



Volume 27, Issue 27

September 27, 2019

Last Issue of Weekly Crop Update for 2019

This is the last issue of Weekly Crop Update for the 2019 season. I hope that this newsletter has been a useful resource to you as you dealt with the challenges of this past growing season.

Please **take the survey** and let us know what about WCU is useful to you and what is not. It really helps us know how to improve this resource. You can take the survey online at: https://delaware.ca1.qualtrics.com/jfe/form/SV_6GAEv47XhoRM6pv or print and mail in the survey at the end of this issue.

My thanks to the Extension specialists and agents who have contributed articles this year — the WCU would certainly not be possible without them. If there were WCU articles that you found particularly useful I hope you will let the writer know. My thanks as well to our office staff at the Carvel Center, who make sure the WCU gets to our fax and mail subscribers.

Best wishes for a safe and prosperous fall harvest season. I look forward to seeing many of you at meetings this winter.

Kind regards,
Emmalea Ernest
Associate Scientist - Vegetable Crops;
emmalea@udel.edu



Vegetable Crops

Frost and Freeze Considerations in Vegetables Revisited -Gordon Johnson,
Extension Vegetable & Fruit Specialist;
gcjohn@udel.edu

As we move into October, frost becomes a factor in harvest and recovery of vegetables. Later in the fall, freezes can become a concern. The first frost on inland sites generally occurs by the third week in October in the middle of Delmarva. However, this can vary quite a bit. For example, the first temperature below freezing in the Laurel, DE area occurred on, Oct 22 in 2018 (29.5), Nov 10 in 2017 (27.3), Oct 26 in 2016 (31.3), Oct 18 in 2015 (31.6), Oct 20 in 2014 (31.9), Oct 24 (29.6) in 2013, and Oct 13 (28.9°F) in 2012. The first hard freeze (below 28°F) in the Laurel area occurred on Nov 12, Nov 10, Nov 12, Nov 15, Nov 8, Oct 26, and Nov 5 from 2018 to 2012 respectively. Coastal areas will see a delay in frost. For example, Kitts Hummock, near the Delaware Bay, had first frosts on Nov 10, Nov 10, Nov 12, Oct 19, Nov 8, Nov 9, and Nov 6 over the last 7 years.

Light to moderate frosts will not affect cool season vegetables such as cole crops, lettuce, and spinach. Some cool season crops, such as beets, Brussels sprouts, broccoli, kale, and collards will handle freezing conditions. In contrast, cauliflower, once frozen, will deteriorate quickly. Warm season vegetables vary considerably in their ability to tolerate a

light frost. For example, pepper is more cold tolerant in the fall than tomato which is severely damaged by frost. Pumpkins and winter squash will have leaf and vine kill with light frost but fruits will remain marketable. Heavier frosts and freezes will damage the fruit. Sweet potatoes must be dug quickly after a frost kills vines and will suffer root damage if soil temperature drops below 40°F. We often have significant acreage of beans still out in the fall. Snap beans and lima beans will have leaf damage but still can be harvested with a light frost. It is when temperatures drop below 28°F and pods freeze that harvest recovery is affected. When lima beans are frosted, you may have several weeks to get into the field and harvest. However, if there is pod freezing, the harvest window drops to a few days, depending on the day temperatures, before seeds start to “sour”.

For unprotected frost sensitive vegetables, it is important to follow weather forecasts closely for risk of frost or freeze. Clear sky conditions after a cold front moves through will be the highest risk for frost or freeze. When risk is high, growers should harvest all marketable produce ahead of the frost or freeze in warm season crops. For example, harvest all tomatoes (ripe, breakers, and mature greens) prior to a frost.

Floating row covers offer the best protection of sensitive vegetables against frost and freeze injury, depending on the thickness of the row cover, expect 2-6°F degrees of protection. Moist soil also can store some heat, lessening frost, and sprinklers can be used for fall frost protection (see past articles on spring frost protection).



G Johnson
Some beets can withstand temperatures as low as 12°F



G Johnson
Peppers will tolerate frosts in the fall, tomatoes will not



G Johnson
Brussels sprouts are frost and freeze tolerant to 20°F.



Lima bean harvest is minimally affected after a light frost. However, after a freeze, lima beans must be harvested within 48 hours.

