



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Vegetable Crop Insects - *Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu*

Cabbage

Continue to sample for cabbage looper, diamondback larvae, fall armyworm, beet armyworm and Harlequin bug. Be sure to select controls options based on the complex of insects present in the field, especially beet armyworm which are difficult to control.

Lima Beans

Continue to scout for stink bugs, lygus bugs, soybean loopers, beet armyworm and corn earworm. Moths can still be found laying eggs in fields. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row.

Peppers

At this time of year, corn borer, corn earworm, beet armyworm and fall armyworm are all potential problems in peppers. So be sure to select the material that will control the complex of insects present in the field. Be sure to check local corn borer and corn earworm moth catches in your area by calling the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851) or check our webpage at <http://ag.udel.edu/extension/IPM/traps/latestblt.html>. We continue to see economic levels of aphids, especially in fields where pyrethroids have been used on a weekly basis. Materials

labeled for aphids are only effective if applied before populations explode.

Snap Beans

With the sustained high trap catches, you will need to consider a treatment for both corn borer and corn earworm. You should also watch for beet armyworms and soybean loopers. Sprays are needed at the bud and pin stages on processing beans for worm control. With the diversity of worm pest that may be present in fields, be sure to scout fields and select materials that will control the complex of insects present. For the most recent trap catches in your area and to help decide on the spray interval between the pin stage and harvest for ECB control in processing snap beans, you will need to call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851) or check our website <http://ag.udel.edu/extension/IPM/traps/latestblt.html> and <http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>.

Spinach

Both webworms and beet armyworms moths are active at this time and controls need to be applied when worms are small and before they have moved deep into the hearts of the plants. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

Sweet Corn

With the continued high corn earworm trap catches, be sure that a spray is applied as soon

as ear shanks are visible on plants (i.e. before you see any silk). If fall armyworms are present in the whorl, you will need multiple whorl sprays for this insect before the ear shank spray to achieve effective control and to prevent larvae from dropping into the ear zone. Once fields are silking, you will need to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. Check our website <http://ag.udel.edu/extension/IPM/traps/latestblt.html> or call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851). Be sure to check all labels for days to harvest and maximum amount allowed per acre.

Vegetable Disease Update - *Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu*

Cucurbit Downy Mildew

Cucurbit downy mildew was confirmed on pumpkin, summer squash and winter squash this week in DE. It will likely be more widespread following the storm. Maintain fungicide sprays specific for downy mildew if the foliage is still green and harvest is still planned.

Late Blight

Late blight was reported in a central New York county this past week on tomatoes in a homeowners garden. After the hurricane we might see some late blight develop on tomatoes.

Lima Bean Downy Mildew

Be sure to scout for lima bean downy mildew after the hurricane. Symptoms may take 7-10 days to develop after the rain ended. See previous issues for recommendations, or the [2011 Commercial Vegetable Production Recommendations](#).

Re-Growth Cropping of Lima Beans - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

A number of growers are interested in the potential for re-growth cropping of lima beans. This is where plants are left to re-grow after pod stripping in early harvested fields, allowing for a second crop. Over the years this has been

successful on a few fields. There are still a lot of questions to answer on cultural methods to best promote re-growth and yields of the second crop and research is being conducted at the University of Delaware to address these questions.

The following are some considerations for re-cropping lima beans:

- Only the earliest harvested fields should be considered. This would be May planted lima beans harvested at the end of July or beginning of August.
- Irrigated fields are more likely to have success.
- Limit truck and harvester traffic on fields to be re-cropped.
- Within a week of pod stripping, fields to be re-cropped should have additional N applied and should be cultivated to reduce compaction caused by harvest and to control weeds. The fields should then be irrigated.
- Additional herbicides should be applied after cultivation to control weeds in-row and to have residual control for later weed germination. Choices are limited to those that can be applied post-emergence.
- Fungicides should be considered as re-growth occurs to help reduce secondary infections from wounds created at harvest and to protect and promote the new growth (a strobilurin fungicide plus a copper fungicide).

The limitation to re-growth cropping will be having enough days, day length, and heat units to mature the crop before a killing frost in October. This means you need a full crop of pin pods by the end of August or first week in September.

