Cornell Cooperative Extension | Cornell Vegetable Program

VEGEdge

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Asparagus Harvesting Tips and Variety Trial Announcement

Elizabeth Buck, Cornell Cooperative Extension, Cornell Vegetable Program

Warm temperatures are quickly bringing about the start of asparagus harvest. Established crop was pushed ahead by the vey warm weather two weeks ago, only to be slowed by the snow and cold the following week. This is an increasingly common spring weather pattern: unusual warmth in April followed by unusual cold before a return to seasonal temperatures. When these conditions happen, asparagus yield can suffer. The warm weather prompts crowns to break dormancy and push their first spears through the soil. These emerging tips are susceptible to frost. Frosted tips first show water soaked or collapsed tissue before developing browning. Frosted spears may also become crooked or become mushy in the tips. Since frost damaged spears will not be marketable, it is best to remove any that you see. Removal will stimulate the crown to put energy into pushing out a new spear, rather than continuing to invest in a spear that brings you no benefit.

It is a recommended practice to also snap off any spears that are unmarketable for reasons like not being straight enough or being of the wrong diameter. Asparagus beetle adults are active and lay eggs during harvest. Removing all the standing spears in the field reduces the egg laying sites for asparagus beetle and can help you get ahead of this pest. Unmarketable spear removal also can facilitate your future harvests

Bundles of asparagus for sale at a farmers market. *Photo: Flickr CC, Seattle City Council*

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About VegEdge

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.

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.

We're interested in your comments. Contact us at:
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Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.

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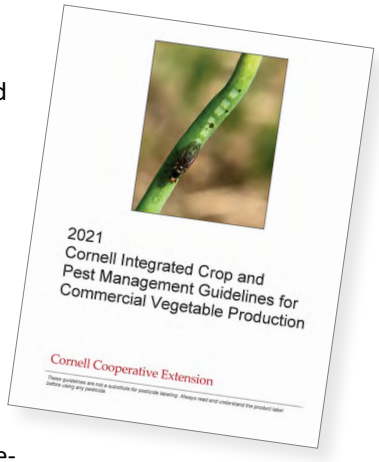
The next issue of VegEdge newsletter will be produced on May 12, 2021.

2021 Vegetable Guidelines Available

Pesticide Management Education Program (PMEP), Cornell University



The **2021 Cornell Integrated Crop and Pest Management Guidelines for Commercial Vegetable Production** is now available. Written by Cornell University specialists, this publication is designed to offer producers, seed and chemical dealers, and crop consultants practical information on growing and managing vegetable crops in New York State. Topics include general culture, nutrient management, transplant production, postharvest handling, organic production, and managing common vegetable crop pest concerns. A preview of the Vegetable Guidelines can be seen online at https://cropandpestguides.cce.cornell.edu.

Highlighted changes in the 2021 Vegetable Guidelines include:

- Updated pesticide options for economically important vegetable crop pests.
- Completely revised disease management chapter.
- New section on food safety and vegetable crops.
- Revised post-harvest handling information.

Cornell Crop and Pest Management Guidelines are available as a print copy, online-only access, or a package combining print and online access. The print edition of the 2021 Vegetable Guideline costs $42 plus shipping. Online-only access is $42. A combination of print and online access costs $59.00 plus shipping costs for the printed book.

Cornell Guidelines can be ordered through your local Cornell Cooperative Extension office, or from The Cornell Store at Cornell University. To order from The Cornell Store and pay with a credit card, call (844) 688-7620 or order online at https://www.cornellstore.com/books/cornell-cooperative-ext-pmep-guidelines.

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be providing a less impeded and visually cleaner picking environment.

When removing spears or harvesting, it is best to snap the asparagus off rather than cut it with a knife. The buds on asparagus crowns are often grouped into little sets, with the largest bud pushing a spear first and the others following with a slight delay. This is why you will often have 2-4 spears arising very close to each other from multiple sides of a mature plant. Knives can easily clip the tip of spears that are just below the surface and reduce the quality and quantity of your pending harvests. Reaching down to the base of the asparagus spear and snapping the spears off prevents damage to unemerged tips. It also allows the harvestable spear to break off naturally, meaning that the snap usually occurs above the more fibrous portion of the spear. This method can lead to higher quality product and necessitate less home trimming by the consumer. Spear toughness begins to rise as the tips open up and become more spaced between scales or scales open up away from the spear. Harvesting spears with tighter tips can also increase the quality of your product.

