



# VEGEEdge

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Fusarium Basal Rot of Onion

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## Fusarium Basal Rot of Onion

Christy Hoepfing, Cornell Cooperative Extension, Cornell Vegetable Program

Fusarium basal rot (FBR) of onion is a soil-borne disease, which is known for its long-term survival in soil. Onions can be infected with FBR at any age and the optimum temperatures for disease development are 77-82°F. In garlic, FBR is favored by periods of wet weather prior to harvest. Once onions get 2-3 weeks into bulbing (1.5-2 inch bulb size) is when we typically begin to see FBR-infected plants show up in the field.

**Above-ground symptoms** in onion include excessive and uniform leaf dieback, which should not be confused with the inner leaf dieback caused by bacterial diseases (Fig. 1). However, anything that results in poor root or basal plate quality such as a split basal plate or onion smut may result in excessive leaf dieback (Fig. 2 right). **FBR results in a brown corky dry rot of the basal plate** (Fig. 2 left and middle). It is also common for FBR to invade plants that are already infected with onion smut. The roots may still be intact in early infections and secondary soft rot bacteria may “chase” FBR infections causing the tissue to macerate (Fig. 3).



Figure 1. Excessive and uniform leaf dieback caused by Fusarium basal rot (left) should not be confused with the inner leaf dieback caused by bacterial diseases. Photos: C. Hoepfing, CCE

# About VegEdge

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The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

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The next issue of VegEdge will be produced on August 13, 2025.

## USDA Announces Reorganization - Surprises Congress

Liz Higgins, CCE Eastern NY Commercial Horticulture Program

On July 24th, USDA Secretary Rollins announced a surprise massive reorganization of USDA that includes vacating the Historic South Building on the Mall and the Beltsville Ag Research Center and moving over 2,600 of the current 4,600 DC-based USDA staff to hub locations: Raleigh, NC; Kansas City, MO; Indianapolis, IN; Fort Collins; CO and Salt Lake City; UT.

The Department's plan also reduces or eliminates stand-alone regional offices. In the plan, regional offices and other similar management layers will be co-located in the hub locations to the greatest extent possible. Specifically mentioned:

- The Ag Research Service would eliminate its area offices (which would mean that there would no longer be a Northeast Area), and they plan to close the Beltsville Ag Research Center in Beltsville, MD.
The National Ag Statistics Service, which currently has 12 regional offices (including a northeast office) would be consolidated to the 5 hubs.
USDA NRCS would reorganize its regional structure to align with the 5 hubs.

Without seeing a map, it seems that the Northeast (or West Coast) does not benefit by the change as the bulk of the USDA workforce will be relocated to the South, Midwest and Southwest.

Members of Congress were taken by surprise by the announcement. The US Senate Ag Committee held a hearing on July 30th in response to the announcement.

**Bulb rot caused by FBR** is from the bottom-up, while bulb rot caused by bacterial diseases is from the top-down (Fig. 4). Sometimes white mycelium is associated with FBR in the field, and more commonly after storage (Fig. 4 right).



Figure 2. Fusarium basal rot is characterized by a brown corky basal plate (left and middle), but anything that results in poor root or basal plant quality such as a split basal plate (right) may result in excessive uniform leaf dieback. Photos: C. Hoepting, CCE



Figure 3. Onion plants with early FBR infections may still have the roots intact (left) and secondary soft-rotting bacteria may invade the dry rot of FBR and cause the tissue to macerate (become soft and squishy) (right). Photos: Lindey du Toit (left) and C. Hoepting, CCE (right).

See a 4-minute [video on diagnosing foliar symptoms of bacterial diseases in onion](#), which includes distinguishing from look-alikes such as FBR.



Scan to view bulb rot diagnosis video

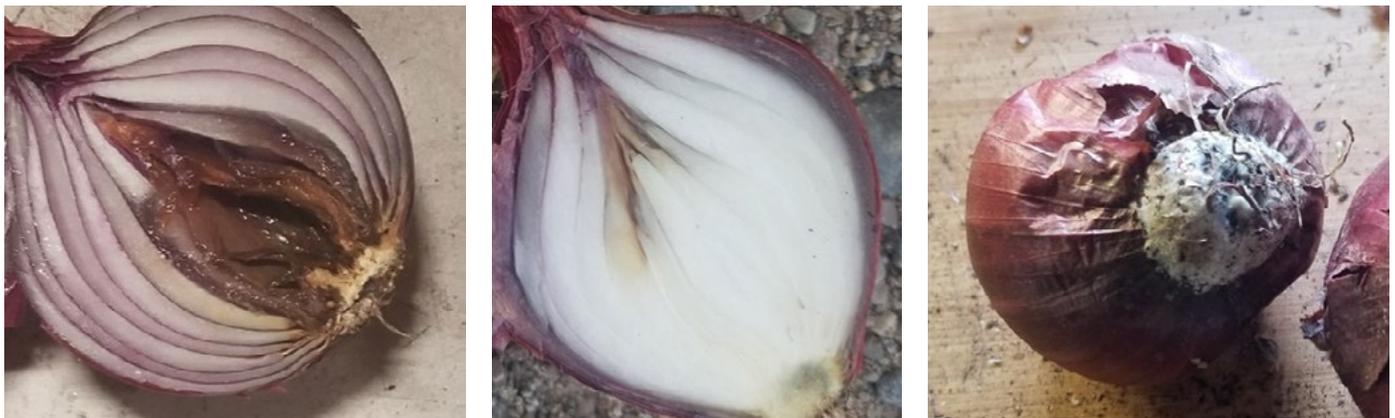


Figure 4. Bulb rot initially caused by FBR is from the bottom-up (left), while bulb rot caused initially from bacterial diseases is from the top-down (middle). A white mycelium growing around the FBR-infected basal plate is sometimes evident in the field, but more often out of storage (right). Photos: C. Hoepting, CCE

Currently, **best management practices for FBR are avoidance of most susceptible varieties**. Through personal experience and recommendations from seed companies, onion growers tend to know which varieties are most susceptible to FBR. From 2019-2021, I trialed several fungicides from FRAC groups 1, 3, 7 and 12 and biologicals from FRAC groups BM02 and P05 as in-furrow drench treatments at planting with no success of controlling FBR. Attempts to control FBR with fungicides have generally been unsuccessful. Perhaps more attention to timing, rates, type of application and soil mobility of active ingredients may yield more success in future trials.

