Field Crop News

PENN STATE CMEG Crop Management Extension Group

Website Address: http://fcn.agronomy.psu.edu/

October 6, 2009 Vol. 09:30

The FCN is going to the fall—winter schedule of once per month after October 20th. Readers can expect the Field Crop News on November 10th, December 8th, January 12th and Februaryth.

IN THIS ISSUE:

Weather Outlook — Paul Knight, Pennsylvania State Climatologist

An unusually fast flow (for so early in the autumn) will make the timing of specific disturbances challenging during the next week. A cold front accompanied by several hours of showers will cross the state late tonight (west) and by mid-morning in the east. It will be followed by very gusty winds such that many sections will experience steady winds of 15 to 25 miles an hour (from the west-northwest) and frequent gusts to 35 and 40 miles an hour. Some ridge-tops will notice gusts above 55 miles an hour. Lake effect clouds and showers will occupy the Erie shoreline on Wednesday. By Thursday, it will be more settled though clouds will arrive late in the day and showers following in the northern half of the state on Thursday night and Friday morning. A surge of warmer, humid air is expected on Friday as temperatures rise into the 70's in eastern counties. Rather chilly air will arrive for the weekend and much of next week, preceded by showers on Friday night or Saturday morning. A reinforcement of cold air is expected on Monday with scattered showers. The mountain-valley region will be at risk for its first widespread frost between Saturday and Thursday (Oct 10–14).

Despite the very cool weather at the start of the month, the third week of October is expected to average well above normal and then it should turn much colder during the final week of October. There are increasing signs that November will be rather mild in this region and December will turn

rather cold and perhaps snowy. The development of a moderate El Nino in the Pacific portends a wetter winter (and probably snowier) in the state with the period December-February expected to average below normal temperatures with much of the chill coming early and late in the season and a spell of mild, Pacific air possible during January.

Review of Best Management Practices for Combating Head Scab in Wheat — Greg Roth, Penn State Grain Crop Specialist

As wheat planting starts throughout the state this week, and after a season of serious problems with head scab, a review of some of the best management practices for controlling this disease is appropriate.

First, there is no completely effective way to eliminate the disease. The disease is caused by airborne spores that infect wheat heads near flowering under high humidity conditions. Some of these spores originate in the field where the wheat is being grown, but many blow in from surrounding fields and other farms.

There are basically five strategies that growers can adopt to provide some hedge against the problem and these include resistant varieties, planting date, foliar fungicides, residue management and harvest management.

Selecting wheat varieties that have some resistance to head scab is the first step. Variety resistance is intermediate at best. Head scab resistance data can be obtained from seed companies or from university testing programs. Ohio State has a good Web site to assess many of the varieties grown here.

The second strategy is to consider the use of a fungicide at heading. Several products such as Proline, Prosaro, Caramba and Folicur are now available to provide some head scab suppression. Use of these was limited in 2009, but will likely increase if conditions favor scab next year.

The third strategy is to manage residue and avoid no-tilling into fields with large amounts of corn residue. The fusarium fungus over winters on the residue and increases the risk of the problem. However, since we have so many corn residue in our state, even fields without corn residue can have head scab, as many producers noted last year.

The fourth strategy is to vary planting dates and wheat maturity. This will cause some slight variations in the heading dates in the crops and reduce the risk that the entire crop is affected by the disease.

The fifth strategy is to try to reduce the presence of the scabby kernels through combine adjustment so that the lightweight grain is removed with the chaff. Another harvest strategy is to attempt to segregate fields or parts of fields that have the worst infestations. Last year, some producers noticed that field edges had higher scab levels than the rest of the field. Some fields also had higher scab incidence than others. The incidence is best determined while the heads are still green, not at harvest. Overall, though the lack of effective sampling and testing in the field limits this strategy somewhat, adopting these strategies can help reduce — but will not eliminate — the potential for the disease. This is a world-wide problem and much research is focused on addressing it through breeding and management. As a result of the problems last year, a new website has been established to provide a quick guide to methods of reducing the potential of wheat scab http://www.ag.ndsu.edu/scabsmart/