Tip quality and how long asparagus holds a tight tip have been breeding program goals. Tolerance to diseases like purple spot, Cercospora, rust, and fusarium have been another breeding objective, as well as developing super-male varieties that will produce no or little seed. Asparagus varieties are bred and tested in different climates, which means that there are varietal differences in tolerance to summer conditions. More importantly, there are large differences in individual varieties abilities to overwinter well through the years.

For many years, growers in the Northeast have relied on varieties belonging to the "Jersey" series bred by Rutgers. Those varieties introduced fusarium resistance and super male traits to many farms and were widely panted. As the Rutgers breeding program has come to an end and seed companies and public university breeders have continued to develop improved variety traits, many asparagus seed and crown producers are winding down their offerings of the "Jersey" series varieties. In their place are many new options.

Thanks to a very willing grower and an AMG Challenge grant, the Cornell Vegetable Program has the rare opportunity to start a long-term asparagus variety trial to evaluate the performance of many of these less familiar or brand new varieties. The trial is expected to run at least 10 years and will become fully productive in 2024. Over the years we will be able to investigate:

- relative tolerance to common asparagus diseases
- varietal growth traits and any variety-specific horticultural practices
- harvest windows relative to each other and growing degree day counts
- yield quality and quantity
- harvest potential and plant vigor during the establishment years
- winter hardiness of more southern varieties better adapted to the emerging disease Cercospora
- summer tolerance of good overwintering varieties as our climate warms
- varietal performance on heavier (not sandy) soils
- management of super male vs regular varieties
- opportunities for super-niche asparagus production
- methods for improving overwintering or extending the harvest window

Varieties included in the trial are Guelph Millennium, Guelph Eclipse, and the brand new Guelph Equinox. Guelph Millennium has become the industry standard in Ontario and Michigan. Two entries are purple varieties: Purple Passion and Erasmus. Erasmus and Spartacus, a green variety, are both Bejo cultivars that have found success in Europe and are just starting to be introduced to the US market. Walker Deluxe and two other Walker varieties that are more adapted to warmer growing climates, Atlas and Grande, are included. Walker Deluxe is closely related to the previously available Jersey Deluxe variety. The final variety in the trial is Jersey Knight, which is included as a representative of the Jersey series and will allow for a comparison of the old/current NY standard vs the varieties available to growers establishing asparagus beds now and into the near future.

A big thank you to our host farm, Fenton's Produce, and to Bejo, Fox Seeds, and Walker Bros. who all donated plants for this trial.

Got Bird Problems? Squawk to Us About Them! Survey Participants Needed

Rebecca Brown, University of Rhode Island

Researchers at the University of Rhode Island are currently distributing an online survey about **fresh market sweet corn**. If you grow fresh market sweet corn, you are eligible to take this short 5 minute online survey. Your participation and feedback are extremely valuable to the success of this research!

The survey will gather information on growers bird damage levels to sweet corn and prevention methods used to deter bird damage

To take the Bird Damage to Fresh Market Sweet Corn survey, click on the hyperlink or paste the following URL into your browser: https://uri.co1.qualtrics.com/jfe/form/SV_8qBBeU2HAIwcKYl

If you have further questions or interested in this study, contact Dr. Rebecca Brown at brownreb@uri.edu

Seed Piece Treatments: Protecting Potatoes from Seedborne Pathogens

Margie Lund, Cornell Cooperative Extension, Cornell Vegetable Program

Potatoes are susceptible to a wide range of diseases, many of which can negatively impact stand establishment and early season plant growth through infection of potato seed. While potato seed can become infected by soilborne diseases at planting, seed quality is the most important factor in reducing diseases early in the season. Therefore, inspect seed prior to planting for signs of disease, and only plant certified disease-free seed. Cut seed should also be properly suberized prior to planting in order to properly protect the seed from infection. Proper suberization of seed pieces helps reduce infection after planting by creating a protective barrier on the exposed cut sides. Potato seed should be warmed to 50°F before handling or cutting, and all cutting equipment should be properly sanitized. Soil conditions at planting are also important for plant health, and planting seed in warm, well-drained soil that has been lightly cultivated can help speed up plant growth and lead to better stand emergence. While seed quality is the most important factor for reducing diseased seed and poor stand emergence, soilborne pathogens can also infect seed pieces soon after planting. Therefore, a good knowledge of your field history and past disease problems can be useful in creating a plan for proper prevention. While all of the previous steps should be taken to help ensure you will see a healthy potato stand, seed piece treatments are also available for many seedborne pathogens (reference table below for available options; includes seed and in-furrow treatments). Treatments should be considered for stored seed when some potatoes show disease symptoms, and when planted in fields with a history of poor stand emergence or disease problems. Any diseased seed potatoes should be discarded prior to planting.