Observations After the Hurricane - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu*

Hurricane Irene caused less damage than expected in the region. However, there were still significant impacts on crops in Delaware.

The most obvious is lodging in field corn. On the vegetable side, lodging in sweet corn varied considerably from field to field, with many escaping damage.

High winds had the potential to batter many vegetables. The largest acreage currently in the field is lima beans and looking at many fields, they weathered the storm well with minimal pod drop and foliage damage. Cucurbit fields (watermelons, cucumbers, squash, pumpkins) were much more variable with significant foliage damage in many fields. Tomatoes, peppers, and eggplants also suffered considerable damage.

Peach and apple growers had considerable fruit drop and bruising of fruits due to wind and branch contact that will reduce marketable volumes.

Rainfall totals ranged from 6 to 14 inches depending on the site but flooding was much more limited than expected. However, wet fields have led to disease issues and quality problems in snap beans, tomatoes, pickles, and other crops with increases diseases such as white mold and Phytophthora. In pickles, excess soil makes washing much more difficult and has increased fruit rots. Excess water has caused severe cracking in tomatoes and cantaloupes with much of the late summer crop ruined.

The storm has affected later watermelons to a great degree. In 2010, because of the dry year, farmers were able to keep vines healthy and continue cropping past Labor Day in many fields. Later planted fields yielded well. This year, because of the extra heat stress in July and early August followed by Irene and the current cold night temperatures, vine health has declined greatly in many fields and growth has slowed, limiting late yields. Excess water has increased water-soaking in some varieties. Later plantings that were wind damaged by Irene have open canopies causing bleaching in some fields. Volumes are down, quality has suffered, and some buyers have left the region.

While it could have been worse, Irene has cost vegetable and fruit growers significant economic losses in the region.

Fruit

Spotted Wing Drosophila Found in Central Maryland - Jerry Brust, *IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

A sample of fruit flies was given to me by Bob Rouse, a horticultural consultant, from fruit farms he consults for in Central Maryland; these flies were identified by me and then verified by the USDA as Spotted Wing Drosophila (SWD) *Drosophila suzukii*, the first find in our state. This is not good, but this pest has been moving steadily east over the last few years. The SWD is a temperate-zone fruit fly; native to Southeast Asia that prefers temperatures of 67-85° F. Adults are small (2-3 mm) flies with red eyes and a pale brown thorax with black stripes on the abdomen. The most distinctive trait of the adult male is a black spot towards the tip of each wing; the female does not have any wing spots (Photo 1). Larvae are tiny (up to 3.5 mm), white, cylindrical maggots that are found feeding in fruit. This pest was first identified in the western U.S. in 2008. In 2009 it was found in California, Florida, Oregon, Utah and Washington. In the last year or so it has been found in the Midwest and Pennsylvania. Long-distance dispersal usually occurs with the movement of infested fruit to new areas.

While it is not unusual to find fruit flies in late summer infesting overripe or decaying fruit these particular fruit flies are considered nuisances, not crop damaging pests. However, the spotted wing drosophila female lays her **eggs inside healthy unblemished fruit** with her saw-like ovipositor (Photo 1). The adult female can damage fruit when she oviposits while larvae contaminate fruit at harvest, causing it to become soft and unmarketable (Photos 2 and 3). It infests thin-skinned fruit such as grape, cherry, raspberry, blackberry (raspberries and blackberries appear to be very susceptible fruit), blueberry, and strawberry, etc. SWD overwinters in the adult stage and flies become active in spring, mate, and lay eggs in the thin-skinned fruit. Multiple generations develop each year wherever this insect can overwinter. At a constant temperature of about 75° F it takes only 9 days from egg to adult. This rapid

developmental rate allows it to quickly develop large populations and inflict severe damage to a crop.