Still Time to Manage those Tough

Perennials — Bill Curran, Penn State Weed Management Specialist

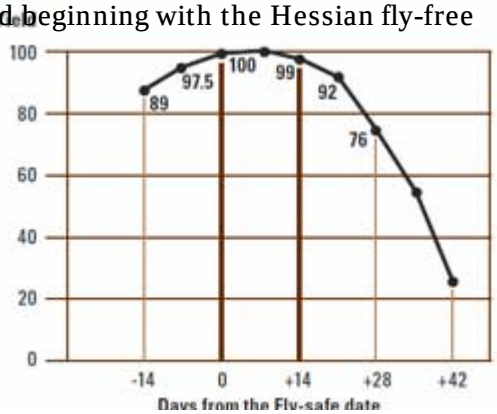
I recently returned from an invasive plant management workshop sponsored by the Northeast Weed Science Society where we discussed the details of trying to manage kudzu, tree-of-heaven, Japanese knotweed, Canada thistle, purple loosestrife, and many of your other "favorite" weeds.

One of the overriding themes at this workshop was the need to better understand the physiology of the plant when timing an herbicide application. This is particularly important for perennial weeds like those I mentioned above where they can survive and grow for many years due to the underground storage structures like rhizomes, budding roots, and tubers. One of the things we discussed at this course was how the shortening days and cooling nights signal perennial plants that winter is approaching. With the autumn weather, these plants more actively transport carbohydrates and sugars to the underground storage structures to enable them to survive the winter and to provide the necessary energy to begin the next cycle of growth in the spring. The "physiology" of these plants make fall an ideal time to attempt control with systemic herbicides that can move with the carbohydrates and sugars to these vegetative structures where they can express their toxicity on the foundation of these perennial plants. For many perennials like johnsongrass, horsenettle, pokeweed, multiflora rose, Japanese knotweed and poison ivy, application before Oct. 1 is generally ideal, depending on how cool or dry September has been. Inspect the plant foliage and make sure it is healthy and green; this is a good indicator of how effective a herbicide application might be. For some cooler season plants like quackgrass and Canada thistle, successful applications can be made well into October. Burning down old hay fields (alfalfa, clover, cool season grasses, etc.) should also be possible into mid October. Adjust your application timings by a week or so forward or backward if you are in the northern or southern part of the mid—Atlantic region.

Remember that systemic herbicides are those products that when applied to the foliage are absorbed through the leaves and move or translocate to active "sinks" within the plant. Earlier in the season, those active sinks were growing points where new plant tissue was forming. In the late summer and fall, underground storage structures are active sinks for both herbaceous and woody perennials. The most active systemic herbicides include glyphosate and the plant growth regulator herbicides (2,4–D, dicamba, etc.). In addition, the grass specific herbicides (Select, Fusilade, Assure, Targa, etc.) are also systemic as are the ALS inhibitors such as Cimarron (metsulfuron) and Arsenal (imazapyr). Of course just because the herbicide is systemic doesn't insure effective control as it must also be active on the target weed species. So, get out there and scout your hay and pastures, fence rows and other noncropland and if necessary make an herbicide application when it makes the most sense for timely control.

Wheat Being Planted Late? — John Rowehl, York County

The optimum period for planting wheat is a two week period beginning with the Hessian fly-free date as shown in this graph (source: Improving Wheat Profitability—OSU). With the season behind normal, wheat may end up being seeded after this. In that situation, here are some tips to help compensate for later planting.



Increase the seeding rate by 30 percent if later than the optimum seeding date. Planting rate during the optimum period is 1.2–1.5 M seeds/acre. If planting later, 1.6–2.0 M is the recommended range. As the

days past the optimum date pass, increase toward the higher end of the range. Higher seeding rates compensate for the reduction in tillering from
seeding late. Since seed varies in size, calculate the number of pounds per acre by dividing the target population by the number of seeds/lb and multiply by 115% to allow for germination and emergence loss. Or, calibrate your drill by the number of seeds per foot of row as shown in the following table or use the Agronomy Guide.

Maintaining proper seeding depth (1 to 1.5 inches) below the surface of the soil, not the residue, is critical to achieving good seed-to-soil contact and proper crown development. Shallow-planted wheat is more prone to winter injury.

Target stand (millions/acre) based on 85% emergence	Seed/feet of row	
	7" row	7.5" row
1.2	19	20
1.4	22	24
1.6	25	27
2.0	32	34

Availability of potassium, and especially, phosphorus is very important. Phosphorus deficient plants do not tiller well and are more susceptible to winter kill. Here's where good soil test records come in handy. If test levels are optimum or less, fertilize with recommended rates. Normally a rate of 10–30 lbs. of N/Ac. is recommended. Under late planting conditions, particularly in fields with little or no manure history, nitrogen rates at the higher end of the range help accelerate growth and stimulate tillering.

