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Alfalfa winter survival in spring of 2009

Dan Undersander, UWEX Forage Agronomist

Alfalfa stands have come through the winter in varying conditions depending on previous management and the locally occurring weather conditions this past winter. Generally survival was good but significant loss has occurred in central Illinois (due to heaving), Southwestern Wisconsin and Northeastern Iowa and Quebec. Most of the kill was a combination of snow melting to form ice and either the ice itself or lack of snow insulation during periods of cold caused injury and kill.

Winterkill and injury was generally worse where a late fall cutting had been taken. While late fall cutting is generally a recommended practice with more winterhardy varieties, it does increase risk of winterkill and this past winter is an example of that. Many cooperatives report much less fertilizer sold last fall. To the extent that potassium was not replaced, this would have increased winterkill.

Some northern sites are still seeing some small plants just beginning to grow in fields. If plants have healthy crowns, these small plants likely represent death of buds formed last fall. These injured plants will yield slightly less on first cutting (because they have to regrow new buds) but the plants should grown and contribute to the stand for the remainder of the season.

Many fields have suffered alfalfa loss in low spots as is common. However, where the dead spots exceed 30% of the land area, replanting should be considered. Alfalfa cannot be replanted into the spots due to autotoxicity. Recommendations would be red clover (6 lb/a), 50/50 mixture of Italian and perennial ryegrass (10 lbs of mixture/acre) or orchardgrass (8 lb/a) or tall fescue (12 lb/a). The latter two will yield slightly less this year but will survive and yield next year.

The problem with interseeding is that the drying rate of the interseeded species is different than alfalfa. Thus, when making haylage or hay (especially) some portions of the field will dry differently than other portions. This often leads either to high alfalfa leaf loss or to moldy spots in hay. Fields with large dead areas (more than 25%) should be targeted for turn down.

Sampling and Managing Soybean Cyst Nematode – It's Relevant

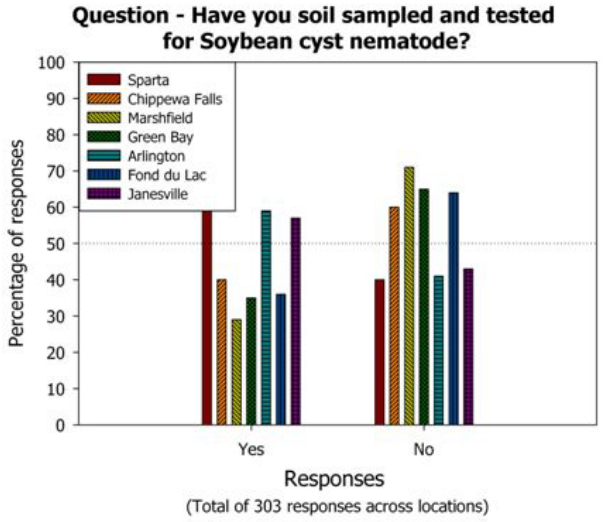
Paul Esker and Shawn Conley, Extension Field Crops Plant Pathologist and State Soybean and Small Grains Specialist

As we move into planting for the 2009 growing season, this is a perfect time to remind growers of the importance of soil sampling and testing for the presence and population of Soybean cyst nematode (*Heterodera* glycines; SCN) in fields.

Why relevant? During the 2008 Pest Management Update program, a clicker question was posed to participants if they had soil sampled and tested for SCN, the number one pest problem in soybean (Wrather and Koenning 2009). What do you think the results were? In southern Wisconsin, the percentage of people who indicated they had soil sample and tested for SCN approached 60%, but as we moved further north, this percentage was closer to 30% (Figure 1, next page). These numbers were disappointing, as we feel all growers should have their fields sampled and tested, especially since there is a free testing program sponsored by the Wisconsin Soybean Marketing Board.

Why is soil sampling for SCN so important? If SCN is found in your field, this does not imply that you cannot grow soybean, rather, this information is important to guide the decision making process for selecting a soybean variety resistant to SCN. Currently, there are different sources of resistance available, with those derived from PI 88788, Peking, or Hartwig (Cyst-X) in commercial varieties. At present, the majority of commercial varieties carry the PI 88788 source of resistance.

