Wisconsin Crop Manager

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Contents

Planting Date and Maturity Group Considerations Moving into a Potentially Early Spring 2017

Dr. Adam Gaspar and Dr. Shawn P. Conley

Early May planting in Wisconsin has been documented to increase yield due to increased light interception (Gaspar and Conley, 2015). Earlier planting dates are able to increase light interception in two ways, which are both demonstrated in Figure 1. First, the reproductive growth period between R1-R6 occurs during longer days with the May 1st (Green line) compared to June 1st (Orange line) planting date. Secondly, the time spent in the R1-R6 growth stages is increased with the earlier planting date. As Figure one shows, the May 1st planting date spent ~60 days from R1-R6 compared ~45 days for the June 1st planting date. Therefore, early plated soybeans experience both longer duration in reproductive growth (more days) and reproductive growth during the longest days of the summer.

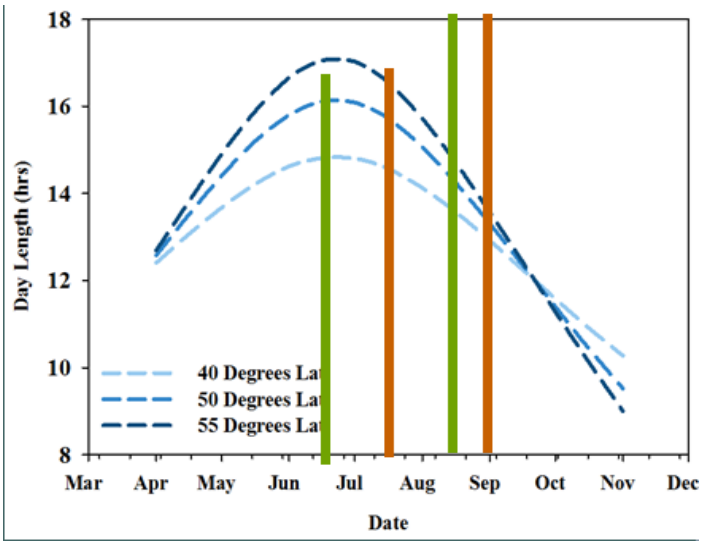


Figure 1. Blue lines represent day length at various latitudes. Most WI soybeans are grown between 43 and 45 degrees latitude. The vertical lines represent the time spent from R1 through R6 for May 1st (Green Lines) and June 1st (Orange Lines) planting dates. WI soybeans are mainly grown between 43 and 45 degrees latitude.

Yet, in some instances (weather or logistical problems) planting can be delayed or replanting may be needed. Therefore, investigating the effect of different MG's at multiple planting dates across the state would be useful. Thus, DuPont Pioneer and the Wisconsin Soybean Marketing Board funded a 3-year study to examine proper MG selection at 5 different planting dates across the state to maximize yield. So let's look at the 2014-2016 data.

Trials were conducted at Arlington, Hancock, and Spooner, WI. The five planting dates at each location were planting roughly on: (1) **May 1st,** (2) **May 20th**, (3) **June 1st**, (4) **June 10th,** and (5) **June 20th.** Planting after June 20th is generally not recommended in WI. Two

Table 1. Maturity Group's tested within each location and planting date.

Planting Date		Arlington	Hancock	Spooner
1 (May 1th)		2.5, 2.0, 1.5	2.5, 2.0, 1.5	1.5, 1.0, 0.5
2 (May 20th)		2.5, 2.0, 1.5	2.5, 2.0, 1.5	1.5, 1.0, 0.5
3 (June 1st)		2.0, 1.5, 1.0	2.0, 1.5, 1.0	1.0, 0.5, 0.0
4 (June 10th)		2.0, 1.5, 1.0	2.0, 1.5, 1.0	1.0, 0.5, 0.0
5 (June 20th)		1.5, 1.0, 0.5	1.5, 1.0, 0.5	0.5, 0.0, 00.5

varieties within each realistic MG from a 2.5 all the way down to a 00.5 were tested depending upon the location and planting date and are displayed in Table 1.