Treatments for Seed Pieces Before and At Planting

Product Name (Active Ingredient)	Product Rate	PHI (days)	REI (Hrs)	Long Island Use	Labeled Use
Blocker 4F (PCNB) Group 14	5-10 pts/A, 5.2-10.4 fl oz/1000 row feet	-	12	Yes	Rhizoctonia
CruiserMaxx Potato (*thiamethoxam + fludioxonil*) Group 12+	0.19-0.27 oz/cwt seed	-	12	No	Fusarium, Rhizoctonia, and Helminthosporium solani
Curzate 60 DF (cymoxanil) Group 27	0.25 oz/cwt	14	12	Yes	Tuber-borne late blight *must be used with other fungicides registered as seed piece treatments
*Dithane DF Rainshield (*mancozeb*) or OLP Group M3	1.25 lb/50 gal	3	24	Yes	Fusarium seed piece decay
*Elatus (*benzovindiflupyr*) Group 7	0.34-0.5 oz/1000 row feet	14	12	Yes	Rhizoctonia canker, silver scurf, black dot
Emesto Silver (*penflufen + prothioconazol*) Group 7+3	0.31 fl oz/cwt	-	12	Yes	Rhizoctonia black scurf, silver scurf, Fusarium seed piece rot
Headline SC (*pyraclostrobin*) Group 11	0.4-0.8 fl oz/1000 row feet	3	12	Yes	Rhizoctonia
Maxim MZ (*mancozeb + fludioxonil*) Group M3+12	0.5 lb/cwt	-	24	Yes	Rhizoctonia black scurf, silver scurf, black dot, Fusarium, seed piece late blight
Moncoat MZ (*mancozeb + flutolanil*) Group M3+7	0.75-1 lb/cwt	-	24	Yes	Rhizoctonia, Fusarium dry rot, seed piece late blight
Moncot (*flutolanil*) Group 7	0.71-1.1 lb/acre	-	12	No	Rhizoctonia stem canker, black scurf, suppression of powdery scab
Potato Seed Treater 6% (*mancozeb*) or OLP Group M3	1-1 1/3 lb/cwt	-	24	Yes	Fusarium seed piece decay
Quadris F (*azoxystrobin*) or OLP Group 11	0.4-0.8 fl oz/1000 row feet	14	4	Yes	Rhizoctonia, silver scurf, black dot
Quadris Ridomil Gold SL (*mefenoxam*) Group 4	0.82 fl oz/1000 row feet	-	0	Yes	Rhizoctonia canker, black dot, Pythium root rot, pink rot, leak
*Reason 500SC (*fenamidone*) Group 11	0.15 fl oz/cwt	14	12	No	Seed piece late blight
RootShield PLUS+ WP (*Trichoderma harzianum Rifai T-22 + Trichoderma virens str G-41*) Group NC+NC	0.03-3 lb/cwt	0	4	Yes	Rhizoctonia black scurf and stem canker
Serenade ASO (*Bacillus subtilis str QST 713*) Group 44	2-4 qt/acre	0	4	Yes	Rhizoctonia, Pythium, Fusarium, Verticillium, Phytophthora *approved for organic use
Vibrance Ultra Potato (*difenoconazole + mandipropamid + sedaxane*) Group 3+40+7	0.5 fl oz/cwt	-	-	Yes	Fusarium seed piece rot, Rhizoctonia black scurf, silver scurf, suppression of pink rot and late blight

*Restricted-use pesticide

Food Safety Recommendations for Dry Bulb Onion Production

Robert Hadad and Caitlin Tucker, Cornell Cooperative Extension, Cornell Vegetable Program

According to the Food Safety and Modernization Act, Subpart A 112.1, onions are categorized as a raw agricultural commodity and are considered covered produce under the rule. As State and Federal inspectors began FSMA farm inspections, they are encountering unforeseen commodity-specific food safety issues. For dry bulb onion operations, the main issues revolve around the cleaning and sanitation of equipment used in onion packing facilities - facilities that do not typically introduce water into their pack lines.