Figure 1. Percentage of survey participants during the 2008 Pest Management Update program who indicated they had soil sampled and testing for Soybean cyst nematode.



Furthermore, in an effort to improve our understanding of both the performance of soybean varieties carrying different sources of resistance and how these different sources of resistance affect SCN populations, new studies were established in 2008 at East Troy and Muscoda, WI. These Wisconsin trials were a part of a multistate project, funded by the North Central Soybean Research Program that has as its goals to improve the management and awareness of SCN and demonstrate the effects of SCN resistance on field populations during a single cropping season.

In these trials, long, replicated strip trials were established. At East Troy, strips measured 30 feet wide by 350 feet long (row spacing = 30”), while at Muscoda, strips measured 30 feet wide by 175 long (row spacing = 15”). Four sources of resistance were planted: susceptible check, 88788, Peking, and Hartwig. Soil samples were obtained just after planting at both locations (Pi), as well as just prior to harvest (Pf). Yield data were obtained at the end of the season. Observations were also made throughout the growing season for other factors that might influence yield, including insects, diseases, and abiotic stressors. At East Troy, little was noted, as conditions were favorable for production. At Muscoda, late season dry weather really hampered soybean productivity, and we also noted Charcoal rot (Esker et al. 2008).

What was learned? In general, the SCN egg population at our East Troy location was higher than at Muscoda. As such, each location was analyzed separately. There was no evidence that Pi levels of SCN were any different across the varieties at either location ($P < 0.10$) (Table 1). However, Pf egg counts were different depending on the source of resistance. Specifically, SCN egg populations increased the most on the susceptible variety. Also interesting was that at Muscoda even though yields were not different from one another, the SCN population increased throughout the season on the susceptible check and on the PI 88788 source of resistance. This is important because there are numerous interactions occurring between different soilborne organisms including SCN and it is important to manage the whole system. When examining the different sources of resistance, in general, final SCN egg levels were kept to levels similar to the initial populations. These observations were also noted for cysts and juveniles (data not shown).

Table 1. Initial SCN egg counts[z], final SCN egg counts, and grain yield (adjusted to 13%) for long strip trails established at East Troy and Muscoda, WI, in 2008.

	East Troy, WI			Muscoda, WI		
Source of resistance	Pi	Pf	Yield	Pi	Pf	Yield
Susceptible	8.40	10.03	43.4	2.00	5.06	37.2
88788	8.34	7.96	41.9	2.25	4.67	36.9
Peking	8.62	8.66	51.9	3.55	2.29	32.8
Hartwig	8.53	8.05	48.4	3.37	1.18	32.9
P-value	0.3841	<0.0001	0.0086	0.5753	0.0055	0.6930
LSD	NSD	0.305	4.42	NSD	1.665	NSD

[z]SCN egg count data were analyzed as a log(y+1) and are presented in the table as the least squares mean estimate count in log(y+1).

Looking ahead to 2009. In our first year of long strip trials, we found that when SCN is the dominant organism to manage, the use of resistance is a necessity. Even in situations where other factors decreased yield, the use of resistance was found to keep SCN egg populations lower than in the susceptible check and this would have implications for when soybean was planted again in that field. We cannot emphasize enough the need to take advantage of the free testing program, funded through the Soybean Checkoff, in order to determine if you have SCN in your field. To obtain a free soil sample test kit please contact Colleen Smith at clsmith8@wisc.edu or at 608-262-7702.

For further information on SCN and results from different trials:

Soybean Variety Testing Program: http://coolbean.info

Soyhealth: http://www.plantpath.wisc.edu/soyhealth

References:

Esker, P., Conely, S., Gaska, J., and Hughes, T. 2008. Charcoal rot – a disease of drought stressed environments. Wisconsin Soy Sentinel, Vol. 5, Issue 3, Page 16.

Wrather, A., and Koenning, S. 2009. Effects of diseases on soybean yields in the United States 1996 to 2007. Plant Health Progress doi:10.1094/PHP-2009-0401-01-RS.