Aerial Seeding Challenges — Sjoerd Duiker, Penn State Soil Management Specialist

Reports are coming in from farmers who cannot find seedlings in fields that received aerial application of cover crop seeds in late summer. This is not an uncommon phenomenon. Broadcasting seed on the soil surface is a very risky undertaking, and the more so in long-term no-till. While the idea sounds good, and there are reports about successful establishment of (cover) crops with aerial seeding, the lack of seed-to-soil contact and soil coverage may lead to stand loss or failure. Activity of ground-dwelling organisms is high in no-tillage, and there could be a host of seed predators as well as the feared slugs. Additionally, if there is heavy dew or some limited rainfall, the seeds could germinate and subsequently dessicate when they don't find moisture in the soil. There are also reports about increased heaving of winter grains broadcast on the soil surface due to limited anchoring in the soil.

Some ideas for increased success with broadcast application of cover crop seed: Frost seeding red clover or perhaps yellow sweet clover in February/March in small grain. Soil moisture is generally sufficient for germination and early growth and perhaps ground dwelling herbivores are not yet very active. However, even here we often see spotty clover stands. Yellow sweet clover can be quite (too) aggressive and may be as high as the small grain at harvest which can add to the challenges.

In organic operations, one can get good results when broadcasting cover crop seed in standing corn just before last cultivation. The cultivation provides the seed to soil contact. In addition, in the tilled soil there are more nooks and crevices that help improve seed-to-soil contact, and there are probably fewer ground-dwelling herbivores eating the young seedlings.

Some limited tillage such as turbo-till, aerway, or light disking may give the seed-to-soil contact needed, but this is not an option in standing crops. Considerable effort has gone into developing and fine-tuning planters and drills. The reason is that precision placement of seeds pays. Unfortunately, there are limited options to drill through a standing corn or soybean crop.

Cover Crop Strip Plots Updates — Some Early Observations — Ron Hoover, On—Farm Research Coordinator, Dept. of Crop and Soil Sciences

As noted in an earlier Field Crop News, a team of Crop Management Extension Group county extension educators and state specialists have put out numerous cover crops strip plots. Two plantings of most of them, single species and mixtures of species, were recently completed at eleven locations across the Commonwealth. As I completed the second round of plantings last week, we have been able to make observations of the first plantings, which were drilled between August 22 and September 2. Here are a few of those early observations.

Cereal Rye While the rye plots aren't as tall as the oats, the wheat or the triticale, they are found to be exhibiting some allelopathy against other species growing with the rye. The tillage radish that is being grown with rye in one strip is markedly shorter than the radish being grown with spring oats. Both plots have tillage radish drilled at the same five pounds of seed per acre. The growth of weeds in and around the rye is often noticeably less than those same weed species found outside the plots. Small flower galinsoga growing under rye at one location is one-third to one-half as large as plants growing where there is no rye.

Wheat We may need to rethink using this species for an early planted cover crop. Why? This species planted as early as late August could serve as a host for Hessian Fly. While it is true that fly damage in a wheat cover crop is not much of a problem, the fly may travel in the spring to wheat fields being grown for grain production.

Tillage Radish This entry is looking very good. Drilling five pounds per acre in combination with either rye or oats has resulted in plots where there isn't excessive competition between the radish and small grain. Earlier work indicated that radish, with its rapid growth and characteristic large leaves, can easily dominate a mixture. Ten pounds of radish drilled alone is showing signs of nitrogen deficiency, indicating this species' ability to take up and hold on to nutrients soon after establishment.

Crimson Clover This species looks very good at all locations. We drilled it at 15 pounds per acre into plots with oats (40 lbs per acre) and into other plots with annual ryegrass (10 lbs per acre). Early indications are that, at least for earlier seedings, we may be able to reduce the seeding rate below 15 pounds per acre. It will be interesting to see how good the 15 pound rate looks when drilled in late September.

Red Clover I am normally not a fan of red clover planted much after early August, as the plants often don't get large enough to provide the soil cover that we need to minimize winter soil and nutrient losses. However, this year with ample moisture at most locations, this species is showing itself very well. Plants are already large enough that overwintering will not be an issue, and with a few more weeks of growth, should provide an acceptable amount of biomass to protect our soil resources.