FBR has increasingly become a concern for the national onion industry. Currently, there is a \$7.5 M grant (USDA NIFA) being developed to address Fusarium in both onion and garlic, of which myself (Christy Hoepting), Frank Hay and Crystal Stewart from Cornell/New York are co-PIs. There is so much that is not understood about FBR in Alliums as well as a need for solid management practices. If this grant is funded, there will be a lot of work on FBR in NY within the next few years. ●

# Resistance to FRAC 7 Fungicides Detected in CVP Region

## Highlights from 2023 Fungicide Trial and New Fungicide Recommendations for Alternaria Leaf Spot and Head Rot in Brassicas

Christy Hoepting, CCE Cornell Vegetable Program (reviewed by Chris Smart and Hirut Betaw, Plant Pathology and Plant-Microbe Biology, Cornell AgriTech)

This is a re-print of an article that was first published in VegEdge on August 14, 2024. Due to lack of funding, we were unable to continue our research on Alternaria leaf spot and head rot in broccoli in 2024 or 2025. Thus, our recommendations for control of this disease remain the same.

### Summary

- **Fungicide resistance to Alternaria leaf spot (ALS) and head rot was detected to FRAC 7c in active ingredient (a.i.) boscalid**, which is the active ingredient in Endura.
- ALS is likely developing fungicide resistance to all FRAC 7 fungicide active ingredients.
- Fungicide resistance to FRAC 7c boscalid was detected on 6 out of 7 conventional vegetable farms in Erie, Genesee and Monroe Cos. in Fall of 2023.
- **Cornell is no longer recommending FRAC 7 fungicides for control of ALS and head rot in brassicas.**
- **Quadris Top** (FRAC 3 + 11) provided **best control of ALS and head rot** in fungicide trial and was the only treatment that resulted in >70% marketable broccoli heads under high disease pressure.
- **FRAC 11 was most effective** FRAC group for control of ALS and head rot.
- **FRAC 3 is suspected to be slipping/ALS** developing fungicide resistance.
- FRAC 9 and 12 are suspected to “be doing most of the work” in FRAC 3 and 7 premixes Inspire Super (3 + 9) and Miravis Prime (7a +12).
- Bravo (FRAC M5) failed to prevent head rot but reduced foliar ALS by 64% under high pressure.
- **Organic fungicides failed to prevent head rot under high pressure.**
- **Organic fungicide Oso 5% SC 6.5 fl oz/A (FRAC 19) provided best control of foliar ALS**, which was similar to Bravo.
- **Copper bactericides Kocide 3000-O and Cueva had some activity (18%, 40%) on foliar ALS**, but were not as good as Bravo or Oso.

### Example Fungicide Spray Program for ALS and Head Rot in Broccoli (considering fungicide resistance to FRAC 7).

Ideally, for best fungicide resistance management, there should be **no more than 2 apps per FRAC group per crop**, except FRAC M5 may be used more because it has a very low risk of fungicide resistance. Products with 0-1 day pre-harvest intervals (PHI) are saved for harvest.

Week	Crop (Broccoli) Stage	Product and Rate/A	FRAC <sup>1</sup> Group(s)	PHI	Activity on Downy Mildew <sup>2</sup>
1-2	Pre-cupping	Bravo 1.5 pt	<b>M5</b>	7 days	Good
3	Canopy filled in	Inspire Super 20 fl oz	<b>3 + 9</b>	7 days	None
4	1" heads	Switch 14 oz	<b>12</b>	7 days	None
		<b>-OR-</b> Miravis Prime 11.4 fl oz	<b>7<sup>3</sup> + 12</b>	7 days	None
5	2-4" heads	Quadris Top 14 fl oz	<b>3 + 11</b>	1 days	Not Labeled
6	harvest	Quadris 15.5 fl oz	<b>11</b>	0 days	Mediocre

1 **FRAC**: Fungicide Resistance Action Committee. Diseases may develop cross-resistance to active ingredients that belong to the same FRAC group.

2 **Best control of downy mildew** is provided by Orondis Opti/Ultra, Revus and Presidio.

3 If ALS has developed resistance to FRAC 7 fungicides, it is the FRAC 12 that “is doing most of the work” in this premix.

**Fungicide “Cheat Sheet” for Alternaria leaf Spot and Head Rot in Broccoli and Other Cole Crops, 2024** (for use in 2025 too) is available on the CCE Cornell Vegetable Program website, CVP. CCE.CORNELL.EDU, under Broccoli.

