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What's new!

WSMB Offers Free Soybean Cyst Nematode Testing

Shawn Conley, Paul Esker, and John Gaska

The UW-Madison Agronomy Department, in cooperation with the Wisconsin Soybean Marketing Board, is again offering free soybean cyst nematode (SCN) soil testing for Wisconsin growers. This program is intended for growers to sample several of their fields in order to identify if SCN is present and at what levels. Growers will be responsible for collecting soil from fields suspected to have SCN and then sending the sample to the SCN testing laboratory for analysis. They will receive a lab report back with the SCN egg count and a brochure to help plan future rotations and other cultural practices to lower SCN infestation if they exist.

We have a limited number of these free kits available and will furnish them on a first come - first served basis at up to four per farm. Crop consultants, advisors, and crop input retailers are encouraged to request kits for their client's farms. Each kit has a bag and a prepaid mailer for one soil sample, which should represent about 10-15 acres. Both the postage and lab fees are prepaid. Anytime before, during, or right after the growing season are great times to collect soil samples for routine soil fertility analysis and for SCN monitoring.

Soil sample test kits are available now and can be requested from Colleen Smith at clsmith8@wisc.edu or at 608-262-7702.

For more information on SCN testing and management practices to help reduce the losses from this pest, please contact: Shawn Conley: spconley@wisc.edu; 608-262-7975

Application techniques Fact Sheet for boom sprayers

Roger Flashinski, Pesticide Applicator Training Program

A new fact sheet, *Field Pesticide Application Techniques in Wisconsin*, provides guidance to applicators on tips and recommended practices when spraying cropland with boom sprayers. Although it's written with emphasis towards the commercial applicator, it covers spraying situations that every applicator, private or commercial, will face: making the opening rounds, spraying into corners, the importance of pattern and swath overlap, spraying around waterways, and spraying irregular shaped fields. The fact sheet's primary audience is for beginning and inexperienced applicators who are just learning how to spray.

The seven page fact sheet contains numerous illustrations and diagrams. It is authored by Chris Boerboom, UW-Extension Weed Scientist, and Roger Flashinski, UW-Extension Pesticide Applicator Training program, is available for download in PDF format from http://ipcm.wisc.edu/pat (click on the **Downloads** tab).

Ready to Tackle Lambsquarters?

Chris Boerboom, Extension Weed Scientist

The common lambsquarters season is almost here. Are you ready? It may seem odd to discuss the growing season as a lambsquarters season, but most if not all fields in Wisconsin have common lambsquarters. So, everyone will deal with lambsquarters, one way or another.

Common lambsquarters control in Roundup Ready soybeans seems to be a common concern for many growers, agronomists, and consultants. Control has been good in some years and inconsistent in other years. Some reasons suggested for inconsistent lambsquarters control include spraying larger plants (which happens in WI) or using low glyphosate rates, stem boring insects, rain after glyphosate applications, and even dusty plants. Lambsquarters with variable sensitivity to glyphosate have also been noted by many researchers although there are no reported cases of lambsquarters with higher levels of glyphosate-resistance.

When planning your management of lambsquarters for this season, a review of a recent research study from Indiana and Ohio might be useful. This study was conducted at four farms with histories of lambsquarters with reduced glyphosate control. Three of the five on-farm trials were conducted under no-till and the other two were managed with chisel-till. The management options tested were 1) skipping a burndown, 2) using glyphosate + 2,4-D as a burndown, and 3) using glyphosate + 2,4-D plus Gangster as the burndown. The glyphosate rate was 22 oz/a of WeatherMax and the Gangster rate was at 2.4 oz/a. These treatments were followed with one or two postemergence passes of 22 or 44 oz/a of WeatherMax.

<u>Key results</u>

1. A residual herbicide added to the burndown treatment reduced the number and size of the lambsquarters when the first postemergence glyphosate treatment was sprayed (Figure 1). The lambsquarters density was reduced by over 85% and the remaining seedlings were all less than 3 inches tall when they were sprayed postemergence. These smaller lambsquarters should be easier to control when sprayed postemergence with glyphosate.
2. Any burndown treatment increased the level of lambsquarters control provided by an early postemergence treatment of glyphosate compared to when the burndown treatment was skipped (Figure 2). When the burndown treatment was skipped, lambsquarters control was only 66% after the early postemergence glyphosate treatment (22 oz/a), but control increased to 81% after the glyphosate + 2,4-D burndown treatment and 99% after the burndown treatment that included the residual herbicide Gangster.
3. Following the residual herbicide, the researchers were able to delay the postemergence glyphosate treatments by 10 to 14 days while maintaining this high level of control. In Figure 2, this is highlighted as a mid-post timing. The other postemergence treatments started with an early postemergence timing. This added time for application has implications for protecting soybean yield against early season weed competition.
4. These tough lambsquarters (fields with previous histories of reduced control) were 4 to 8 inches tall when they were sprayed without a burndown treatment or after the glyphosate + 2,4-D treatment. In these fields and with lambsquarters this tall, lambsquarters were controlled better when the higher rate of glyphosate was used

