

Wisconsin Crop Manager

Volume 19 Number 26 - - - University of Wisconsin Crop Manager - - - September 13, 2012

What's New

First Announcement for the 2013 Wisconsin Corn Conferences..... 91

Crops

Harvest Considerations for Variable Soybean Maturity 91
Drought Induced Shatter 92

Weeds

A review of glyphosate use for preharvest weed control..... 92

First Announcement for the 2013 Wisconsin Corn Conferences

Joe Lauer, Corn Agronomist

Hold the dates of January 22-24, 2013 for the Wisconsin Corn Conferences

Profitable corn production is extremely important to Wisconsin agriculture. Farmers today must be well informed about new technologies to be profitable. These Corn Conferences are designed to provide technical insight, practical advice and interaction with university and industry experts and fellow growers. Watch for a conference coming to a town near you.

Harvest Considerations for Variable Soybean Maturity

Shawn Conley, Soybean and Wheat Extension Specialist

Variable soil types, knolls, and drought have left some growers with extreme in-field variability of soybean maturity. There are areas in fields where the soybean seed is 13% or less moisture adjacent to areas with green seed. The prevailing question is "When should the grower harvest?" Obviously there is no simple answer, as each field is different. However here are a set of guidelines to consider:

1. The easiest answer is harvest the field at two different times. Take what is dry today and come back in two weeks and harvest the rest. The challenge with this approach is that today's equipment is large and not

easily moved from field to field. Furthermore many growers rent or own land over large areas where this is impractical and the whole field must be taken at once. So.....

2. The next simple answer is wait until the whole field is ready to go. As noted in our article [Drought Induced Shatter](#), we are seeing areas across the Midwest where shattering is occurring. The general rule of thumb is 4 seeds per square foot = one bushel yield loss. At local cash prices surpassing \$16.00 per bushel this is hard to see happen and not harvest. Furthermore, waiting will also lead to moisture loss in the field. As we learned last year, you do not get compensated for harvesting below 13% moisture. So.....
3. If growers are concerned with shatter and/or other harvest losses the next logical approach is harvest ASAP. This opens a whole new can of worms. Harvesting ASAP will lead to a mixture of dry, wet, and immature (green) soybean seed. Be aware that if you harvest this mixture regardless of the ratio, your combine moisture sensor may not detect the correct moisture, be prepared for that initial shock when the elevator tests the grain. Next be prepared for the dockage. Most combines will leave more beans in the pod when they are wet or immature. These beans may end up on the ground or in the grain tank as unthreshed soybeans. Harvesting seed with this variability will be very similar to handling frosted soybean seed so discounts may occur due to moisture shrink, damage (green beans are considered damage), foreign material (this is usually higher when harvesting wet beans), test weight, and heating. If you choose on farm storage to address some of the dockage concerns please refer to [Soybean Drying and Storage](#) for questions.
4. The last consideration I would bring forward is that the mature areas are likely going to be the low yielding pockets due to drought whereas the yet to mature areas will likely be the higher yielding areas within the field. So, in short, which yield environment would you rather focus your time and efforts to protect?

The question ultimately comes down to the bottom line and where you make the most \$\$\$.

If shatter is not occurring and you have good equipment that does not incur significant harvest loss, will harvesting grain that is over-dry make you

more money than harvesting seed that may incur significant dockage? My guess is yes but you tell me!



Image 1. Variable Maturity (M. Rankin)



Image 1. Open Pod with Exposed Seed



Image 2. Curled Pods Post Shatter



Image 3. Shattered Seeds on the Ground

Drought Induced Shatter

Shawn Conley, Soybean and Wheat Extension Specialist

The drought of 2012 continues to introduce new issues even as we progress into R7 (beginning maturity) soybean. Reports out of SW WI and verified at our Lancaster research site show drought induced shattering localized in the upper pods (Images 1 and 2 below). This issue is mainly occurring in the early maturity group soybeans and is being noted in other states. I have two running hypothesis for this phenomenon. The first hypothesis that Emerson Nafziger (University of IL), Seth Naeve (University of MN) and I agree on is (and I will quote Dr. Nafziger)...

“Preharvest shatter is an issue here with early-maturing beans – the ones that were already at R7 before it rained a lot the first days of September. Those would not have added any more weight to speak of, but they might have swelled with the rain. Dew has been heavy the last week or so as well, and rewetting and drying has occurred on a daily cycle. We’ve seen before that drought conditions during pod development simply result in weak pod sutures, and when pods (and beans, maybe) rewet after they’ve dried, they simply open more easily.” My second hypothesis is that this is a drought induced mechanism of survival or seed dispersal. This is less plausible given “that soybeans have had their natural tendency to shatter beaten out of them as much as possible by breeders”. However given the severity of the drought coupled with shatter timing (pre-R7) it may be a possibility.