In the early part of 2020, an outbreak of Salmonella in packed mixed colored onions occurred. Illnesses attributed to the onions were recorded in 48 states leading to an extensive recall. The contamination event was not definitively isolated, but speculation was that it might have happened during packaging. The take-home message is that even with onions, food safety practices must be in place and growers need to be on their guard going the extra mile to make sure they keep their products safe when leaving the farm.

Photo by Robert Hadad, CCE CVP

NEW REFERENCE AVAILABLE

We have put together a document for dry bulb onion producers to reference as they look to follow food safety practices in the storage/packing/bagging facilities. The document covers specific concerns that include:

- Are dry bulb onions a high or low risk crop in regard to food safety?
- How should onion packing equipment be cleaned and sanitized to comply with FSMA?
- If water is introduced for the purpose of cleaning and sanitizing does the risk of contamination increase?
- For environments that do not normally involve the presence of water, there is a significant risk when introducing water for the purpose of cleaning and sanitizing. Water facilitates the necessary environment for pathogen growth and spread. If water is not typically introduced in an onion pack line, does the packing facility environment facilitate microbial growth?
- How often should equipment be cleaned?
- Which areas of the pack house should be prioritized for “wet” cleaning and sanitizing, which areas should be prioritized for “dry” cleaning? What methods are useful for cleaning?
- What additional modifications can growers make to increase food safety in their pack houses?
- How should onion crates be cleaned, sanitized, and stored?

SCOPE

The guidelines set forth in this document are limited to dry bulb onion production. This document does not provide considerations or guidance for fresh cut/frozen onion products, green onion production, or commingled onion products. This document is to be used as a guide to help growers implement food safety practices to aid in reducing microbial risk especially in the storage and packing facilities. Food safety auditors and inspectors should also find this document useful with understanding the uniqueness of onion production.

REQUEST A COPY

To receive a copy of the Food Safety Recommendations for Dry Bulb Onion Production document, email Robert Hadad at rgh26@cornell.edu or call 585-739-4065.

Onion Insights, 4/28/21

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

Spring came early this year and direct seeding onions in muck began in late March in Elba. Conditions were definitely drier than we’d seen in quite a few years. In Elba, the direct seeded crop is all in with earliest fields in flag leaf stage, while planting is in full swing in Wayne and Oswego muck regions. Several growers are direct seeding without an in-furrow drench this year, thanks to EverGol Prime seed treatment for onion smut not needing any help from an in-furrow treatment of mancozeb, and the scheduled Lorsban ban for December 31, 2020 in NYS. Although it turned out that chlorpyrifos products labeled on onion will remain registered until July 31, 2021, so you may still use it this spring if you need it for onion maggot – see article about chlorpyrifos in March 1 issue of VegEdge. One grower reported that he was able to increase his rate of planting by 30% by not having to lug drench through the field. Acreage of onions grown from transplants will be up again this year in Elba and earliest plantings have two new leaves. Aside from a few days off to wait for snow to melt, it has been a much nicer start to the growing season than the past couple of years. Last year, we conducted an experiment to test the limits of Buctril herbicide on emerging/emerged onion – see article on page 6. For news about a new resource regarding the uniqueness of dry bulb onion production and food safety – see article above.

Muck Onion Herbicide Research Highlight, 2020: Testing the Limits of Buctril on Emerging/Emerged Onions

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

WHEN IS IT TOO LATE TO APPLY BUCTRIL SAFELY?

Every spring it seems there is a situation where onions are starting to "row" and Buctril has not yet been applied. Sometimes weed seedlings are also starting to pop up, which can lead to a long battle with a weedy mess if Buctril and the other pre-emergent herbicides are not applied promptly. In 2020, we conducted research to see what kind of damage to onion would result when we pushed the limits of Buctril application to emerging/emerged onion. The surprise: how many onions were not killed!

Bromoxynil, the active ingredient in Buctril, Brox and Broclean, is a photosynthetic inhibitor (WSSA group 6) that controls emerged weeds. It is most active on ragweed and certain species of mustard, but weaker on pigweed and purslane. It is applied before onions emerge (muck soil only) and for post-emergent weed control between 2 and 6-leaf stage. Buctril application is risky on newly emerged to 1-leaf onions because its post-emergent activity could kill them.