The best thing to do is monitor for this pest if you have small fruit. Monitoring will help time insecticide applications for greatest effectiveness. You can use homemade traps to monitor for SWD. There are several sites that explain how to make the traps:

http://swd.hort.oregonstate.edu/files/webfm/editor/Wine_Grape_SWD_Bulletin_WSU.pdf

<http://jenny.tfrec.wsu.edu/opm/gallery.php?pn=165>

<http://edis.ifas.ufl.edu/in839>

or you can buy commercially made traps:

<http://www.contech-inc.com/>

or

<http://ipm.wsu.edu/small/pdf/Spring2011MonitorIDControlSWD.pdf>

For any of these traps you will need to add 1 or 2 inches of apple cider vinegar to the bottom of the trap with a drop of unscented dishwashing soap to break the surface tension so the flies will drown. Hang the trap in the shade near berries preferably before fruit begins to ripen. Check the trap weekly for small flies with dark spots at the tip of their wings floating in the fluid. These will be male SWD. Put fresh apple cider vinegar

and a drop of soap in each week or so. You also should observe your fruit regularly as it begins to ripen. On cherries and blueberries start checking fruit for punctures the female creates when she lays eggs as soon as fruit begins to develop any color. SWD stings are tiny and a hand lens helps. Pull open suspect fruit to see if there are larvae inside. If you find infected fruit you should spray to prevent the damage from increasing. The infestation level can increase quite rapidly if left untreated. Remove and destroy infested fruit as you monitor. Stings are not readily visible on berries so it is difficult to detect an early infestation by monitoring the fruit alone for damage.

Chemical Management: Malathion will control SWD and has a short PHI, but is very toxic to bees and natural enemies. If monitoring indicates a need to spray, the application should be made as soon as possible. In raspberries or strawberries, sprays may need to be repeated to keep SWD populations low during their prolonged fruiting period in summer and fall. Other possible alternatives to Malathion with fewer negative environmental effects are the spinosyns and neonicotinoids. To get satisfactory control with these alternatives two sprays may be required; the second applied 5 to 7 days after the first. Additional sprays may be needed for berries with a prolonged fruiting period. Be sure to check the label before applying any chemical as the specific chemicals that can be used on one fruit can't always be used on others.



Photo 1. Male (left hand side) and Female (right hand side) spotted wing drosophila flies



Photo 2. SWD damage in blackberry



Photo 3. SWD oviposition marks on cherry

state. Depending on the part of the state, we can find native green and brown stink bugs as well as brown marmorated stink bugs. So far, the highest concentrations of brown marmorated stink bugs are still being found in Kent and New Castle Counties, especially along field edges bordered by woods. Fields will need to be scouted through the pod development and fill stages (through R-6 and some studies say R-7) to avoid damage from stinkbugs which can include underdeveloped or aborted seeds, green stem syndrome, reductions in pod fill, seed vigor and viability, yield loss and a reduction in the storage stability of harvested seeds. Although there are a number of thresholds used in states to our south, we continue to use the same threshold for native green and brown stink bugs that is being used in Virginia (2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans). As a reminder, currently, there are no thresholds established for brown marmorated stink bugs in soybeans. The following link written by my colleague Dr. Cerruti Hooks from the University of Maryland provides a detailed overview of stink bugs and soybeans

http://dorchester.umd.edu/files/August_18_2011.pdf.

Agronomic Crops

Agronomic Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Alfalfa

Continue to sample fields on a weekly basis for defoliators including earworm, webworms and all armyworm species. Economic levels of defoliators, especially corn earworm and beet armyworm continue to be found causing damage.

Soybeans

Even after the hurricane, economic levels of corn earworm, and in some case a second hatch of small larvae, continue to be found in double crop fields in all 3 counties. Monday's moth catch remained high so you will need to continue to watch fields through the next two weeks for newly hatched larvae.

In addition, economic levels of stink bugs continue to be found in fields throughout the

Although we have not heard of any reports of soybean loopers from the south, this is an insect that can catch folks by surprise since it can quickly defoliate a field. So as you are sweeping fields be sure to watch for insect as well. Soybean loopers are a migratory pest, and in the states to our south resistance to pyrethroids has been documented. We also have cabbage loopers (also a migratory insect pest) which can be present at the same time and they are generally controlled by pyrethroids. Identification can be difficult because although there is a "black footed" phase of the soybean looper there is also a "green phase" that can be confused with cabbage loopers. One characteristic that might help is the presence of microspines on soybean loopers that are not present on cabbage loopers; however, you will need high magnification to see the microspines. The following link from VA provides information from last season (2010) as well as images of both color phases:

<http://ipm-virginia.blogspot.com/2010/09/soybean-loopers-turning-up-in-higher.html>.