Old News, But It Pays to Clean Up Your High Tunnel in the Off-Season - Jerry Brust, *IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

I know growers are very aware that they should clean up their vegetable fields and high tunnel (HT) of old crops and weeds during the off-season. I also know that growers have many other things that need to be done during this time and they can't quite get to the cleaning. But spending some time now thoroughly cleaning up a high tunnel that is no longer in production rather than letting it sit over the winter will vastly improve your pest problems for the next year. Several of our most notorious insect/mite pests such as two spotted spider mites and thrips can overwinter in a high tunnel on crop or weed green material. I have found both pests in HTs on winter annual weeds and very old barely green crop debris in February right before the grower was ready to start the new season. It is often thought that the winter cold will be enough to kill any insect or mite pest—but it is not. Research has shown that starting out 'dirty' in a high tunnel results in pests that quickly exceed thresholds much sooner than for a clean start, requiring twice as many pesticide applications before harvest. Good sanitation

practices provide growers with a longer pest free window reducing the need for pesticides.

Disease problems are also increased in high tunnels that wait until just before planting next season's crop to clean-up. For soil diseases like *Fusarium* or root knot nematodes (which are an increasing problem in high tunnels) plant roots should be pulled up and carried out in plastic bags and disposed of. If you had foliar fungal disease problems this year you need to remove all plant material from the HT as soon after harvest as you can. The use of landscape fabric as a mulch in the HT cropping area is a great way of reducing soil contamination from plant material and is a much easier way of cleaning up during and after the season. A more difficult foliar problem is bacterial diseases. Not only does all the plant material have to be taken out in bags, but metal trellises must be sanitized using 10% bleach solution (1 part bleach to 9 parts water) or greenhouse sanitation products. After you clean the metal materials with bleach, you'll need to rinse them with clean water to prevent corrosion. If wooden stakes were used in the HT and you had a bacterial spot, speck or canker problem then you are probably better off disposing of the stakes as they are almost impossible to sanitize properly.

One other thing I would like to see HT growers do when they take soil tests is to include soluble salt levels in the report. Over the years several HT growers have complained to me about how after 4-5 years of growing various vegetables (although tomatoes were the most grown) they are seeing poorer yields and 'unthrifty plants'. This seems puzzling because they have put a great deal of compost in their HT and the soil looks great. The problem, I think, is high soluble salts in the soil, which will damage overall plant fitness and yield. These excess soluble salts often come from fertilizers applied frequently without sufficient water (rain) to leach them through the soil. Besides synthetic fertilizers other soil amendments with high salt concentrations include manure and compost. The most common scenario that results from high soluble salt levels in the soil is plant drought stress as soil water is drawn away from plant roots to the high soluble salt regions in the soil. Root cells lose water resulting in wilted foliage and roots that are damaged.

Agronomic Crops

Winter Wheat Seeding Rates - Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Six different seeding rates for winter wheat were tested at the Carvel Research Center (Georgetown) over the past two seasons (2017-18 and 2018-19). Seeds were drilled at 0.9, 1.2, 1.5, 1.8, 2.0, and 2.4 million seeds per acre each fall and harvested the following summer. Averaged over the two seasons, yields ranged from 77-89 bu/acre, with some differences between seeding rates (Table 1).

Compared with the lowest seeding rates, yield increases were observed at 1.5 to 2.0 million seeds per acre. Within that range though (1.5 - 2.0), yields were not found to be *statistically different*. This means you could expect similar yields if planting wheat between 1.5 to 2 million seeds per acre. Planting at 2.2 million seeds reduced yield back to 83 bu/acre, which was not found to be different from planting at 1.2 million seeds per acre.

These results support the general recommendation of planting winter wheat at a range of 1.5 to 2 million seeds per acre. Anywhere above or below this range may cause yield losses. Management, soil type, and weather could certainly shift these results, and may not be the same across the state. Soils in Georgetown are sandy with low moisture and nutrient holding capacity, and these results may fit those soil types the best.

Table 1: Yields from the different seeding rates

| Seeding Rate | Yield |
|--------------|-------|
| 900,000 | 78 b |
| 1,200,000 | 77 b |
| 1,500,000 | 83 ab |
| 1,800,000 | 86 a |
| 2,000,000 | 89 a |
| 2,200,000 | 83 ab |

**Yields followed by the same letter are not different from each other (a=0.1)*

However, another scenario that I think is happening more often in our high tunnels is when plant roots absorb the excess salts in the soil and are unable to metabolize them. The soluble salts enter the roots and are moved through the water conducting tubes to the leaves where the water evapotranspires, gradually concentrating the salts to toxic levels. The consequence of this type of salt stress in plants is a myriad of problems such as: poor growth, thin canopy, excessive leaf drop, poor fruit set and poor yields, with the next damage level up being necrotic leaf margins, especially on older leaves that can curl (Fig. 1).