We will start with the easy and redundant part, get your soybeans in the ground ASAP to maximize yield. This is very evident again in this trial as shown in Figure 2 and 3. If the soil is fit, soil temps are near 50 ˚F, and the forecast is favorable….. get that soybean planter rolling! As you would expect we found some very interesting synergies between early planting and longer MG's. Figure 2 contains MG 1.5 soybeans which at the May 1st planting date only achieved ~85% of max yield. Figure 3 contains the longest maturing soybean varieties (>1.5) for each location where soybeans reached 99% of max yield, with May 1st planting. Furthermore, as planting is delayed, the earlier MG bean's (Figure 2) do not show a quick and dramatic yield decline compared to the later maturing beans (Figure 3). Therefore, those that may have not experienced yield loss from delayed planting are likely planting varieties from a MG too short for their respective area. **Clear yield synergies are demonstrated in Figure 2 and 3 from planting early and using a longer MG soybean variety. Both management practices add no additional cost, meaning any yield increase is direct profit.**

Table 2 agrees with the conclusion from Figures 2 and 3, that early planting and longer maturity groups maximize yield. However, due to no significant MG effect at the Spooner location, the synergy of early planting and longer MG's, may not be as consistent in Northern WI where the growing season is condensed. Planting date 5 at Arlington and Hancock was not significant for MG effects, but the longest MG planted there still yielded the highest numerically. This was also the case at Spooner, but the 0.5 MG significantly out yielded the 0.0 and ultra-early 00.5 MG varieties.

These results suggest planting a portion of your acres to slightly longer MG than normal within May can result in greater yields with no additional dollars spent. In addition, when planting is delayed into June, switching to a variety much more than 0.5 MG earlier than a full season variety (2.5 MG) may limit yield potential. However, if

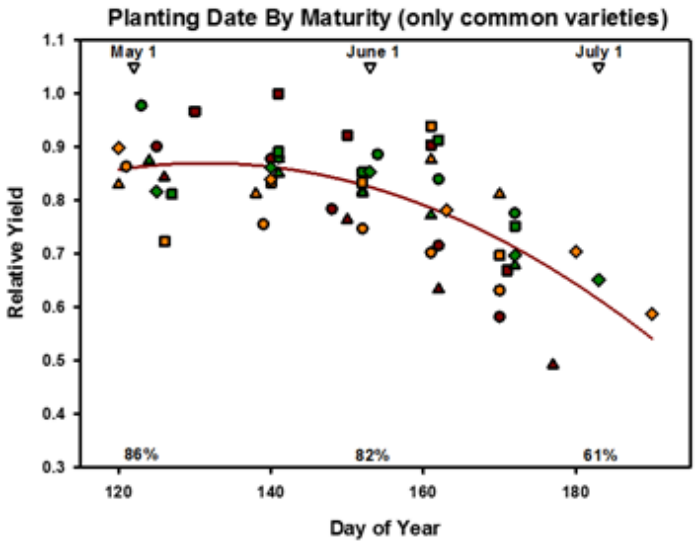


Figure 2. Yield of planting date from May 1st (120) into June of 1.5MG soybean varieties.

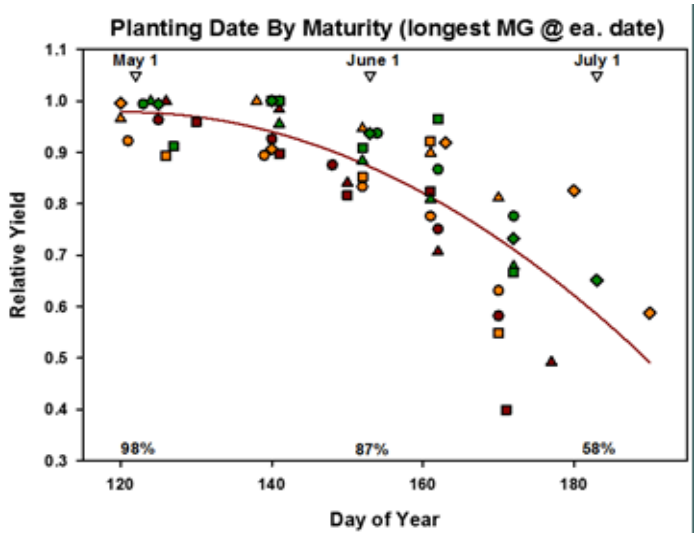


Figure 3. Yield of planting date from May 1st (120) into June for longest maturing soybean varieties at each location.