NOTE: As we get closer to harvest, be sure to check all labels for the days from last application to harvest as well as other restrictions.

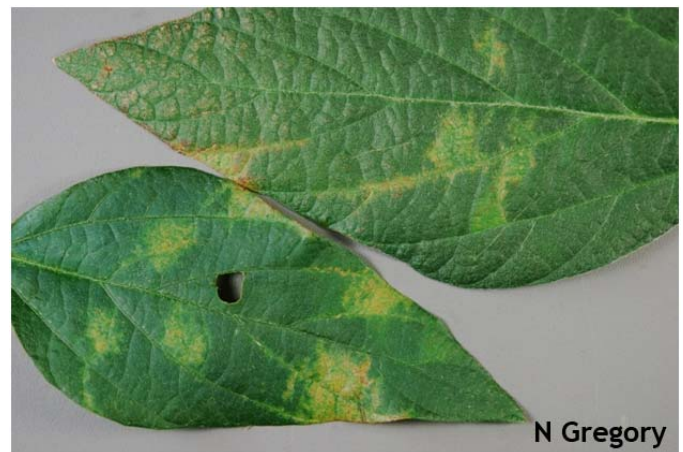
Small Grains

As you make plans to plant small grains, it will be important to consider a number of insect pests that can present problems, especially in early planted fields. The following article continues to provide a good review of insect pests that pose a threat to wheat in the fall including aphids, the wheat curl mite, Hessian fly and fall armyworm. In addition to the insect pests listed in this article, true armyworms have been a pest in the past as well as slugs if we have a wet fall.

(http://www.uky.edu/Ag/kpn/kpn_08/pn080825.htm#wheins).

Possible New Virus Detected in Delaware, Maryland and Virginia Soybeans - Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

We have seen samples from DE and MD with unusual leaf spot symptoms that are often limited to the veins. There is a yellowing and reddening of the tissue and veins associated with the virus infection. The symptoms can progress to a necrosis of the tissue around the veins as well. This virus disease, **soybean vein necrosis virus**, once it has been confirmed, would be new and a first report for our area. It has been seen in parts of the Midwest and confirmed by researchers at the University of Arkansas. They have seen pictures of the samples we have received and are sure it is SVNV. If you have seen these symptoms on soybeans we would like to know about it, and receive some leaf samples. There are differences in susceptibility to this new virus among varieties so we would need to know what variety you are growing if you see these symptoms. There may be some confusion about these symptoms because they can resemble *Cercospora* leaf blight caused by *Cercospora kikuchii*, which also causes purple seed stain.



Symptoms associated with soybean vein necrosis virus.

Spraying Soybeans with Fungicides After Hurricane Irene - Arvydas (Arv) Grybauskas, Extension Plant Pathologist, University of Maryland; arvydas@umd.edu

The question has come up after the tremendous rainfall and damage caused by hurricane Irene whether or not one should spray their soybeans with fungicides. There was also a question just before the hurricane as to whether or not it was advisable to throw in a fungicide since many fields were to be sprayed for insects like podworm and stinkbugs. The answer to both those questions is highly dependent on each individual situation and a blanket recommendation cannot be made, especially because soybean rust is not going to be an issue this season.

Before we discuss the factors that play a part in determining fungicide need let me briefly