### 2023 Research Highlights

#### Summer trial with high disease pressure (Table 1) (Hoepting et al. 2023)

- Small-plot trial located at Cornell Agri-Tech research farm in Geneva, NY.
- ‘Emerald Crown’ broccoli, known to be susceptible to Alternaria leaf spot and head rot.
- Conventional and organic products tested in same trial.
- Trial planted on June 6. Raised beds covered in plastic mulch with drip irrigation, 2 rows spaced 1 ft apart on bed with 8 inches between plants.

continued on page 5

- 5 weekly sprays from July 8 to August 2, initiated prior to disease detection.
- Trial artificially inoculated on July 13 and 20 when broccoli was beginning to head and had 1-inch heads, respectively. **A strain of *Alternaria brassicicola* collected from a conventional farm in Genesee Co. in NY in 2021 was used.** This strain was chosen because it was the most aggressive in Chris Smart’s collection.
  - **Note, the broccoli ALS trials that were conducted at Agri-Tech in 2021-2022 were artificially inoculated with an ALS strain collected from a conventional farm in Monroe Co. in NY in 2018.**
- Broccoli heads harvested when reached marketable size on July 28, August 1 and August 8.
- Data collected: No. marketable heads (zero rot), severity of *Alternaria* rot in unmarketable heads (7-point scale), severity of foliar ALS as a 100% scale (August 10).
- Disease pressure was high. The non-treated had 0% marketable heads with moderate head rot severity and foliar ALS severity was 83%.
- The quality of this trial was EXCELLENT.

**Marketable heads not possible with organic fungicides under high disease pressure**

- Under high ALS pressure, organic fungicides resulted in only 1 to 10% marketable heads, which was not significantly different than the nontreated.
- Organic fungicides significantly reduced foliar ALS severity. Oso 6.5 fl oz/A (FRAC 19) was the best (61% control) (Fig. 1), followed by copper bactericides (FRAC M1) Cueva 0.5% v/v (40% control) and Kocide 3000-O 0.75 lb/A (18%).
- Oso was generally as good as Bravo, but not as good as a top-performing conventional fungicide. Both were effective at reducing foliar disease but failed to prevent *Alternaria* head rot (Fig. 1).
- Adding adjuvant Nufilm-P, increasing rate to 13 fl oz/A and tank mixing with Cueva did not significantly improve ALS control over Oso 6.5 fl oz/A alone.
- Carb-O-Nator (a.i. potassium bicarbonate) had no activity on ALS and head rot.

**Organic products tested in Cornell trials that failed to control ALS (2021-2023):**

- FRAC P06 – Lifegard (inconsistent performance), LPI6748 (pipeline product)
  - FRAC BM02 - Double Nickel and Theia
  - FRAC P05 – Regalia
  - FRAC M2 – Microthiol Disperss
  - a.i. potassium bicarbonate – Carb-O-Nator
- Cornell does not recommend these products.

**Table 1. Evaluation of organic and conventional fungicides for control of *Alternaria* leaf spot and head rot in broccoli (c.v. Emerald Crown), small-plot fungicide trial, Geneva, NY, 2023 (Hoepting et al.).**

Product and Rate/A (A-E) <sup>1</sup>	FRAC <sup>2</sup> Group	3 d & 6 d post Spray D, 6 d post Spray E, 28 Jul, 1, 8 Aug (Harvest)			8 d post Spray E, 10 Aug (Harvest)		
		Marketable Heads (%/plot)	Mean ALS Head Rot Severity Rating <sup>3</sup> (0-6/head)		ALS Foliar Severity (%/plot)		
Untreated		0.0	e <sup>4</sup>	4.1	a	82.7	ab
<b>Organic fungicides:</b>							
Carb-O-Nator 5 lb/100 gal		1.8	e	4.0	ab	74.0	bc
Cueva 0.5% v/v	M1	1.3	e	3.3	bc	50.0	d
Kocide 3000-O 0.75 lb	M1	10.5	e	2.1	de	67.5	c
Oso 6.5 fl oz	19	8.1	e	2.4	d	32.4	efg
Oso 6.5 fl oz + Nu-Film P 0.125% v/v	19	9.3	e	2.8	cd	38.7	ef
Oso 13 fl oz + Nu-Film P 0.125% v/v	19	5.2	e	2.5	d	26.0	g
Oso 6.5 fl oz + Cueva 0.5% v/v	19 + M1	9.3	e	2.7	cd	42.5	de
<b>Conventional fungicides:</b>							
Bravo Weatherstik 1.5 pt	M5	11.8	de	2.1	de	29.7	fg
Inspire Super 20 fl oz + DA	3, 9	26.7	d	1.1	fg	0.6	h
Quadris Top 14 fl oz + DA	3, 11a <sup>5</sup>	71.6	ab	0.3	g	1.1	h
Inspire 7 fl oz + DA	3	3.1	e	2.4	d	4.4	h
Quadris 11 fl oz + DA	11a	56.4	bc	0.4	g	7.4	f
Miravis Prime 11.4 fl oz + DA	7a, 12	59.2	bc	0.5	g	6.7	h
Luna Sensation 7.6 fl oz + DA	7b, 11b	52.3	c	0.5	g	1.0	h
Velum Prime 3.8 fl oz + DA	7b	9.3	e	1.7	ef	4.4	h
Endura 9 oz + DA	7c	1.7	e	3.9	ab	89.0	a
p value (α = 0.05)		<0.0001		<0.0001		<0.0001	

<sup>1</sup> Treatment application dates: A – 8 Jul; B – 14 Jul; C – 19 Jul (heading begins); D – 25 Jul (harvest begins); E – 2 Aug. DA: Dyne-Amic is a nonionic surfactant (NIS) with penetrating and spreading properties, which was used with conventional fungicides that have translaminar activity at 0.125% v/v. Nu-Film P is a NIS with spreading and sticking properties and is approved for organic use.

<sup>2</sup> FRAC: Fungicide Resistance Action Committee.

<sup>3</sup> ALS Head Rot Severity Scale: 0 - healthy; 1 - very minor; 2 - minor; 3 - minor-moderate; 4 - moderate; 5 - moderate-severe; 6 - severe.