Figure 1. Soluble salt damage to peppers in a high tunnel

Some of our vegetable crops are much more sensitive to high soluble salts than others. Crops such as green beans, onions and peas are most sensitive while cabbage, cucumbers, peppers and potatoes are a little salt tolerant and broccoli, squash and tomato are moderately salt tolerant. These differing sensitivities may be why if tomatoes are grown most often in the HT and then peppers or cucumbers are grown the soluble salt problem can 'suddenly' appear.

Some of the possible remedies for high salts include having adequate drainage to help move salts out of the root zone and flushing the soil with as much water as possible for several days (water should be applied slowly so it seeps down into the soil and does not runoff). After the season it may be best to take the plastic off the HT and allow rain and snow to move the salts out of the growing zone. But you need to know if you have high soluble salt levels first.

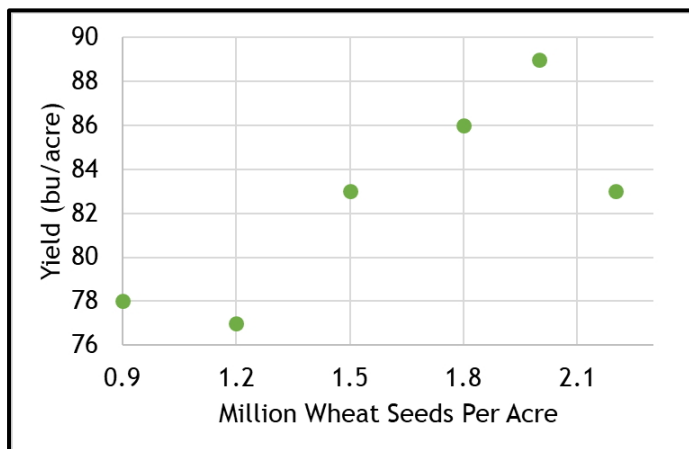


Figure 1. Yields from the different seeding rates as a graph example.

Soybean Pod and Bean Diseases - Alyssa Koehler, Extension Field Crops Pathologist; akoehler@udel.edu

Overall, there has been little disease pressure in soybeans this year. The wet conditions of last fall led to quite a few late season soybean pod and seed quality issues in 2018. With the continued dry weather in the forecast, it is unlikely that pod and seed diseases will be an issue this season. Just in case there is a sudden change in the forecast, we will discuss a few of the common pod and seed issues.

Purple Seed Stain

As the name implies, symptoms of this disease include seeds with a pink to dark purple discoloration. Caused by the fungal pathogen *Cercospora kikuchii*, infection can affect seed quality and appearance, but does not typically decrease yields.

Phomopsis Seed Decay

Caused by the fungus *Diaporthe longicolla* (syn. *Phomopsis longicolla*), infected seed is shriveled, cracked, and often has a chalky to white appearance. Emergence and seedling blight issues are common when planting infected seeds. Fungicide seed treatments are generally effective against Phomopsis seed infection, but it is still best to plant seed with a low occurrence of Phomopsis seed decay to ensure optimal stands.

Anthraxnose

Anthraxnose in soybean is caused by the fungal

pathogen *Colletotrichum*. Symptoms can be present on the stems, leaves, or pods. Pods that become infected often have reduced or no seed formation and the pod may be filled with fungal mycelium. Seed that does from is usually shriveled, moldy, and discolored.



A Koehler, University of Delaware
Figure 1: Purple seed stain



A Koehler, University of Delaware
Figure 2: Seed with a cracked, shriveled appearance and covered with chalky to white mold may have Phomopsis seed decay

Considerations for Small Grain Weed

Control - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

If planting small grains as no-till or minimum tillage, be sure to “start clean” with a burndown herbicide. A turbo-till is not a tillage implement for weed control, so often these fields need a burndown herbicide. Poor weed control is often due to the weeds being too large and that can be traced back to not starting clean.

There has been an interest in using herbicides at planting (or shortly after planting) for weed control. There are few effective herbicides labeled for preemergence applications. Sharpen is labeled for wheat and barley but provides limited control. Valor or Afforia can be used with the burndown application, but there must be a minimum of 7 days between application and planting wheat. We have seen injury with Afforia or Valor used on coarse-textured soils, particularly if rain occurs shortly after planting or if seed is planted less than 1 inch deep.