HIGH RATES OF BUCTRIL APPLIED FROM PRE-EMERGENT TO 1.25 LEAF ONION

Table 1 shows the details of each treatment and the weather conditions around the time of the Buctril applications. Buctril 2EC 1.5 pt (highest label rate) was applied to onions before emergence (PRE, Fig. 1a), when onions were poking through the soil surface to loop stage (poke-loop, Fig. 1b), at loop-flag (Fig. 1c), at flag (Fig. 1d), or when the first true leaf was the same size as or longer than the flag leaf (flag+ -1 leaf, Fig. 1e). Buctril 2EC 8 fl oz was applied to 1-leaf onions when the second leaf was starting (1-1.25 leaf, Fig. 1f).

A split application of Outlook (11 fl oz PRE fb. 10 fl oz at barley kill) and Prowl EC 12 fl oz PRE were included in each treatment. The following modifications were made to avoid excessively "hot" tank mixes as timing of Buctril was adjusted among the different treatments: 1) Prowl EC 2 pt was used in pre-emergent Buctril timing, while the lower 12 fl oz rate was used when Buctril was applied to emerged onion. 2) For simplicity, Outlook and Prowl were bumped to poke-loop timing when Buctril was applied at this stage. 3) Second half of Outlook split was not applied when Buctril was applied at barley-kill (flag+ - 1 leaf) timing to avoid three EC formulated herbicides in same tank mix. 4) Buctril 2EC 8 fl oz was applied to 1-1.25 leaf onions, because 1.5 pt rate would certainly kill onions of this size. Also, flag Buctril treatment was an "add-on" and did not include any Outlook or Prowl.

Table 1. Tolerance of emerging/emerged onion (c.v. Oracle) from poke to 1.25 leaf to application of Buctril, Elba muck, 2020 (Hoepting *et. al.*)

Product & Rate/A	Crop Stage	Spray Date (No. days post-plant) Barley Stage Temperature/Relative Humidity Foliage/Soil Moisture General conditions	Jun 10 (onions 2-3 leaf)			Jul 7 (onions 5-7 leaf)
			Stand (No. plants/ 3 ft)	Mean Plant Height (inch)	Overall Broad-leaf Weed[1] Control (%)	Mean Plant Height (inch)
Buctril 2E 1.5 pt + Outlook 11 fl oz + Prowl EC **2 pt** Outlook 10 fl oz	**PRE** PRE PRE flag+ - 1-leaf[2]	**Apr 20** (18) Barley: poke-1" 50 ºF/--; --/moist Sunny, between rain events, cold	12.5 a[3]	8.2 ab	67.0 bc	22.7 ab
Buctril 2E 1.5 pt + Outlook 11 fl oz + Prowl 2EC 12 fl oz Outlook 10 fl oz	**poke-loop** poke-loop poke-loop flag+ - 1-leaf	**May 2** (30) Barley: 3" 71 ºF/44%; Moist/dry Sunny, rainy week before, dry week after	10.6 abc	8.7 a	76.3 ab	23.6 a
Outlook 11 fl oz + Prowl EC 12 fl oz **Buctril 2E 1.5 pt** Outlook 10 fl oz	PRE PRE **loop-flag** flag+ - 1-leaf	**May 5** (33) Barley: 4" 54 ºF/23%; Dry/dry Sunny, dry before & after	8.3 c **(-34%)**	7.6 b **(-10%/1.1")**	91.3 a	19.4 c **(-18%/4.2")**
Buctril 2E 1.5 pt	**flag**	**May 16** (44) Barley: 4-6" 63 ºF/59%; Dry/moist Cloudy, rain before and after, warm	10.1 bc **(-19%)**	8.3 ab	53.8 c	19.4 c **(-18%/4.2")**
Outlook 11 fl oz + Prowl EC 12 fl oz **Buctril 2E 1.5 pt**	PRE PRE **flag+ - 1-leaf**	**May 21** (49) Barley: 8", tiller 71 ºF/31%; Dry/dry Sunny, hot, dry	11.1 ab	7.6 b **(-10%/1.1")**	94.6 a	21.5 b **(-9%/2.1")**
Outlook 11 fl oz + Prowl EC 12 fl oz Outlook 10 fl oz **Buctril 2E** 8 fl oz	PRE PRE flag+ - 1-leaf **1-1.25 leaf**	**May 28** (56) Barley: 75% necrotic 79 ºF/57%; Dry/dry Overcast, hot, onions have sun-scald, rain after	11.7 ab	8.4 ab	92.0 a	21.5 b **(-9%/2.1")**
p-value (α=0.05)			***0.0309***	***0.0259***	***0.0093***	***0.0000***