explain why we rely on statistics and statistically valid research to answer these questions. Most of you are familiar with yield monitors and their output either because you have equipped your combine with one, or the custom combining operation that does the harvesting has one, or you have seen sample maps in a trade publication. If you haven't then I'm sure you are still aware of the issue of variability in a field because of all the hoopla associated with any precision Ag equipment article or ad. These have been invaluable tools as they have really shown that an apparently uniform 40 acres is really quite variable. The obvious reasons for the variability are variations in soil type, depth, moisture and fertility just to name a few. But there are also many other less obvious reasons associated with pests since they are not uniformly distributed across any field as well. Some fields are more variable than others but every field is to some degree not uniform. The fact is if you took any production field and arbitrarily split it in half the average yield in each half would not be identical. In fact I would suspect that the vast majority in our area would easily have about 3-5 bu/A yield difference between each half. Again some might have greater uniformity and a smaller difference and some might have more. It is this variability that illustrates the need for statistics. Think of it this way. If the same field that we split arbitrarily in half produces yields that are different by 3-5 bu/A without a treatment then how do we know if we put a fungicide (or anything else) on half that it did anything? We use statistical tools and design experiments following certain statistical rules to answer that question. Two of the most important rules are replication and randomization. We will replicate so that we test a treatment more than once and get a measure of the variability in the response. We will randomize where each replicate of each treatment goes in the field to make sure they all have an equal chance of being in a high yield spot or low yield spot in a field. By using these and other tools we can then use the variability that is there to say whether or not a treatment has a certain probability of having an effect. The point is a bigger number doesn't always mean that the treatment has a real or significant effect for those conditions. Sometimes a 3-5 bu yield difference could just be chalked up to being part of the background variation.

Ok, getting back to should we spray fungicides on soybeans after this heavy rainfall and wind damage. Let's start with the damage. There are have been no independent scientifically sound experiments that show a consistent and reliable yield advantage to spraying fungicides in the absence of diseases. Physical damage by itself is not going to be corrected by a fungicide. Some fungicides reportedly have a positive effect on plants by counteracting components of plant stress responses. However, there is no proof from independently conducted field trials that this affect is large enough to affect yields in the field in non-diseased plants.

Stands that are lodged, leaning or matted down because of high winds tend to favor the development of certain diseases because the canopy remains closed and therefore remains wet for longer periods. Also, the distance a fungus needs to move either from leaf to leaf or soil to leaf in lodged or leaning stands is generally less. Heavy rains play a more important role than the stand damage in driving disease development. The rain from Irene provided two main avenues for greater disease development: spread of disease-causing agents if they were present; and a wet or humid environment that favors pathogen growth and infection of plants. A key that cannot be ignored is there has to be a pathogen around and in a form capable of being moved.

There are soybean diseases that will not respond to foliar fungicides. Bacterial blight and Bacterial pustule are diseases that are favored by hard driving rains. They look very similar to several fungal diseases, but because bacteria cause these fungicides cannot control them. Don't get talked into spraying just because there are some leaf spots. There are also some fungal diseases that will not respond to foliar applied fungicides. The stem and root diseases in particular, Charcoal rot, Fusarium wilt, SDS and Phytophthora all are fungal diseases that cannot be controlled either preventatively or curatively at this time of year. One on-line source of brief disease descriptions with pictures is <http://cipm.ncsu.edu/ent/ssdw/soyatlas.htm> .

The soybean diseases that can occur in Maryland that can have an impact on yield, and can be managed with foliar applied fungicides are

primarily: soybean rust, frogeye leaf spot and brown spot. Soybean rust due to the earlier drought in the South is not likely to be a problem this year. Its reestablishment and increase on kudzu has been severely delayed and is at the lowest level of infestation in August since monitoring for this disease began in 2005. Hurricane Irene therefore was highly unlikely to pick up enough spores from Florida and deposit them in Maryland to be an issue. Of the remaining two diseases Frogeye appears to have more potential for damage but is fortunately less common than Brown spot. Brown spot is the most common foliar disease but tends to be a lower canopy problem. Both are much more likely to develop if the previous crop was soybeans. I cannot find any data that would indicate there is much of a chance of getting a yield response from a fungicide by controlling frogeye or brown spot when the fungicide is applied after the R3 growth stage. The reproductive growth stages are: R1 initial flowering, R2 full flower, R3 small pods are formed at upper nodes, R4 full pod, R5 beginning seed, and R6 full seed. One on-line source for soybean growth stages can be found at: http://extension.agron.iastate.edu/soybean/production_growthstages.html . There are other common diseases that tend to form late in the season and tend to be considered seed quality issues. Another way to understand these late season diseases is that fungicides reduce them but without a significant change in yield. Only seed quality is improved. Although seed size is often improved, only rarely does that translate to significant yield increases. The most common of these diseases are purple seed stain, pod and stem blight, and anthracnose. There is a third category of generally late appearing diseases that are reduced by fungicides but we have little evidence that they respond to the fungicide with a yield increase, for example *Phyllosticta* leaf spot. In short as a general rule it takes a fair amount of foliar disease that starts early in the reproductive period, if not before, to cause enough damage to reduce yields that can be countered with a fungicide.