Figure 1. Number and size of lambsquarters when sprayed postemergence with glyphosate

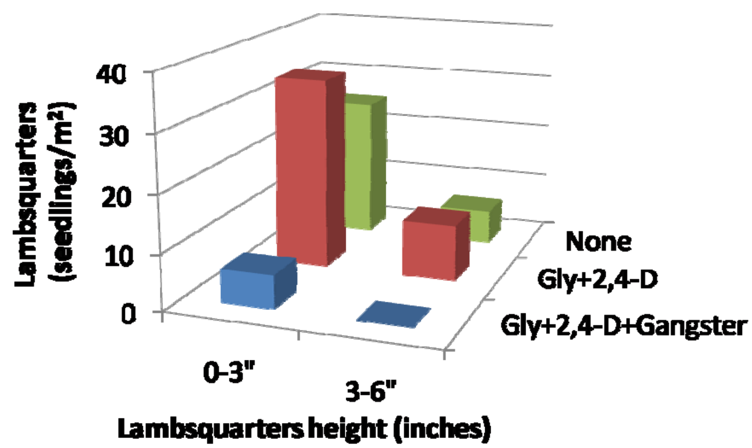
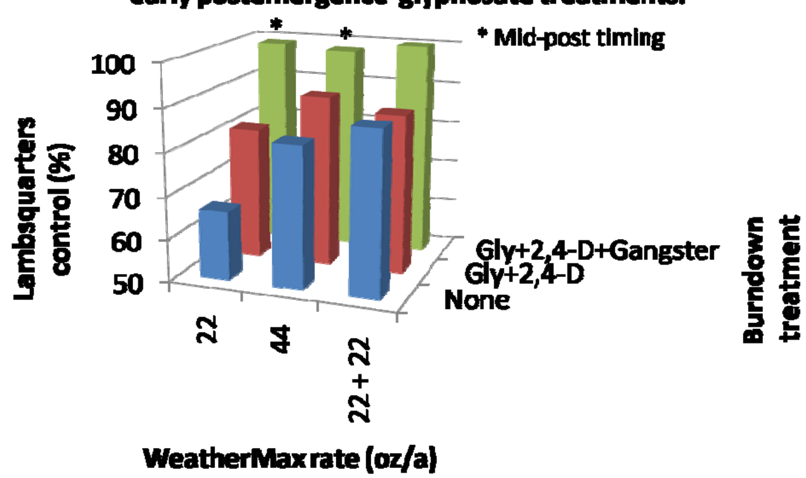


Figure 2. Lambsquarters control with burndown and early postemergence glyphosate treatments.



compared to the standard rate (83 vs 61% with no burndown and 90 vs 81% when following glyphosate + 2,4-D burndown; Figure 2). However, a higher rate of glyphosate was not needed when following the residual herbicide. Control was 99 and 98% with either the standard or higher glyphosate rate.

5. Two applications of a standard glyphosate rate (22 + 22 oz/a) provided similar control to a single higher rate (44 oz/a) except when a residual herbicide was used (Figure 2). Following the residual herbicide, a single glyphosate application was as effective as two glyphosate applications (99 vs 100%). An early 44 oz/a glyphosate application followed by a later 22 oz/a glyphosate application was needed to obtain control equal to the control when the residual herbicide was followed with a single postemergence glyphosate application (95 and 97% control with 44 oz/a followed by 22 oz/a with no burndown or after the glyphosate + 2,4-D burndown, respectively; data not shown in figure).

Hopefully, these results highlight a couple important considerations when managing common lambsquarters, especially the need to use a burndown treatment and the value of a preemergence residual herbicide in the system. Remember, this study was conducted on “tough” lambsquarters, but we may be facing similar lambsquarters in some of our Wisconsin fields too.