Hairy Vetch This species also looks unusually good at most locations. The 15 pound seeding rate has provided good plant density, and early plant vigor is great. Will an abnormally late killing frost at some of the southern locations result in so much fall aboveground biomass that overwintering ability may be compromised? We'll know in the spring.

Corn Ear Molds and Stalk Rot — Del Voight, Penn State Interim Grain

Crop Specialist

One is the assessment of ear molds and the other is Stalk Rot. In yields that I have been certifying in the last week I noticed lower test weights in both Corn(52-54) and Soybeans(53-56). This article will focus on corn ear and stalk maladies. An accurate assessment now will lead to better decisions in selecting hybrids and the relative impact on rotational crops such as wheat.

Here are some pictures of ear molds and a description of their mycotoxin potential as well as some management ideas. The information source is Ontario Department of Agriculture. As in other cases just because there is the mold does not mean that a mycotoxin will result. There is still a lot that needs to be learned regarding these molds and there relationship to the toxin formation. Both fusariums can be an issue and have been researched the most intensively mainly in the silage portion for dairy. As you get out on farms in the coming weeks it might be wise to have this or some other reference in your truck to use as a discussion. Also keep an eye on stalk lodging due to stalk rot. Many times with a wet season leaf diseases progress rapidly and invade the stalk and roots and lodging may become severe. I viewed numerous fields last week with anthracnose invading the stalk with some hybrids already lodged at this early time. Striking difference in hybrid resistance can be seen in the Penn State Hybrid Performance Trials. A squeeze test of the lower stalk can reveal the management of the field for early harvest.

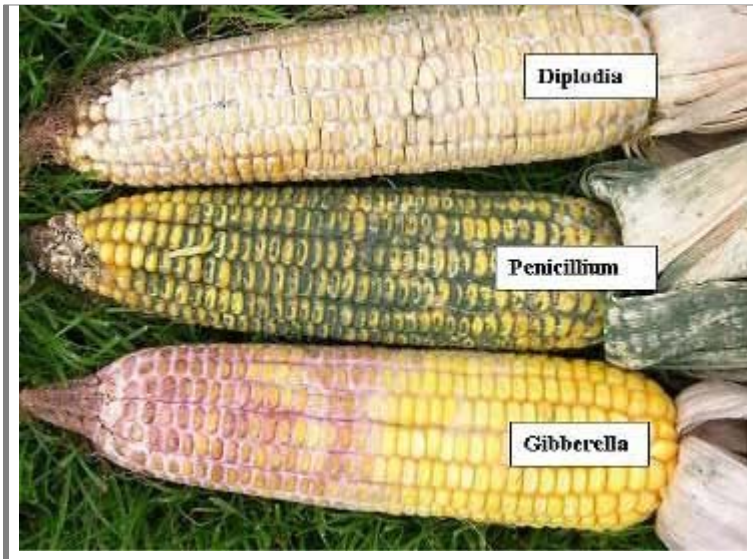


Figure 1. Three of the most common ear molds found this year in many fields. The top ear is Diplodia (white), the middle ear is Penicillium (green) and bottom is very characteristic of Gibberella ear rot (ear tip and pink/red color). Of these Gibberella produces mycotoxins. Note the corn sprouting in the middle ear.

Gibberella Ear Rot

The most common and important ear mold in Pa is Gibberella zeae which is the sexual reproductive stage of *Fusarium graminearium*. This fungus not only infects corn but also small grains such as wheat and can survive on soybean roots. Although, the fungus can produce a white colored mold which makes it difficult to tell apart from Fusarium Ear Rot, the two can be distinguished easily when Gibberella produces its characteristic red or pink colour mold.

Scout fields which have a susceptible hybrid planted. If you are not sure how your hybrid rates for Gibberella contact your seed supplier.

Figure 2. Gibberella Ear Rot

Gibberella Ear Rot is economically important not only because of the potential yield and quality losses but because Gibberella zeae and Fusarium graminearum produce two very important mycotoxins that occur in Pa, deoxynivalenol (vomitoxin or DON) and zearalenone. These mycotoxins are especially important to swine and other livestock producers since they can have a detrimental affect on their animals. Feed containing low levels of vomitoxin (1ppm) can result in poor weight gain and feed refusal in swine. Zealalenone is an estrogen and cause reproductive problems such as infertility and abortion in livestock, especially swine. If you have Gibberella ear

rot (5 % or more) and are planning to feed the grain, you should have the grain tested for these toxins.