Table 2. Effect of Maturity Group on Yield tested within each location and planting date, during 2014, 2015, and 2016

Planting Date		Arlington	Hancock	Spooner
1 (May 1th)		**2.5**	**2.5**	1.5
2 (May 20th)		**2.5**	**2.5**	1.5
3 (May 30th)		**2.0**	**2.0**	1.0
4 (June 10th)		2.0	**2.0**	0.5
5 (June 20th)		1.5	1.5	**0.5**

The numerically highest yielding MG for each planting date and location. MG that are bold and colored red were significantly higher at the $P \leq 0.10$

planting is delayed until mid to late June or more likely replanting is needed, a variety that is at least a full MG earlier should be considered to avoid fall frost damage.

In conclusion, early planting is critical for higher yields through increased light interception, and can be further maximized by planting longer MG's. However, variety selection heavily based upon the MG is not the "silver bullet" for increasing yields. Yet, it does provide a strong "potential" for higher yields with no additional dollars spent, especially in early planting situations. **Therefore, growers should give consideration to MG when selecting varieties, but past local and regional performance, disease package, scn-resistance, etc. should also strongly be considered.**

References:

Gaspar, A.P. and S.P. Conley. 2015. Responses of canopy reflectance, light interception, and soybean seed yield to replanting suboptimal stands. Crop Sci. 55:377-385.

Bulk Ordering Pest Management in Wisconsin Field Crops (A3646)

Bryan Jensen, IPM Program and UW Extension

Bulk ordering (A3646) Pest Management in WI Field Crops-2017 is now possible through The PAT Store website https://patstore.wisc.edu/secure/browse_cat.asp?category_id=39 at a discounted rate of $10/book if ordered by the box (25/box) + $10/box flat rate shipping. Single copies can still be purchased at $30/book +$1.65 handling or downloaded from the PAT store for free.

Pest Management in Wisconsin Field Crops is updated annually and contains both general and specific pest management recommendations for corn, soybean, forages, small grains and stored grain. Including rates, remarks and performance data for pesticides.

Hay Desiccants and Preservatives

Dan Undersander, UW-Extension Forage Agronomist

Hay preservatives can reduce the spoilage and heating losses from hay baled wetter than optimum.

First, it is important to recognize that two totally different types of products with different modes of action are sold: one is a **desiccant** which is a compound applied to the hay at cutting to increase drying rate and the other is a **preservative** which is applied to hay as it is baled to allow baling of wetter than normal hay without spoilage during storage. Both products are usually applied through a spray system, either on the mower (for desiccants) or on the harvesting equipment (for preservatives).

Potassium or sodium carbonate are effective desiccant's. These compounds disturb the waxy cuticle of the alfalfa stem to allow it to dry faster. Desiccants work only on legumes such as alfalfa, trefoil, and clovers, not on grasses. Effectiveness varies with climatic conditions. Desiccants reduce drying time most when drying conditions are good. Thus, they tend to work better on second and third cuttings in Wisconsin. They are seldom used due to the large volume of water that must be applied along with the desiccant.

Preservatives are applied to the hay as it is harvested to prevent heating and spoilage of hay baled at higher than 14 to 18% moisture content. Preservatives are cost effective if used only when needed to prevent rain damage to hay and if applied uniformly to windrow as it is entering the baler. The most effective preservatives for alfalfa are organic acids, primarily propionate (propionic acid) and acetate (acetic acid).

Any preservative containing a high percentage propionate (propionic acid) will be effective. Use of ammonium propionate (also called buffered propionic acid) rather than propionic acid is recommended because the product is less caustic – therefore safer to handle and less corrosive to machinery. When purchasing preservatives, compare cost on a per pound of propionic acid basis. Other additives do little if anything to preserve hay. Hay preservative products that dilute the propionic acid require greater product use rates.