Source: Westhoven and others. 2008. Management of glyphosate-tolerant common lambsquarters (*Chenopodium album*) in glyphosate-resistant soybean. Weed Technology 22:628-634.

Corn plant density for maximum grain and silage production

Joe Lauer, UW Corn Agronomist

The plant density that maximizes corn grain and silage yield has been increasing through time. The economic optimum plant density is a function of corn yield and quality responses, seed cost, and grain or silage price. The economic plant density is lower than the plant density that maximizes yield.

Plots were established at the UW-ARS at Arlington from 2000 to 2008. These plots were 8 rows wide by 25 feet long. Four rows were harvested for silage and the remaining 4 rows were harvested later for grain. The target plant densities varied by year and ranged from 14 000 to 56 000 plants/A. Adapted, high-performing hybrids were selected using results from the UW Corn Trials and varied for relative maturity (full- and shorter-season). Milk per Ton and Milk per Acre were estimated using Milk2006. The treatment (hybrid x plant density) mean that maximized the measure within a year was set to 100%. The results in Figure 1 were summarized across all hybrids and the relationship between various measures and plant density was estimated using regression models at 20 000, 26 000, 32 000, 38 000, 44 000, and 50 000 plants per acre.

Maximum grain yield was measured at 38 000 plants/A. The relationship increased to a maximum and then decreased as plant density changed. In agronomic research, it is very difficult to measure grain yield differences less that 5%. So, grain yields within 5% of the maximum grain yield were measured at plant density above 28 000 plants/A.

Maximum forage yield was measured at 44 000 plants/A and was within 5% of the maximum when plant densities were above 30 000 plants/A. Forage quality as measured by Milk per Ton decreased linearly from a maximum at 20 000 plants/A, but was within 5% of the maximum across the range of plant densities measured. Maximum Milk per Acre was measured at 41 000 plants/A and was within 5% of the maximum at 28 000 plants/A. These results are a good example of the trade-off that exists between forage yield and quality, i.e. the plant density that maximizes Milk per Acre is intermediate between plant densities that maximize forage yield and Milk per Ton.

Plant densities that maximize grain and forage yield are higher than currently recommended plant densities. These results indicate that the plant density that maximizes forage production is about 3000 plants/A higher than the plant density for maximizing grain yield. The economic optimum plant density is lower than the plant density required to maximize grain or forage yield. The economic optimum plant density is likely different between farms and fields within farms.

Adjusting plant density is probably one of the best ways to move off current yield levels. Begin by planting a field to what you think is the optimum plant density and at two or three places (rounds) in the field, increase your population by 10%. For example, if you currently plant at 30 000 plants/A, do so for the majority of your field, but in two or three rounds increase the population to 33 000 plants/A. Measure yield at the end of the season and during the season watch for "runt" plants, tillering, prolific versus ear bareness on plants, big versus small ears, ear tip "nose-back" and plant lodging. Adjust the field accordingly the following year.

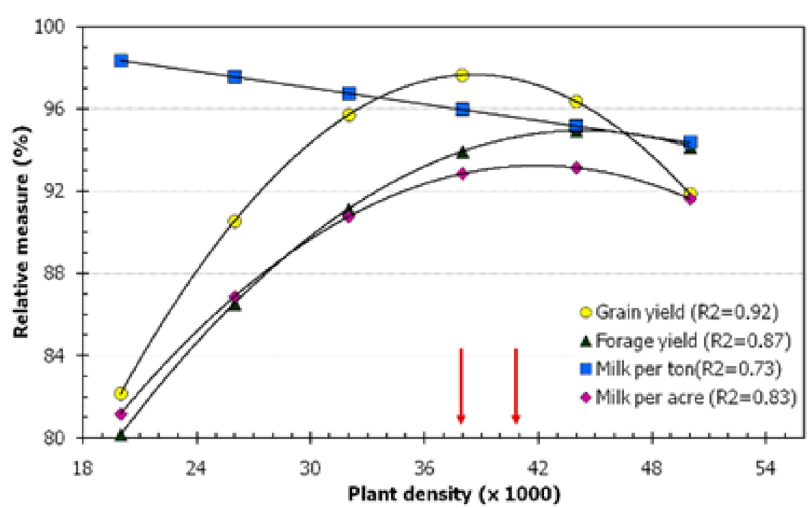


Figure 1. The relationship between plant density and grain yield, forage yield, Milk per Ton and Milk per Acre during 2000-2008 (n= 447 plots) at Arlington, WI.