Fusarium Ear Rot

Figure 3. Fusarium Ear Rot

Unlike Gibberella, Fusarium infected kernels are often scattered around the cob amongst healthy looking kernels or on kernels that have been damaged for example by corn borer or bird feeding. Fusarium infection produces a white to pink or salmon-coloured mold. A “white streaking” or “star-bursting” can be seen on the infected kernel surface. Although many Fusarium species may be responsible for these symptoms, the primary species we are concerned about in Ontario is *Fusarium verticillioides* (formerly *Fusarium moniliforme*). The significance of this fungus is that it produces a toxin called fumonisin.

Diplodia Ear Rot

Figure 4. Diplodia Ear Rot

The characteristic ear symptom of *Diplodia maydis* infection is a white mold that begins at the base of the ear and will eventually cover and rot the entire ear. Mold growth can also occur on the outer husk which has small black bumps (pycnidia) embedded in the mold. These reproductive structures are where new spores are produced. Unlike Gibberella and Fusarium, Diplodia does not produce any known toxins.

Penicillium Ear Rot

Figure 5. Penicillium Ear Rot

Penicillium rot (*Penicillium oxalicum*) produces a light blue-green powdery mold which grows between the kernels and cob/husk surface. Infected kernels could become bleached or streaked. Can be a serious problem if corn is stored at high moisture levels (greater 18%). Although other Penicillium species have been shown to produce Ochratoxins, *Penicillium oxalicum* dos not and this toxin does not occur in Ontario.

Table 1 — Common Ear Rots and Molds That Occur in Pa and The Primary Mycotoxins They Produce

Corn Ear Rot	Description	Primary Mycotoxins
Gibberella (*Gibberella zeae* also called *Fusarium graminearum* (asexual stage)	Red/pink mold Begins on ear tip Bird, insect injury increases damage	Deoxynivalenol (Vomitoxin or DON) Zearalenone T-2 toxin
Fusarium (*Fusarium verticillioides*)	White, pink or salmon coloured Can occur anywhere on ear Often begins at the sites of insect damage	Fumonisins
Diplodia (*Stenocarpella maydis*)	White mold Begins at base of ear but often entire ear covered Black pycnidia (bumps) on husks and kernels	None
Penicillium (*Penicillium oxalicum*)	Blue-green mold Mold between kernels and on cobs/husk	Ochratoxins (other Penicillium species) P. oxalicum does not produce ochratoxin; not detected in Ontario

Management — Source: Iowa State University Extension

The best option for moldy grain is to feed it or sell it instead of storing it. *However, it should be tested for toxins before feeding*. Testing for mycotoxins can be done before putting the grain in storage. The best sampling method is to take a composite sample of at least 10 pounds from a moving grain stream, or to take multiple probes in a grain cart or truck for a composite 10-pound sample. If toxins are present, it is possible that the grain can be fed to a less sensitive livestock species, such as beef cattle, depending on the specific toxin and its concentration. A veterinarian or extension specialist can help with these decisions. If the grain is sold, there may be a reduced price due to mold damage.

Cleaning the grain removes fine particles that are usually the moldiest and most susceptible to further mold development. *Good storage conditions (for example, proper temperature and moisture content, aeration, insect control, and clean bins) and regular inspection are essential in preventing mold and toxin development in any stored corn*. For additional information on sampling and other aspects of ear rots and mycotoxins, see Iowa State University Extension publications PM 1800, Aflatoxins in Corn (free), and PM 1698, *Corn Ear Rots, Storage Molds, Mycotoxins, and Animal Health* ($1.50 plus shipping).

Stalk Rot Considerations — Source: Tamra Jackson Extension Pathologist, University of Nebraska

Figure 6. Black lesions on the outside of stalks indicate anthracnose stalk rot. **Figure 7.** Pink to salmon discoloration inside the stalk ay indicate fusarium stalk rot. **Figure 8.** White fungal growth at the node can occur with fusarium stalk rot.

Now is the time to scout those fields at highest risk for stalk rot and to harvest affected fields first to minimize potential yield losses due to lodging. (See Risk Factors and Stress Conditions Favoring Stalk Rots)

Potential Losses

Corn stalk rots occur to some extent every year, but when large areas are affected, it can

complicate and hamper harvest and cut into yields. Survey your fields now to determine where you're likely to have the most problems and then harvest those fields first. While fall storms have been limited so far, high winds and rains could quickly down a field of diseased corn.