Axiom, Anthem Flex and Zidua can be used after wheat emergence, typically at the spike stage. These products are only labeled for winter wheat, not barley. They do not provide control of emerged weeds but can have utility in situations where application can be made after wheat emergence but before weed emergence. These three herbicides require rainfall or irrigation to activate, so if we experience a dry spell after application, control can be compromised.

Axiom, Anthem Flex, Zidua, Valor and Afforia all specify that the seed must be planted at least 1 inch deep. None of these products are compatible with wheat planted by “spinning the seeds” on the soil surface and shallow incorporation with a disk or turbo-till.

As far as postemergence treatments, fall herbicide applications have been more consistent and had overall better weed control than many spring application treatments in our trials. The soil temperature remains warm for weeks after the first frost and this keeps the weeds in an active state. I find annual bluegrass, henbit, or speedwell species are often more

susceptible if treated in the fall compared to early spring. Once we have consistently cold weather and soil temperatures drop, then fall treatments will be questionable. Fields may need a spring herbicide application for wild garlic control, but often broadleaf weed control is excellent with that fall treatment.

General

Winter Annual Weed Identification -

Barbara Scott, *Research Associate*; bascott@udel.edu & Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

As we move into the fall months and transition from summer annual weeds to winter annual weeds, the website below has excellent photos of common winter annual weeds in Delaware as a refresher.

<https://cdn.extension.udel.edu/wp-content/uploads/2012/06/22091804/winter-weeds-2019.pdf>

Considerations for Cover Crop Selection -

Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

A lot of thought needs to go into which cover crop species or mixtures to use, including what is the objective or issues being addressed with cover crops, what is the seeding rate, best seeding methods, etc. But often overlooked are what will it take to terminate the cover crop in the spring, and whether there could be issues with the species in the rotation. Two species that merit consideration are hairy vetch and annual ryegrass. Both can be difficult to kill in the spring. Glyphosate alone is not very effective on hairy vetch. For annual ryegrass, glyphosate in the early spring may not provide complete control, and tankmixing other products with glyphosate can reduce control.

Both hairy vetch and annual ryegrass can be problems in small grains. Hairy vetch has hard seeds and not all the seeds will germinate right after seeding; with some germinating next spring

or the following fall. In addition, if annual ryegrass or hairy vetch are terminated in the late spring, they may have produced viable seeds that can produce volunteer plants. Harmony Extra will not control either species. Hairy vetch needs to be treated with Starane Ultra, 2,4-D, dicamba or fall treatments of PowerFlex. Ryegrass will need to be treated with Axial or fall treatments of PowerFlex or Osprey. Note that annual ryegrass is very closely related to Italian ryegrass with both responding the same to herbicides.

So, before you plant cover crops, don't only think of that they will do for you this year, but consider how the species match with your rotations.

Announcements

Farm Management Classes for Women

Tuesdays Oct 15 – Nov 19 5:00-8:00 p.m.
Eldorado Brookview Fire Department Hall
5752 Rhodesdale Eldorado Road
Rhodesdale, MD 21659

The University of Maryland and Delaware Cooperative Extension will conduct an Annie's Project for Women Managing Commercial Poultry during the fall of 2019 in Rhodesdale, Maryland. Annie's Project focuses on the many aspects of farm management and is designed to empower women in overall farm decision making and to build local networks throughout the state. The target audience is farmwomen and women involved in agriculture with a passion for business, agriculture, and involvement in farm operation. Topics for the sessions cover the five areas of Risk Management – Production, Marketing, Financial, Legal Risk, and Human Resources. This course is open to anyone interested in farm management practices.

Annie's Project for Women Managing Commercial Poultry is 6 classroom sessions on Tuesday evenings, October 15, 22, 29, Nov 4, 13, 19 from 5:00 pm - 8:00 pm.

The program will be held at Eldorado Brookview Fire Department Hall, 5752 Rhodesdale Eldorado Road, Rhodesdale, MD 21659.

The cost of the entire course including meals and materials is \$75. There is an additional \$100.00 fee for FSA Borrower Training attendees.

Please register by October 5th - space is limited. For more information and to register visit the website <http://extension.umd.edu/annies-project/class-information> or call 410-758-0166 or email jrhodes@umd.edu. If you require special assistance to attend the classes, please contact the site at least two weeks prior.