With regard then to our current post-Irene situation, here are my thoughts on fungicides in soybeans.

- Scout first. If you know there is a specific problem that is starting then you can much more easily decide on the need for a fungicide.
- If you are a seed producer and the soybeans are between R1-R3 then consider spraying. You will protect some seed quality and have the potential for managing brown spot or frogeye if present and in that case may see a yield benefit. If the beans are between R4 and R5 then consider spraying if you haven't sprayed earlier. However, expect only a seed quality improvement.
- If you are growing soybeans for general production and are between R1-R3. Scout first! If you have symptoms of frogeye leaf spot or of brown spot in the middle of the canopy then a fungicide application may be warranted. This is much more likely to occur if the soybeans were planted no-till into soybean stubble. If the field is at R4 and symptoms of frogeye or brown spot are evident then spraying is much less likely to improve yields. If the soybeans are at R5 then there is little evidence that you will get your money back from a fungicide application especially if it is just brown spot. If there is frogeye, it's R5, and it continues to be wet the disease will get worse but there is no evidence that you will get a return on the fungicide. If you are not comfortable with not spraying then consider spraying in strips. In essence run your own test. It will cost you less and you will have a better basis for making the decision next time.
- Knowing the field history and rotation history are helpful. If you have soybean planted no-till into soybean stubble (it could be wheat-bean or barley-bean stubble) then you have the best chance of having diseases that can be reduced with fungicides and therefore get a yield response with a fungicide. The next level of risk based on crop rotation is when soybeans are just a year apart in the rotation, e.g., full-season beans followed by corn followed by wheat or barley and then double-crop beans. The lowest level of risk is there is a two-year or more rotation to soybeans. The most likely thing to happen with a fungicide application at R3 to R4 is improvement of seed quality (for example reduced purple seed stain or improved test weight) but not necessarily improve yields. The higher the risk based on rotation then the higher

the chance a yield improvement will be attained. In my opinion, you have a 30-50% chance of getting a yield boost (3-5 bu/A) in soybeans with the higher chance coming from the higher risk situation and spraying at R3.

- Last point. Spraying for yield protection without knowledge of what is out there has already led to the development of a strain of frogeye that is resistant to strobilurins (Headline, Quadris, etc.). This has been confirmed in IL, KY and TN. It's not a very good insurance program to spray against diseases when you just spray for yield boost because you are destroying one of the best tools you might need later on.

Metribuzin Use in Winter Wheat - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

Metribuzin is a product used for years in soybeans and other crops for broadleaf weed control (formerly called Sencor or Lexone). It has been labeled for use in winter wheat, but the label does not recommend its use in our region. Metribuzin is one of the active ingredients in Axiom, and so it has been used on a limited basis in our region. Since metribuzin is a generic product there are different products available, but most go by the name metribuzin or some close version of this spelling.

After identifying ALS-resistant chickweed and looking for potential control options I began testing metribuzin, along with a number of other weed specialists in the region. We have had good results with control and very little injury with metribuzin.

The label reads, "metribuzin alone or with tank-mixture treatments are recommended for use in the following states" and none of the states in the Mid-Atlantic region are included. On the other hand, the label does not prohibit the use of metribuzin. Metribuzin label does allow for tankmixing herbicides, to broaden the spectrum of control. We have not tested all the possible combinations with newer herbicides (Axial XL, Osprey, or PowerFlex).

Rate is dependent on soil type and growth stage. Application timing is from 2-leaf stage of the wheat until 4 tillers. We have tested metribuzin primarily for ALS resistant common chickweed, and rates of 2 to 4 oz applied with a nonionic surfactant have worked quite well.