<sup>4</sup> Numbers in a column followed by the same letter are not significantly different, Fisher’s Protected LSD Test, p < 0.05.

<sup>5</sup> a, b, c are codes for different active ingredients within the same FRAC group. For FRAC 11a: a - azoxystrobin; b - trifloxystrobin. For FRAC 7: a - pydiflumetofen; b - fluopyram; c - boscalid.

**Quadris Top best in trial**

- Under high disease pressure, **Quadris Top 14 fl oz/A (FRAC 3 + 11a) was the only treatment that resulted in more than 70% marketable heads (72%, Fig. 1).** The unmarketable heads had very minor head rot (0.34 out of 7 scale) and foliar ALS severity was 1.1% (99% control compared to nontreated).
- Quadris Top had significantly more marketable heads than Quadris 11 fl oz/A (FRAC 11a) alone (56%).
  - Note that Quadris is labeled from 6 to 15.5 fl oz/A for ALS in brassicas. The 11 fl oz/A rate used in this trial was equivalent to the amount of active ingredient azoxystrobin applied in Quadris Top 14 fl oz/A, which

is a premix of azoxystrobin + difenaconazole. **It is entirely possible that a higher rate of Quadris would have been as good as Quadris Top.**

- There were no significant differences between Quadris Top and Quadris for severity of head rot or foliar ALS (Fig. 1).

### FRAC 7 and 3 premixes also some of best treatments

- Luna Sensation (FRAC 7b + 11b, Fig. 1), Miravis Prime (FRAC 7a, 12) and Inspire Super (FRAC 3 + 9) provided very good to excellent ALS control.
  - Except that Inspire Super only had 27% marketable heads.
  - Due to fungicide resistance to FRAC 7, it is the FRAC 11 and 12 in the FRAC 7 premixes that are “doing most of the work” – see below.

### FRAC 7c boscalid in Endura failed, fungicide resistance suspected

- Endura (FRAC 7c) looked like an untreated check (Fig. 1) and was not significantly different than the untreated for % head rot, head rot severity or foliar ALS.
- Endura was one of the top performing fungicides in 2018 on-farm trial and when inoculated with an ALS strain from this farm in the 2021 Geneva trial, Endura was significantly better than Bravo, but not as good as the best treatment. In 2018 on-farm trial, Endura had 25% marketable heads (although very minor severity of rot) and reduced foliar ALS by 82% or more.
- Alone, the FRAC 7b fungicide in Luna Sensation (FRAC 7b + 11b), trialed as Velum Prime had 9.3% marketable heads, which was not significantly different than the untreated and 82% fewer than Luna Sensation. FRAC 7b alone had significantly more severe head rot than Luna Sensation, but less severe head rot than the untreated, and was not significantly different than Luna Sensation for foliar ALS severity (Fig. 1).
  - This result suggests that **ALS may also be developing fungicide resistance to FRAC**

**7b** and that it is likely the FRAC 11 in Luna Sensation that is “doing most of the work”.

- The other FRAC 7 active ingredients, including 7a in Miravis Prime, 7b in Luna Sensation and 7d in Priaxor (7d + 11c) should also be tested for fungicide resistance.