On average, stalk rot diseases reduce yield by about 5% each year, although losses can be as high as 10%-20% and on rare occasions, 100%. Stalk rots reduce yield both directly and indirectly.

Figure 9. Complicate harvests and reduce yields

Plants with prematurely rotted stalks produce lightweight, poorly filled ears because of the plant's limited access to carbohydrates during grain fill. Infected stalks are converted from sturdy, solid rods to weakened, hollow tubes that are prone to lodging, particularly if decay occurs below the ear. The problem tends to increase in high yielding hybrids that produce large, heavy ears that cannibalize carbohydrates from the stalk during times of stress or predispose the weakened stalk to lodging. Indirect losses occur from harvest complications and ear loss.

Stalk rot diseases are caused by common fungi and bacteria that opportunistically infect senescing, injured, or stressed plants. A vulnerable plant often may suffer from several different stalk rots at the same time. Stalk rots common to Corn include Anthracnose, Fusarium, Gibberella, Diplodia, Charcoal, and Bacterial. Each is favored by slightly different environmental conditions and will exhibit slightly different symptoms.

Common Symptoms

While individual symptoms vary with the stalk rot disease, a few are common to most:

- Plant wilting is often the first indication.
- Leaves become discolored, turning gray or brown.
- Inside the stalk, decay causes discoloration of the inner pith tissue, which pulls away from the stalk rind into a weakened hollow tube.
- Lower internodes turn tan or brown.
- The root decays and in severe cases, can kill the plant in as little as two days.

Scouting

This summer's conditions were favorable for the development of stalk rot in many areas of the state, necessitating a careful field assessment before starting harvest. The most common method to scout for stalk rots is to use the Push or Pinch Test.

Walk through a field and randomly select a minimum of 100 plants representing a large portion of the field. To test for stalk rot:

1. Push the plant tops approximately 30° from vertical. If plants fail to snap back to vertical, the stalk has been compromised by stalk rot.
2. Pinch or squeeze the plants at one of the lowest internodes above the brace roots (pinching the same internode on each plant). If the stalks crush easily by hand, their integrity has been reduced by stalk rot.

If more than 10% of plants exhibit stalk rot symptoms, harvest that field first to reduce the potential for plant lodging and yield loss.

Under severe stalk rot conditions, it may be more economical to harvest early at higher moisture and dry grain than to experience severe harvest losses.

Management

It is too late now to manage these stalk pathogens but decision for next seasons hybrid selections should include particularly in no till emphasis on disease resistance. It is of importance as well to not follow corn to corn rotations and if that is chosen a different hybrid should be utilized to avoid disease complications.

Fall and spring herbicide treatments for management of marestail and some new resources — compliments of Mark Loux, Weed Science, Ohio State University

Ohio State and Purdue Universities have conducted a lot of research on marestail or horseweed management. Here is a nice summary article recently published in OSU's CORN newsletter. Thanks Mark.

Multiple years of OSU research on fall and spring herbicide treatments have consistently shown that the value and effectiveness of residual herbicides for soybeans is maximized when they are applied in the spring, not the fall. There are articles covering this in the C.O.R.N. archive for the last several falls, so we won't cover the whole story again here. The bottom line is that is can be a big mistake to apply all of the residual herbicide in the fall, with the intent to omit the spring pre-plant treatment and apply just post-emergence herbicides in next year's soybeans. Fall application of chlorimuron products such as Canopy EX/DF can control many summer annual weeds through early June the following year, but the residual control of ragweeds and marestail is often reduced greatly with fall applications, compared with application of residual herbicide in the spring. This is partly due to the prevalence of ALS resistance in these weeds, but a lot of the problem also lies with their biology, and ability to emerge well into the growing season.

Post-emergence control of many marestail populations is close to impossible due to herbicide resistance. The goal of a marestail management program is to ensure that the combination of fall

and spring burndown and residual herbicides results in a weed-free seedbed at the time of soybean emergence, and little to no emergence of marestail between soybean emergence and crop canopy closure. Even the most effective marestail management programs can fail to completely achieve this, but they often keep the populations low enough in the soybeans that they are not problematic.