Some precautions on the label include: Do not apply to stressed crop (including dormant, drought, frost damage, disease); do not apply with liquid fertilizer; do not use on soils with less than 0.75% organic matter; do not apply more than 0.5 inches of irrigation for the first irrigation after application and do not exceed 1 inch for any subsequent irrigation; wheat varieties differ in sensitivity (some are more sensitive than others).

Metribuzin is also labeled for barley, but we do not have experience with it.

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

In [last week's issue of Weekly Crop Update](#) I explained why we need to consider fall herbicide treatments for small grains. When splitting nitrogen applications in the spring, neither one of the timings are a good for herbicide application when trying to achieve **spraying small weeds that are actively growing and achieve good coverage**.

- 1. Weeds are more susceptible in the fall.**
- 2. Fall applications match better with weed development.**
- 3. Weed emergence is primarily in fall.**
- 4. Fall herbicide applications are not influenced by temperature as much as spring applications.**
- 5. Coverage is better with fall applications.**
- 6. Spreads out the workload.**

For no-till fields, a non-selective herbicide needs to be used prior to planting. However, we do not have effective herbicides labeled for

preemergence applications, so it is important that the field be scouted to ensure the crop is at the proper stage for herbicide application.

A few products can be used shortly after the crop has emerged. Axiom and Prowl H2O can be used at crop emergence (Axiom at the spike stage and Prowl H2O at 1 leaf stage); however they need to be tankmixed with other herbicides or followed by postemergence herbicides to provide a broad spectrum control.

Products that provide postemergence control include: Harmony, Harmony Extra, Starane Ultra, Osprey, PowerFlex, Axial XL. Others labeled with a limited fit include metribuzin, Finesse, Maverick, 2,4-D or dicamba.

Control of specific problem weeds:

Annual bluegrass: fall applications of Osprey are the most consistent. Fall application of PowerFlex is also good. Maverick is a last resort type treatment in the spring (Maverick requires use of STS soybeans).

Annual ryegrass: fall applications of Osprey, PowerFlex, or Axial XL work extremely well. Spring applications of PowerFlex and Axial XL are options, but neither can be applied in nitrogen without reducing the amount of nitrogen applied.

Roughstalk bluegrass: Osprey or PowerFlex perform well on this species.

Speedwells: We have had limited trials with the speedwell species, but fall treatments seem to be most consistent. Harmony Extra has little to no effect on this species, PowerFlex in the spring was rated as fair to good; and slightly better than Osprey (fair). Research at Virginia Tech has shown good results with Finesse postemergence, but this treatment requires the use of STS soybeans. Initial results with metribuzin show some utility for speedwells.

Jagged chickweed: This is another species we have limited trials for, but fall applications seem much more effective than spring treatments. Osprey, Harmony Extra, and PowerFlex seem to work well when applied in the fall.

ALS-resistant chickweed: This species is on the move with more reports each year. Harmony Extra, Osprey, and PowerFlex are all ALS herbicides (Group 2) and have no activity on this biotype. Rather, Starane Ultra or metribuzin in the fall have been the best treatments.

ALS-resistant horseweed: Another species with no trials. Starane Ultra lists horseweed as a species it will suppress. We do know that 2,4-D will control horseweed in burn-down situations, but we have not looked at low rates of 2,4-D in wheat for crop safety and effectiveness.

One common weed that is not controlled with fall applications is wild garlic. But this weed needs to be treated with Harmony Extra (or similar products) in the early spring, about the time we apply the second nitrogen application. We need to think of wild garlic (a late emerging perennial) separately from the annual weeds mentioned above.

A rotation to vegetables is an issue with many of these herbicides, including Osprey, PowerFlex, Finesse, Maverick, and metribuzin. Starane Ultra is a 4 month rotation to most crops. As you can see there is no one program that will provide control of all of our problem species. In most situations, a fall treatment will outperform a spring application, and you need to select the herbicide(s) based on the problem weeds you have in your field.