Designer Ditches Workshop

October 22 1:00 p.m.

St. Jones Reserve Coastal Training Center
818 Kitts Hummock Rd., Dover, DE 19901

Ditches can quickly move floodwaters away from our properties and roadways. This workshop will give examples on how we can help reduce erosion, and help increase the absorption of excess nitrogen and phosphorus from leaching into our waterways. Planting the right plants in our ditch areas can reduce pollution, help water soak into the ground to replenish ground water, provide habitat for birds, butterflies, and pollinators, promote diversity by planting natives, and beautify our yards.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

2019 Mid-Atlantic Crop Management School

November 19 - 21, 2019

Princess Royale in Ocean City, MD

The Mid-Atlantic Crop Management School will be held at the Princess Royale in Ocean City, MD from November 19 - 21, 2019. The school offers a 2 ½ day format with a variety of breakout sessions. Individuals needing training in soil and water, nutrient management, crop management and pest management can create their own schedule by choosing from 5 program options offered each hour. Emphasis is placed on new and advanced information with group discussion and interaction encouraged. Online registration will close at 11:59 p.m. EST on Monday, November 11, 2019. Registration Fees are \$285 by Sunday, September 15, \$295 from September 16 through October 31, and \$335 from November 1 through November 11. We look forward to seeing you there.

Registration and program details are online at:
<https://app.certain.com/profile/form/index.cfm?PKformID=0x3034320abcd>

Building Wood Duck Boxes

January 30, 2020 5: 00 p.m.
DSU Outreach and Research Center
884 Smyrna Leipsic Rd., Smyrna, DE 19977

Build them and they will come. Justyn R. Foth, Ph.D., Environmental Scientist and Waterfowl, Turkey, and Upland Gamebird Biologist for DNREC, will give a brief presentation about the importance of wood ducks and why we should promote the species. You will be able to build and prepare a wood duck box and take it home with you free of charge.

This workshop is free. For more information, or for assistance due to disabilities, contact: Megan Pleasanton, Extension Educator: 302.857.6438 or mpleasanton@desu.edu

Women in Ag Conference 2020

February 12-13, 2020
Dover Downs Hotel & Casino Dover, Delaware

February 13, 2019 will mark our 19th Annual MidAtlantic Women In Agriculture Regional Conference. Women across the region coming together to EDUCATE, ENGAGE, EMPOWER.

The conference goals are to provide women involved in agriculture an opportunity to come together to learn about current issues and topics so they can make informed decisions concerning their agribusinesses and family lives. It features 4 keynote speakers, 15 breakout sessions, over 20 table vendors, free health screenings and networking with over 150 other women in agriculture! Sessions will cover topics in marketing, financial, production and legal.

Back by popular demand we will offer a preconference, February 12, 2020 with the option of two topics following by the free harness racing reception:

- Direct Marketing at Farmers Markets
- Farm Stress and Mental Health Training

The full conference agenda and additional details will soon be available at:

<https://extension.umd.edu/womeninag/annual-conference/2020-conference>

For further information, contact: Shannon Dill at sdill@umd.edu or (410) 822-1244

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of September 19 to September 25, 2019

Readings Taken from Midnight to Midnight

Rainfall:

No rainfall recorded

Air Temperature:

Highs ranged from 89°F on September 22 and September 23 to 69°F on September 19.

Lows ranged from 69°F on September 23 to 41°F on September 20.

Soil Temperature:

72.3°F average

Additional Delaware weather data is available at <http://www.deos.udel.edu/>

Weekly Crop Update is compiled and edited by Emmalea Ernest, Associate Scientist - Vegetable Crops

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Reference to commercial products or trade names does not imply endorsement by University of Delaware Cooperative Extension or bias against those not mentioned.