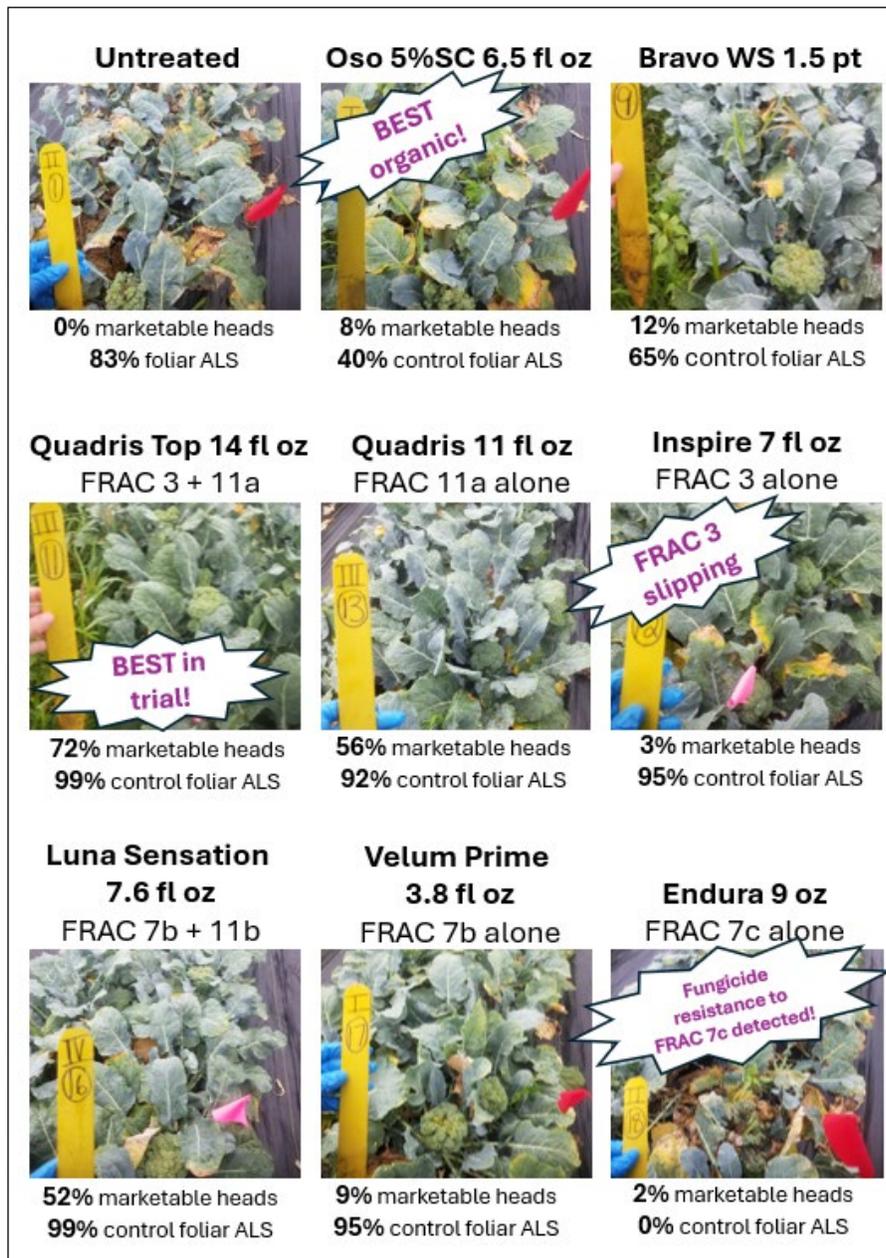


Figure 1. Evaluation of organic and conventional fungicides for control of Alternaria leaf spot and head rot in broccoli (c.v. Emerald Crown), small-plot trial, Cornell Agri-Tech, Geneva, NY, 2024. Note, light-green foliage in Quadris Top and Inspire, due to difenaconazole.

### FRAC 7 fungicide resistance detected in CVP region

In Fall of 2023, the Smart lab (Betaw & Smart, 2023) conducted fungicide sensitivity testing to FRAC 7c boscalid on:

- ALS isolates collected from the broccoli fungicide trial at Agri-Tech:**
  - 6 out of 6 (100%) ALS isolates collected from Endura treatments were resistant.
  - 2 out of 2 (100%) ALS isolates collected from Velum Prime (FRAC 7b) treatments were resistant. This means that **there is cross-resistance between a.i.s FRAC 7c (boscalid) and 7b (fluopyram).**

- **ALS isolates collected from 7 conventional and 1 organic vegetable farms in Erie, Genesee and Monroe Cos. in Fall of 2023 (Table 2):**
  - Fungicide resistance to boscalid was detected on 5 out of 7 (71%) of conventional farms, of which 31 out of 45 (= 69%) ALS isolates were resistant.
  - The ALS isolates collected from the site in Monroe Co. from where the ALS strain used to artificially inoculate the fungicide trials at Agri-Tech in 2021-2022 was resistant to boscalid in 2023. Endura was moderately effective (25% marketable heads) on this farm in 2018 and in the fungicide trials at Agri-Tech in 2021-2022. Since the grower used FRAC 7 fungicides to manage ALS from 2019 to 2023, **this suggests that ALS selected for 100% fungicide resistance in just 5 years.**
  - Interestingly, 60% of the ALS strains were resistant to boscalid on a farm where FRAC 7 fungicides were NEVER used to treat ALS. This suggests that **there may be aerial movement of ALS strains that are resistant to FRAC 7 fungicides among farms within a county (or similar area).**
- **Due to known development of ALS developing fungicide resistance to FRAC 7c, Cornell is no longer recommending FRAC 7 fungicides for managing ALS and head rot in brassicas.**

**FRAC 3 slipping in Quadris Top/Inspire Super, FRAC 9 and 11 doing “most of the work”**

- We trialed the FRAC 3 a.i. difenaconazole in Quadris Top (FRAC 3 + 11a) and Inspire Super (FRAC 3 + 9) premixes alone (as Inspire).
- FRAC 3 alone was not significantly different than the untreated for marketable heads (3%), but had significantly less severe head rot severity, which was significantly more severe than Quadris Top/Inspire Super. There were no significant differences between FRAC 3 alone and Quadris Top/Inspire Super for foliar ALS severity (Fig. 1).
- These results suggest that ALS may also be developing fungicide resistance to FRAC 3 and that the FRAC 11 and FRAC 9 in these FRAC 3 premixes are likely doing “most of the work”.
- FRAC 3 active ingredients should also be screened for fungicide resistance. There are three labeled for ALS in brassicas, difenaconazole, tebuconazole (in Viathon) and flutriafol (in Rhyme and Topguard EQ).

- It was observed that any treatment with difenaconazole (FRAC 3 in Quadris Top, Inspire Super and Inspire) turned the broccoli foliage from blue-green to light-green (Fig. 1).

**Bravo mediocre for foliar ALS control, fail to prevent head rot under high pressure**

- Since Bravo has a very low risk for fungicide resistance, we expect it continue to perform as well as it always has as “significantly better than nothing, but not great”. Bravo is not as good as the best-performing treatments.
- This is also how Bravo did in 2023 trial for foliar ALS and head severity, but it was not significantly different than the untreated for % unmarketable heads (12%) under high pressure (Fig. 1).
- Addition of a plant defense activator (FRAC P06, LPI6748) to Bravo did not improve ALS control in 2023 trial (data not shown).

**Table 2. Fungicide resistance status of *Alternaria brassicicola* to FRAC 7c boscalid (a.i. in Endura fungicide), collected from commercial vegetables farms in CVP region in Fall of 2023 (Betaw & Smart, 2023). Note: Attempts were made to collect ALS isolates from conventional farms in Orleans and Wayne Cos. in Fall of 2023, but disease pressure was too low to obtain any viable isolates.**

NY County	Farm Type	No. ALS isolates tested	No. ALS isolates Resistant to boscalid
Erie	conventional	1	0
Erie	conventional	5	4
Erie	conventional	5	0
Erie	organic	4	0
Genesee*	conventional	4	4
Genesee**	conventional	10	6
Monroe***	conventional	10	9
Monroe	conventional	10	8
<b>TOTAL</b>		<b>49</b>	<b>31 (= 63%) (= 69% conventional)</b>

\* Site where ALS isolates were collected in 2021, which were used for artificial inoculum in trials at Agri-Tech in 2023 where Endura (a.i. boscalid) failed to control ALS and head rot.