Regardless of cause shatter can significantly impact yield especially if it begins weeks prior to harvest ripe (Image 3). As a general rule of thumb a loss of 4 seeds per square foot equals one bushel per acre yield loss. I have yet to reach an average of 4 seeds per square foot in my research plots however if you are concerned and are questioning harvest timing to minimize shatter in your early maturity group soybeans please see [Check Combine Settings to Minimize Soybean Harvest Loss.](#)

A review of glyphosate use for preharvest weed control

Vince M. Davis, Extension Weed Scientist

Late-season weed escapes are very prevalent in corn and soybean fields this year. Poor residual herbicide activation and poor postemergence herbicide efficacy is part of the reason. Additionally, and perhaps more importantly, poor crop canopy

development and late-season rainfall encouraged large weed flushes much later this year. In some cases, weed densities are quite high and a preharvest herbicide application may help limit seed production of some annual weed species and improve the efficiency of harvest operations. This will be particularly true where thick grassy weeds or lots of large broadleaf weeds like giant ragweed, common lambsquarters, and velvetleaf are in soybean fields.

We've already received a couple questions regarding preharvest applications of glyphosate in soybean. First, there are a couple other herbicides besides glyphosate, like paraquat and carfentrazone, which could also be used in this manner. Paraquat (Gramoxone Inteon) and carfentrazone (Aim) are both contact herbicides. The advantages of these products versus glyphosate will be faster desiccation of weeds. However, proper nozzle selection to deliver appropriate droplet sizes and higher carrier volumes will be very important. Additionally, carfentrazone has a much narrower weed spectrum than glyphosate or paraquat. For more details regarding the preharvest use of carfentrazone or gramoxone products, please read and follow the directions accordingly. However, we get many more questions about how to use glyphosate as a preharvest aid so I will try to elaborate a little further.

There are too many glyphosate formulations for me to know them all, so the most important message is to read and follow the herbicide label for the specific product you are using. But, I'll give you some 'cliff notes' that are important to know. Unlike paraquat and carfentrazone mentioned above, glyphosate is a systemic herbicide. A systemic herbicide translocates to the growing point once it is inside the plant. This movement typically happens with the phloem of the plant (i.e. with the 'food' for the plant), and we call this movement 'source to sink'. In many ways, this movement is an advantage over contact herbicides because it is the new growth of the plant you most want to terminate. I went through that very brief lesson on herbicide action to make a very important point when it comes to using glyphosate as a preharvest aid, and that is; appropriate timing is very important.

Preharvest applications can be made in corn, but I know it is more common in soybean so I will focus on that crop. It is illegal to spray glyphosate after full bloom (R2) until soybean pods have lost all their green color. Why, because between R2 and R8 the soybean plant is developing seed. As the seeds develop, they are a 'sink'. Technically, the R8 growth stage is the final growth stage call 'full maturity'. Full maturity is defined as 95% of the pods having lost green color and is usually 5 to 10 days before the field is ready to harvest. However, the glyphosate label reads (as I've already stated) that **preharvest applications should be made after ALL pods have lost green color**. Also note, you should not make preharvest applications to beans used for seed because a reduction in germination or vigor may occur. Applications made too early in pod maturity run greater risk of glyphosate being translocated into the seed tissue resulting in illegal residues in the seed.

On the flip side, **there is a required preharvest interval for grain of 14 days between a glyphosate application and harvest of glyphosate-resistant (Roundup Ready and**

Roundup Ready 2 Yield) soybean. Moreover, because glyphosate often takes some time to 'work' it may take near those 14 days before complete activity will be achieved. So, in order to have time for the weeds to desiccate to the maximize amount, and to avoid excessive shattering from delayed harvest, it is imperative to scout fields closely in the final days of maturity to time the application correctly. This will be an even greater challenge in fields that reach maturity very un-uniformly this year due to the variable field moisture conditions.

Now for some good news, because of the translocation effect of glyphosate is from source to sink, in annual weed species that are setting seed glyphosate may help to significantly reduce the number of viable seeds following the preharvest application, versus no application at all. At this point in the season the application can't reduce biomass, or save the production of yield, but could limit the size of future weed problems. Moreover, a glyphosate application will have much greater efficacy on any biennial and perennial weed species like thistles, quackgrass and common dandelion because their active 'sink' in the fall is the root system. So, a preharvest application will also reduce populations of those weeds more than an application of a contact herbicide.

How much glyphosate and adjuvant to use at a preharvest application? Rates and surfactants should be added according to the label for each specific glyphosate product. In the case of Roundup PowerMax, no additional surfactant is needed. The rate for a preharvest application on Roundup Ready and Roundup Ready 2 Yield soybean is 22 fluid oz/a.

Maximum Application Rates of Roundup PowerMAX on glyphosate-resistant soybean	
Combined total per year for all applications	5.3 quarts per acre
Total of all Preplant, At-Planting, Preemergence applications	3.3 quarts per acre
Total of all in-crop applications from cracking through flowering (R2 state soybeans)	64 fluid ounces per acre
Maximum preharvest application rate	22 fluid ounces per acre

Hopefully this helps with making properly timed and legal preharvest glyphosate applications where deemed beneficial.