2019 Weekly Crop Update User Survey

Mail completed surveys to *Emmalea Ernest, Carvel REC, 16483 County Seat Hwy, Georgetown, DE 19947*

1. Are you a . . . ?

- ☐ Grower
- ☐ Processor/Fieldman
- ☐ Ag Supplier
- ☐ Consultant
- ☐ Extension Staff
- ☐ Other _____

2. Where do you live?

- ☐ Delaware
- ☐ Eastern Shore of Maryland
- ☐ Western Shore/Western Maryland
- ☐ Other _____

3. How do you access WCU? (Check all that apply.)

- ☐ Blog version on desktop computer
- ☐ Blog version on mobile phone
- ☐ Print PDF version from personal computer
- ☐ Read PDF version on desktop computer
- ☐ Read PDF version on mobile phone
- ☐ Mail or Fax subscription

4. Have you learned anything about the following topics from reading Weekly Crop Update (Check all that apply.)

- ☐ Insect/mite management
- ☐ Disease management
- ☐ Soil fertility and soil health
- ☐ Hay and pasture management
- ☐ Vegetable crop management
- ☐ Agronomic crop management
- ☐ Weed management
- ☐ Irrigation management

5. Has Weekly Crop Update helped you to . . . ? (Check all that apply.)

- ☐ prevent yield loss
- ☐ improve skills in crop nutrient management, soil fertility and soil health management
- ☐ implement effective pest, weed or disease control strategies
- ☐ identify insect pests, diseases, physiological disorders or weeds
- ☐ start growing a new crop
- ☐ improve skills in cultural (growing) practices
- ☐ manage irrigation for optimal yield

6. Did the Weekly Crop Update alert you to problems (insect, disease and weed outbreaks, etc.) in time for you to take action?

☐ Yes (please give examples) _____

☐ No (please describe situation) _____

7. Have you scouted your fields for insects, diseases or weeds mentioned in the Weekly Crop Update that you otherwise may not have scouted for? (Check all that apply.)

- ☐ Yes, insect or mite
- ☐ Yes, diseases
- ☐ Yes, weeds
- ☐ No, none of the above

8. Has the Weekly Crop Update helped you to identify an insect, disease, weed or disorder that you were unfamiliar with? (check all that apply)

- ☐ Yes, insect or mite
- ☐ Yes, disease
- ☐ Yes, weed
- ☐ Yes, disorder/nutrient deficiency
- ☐ No, none of the above

9. Do you use the insect trapping information in the Weekly Crop Update?

- ☐ Yes (Which crops?) _____
- ☐ No

If insect trapping information is used to make treatment decisions, has it helped to ...

Improve crop quality?

- ☐ Yes (Which crops?) _____
- ☐ No

Prevent yield loss?

- ☐ Yes (Which crops?) _____
- ☐ No

Save money?

- ☐ Yes (Which crops?) _____
- ☐ No

10. Are there pests you would like to receive trapping information for beyond the current traps?

11. Do you use information from past Weekly Crop Update articles, either by searching the WCU website or by finding articles through internet searches?

- ☐ Often
- ☐ Sometimes
- ☐ Never

12. Which Weekly Crop Update article topics are useful to you or do we need more of? (Check all that apply.)

| | Not Useful | Useful, well covered | Useful, need more articles |
|-------------------------|--------------------------|--------------------------|----------------------------|
| Vegetable Topics | | | |
| Insects & mites | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Diseases | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Weeds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Nematodes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Heat/Drought Stress | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| High Tunnels | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Irrigation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cover Crops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Harvest/Post Harvest | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Processing Vegetables | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fresh Market Vegetables | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Produce Food Safety | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Plant Nutrients | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Marketing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Precision Technology | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Economic Considerations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | Not Useful | Useful, well covered | Useful, need more articles |
|--|--------------------------|--------------------------|----------------------------|
| Corn, Soybean or Small Grain Topics | | | |
| Insects & mites | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Diseases | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Weeds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Nematodes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Heat/Drought Stress | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Irrigation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cover Crops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Plant Nutrients | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Marketing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Precision Technology | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Economic Considerations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | Not Useful | Useful, well covered | Useful, need more articles |
|--------------------------|--------------------------|--------------------------|----------------------------|
| Additional Topics | | | |
| Invasive Insects | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fruit Crops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hay and Pasture | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Weather | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Other topics not listed above that we should cover better:

13. Does the Weekly Crop Update provide economic impact to your operation/business?

- ☐ Yes (please provide an estimate of the impact in dollars/acre) _____
- ☐ No

14. How many acres do you manage or consult on where information from Weekly Crop Update is used?

15. If you did not read the Weekly Crop Update, how would you find answers to your production questions and/or keep informed of production issues?

- ☐ Consultant
- ☐ Other newsletters
- ☐ Call the Extension Office
- ☐ Wouldn't
- ☐ Ag Supplier
- ☐ Other _____

16. Can you provide any specific examples of how information from the Weekly Crop Update has helped you?

17. Do you have any suggestions for improvement of the Weekly Crop Update?