\*\* Site just 10 miles from “Genesee\*” where FRAC 7 fungicides had NEVER been used to manage ALS in brassicas.

\*\*\* Site where ALS isolates were collected in 2018, which were used for artificial inoculum in trials at Agri-Tech in 2021-2022. Note, 100% fungicide resistance was detected to FRAC 7c boscalid just 5 years after it performed well in fungicide trial in 2018. ●

## New Sweet Corn Disease Fact Sheets Available

Julie Kikkert, Cornell Cooperative Extension, Cornell Vegetable Program

Three new fact sheets were published this month: Tar Spot, Common Rust, and Northern Corn Leaf Blight of Sweet Corn. These along with additional sweet corn and other vegetable disease fact sheets and resources are available at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/>. The hyperlinks to the individual fact sheets are:

- [Tar Spot of Sweet Corn](#)
- [Common Rust of Sweet Corn](#)
- [Northern Corn Leaf Blight of Sweet Corn](#) ●



# CROP Insights

Observations from the Field and Research-Based Recommendations

## COLE CROPS

Flea beetles making a come back. The bigger challenge is keeping water on late fall crops as they try to establish. – EB

Some of the worst Alternaria leaf spot (ALS) and head rot can occur in August if it is hot and wet (not wet this year!). Note, that we discovered in 2023 that ALS has developed resistance to FRAC 7 fungicides (Endura, Priaxor, Luna Sensation, Miravis Prime) and no longer recommend them. Note, the latter three are premixes that include FRAC 7 fungicides, and although the FRAC 7 portion of these tank mixes may no longer be effective, the premix partners can be and so they still can be used. No new research has been done since. See article on page 4. – CH

## CUCUMBERS

Cucurbit downy mildew has been found in a limited area of Niagara County. It appears to have been present for over a week and has been well managed with limited sporulation visible on a dry, hot afternoon. The disease is likely present and unmanaged (sporulating) in non-commercial plantings in the area. Expect this to start moving with any rainstorms.

Spotted cucumber beetles are emerging. They look like yellow ladybugs. Similar feeding patterns and damage as the striped cucumber beetle. Spotted cuke beetles may be worse in rotations following corn. – EB

## DRY BEANS

Japanese beetles continue to be active in many fields this week, though they are the only major pest I am seeing in fields at the moment. Dry beans are now in bloom, so white mold management should be considered if you have not treated already. An initial application of Omega 500F is recommended followed by a second application of Endura 70 WDG. The first application should be made at the early bloom stage. – ML

Western bean cutworm trapping continues this week at 15 fields in locations in the region (Table 1). We have hit peak flight at all locations over the past few weeks. Most locations were at peak last week, with some fields leaning earlier or later. Scouting should now begin in dry beans. To scout for WBC, inspect 50 plants per field (10 stops, 5 plants per stop), looking at all pods present on the plant for

holes. If damage into the pod and seed is found with no larva present, it is possible this is WBC. An insecticide application is recommended if dry bean pod damage is found. (Project funded by the NYS Dry Bean Endowment; led by Margie Lund, CVP)

**Table 1. Western bean cutworm adult moth numbers by date for each dry bean trap location.**

Dry Bean Location	July 1	July 8	July 15	July 22	July 29	Aug 5	Cumulative Moths
Attica (Wyoming Co.)	0	0	10	21	16	10	57
Avoca Valley (Steuben Co.)	-	0	0	6	68	10	84
Avoca Hill (Stueben Co.)	-	0	1	32	112	95	240
Caledonia 1 (Genesee Co.)	1	0	0	22	60	56	139
Caledonia 2 (Genesee Co.)	0	0	0	35	101	69	205
Churchville 1 (Monroe Co.)	1	0	10	112	86	42	251
Churchville 2 (Monroe Co.)	0	1	2	27	29	17	76
LeRoy 1 (Genesee Co.)	0	0	0	7	28	40	75
LeRoy 2 (Genesee Co.)	0	0	1	2	8	27	38
Pavilion (Wyoming Co.)	-	0	0	16	89	34	139
Penfield (Monroe Co.)	-	-	0	25	34	20	79
Geneva 1 (Ontario Co.)	0	0	3	33	65	18	119
Geneva 2 (Ontario Co.)	-	2	9	47	100	103	261
Wayland Valley (Steuben Co.)	-	0	2	17	65	45	129
Wayland Hill (Steuben Co.)	0	2	1	30	134	145	312

## GARLIC

We are looking for samples of allium leaf miner in garlic. Any samples that we can get will help us better understand the risk of allium leaf miner surviving and spreading in garlic – something that isn't very clear right now. Please reach out if you think you can help us figure this out. We'd love to be able to provide better management information to you all! We just need some samples to work with. – EB

## ONIONS

The fifth hot and dry week in a row! Again, the opposite of what we want for bulbing. Irrigation has been weekly on farms that irrigate. Many direct seeded fields have greater than 2-inch bulbs now and lodging has begun. Some fields will be getting their last fungicide +/- insecticide sprays this week at ~ 50% lodging. We are now on the cusp between "bulb rain" when rain is good for making big bulbs and "rot rain" when rain can increase risk of bacterial bulb rot. Onions are most prone to bacterial diseases from early senescence/tipburn at ~ 5% lodging to 50% lodging. This is when the neck region of the onion plant becomes soft (and more permeable to bacterial infection) while several plants are standing upright (water can pool in leaf axils creating an environment favorable for infection and spread of disease) and the canopy is thick (poor aeration, longer periods of leaf wetness, conducive to disease). Stop the Rot irrigation studies in WA showed that bulb rot doubled when