1 Broadleaf weeds: predominantly pigweed, Lady's thumb, Lamb's quarters, purslane and spotted spurge.
2 Treatments made at flag+ - 1-leaf included barley-kill herbicides Omni Clethidim 2EC 1 pt + COC 1% v/v.
3 Numbers in a column followed by the same letter are not significantly different, Fisher's Protected LSD test, p <0.05.
4 Colors to add emphasis: Green = >90% weed control; Yellow = Significantly more crop injury than best treatment.

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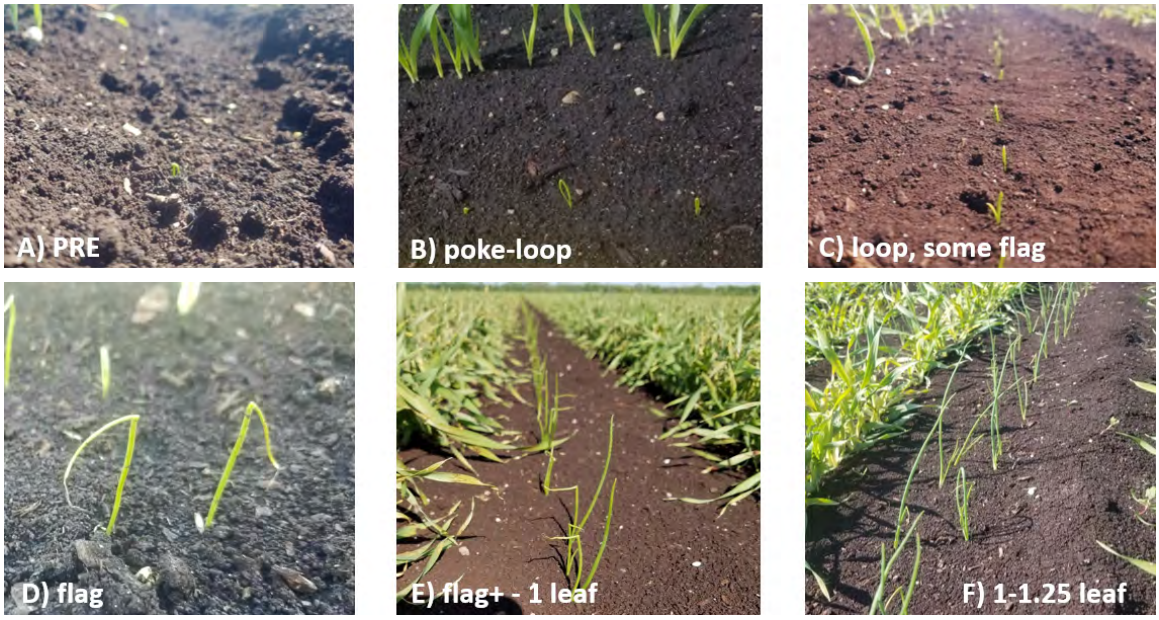

Figure 1. Onion stage at time of application of Buctril 2EC 1.5 pt: A) pre-emergent to onion, Apr 20, 18 days after planting. B) poke-loop, May 2. C) loop, some flag, May 5. D) flag, May 16. E) flag+ -1 leaf, May 21. F) 1-1.25 leaf, May 28 (Buctril 2EC 8 fl oz). *Photos: C. Hoepting, CVP*

WINTER TO SUMMER

What made spring of 2020 memorable was that there was no spring! Instead, the weather went from unseasonably cold through mid-May to temperatures in the 90s on May 27. Several of the Buctril applications were made during less-than-ideal weather conditions (Table 1). Onion foliage and soil were moist during the poke-loop and flag leaf applications, respectively, which could improve herbicide-foliage contact and increase risk of onion injury. Onions throughout the trial were sun-scalded when temperatures soared into the low 90s, which was especially untimely for onions that were about to get Buctril 2EC 8 fl oz at 1-1.25 leaf stage.