Marestail plants that emerge in late summer or fall are easily controlled with a fall herbicide treatment. However, it's essential to realize that a fall herbicide treatment is not likely to accomplish everything that's needed in an effective marestail management program. An effective program does not necessarily involve application of herbicide in the fall. A combination of the appropriate burndown and residual herbicides applied in April can adequately control marestail, even those that emerged the previous fall. So, one option in fields where other winter weeds are not a problem is to skip the fall herbicide treatment and apply a combination of burndown and residual herbicides in April when marestail are still small.

In those marestail-infested fields requiring a fall herbicide treatment for management of other winter annual annual weeds or dandelion, it is essential not to apply all of the residual herbicide in the fall. This also applies to those fields that are typically so wet that soybeans cannot be planted until mid to late May. In this situation, the goal of a fall residual herbicide treatment might be just to ensure that marestail are not too large when burndown herbicides are finally applied in May. Regardless of the type of herbicides applied in fall, an effective rate of a residual herbicide should still be applied in the spring, to maximize control of marestail that emerges in May and June. The most effective residual herbicides for spring application include two modes of action, to ensure effectiveness on ALS-resistant marestail. Examples: Envive, Valor XLT, Gangster, Sonic, Authority First, and Canopy DF + metribuzin. However, it should not be necessary to apply something this broad-spectrum or costly in the fall. We suggest one of the following approaches:

1. Apply a combination of glyphosate and 2,4-D in the fall, followed by application of residual herbicide in the spring prior to soybean emergence. At the time of soybean planting, the field is likely to be infested with marestail that emerged earlier in spring, so include effective burndown herbicides (2,4-D, Gramoxone, glyphosate, or Ignite or some combination as appropriate based on herbicide resistance, plant size and time until soybean planting) to control emerged plants.
2. Apply 2,4-D with Canopy DF or EX at fairly low rates (e.g. 1 oz of EX or 2 oz of DF) in the fall, followed by application of residual herbicide in the spring (with burndown herbicides if the residual from fall does not hold marestail through planting). It is possible to follow the fall Canopy application with a spring application of a chlorimuron-containing herbicide, as long as the total does not exceed the maximum labeled rate of chlorimuron for the soil type.
3. In ALS-resistant populations where Canopy will fail to provide any residual control of marestail, it may be possible to substitute a combination of 2,4-D with metribuzin in the fall. This combination should control most emerged winter annuals, but can be weak on dandelion. Follow with application of residual herbicide in the spring (with burndown herbicides if the residual from fall does not hold marestail through planting).

The idea here is to apply an herbicide treatment in the fall that adequately controls emerged weeds, provides some residual if desired, but does not break the bank and allows use of the majority of the residual herbicide in the spring. Options 2 and 3 would be most suitable for fields that are wet well into spring, where the goal is to control at least some of the marestail that emerge in early spring. Canopy certainly provides substantially longer residual than metribuzin, but use of metribuzin preserves the option to plant corn the following spring.

Finally, several new resources on marestail management are available from OSU, and these can all be found at the OSU Web page. We cooperated with Purdue University weed scientists to write the 2-page fact sheet, "Management of Marestail in No-till Soybeans," which is available as a pdf. We

have also posted two video Powerpoint presentations in Flash format: "Marestail Management — the Short Story," a 10–minute video for those who want the basics; and "Marestail Management — the Longer Story," a 30-minute video for those wanting more complete information on biology and the data that supports our recommendations.

2008/9 Cover Crop Demonstration Report via Virtual Tour — John Rowehl, York County

The results and discussion generated by the Cooperative Extension Cover Crop Demonstrations in South-central Pennsylvania during 2008–2009 cover-crop season can be viewed via a virtual tour. The report will allow farmers to see how cover crops grew in the area so that they can compare traditional cover crops with less commonly used types and decide which they might consider.

Such cover crops as forage radish, hairy vetch, crimson clover, annual ryegrass, Austrian winter pea and some mixtures comprised of these species where compared to the customary cereal rye or oat cover crop practice.

The Virtual Tour is available at the following link: http://cmeg.psu.edu/cover_crop/index.cfm

Commodity Markets... What to do? What to do? — John Berry, Lehigh County

Let's remember a mantra of grain marketers as we initiate a harvest season with some un-priced grain. "Sell the carry!"