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irrigation continued for an additional 2 weeks after 50% lodging (until 90% lodging). In WA, the recommendation is to discontinue overhead irrigation after 50% lodging. Of course, in NY we are at the mercy of mother nature. Although apparent, incidence of plants with foliar symptoms of bacterial diseases has been low. At this time of year, we also see plants infected with Fusarium basal rot (see article on page 1) and Iris yellow spot virus. Botrytis leaf blight (BLB) necrotic spots continue to increase, as they do this time of year, while BLB halo lesions decrease and Stemphylium leaf blight (SLB) remains at low levels, non-threatening and mostly secondary. This week, Elba muck saw lowest thrips counts in decades for this time of year and thrips remain low in Wayne and Oswego as well. With thrips and leaf diseases under control, the greatest concern is heat and drought stress in some fields. – CH

### PEPPERS

Seeing a lot of fruit damage from environmental conditions. Many plantings seem undersized compared to normal production seasons. A lot of growers have done a fabulous job loading those plants with fruit, which is an accomplishment. The cruel twist is that the undersized canopy is not able to provide adequate shading to all of those fruit, leading to higher than normal incidence of sunscald. Sunscald will always be on the outward-facing side of the fruit, not on the side facing the main stem. It is usually a dry, pale burn.

Excessively warm conditions and the lack of rainfall are placing irrigation resources under stress, meaning that some plantings are not receiving consistent and/or sufficient water. Blossom end rot is one result. Blossom end rot in peppers will often be on the lower half of the side of the fruit. It can show on the blossom end, too, but side wall is just as common. Blossom end rot is usually a dry, middle to dark brown color in peppers. Blossom end rot occurs weeks before you see symptoms, so there is nothing to be done about this now.

In both cases, these injured areas often become infected with secondary, opportunistic fungus and bacteria. Black anthracnose mold and soft rot are two common knock-on effects.

Pepper plants will continue to invest in their fruit, even if it is badly damaged. The best move is to pick and drop any fruit with sunscald or blossom end rot. This will refocus the plant's energy towards fruit with market potential. If your plants are undersized, removing damaged fruit and pushing nitrogen may help increase canopy coverage and create more sets.

### POTATOES

Late blight continues to spread to new fields in NY in areas where we have seen late blight pop up, though no new counties have been reported this week. All tested samples have been identified as US-23 which is susceptible to Ridomil. **If you suspect you have late blight on your farm please contact CVP Specialist Margie Lund or Elizabeth Buck to come collect a sample for strain identification.** Late blight infected leaf tissue will initially appear water-soaked and become brown or black within a few days. Lesions are often surrounded by a halo of light green tissue. Under high humidity, sporulation is visible as a white mold primarily along the lesion edge on the lower leaf surface. Stems and growing points of the plants may also become infected and turn brown. Under dry conditions like we have been seeing lately, late blight can appear as dried out brown spots on leaves and can be difficult to identify. Spots will often cross the mid-vein of the leaf. Most fields visited this week show signs of heat stress and tip burn which can appear similar to late blight. There are many other diseases and conditions that can appear similar to late blight under dry conditions, so if you think you could have late blight, please reach out to a CVP specialist for help identifying. Early blight is also showing up in some fields, so be sure your fungicide program continues to support protection from early blight. – ML

### SNAP BEANS

Heat stress continues in beans. Seeing some split sets. – JK

### SWEET CORN

Heat and drought stress, bird pressure and insect pressure continue to be an issue. Remember that you can follow the statewide trap network results at [Sweet Corn Pheromone Trap Network Report](#). *From the 8.5.25 report:* Trap catches this week for the 20 sites: European corn borer (ECB-E): reported at 3 sites European corn borer (ECB-Z): reported at 3 sites Corn earworm (CEW): reported at 19 sites, 16 high enough to be on a 4,5, or 6 day spray schedule Fall armyworm (FAW): reported at 5 sites Western bean cutworm (WBC): reported at 28 sites WBC most likely peaked this week. Remember, WBC is most attracted to pre-tassel corn. Make sure to scout all pre-tassel fields for egg masses and larvae. After the eggs hatch, larvae will first feed in the tassel before making their way to the ears. Be sure to scout fields that are in the whorl or early tassel stage for WBC egg masses, with a 4% threshold for processing sweet corn and a 1% threshold for fresh market sweet corn. WBC eggs take between 5 to 7 days to hatch. It is critical that sprays are timed before the larvae have a chance to enter the ear. The egg mass will turn purple approximately 24 hours before hatching. – JK

Sap beetles are feeding more heavily on silks on some plantings especially as the ears are nearing tip fill. Beetles are attracted to the moisture in the tips during these hot spells causing more damage than usual. Even with little visible damage, sap beetles don't look good to a customer crawling out of the ear tips when sweet corn goes home with the shoppers. Combine labeled insecticide for sap beetles in with CEW treatments to reduce this problem. – RH

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## TOMATOES

Seeing a lot of spider mites in field and tunnel settings. Spider mites warrant treatment. Very low populations can be handled with a horticultural oil or soap (smothering them). Rarely are they caught early enough for this to be an effective option. If you have sections of plantings that are yellowing or bronzing, or they are easy to find on the undersides of leaves, you have a high population and are beyond reasonable control with oils, soaps, and beneficials. If you are seeing webbing, your population density is like Manhattan.