BUCTRIL MOST HARMFUL TO FLAG LEAF ONION STAGE

Almost half of the seedlings treated with Buctril 2EC 1.5 pt in the flag leaf stage were injured + dead (9.5%) 6-8 days after treatment, which was significantly more than any other timing (Fig. 2). About one-third of the seedlings that were treated with Buctril 2EC 1.5 pt at the loop-flag and flag+ - 1 leaf (barley kill) stages were injured + dead, with 14.5% dead from the flag+ - 1 leaf application (Fig. 2). As expected, onions treated with Buctril 2EC 1.5 pt pre-emergence had no injury, and onions that had started to "row" (poke-loop) had only minor injury (3.4%) (Fig. 2).

Unfortunately, stand was poor in general in this trial with the untreated (not shown) and PRE Buctril treatments having only 12.5 plants/3 ft on June 10 (Table 1). Relatively speaking, however, all of the post-emergent treatments of Buctril 2EC 1.5 pt resulted in stands that were numerically reduced by at least 1 plant/3 ft compared to the PRE Buctril timing, while the loop-flag and flag timings resulted in significant 34% and 19% stand reductions, respectively (Table 1). The loop-flag and flag+ - 1 leaf Buctril timings were significantly stunted compared to the PRE Buctril timing. Buctril 2EC 8 fl oz applied to 1-1.25 leaf was not significantly different than the PRE Buctril timing for stand or plant height (Table 1). By July 7, when onions were 5-7 leaf stage, all of the post-emergent timings of Buctril resulted in significant 2-4 inch stunting compared to the pre-emergent and poke-loop (row) timings (Table 1). **In this experiment, it was safe to apply Buctril to onions in the poke-loop stage that had begun to row** (Fig. 1b, Fig. 3).

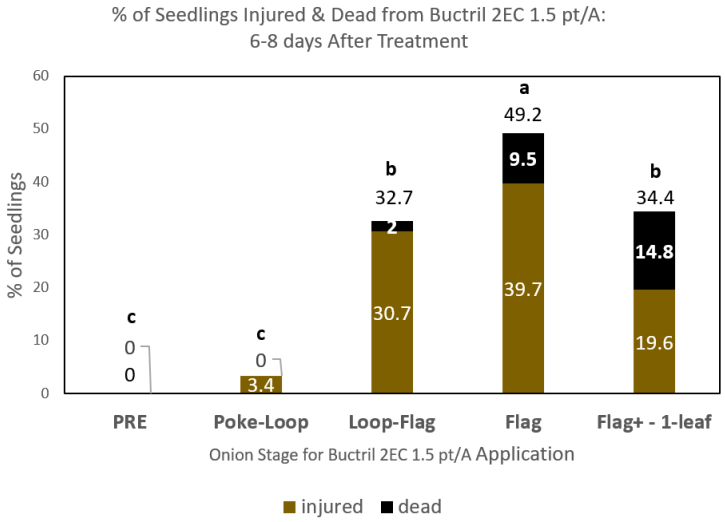

Figure 2. Tolerance of emerging/emerged onions (poke to 1.25 leaf) to application of Buctril 2E 1.5 pt/A: % of seedlings injured & dead 6-8 days after treatment (DAT)/18 DAT pre-emergent to onion (Hoepting et. al., 2020). Bars followed by the same letter are not significantly different, Fisher's Protected LSD test, p = 0.0000.
Notes: 6 DAT 1.25-leaf, visual onion injury was 3% and plant vigor was rated as very good.

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SURPRISED HOW MANY ONIONS WERE NOT KILLED

Without a doubt, excessive damage resulted when Buctril 2EC 1.5 pt was applied to onions that were in any version of the flag-leaf stage, which is why this use is not allowed. But what really surprised me was how many onions were not killed, despite high rates and unfavorable weather – at least two-thirds! Go onions! This was an experiment to test limits and that was accomplished. Since the worst-case scenario was not as bad as I thought it would be (i.e. only one-third stand loss), now I am much less nervous about pushing the timing of Buctril towards early loop stage.

A NOTE ON WEED CONTROL

The best weed control (> 90%) occurred in the treatments where Buctril was applied post-emergent to onion, compared to when it was applied pre-emergent (67% control) or poke-loop (76% control) (Table 1). Apparently, Buctril was more effective at post-emergent control of cotyledon to 1-leaf escapes of Lady's thumb and Lamb's quarters than it was at pre-emergent control of these weeds (Fig. 3). This was a **nice demonstration of how Buctril can be dual-purposed to clean up tiny weeds that emerge ahead of the first pre-emergent herbicide application when it is applied with the first pre-emergent herbicides**. Note, weed control with Buctril at flag leaf was poor (54%) because it was not co-applied with Outlook and Prowl, which would have picked up the pigweed that Buctril clearly missed (Fig. 3).