Grain Marketing Highlights - *Carl German, Extension Crops Marketing Specialist;*
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Linn Group Reduces Estimates For 2011 U.S. Corn and Soybean Production

Linn Group, a brokerage firm, cut its outlooks for the U.S. corn and soybean harvests, predicting farmers will harvest fewer bushels this fall than they did last year. The Chicago-based firm pegged the 2011 corn crop at 12.391 billion bushels, with an average yield of 149.1 bushels per acre. That is below the U.S. Department of Agriculture's latest estimate of 12.914 billion bushels, with an average yield of 153 bushels an acre, and the 2010 harvest of 12.447 billion bushels.

The firm estimated the soybean crop at 2.997 billion bushels, with a yield of 41 bushels per acre. The USDA last estimated the soybean crop at 3.056 billion bushels, with an average yield of 41.4 bushels an acre, down from 3.329 billion bushels in 2010.

The estimates make Linn Group the latest private firm to cut its harvest estimates due to poor weather. Earlier this month, it estimated corn output at 12.775 billion bushels, with an average yield of 152.1 bushels per acre, and soybean output at 3.148 billion bushels, with a yield of 43 bushels per acre.

Pro Farmer forecast the U.S. corn crop at 12.484 billion bushels and the soybean crop at 3.083 billion bushels. Their soybean production estimate was above USDA's August forecast.

FC Stone and Informa's estimates will likely be issued over the next couple of days. USDA will update their supply and demand estimates on September 12.

Market Strategy

The move to historically high price levels for new crop corn and soybeans has traders now suggesting that reduced yield expectations being forecast by private firms have already been factored into the markets, at least for the time being. We can expect sideways market activity until the release of the September 12 report. Demand rationing is now occurring. Recent end user bids for old crop corn exceeded \$8.00 (+) per bushel. Additionally, prices at these levels are sure to bring the necessity for end users to take protection in their cash bids for corn and soybeans, meaning, we are likely to see basis bids widen. Currently, Dec '11 corn futures are trading at \$7.60; Nov '11 soybeans at \$14.53; and July '12 SRW wheat at \$8.31 per bushel.

For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

Announcements

University of Delaware Lima Bean Twilight Meeting

Thursday, September 15, 2011 4:30 p.m.
UD Carvel Research and Education Center
16483 County Seat Highway
Georgetown, DE

The University of Delaware will be hosting a lima bean twilight meeting and tour on Thursday, September 15. Featured will be preliminary research results from yield trials with UD breeding materials. Other research on lima beans at UD will be discussed including breeding and evaluation for disease resistance, weed control, disease management, insect management, inoculation trials, cropping systems, regrowth cropping, and irrigation. Researchers will be on hand to discuss their work and present current results. There will be a wagon tour to visit late season plots.

Light refreshments will be provided.

Please RSVP by Wednesday, September 14 by calling 302-856-2585 ext. 540 or emailing adams@udel.edu.

2011 University of Delaware Cooperative Extension Short Courses: DISEASES OF ORNAMENTAL PLANTS SERIES

September 7, 14 & 21, 2011 4:00 – 6:00 p.m.
Kent County Ext. Office, Dover, DE
Cost: \$25 (for the series)

Instructor: Bob Mulrooney

This series is intended as an introduction to plant diseases. The first class will lay out principles of plant diseases including fungal diseases. Class two will continue with fungal diseases and the last class will cover bacterial and nematode diseases as well as the basics of fungicides and their use. Each class will build upon the previous one.

To register: call any county Extension office
302-831-2506; cjmurphy@udel.edu
302-730-4000; carolm@udel.edu
302-856-7303; wootten@udel.edu

2 pesticide credits (Categ. 03,02), & 1 CNP credit
each session

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 25 to August 31, 2011

Readings Taken from Midnight to Midnight

Rainfall:

0.37 inch: August 25

5.98 inch: August 27

1.07 inch: August 28

Air Temperature:

Highs ranged from 88°F on August 25 to 75°F on August 27.

Lows ranged from 72°F on August 27 to 53°F on August 31.

Soil Temperature:

76.5°F average

Additional Delaware weather data is available at http://www.deos.udel.edu/monthly_retrieval.html and <http://www.rec.udel.edu/TopLevel/Weather.htm>

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

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