Frost Injury to Alfalfa

Dan Undersander and Brian Hudelson

We are seeing some frost injury to alfalfa leaves. It appears as the misshapen leaf tips shown in the circles of the picture below. Frost can damage leaves in early stages of development and then damage becomes visible as the leaves mature. The frost injury is now becoming apparent. Usually only one or two sets of leaves are affected Note that leaves on the stem above the misshapen leaves (which developed later) look normal. This frost damage will have little to no affect on the alfalfa.

There is also some brown leaf spot on some of the leaves in the picture below. This, too, will likely be insignificant. If the leaf spot become more prevalent on the plant, it could be an indication of phoma and crown rot.

Picture 2, below, shows a slightly later stage where the next set of leaves have emerged since the frost damage occurred and do not show the wrinkling damage of the layer of leaves below.

If you have questions, please contact Brian Hudelson at the Plant Disease Diagnostic Clinic (http://www.plantpath.wisc.edu/pddc/index.html).

Don't Forget about Horseweed

Chris Boerboom, Extension Weed Scientist

I was visiting a no-till field yesterday and noticed a good stand of spring-germinated horseweed (marestail) (photo 1). Although this spring has been cool and some weeds are growing slower than typical, this is one winter annual weed that needs timely management and shouldn't be ignored. Horseweed is a bit unusual for a winter annual. Many winter annuals mature early in the spring/summer and their competition is limited. For example, the shepherd's purse right next to this horseweed was already flowering and will mature and die in early June even if it is not controlled. However, this horseweed will continue to be competitive with soybeans through the whole summer (photo2).

Horseweed is controlled in most no-till fields with the burndown treatment. However, I know some people plan on "delayed" burndowns in no-till soybean fields. The "delay" is to combine the burndown treatment with the postemergence glyphosate treatment. This certainly saves an application, but there is a risk with horseweed. By the time this "delayed" application is made, the horseweed is likely to be much larger and more difficult to control. The standard recommendation for seedling and rosette horseweed control is glyphosate plus 2,4-D ester. As horseweed stems start to elongate, they become more difficult to control. Horseweed that is 4-6 inches tall can be still be controlled, but the glyphosate rate should be increased to 1 lb ae/a (48 oz of a 3 lb/gal formulation) along with 2,4-D. After horseweed exceeds 6 inches tall, it becomes difficult to control and the glyphosate rate should be increased to 1.5 lb ae/a.

Obviously, 2,4-D can only be used preplant in soybeans. This means that larger horseweed targeted with "delayed" glyphosate will be relying on only glyphosate for control in the soybeans. The resulting horseweed control may not be at a satisfactory level. 2,4-D has a second benefit in this situration. In addition to improving the consistency of horseweed control, 2,4-D adds a second mode of action that should delay the development of glyphosate-resistant horseweed. A key limitation with 2,4-D is that it must be applied 7 days before planting soybeans. If this interval is not available between the burndown treatment and soybean planting, Gramoxone plus Sencor is effective on the seedling and rosette stage. Herbicides with the ingredients of Classic (chlorimuron) or FirstRate (cloransulam) are also options to use with glyphosate. While ALS-resistant horseweed exists in other states, I am not aware of any in Wisconsin at this time that would make chlorimuron or cloransulam inefffective.

Photo 1. Horseweed seedlings in no-till.

Photo 2. Mature horseweed plant.

UW-Extension/Madison Plant Disease Diagnostic Clinic (PDDC) Update

Brian Hudelson, Ann Joy, Amy Gibbs, and Brooke Weber,
Plant Disease Diagnostics Clinic

The PDDC receives samples of many plant samples from around the state. The following diseases/disorders have been identified at the PDDC since April 22, 2009 >>>

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.

PLANT/SAMPLE TYPE	DISEASE/ DISORDER	PATHOGEN	COUNTY
SOILS			
Soybean Soil	Soybean Cyst	*Heterodera glycines*	Rock, Trempealeau
VEGETABLES			
Potato	Fusarium Dry Rot	*Fusarium sambucinum*	Portage
	Hollow Heart	None (Physiological)	Portage