Spider mites are arachnids (like spiders & scorpions) and don't respond to insecticides. While some pyrethroids have two-spotted spidermites on the label (like Gladiator), pyrethroid overuse often contributes to spider mite issues because they are harsher on many of the beneficials that eat spider mites than on the mites themselves. Better choices include Acramite (3d PHI), Nealta (3d PHI) and Portal (1d PHI) for those of you without spray licenses. Folks with licenses can also use Agri-mek (7d PHI), which contains *abamectin* as the active ingredient. Importantly, these products work on adults and not eggs! Cleaning up spider mites almost always requires a follow up application to catch all those hatching eggs. Follow the label instructions regarding retreatment interval. If it has been hot, aim at the lower end of that interval as spider mites mature and hatch more quickly at high temperatures.

Seeing Brown Leaf Mold (aka fulvia) in tunnels and in field. Field fulvia is not common in our region. Fulvia in tunnels is. It will hang out in a tunnel year-to-year, so your best control is to plant resistant varieties once you see this disease. The resistance works very well. Reach out directly for recommendations on treating active fulvia in tunnels.

Canker is taking off on a number of farms with field histories of the disease. Seeing plenty of early blight as well. Not much septoria activity out my way to date. – EB ●

## Improving Direct Marketing

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

To improve profitability in today's retail agricultural business world, you can't be like all the rest. Creating a good business is important but to really build it out requires continued strengthening of business relationships. In the July 31 edition, News from SARE Outreach, there is a new video profile of a direct marketing produce farm. The video: [Building Customer Relationships at Brandon Family Farm](#), focuses on the Alby and Heather Brandon and what they have been doing to grow sales through relationship building with their community.

The Brandon Farm is located on 15 acres in West Kingston, RI. They have 15 acres of organically grown vegetables, 4 acres of small fruit and an acre of high tunnel tomatoes and season-extension crops. They started farming on rented land and finally were able to purchase their own land expanding the operation starting in 2022.

They market through farmers markets and CSAs. The Brandons were guided by some advice a mentor had given them and that was "it's about the relationship, not the sale". They looked at what was missing at farmers markets. They asked their CSA members what they would like to eat. They pursued marketing which took time and patience. If they were asked about some type of produce that wasn't showing up, they looked into growing it and adding it to their mix.

Adding strawberries to their mix increased to 4 acres in order to sustain a PYO market. This reduces labor but more importantly, drew customers to the farm and to their brand. Name recognition is a huge factor for their success and inevitably contributed to their attraction of grocery store account while maintaining the "local" attributes of their farm.

They also took a step to provide local grocery stores with produce. They did this to expand their relationships with shoppers who wanted the convenience of buying from a local store but were aware of the Brandon farm name recognition.

The video is available for viewing through the SARE website <https://www.sare.org/resources/practical-tips-for-beginning-farmers/> and found on the resource page Practical Tips for Beginning Farmers. There are other videos on the page as well. Scroll down to find the Brandon Farm link. ●



## Upcoming Events

### Niagara Region Summer Meeting, 2025

August 7, 2025 (Thursday) | 5:15 PM sign in; 5:45 - 8:15 meeting

J. Hurtgam Farms, 3226 Ridge Rd (Rt 104), Ransomville, NY 14131

Topics include "What exactly do NPK and other nutrients do inside the plants?", a pest/disease field walk, sweet corn variety trial, a tar spot primer, spraying best practices, and industry updates. Content will be relevant for organic, CNG, and conventional growers. DEC credits available: 1.25 in categories 1a and 23; 0.5 in categories 10 and 21; and 0.25 CORE.

Pizza & Wings dinner generously sponsored by BASF. Must register to attend dinner. Cost: FREE! Register to 716-652-5400 by noon on Thurs. Aug 7.

### Chautauqua-Cattaraugus Summer Veg Meeting

August 12, 2025 (Tuesday) | 6:30 - 8:30 PM

Mosie Raber farm, 10610 Jamestown Rd, Randolph, NY 14772

We will progress from crop to crop, learning hands-on pest, disease and weed ID and scouting techniques. IPM control tactics for both preventative and reactive management will be discussed in group dialogues. Late blight will be the special topic for the evening's speaker talk.

2.0 DEC credits available in 1a and 23. Free, no pre-registration required.

### Allegany-Steuben Summer Vegetable Meeting

August 19, 2025 (Tuesday) | 6:00 - 8:15 PM

Henry Stutzman farm, 1086 Fortner Rd, Wellsville, NY 14895

Field walk featuring crop protection best practices, skill practice, and farmer-to-farmer discussions. Vine crop fruit diseases and insect management, tomato foliar diseases including late blight, and cole crops will be special focuses.

2.0 DEC credits available in 1a, 10 and 23.

Pre-registration requested by 5pm on Aug. 18th; contact Lynn Bliven [lao3@cornell.edu](mailto:lao3@cornell.edu) or phone 716-244-0290.

### Chipping Potato Twilight Meeting

September 4, 2025 (Thursday) | 5:00 pm - 6:00 pm

Mahany Farms, 10046 NY-36, Dansville, NY 14437

Join us for a brief, on-farm meeting including insect pest updates and viewing of the chipping potato variety trial. 1.0 DEC credits in categories 10, 1a, and 23 will be offered. Dinner follows the event. FREE! No pre-registration required.

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# Cornell Cooperative Extension Cornell Vegetable Program

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# VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

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VegEdge is the highly regarded newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas, and research results from Cornell University and Cornell Cooperative Extension. VegEdge is produced every few weeks, with increased frequency leading up to and during the growing season.

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Cornell Vegetable Program**

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