We might consider storing grain after the harvest rush — if — the market is offering prices that will at least cover the cash costs of storage. Storing unpriced grain in hopes of a price bump sometime before next fall can be tricky. Markets do not always do as they are supposed to do. When considering the amount of grain to store consider the following example:

Adjusting for our local basis; May 2010 corn contracts are trading at 367 and have been stuck in the 310–370 range since early July '09. Harvest contracts are currently trading at 351. The carry is then 367 minus 351. What is the probability for profits to the storage enterprise if we lock in this sixteen cents by selling '09 corn for delivery out of storage based on today's May contract? How much of a payback is this for the quality risk and cash costs to store into a future month? I see the corn market telling me there is limited opportunity to lock in a gain from long-term storage — under today's market conditions.

Soybeans are not offering much storage returns either at this time. The bean market is also telling me to sell now.

To me the other side of this coin is — if the corn and soybean buyers do not want me to store grain for later — they need it now. This suggests there may be less crop available later — if demand and such stays positive. Less crop available later hints at higher prices later. A total gamble, but perhaps worth considering storage of some number of un—priced 2009 corn and bean bushels in anticipation of a post-harvest rally of some kind. I'd hate to bet the grocery money on this, however. Plus, for this un-priced grain storage strategy to work we will need to watch prices closely so a worthwhile rally — should it appear at all — does not escape our notice.

The major points I'm trying to keep in the front of my head are:
Corn market says sell now.
Bean market says sell now.

World economy is shaky at best.
Politicians talking trade is in the news more often lately.
A business has to reach break—even before it reaches profitability.

Upcoming Events

Cover Crop Demonstration Trial Coming to a Location Near You.

October 9, 9am–3:30pm
Cover Crop Field Day
Hosted by Jefferson County Conservation District
Smith Oak Farm
220 Logan Rd
Reynoldsville, PA
Registration required— see http://jeffersonconservation.com/

October 15, 1–5pm
Westmoreland Cover Crop Open House
Crabtree, PA
Kevin Fry, ksf107@psu.edu, 724–548–3447

October 23, 10am–12pm
Franklin County Cover Crop Walk
Jonathan Rotz, jdr21@psu.edu, 717–263–9226
To find the demonstration site, take I–81 to exit 17, turn left (if coming from the North) and go approximately 1 mi. The site is located on the right hand side of the road. Watch for signage the day of the field day.

October 28, 9:30am–2:30pm
New and Emerging Cover Crops Field Day
Cedar Meadow Farm
679 Hilldale Road
Holtwood, PA
See http://www.cedarmeadowfarm.com/FieldDays/ for more information

October 29, 9:30am–12pm
Cover Crop Walk
Bryan Garman Farm
201 Bridgeville Rd
East Earl, PA 17519
Jeff Graybill, jsg18@psu.edu, 717–394–6851

November 10, 9:30am–12pm
Lancaster County Cover Crop Walk
Landisville Research and Extension Center
1446 Auction Road
Manheim, PA 17545
Jeff Graybill, jsg18@psu.edu, 717–394–6851

November 10, 10:30am–2pm
PA No—Till Alliance Cover Crop Walk
Joel Meyers, joelmyers@myersfarm.com, 814–574–1319

November 10, 10am–12pm (Raindate, November 17)

York County Cover Crop Walk
John Rowehl, jer2@psu.edu, 717–840–7408

November 19, 10–11:30am
Berks County Cover Crop Walk
Mena Hautau, mmh10@psu.edu, 610–378–1327

November 19, 3–4:30pm
Northampton County Cover Crop Walk
Juniperdale Farms
653 Jones Hill Rd
Pen Argyl, PA
Tianna DuPont, tdupont@psu.edu, 610–746–1970

November 20, 10–11:30am
Montgomery County Cover Crop Walk
Parkhouse, Royersford, PA
Andrew Frankenfield, adf13@psu.edu, 610–489–4315

Keystone Crops and Soil Conference — October 27 & 28

For more information and registration, view the conference brochure.

Contact Information

Contact information for article authors and contributors can be found at:
State Specialist — http://cmeg.psu.edu/specialists.cfm
County Educators — http://cropsoil.psu.edu/people/extension/extensionedlist.cfm

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Editor: Mark Madden, Sullivan County

Upcoming Events

Real time pest and heat unit activity: http://agsci.psu.edu/news/spotlight/pa-pipe

Calendar of Events: http://www.events.psu.edu/cgi-bin/cal/webevent.cgi?cmd=opencal&cal=cal209&

If you have any questions or would like to suggest a topic, please contact your local Extension Educator.

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