn Extension

Registration includes:

- Expo showcasing the latest in ag innovation, farm equipment, tractors, farm implements, seed and crop protection products, farm supplies and services.
- State-wide Networking
- Buffet Lunch
- Connecticut Beer and Wine Samples
- Taste of Connecticut
- Pesticide CEU Credits

\$60 for CFBA Limited and Standard Members

- \$75.00 after Tuesday, October 31, 2023

\$75 for Non-members.

- \$90.00 after Tuesday, October 31, 2023

Join or renew <u>CT Farm Bureau membership</u> to receive discount member rate.

CONNECTICUT AGRICULTURAL *EXPO 2023 Cultivating Connections*



SAVE THE DATE: UCONN EXTENSION'S VEGETABLE AND SMALL FRUIT GROWERS' CONFERENCE ON JANUARY 9, 2024!

See the **agenda on page 15** of the <u>latest Crop Talk newsletter</u>. Registration will open later this month. We hope to see many of you there!

SAVE THE DATE

UConn Extension Vegetable & Small Fruit Growers' Conference

JANUARY 9, 2024 UCONN STUDENT UNION, STORRS, CT

Join us for an educational day of learning and updates on the latest trends in vegetable and small fruit production. Trade show will be held throughout conference.

Thanks for reading, and for a great season!

This is the final weekly Pest Alert for the 2023 season.

This year has been full of its unquie challenges, but we are so happy to have been able to collaborate with many of you. Thank you to everyone who followed along, and we hope the season finishes off smoothly! Please contact us if you have any questions or concerns; our contact info can be found below.

This report was prepared by Shuresh Ghimire and Maggie Ng, UConn Extension. All photos in this publication are credited to UConn Extension Vegetable IPM Program unless otherwise noted.

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Contact us!

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