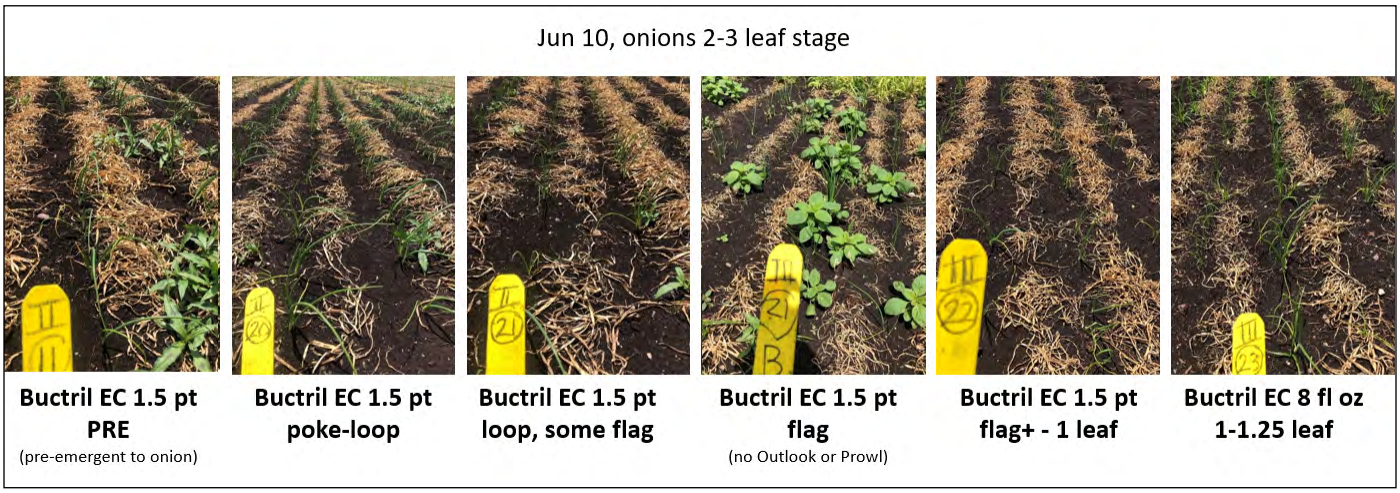

Figure 3. Crop tolerance of Buctril 2EC 1.5 pt applied to onion pre-emergent to flag- 1 leaf, and to Buctril 2EC 8 fl oz to 1-1.25 leaf. See Table 1 for rate and timing of Outlook and Prowl with Buctril applications. Stand was poor in this trial in general, focus on difference among treatments instead of overall stand. *Photos: C. Hoepting, CVP*

Is Your Pricing Right and Your Investment Protected?

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

Frequently growers contact us asking about pricing for vegetable crops. This usually occur just as the marketing season takes off. Answering this question is difficult for many reasons. There are no set rules for coming up with the appropriate prices for any crop and many factors come into play. What is needed is for growers to know what it cost them to grow it.

To understand what it costs to grow a crop, one needs to know about cost of production for each crop. In order to find out this information, one needs to be able to identify all of the inputs that go into farming from seeds to equipment to labor to fixed overhead costs. This means keeping good records as well as finding where you might have put all the records.

Sounds challenging? It is. Understanding how this all works is a win-win situation for farms. Not only will you be able to figure out how to set a price that makes a profit but all the data you collect to make this calculation will also provide a farm with great useable financial information critical for making informed business decisions.

Starting this fall, we will be running a series of classes on pricing through understanding cost of production, improving labor management/relations, and understanding crop insurance programs for your benefit. To help us get this project off the ground, we are asking for your feedback through a survey.

Please **complete this online survey** and stay tuned to VegEdge for updates on these trainings coming this fall/winter.

For more information or to receive a paper version of the survey, contact Robert Hadad at 585-739-4065 or email Robert at rgh26@cornell.edu.

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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 frequency increasing leading up to and during the growing season.

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