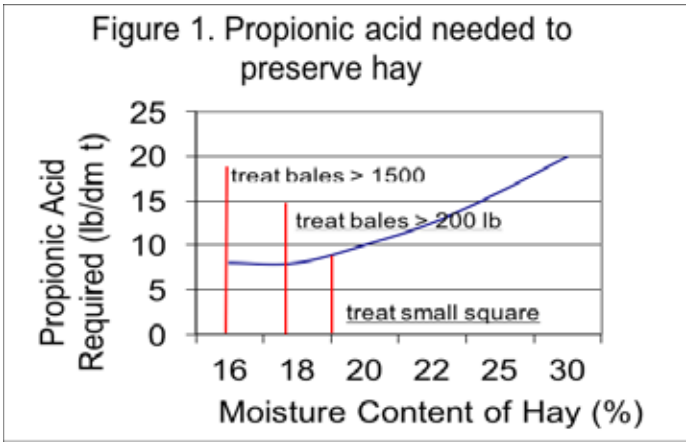
Rates of propionic acid required to preserve hay vary with the moisture content of the hay. As indicated in Figure 1, the amount of propionic acid required varies from 8 lb/dm ton for hay with less than 18% moisture to 20 lb/dm ton for hay with over 25% moisture. Note that rates are for pounds of propionate not product. Therefore, a product with 50% propionate would need to be applied at twice the above rates.

Acetic acid is about half as effective as a preservative and therefore requires twice as much product for equal preservation.

Use of preservatives for hay above 35% moisture is not recommended.

Anhydrous ammonia is an effective preservative for grasses. It can be injected into bales or released into a

Figure 1. Propionic acid needed to preserve hay



stack of bales covered and tightly sealed with plastic. Ammonia should be applied at the rate of 20-40 lbs/ton with higher rates used for hay near 35% moisture and lower rates used when moisture is near 20%. Anhydrous ammonia should not be used as a preservative on alfalfa because the additional nitrogen is of little benefit to animals and toxic chemicals can form in the hay.

No microbial hay preservatives have been shown to be effective in preserving hay.

Preservatives should not be necessary when making baleage (plastic wrapped bales) since the oxygen is necessary for mold growth and the plastic should prevent oxygen from entering the bale.

For more information from Team Forage, click here.

Cutting Alfalfa Very Frequently

Dan Undersander, UW-Extension Forage Agronomist

There has been some interest in cutting alfalfa frequently to get very low fiber for dairy rations. We had a study in 2000 and 2001 where we compared 20 alfalfa varieties with and without wheel traffic. We cut at 21-day and at 35-day intervals. The yield data averaged across the varieties is presented in the table below. In the seeding year, we saw 33 to 51% yield reductions and, in the first production year, about 50% yield reductions.

The study was not continued beyond the first production year because the 21-day alfalfa varieties with 21-day cutting interval died out the next winter while the same varieties with 35-day cutting intervals came through the winter in good shape.

There did not appear to be any significant differences among the varieties in tolerance of the more frequent cutting.

Thus, as farmers are thinking of the shorter cutting intervals to reduce fiber content of the forage, we should keep the 50% yield reductions and expected shorter stand life in mind. It is difficult to believe that the economics of this practice will be beneficial to the farmer.

For more information from Team Forage, click here.

Table 1. Effect of Cutting Frequency on Alfalfa Yield, Arlington, WI

Management	Seeding Year		First Production Year	
	21-day cutting interval	35-day cutting interval	21-day cutting interval	35-day cutting interval
	---------- Yield (t/a dry matter) ----------			
No traffic	2.9	4.3	3.9	7.3
Reduction (21 vs. 35 days)	33%		47%	
With wheel traffic	1.8	3.7	3.2	6.6
Reduction (21 vs. 35 days)	51%		52%	

The Seed Variety Database is Now Live

Badgerbean is proud to introduce a grower-generated database that will allow you to look up seed varieties with identical genetics.

We designed this tool for farmers across the country to help each other find the Seed Varieties they need, when they need them, at the best possible price.

Please take a few moments to locate the Variety Lookup tab at the bottom of the badgerbean homepage. Just enter your Seed Variety ID to check if it is already part of the database. If it is, you're done.

If your Seed Variety ID is not yet in the database, please add the information requested—by Variety ID, Company and Brand. **Your submissions to the database are—and will remain—anonymous.**

The database will identify seeds with identical genetics by Variety ID, regardless of the company or brand name. This means you may find favorable differences in price among companies and brand names. You may also be able to locate a seed variety you like that a distributor you use no longer carries.

The More Farmers Who Fill the Database, the Better.

This tool benefits all farmers and should reduce the confusion among seed companies and brand names. It will also help farmers know for sure they are diversifying genetics across their farm.

As with anything new, there are two important disclaimers to keep in mind.

First: Two genetically similar varieties may not perform the same side by side in the field due to differences in environmental conditions and management practices among seed production fields. How the seed is handled and processed between the time of harvesting in the seed increase field and planting in a grower's field also influences overall seed quality, which in turn can affect the performance of two varieties that genetically are the same.

Second: This information in this database is added by farmers like you and collected at random. This means not all varieties that are the same as other varieties may be listed. What's more, some varieties listed may no longer be sold commercially.

Wisconsin Fruit News, Issue 1

Janet van Zoeren, Christelle Guédot, and Amaya Atucha, University of Wisconsin – Madison, Departments of Entomology and Horticulture

Click here for the first issue of Volume 2's Wisconsin Fruit News.

In it you will find information about:

- Insecticide Update
- Plant Disease Diagnostic Clinic update
- Insect Diagnostic Lab update
- Pest alert: Blueberry maggot
- Cranberry degree-day map and update
- Brown marmorated stink bugs and grapes
- Sudden Apple Decline — learn all about it
- Planting and caring for your new apple tree
- San Jose scale
- Apple thread blight

All newsletters will also be posted onto at the Wisconsin Fruit website, available at www.fruit.wisc.edu. There you will also be able to search by category or tag, to find crops and/or subject material of interest to you on a particular day.

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

Brian Hudelson, Sean Toporek, Jake Kurczewski and Ann Joy

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from April 8, 2017 through April 14, 2017.

Plant/Sample Type, Disease/Disorder, *Pathogen*, County

Vegetable Crops

Potato, Bacterial Soft Rot, *Clostridium sp.*, Adams, Portage

Potato, Black Heart, None, Adams, Portage
Potato, Dry Rot, *Fusarium sp.,* Adams
Potato, Hollow Heart, None, Adams

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

What's Standing Alfalfa Worth in 2017?

Greg Blonde, UW-Extension Agriculture Agent

One of the challenges in coming up with a value for standing hay is the lack of established market price information like corn and soybeans. Another challenge is multiple cuttings of hay versus a single harvest for grains. So it's no wonder the price for standing hay can vary greatly between farms, even between fields. Here's one approach for pricing standing hay in 2017.

Assuming four ton dry matter (DM)/acre for the entire year of dairy quality alfalfa hay worth $100 to $150/ton baled ($0.06 to $0.09/lb DM), half the value is credited to the owner for input costs (land, taxes, seed, chemical and fertilizer), and half the value is credited to the buyer for harvesting, field loss and weather risk. Obviously, estimated yield is an important factor when negotiating price. This formula will help determine pre-season maximum alfalfa dry matter yield potential…(0.10 x stems/ft2) + 0.38. Actual yield will likely be lower due environmental conditions and individual harvest / management practices. Wait until stems are at least 4-6 inches tall and count only stems upright enough to be cut by the mower.

Using yield distribution based on recent multi-year UW-Extension field research in NE WI for a three cut (43% / 31% / 26%) or four cut (36% / 25% / 21% / 18%) harvest system, the following price range (rounded to the nearest $5) may offer a starting point for buyers and sellers to negotiate a sale of good to premium quality standing alfalfa in 2017:

4 cuts

- 1st crop: $ 85-130
- 2nd crop: $ 60- 90
- 3rd crop: $ 50- 75
- 4th crop: $40- 65

3 cuts

- 1st crop: $100-155
- 2nd crop: $ 70-110
- 3rd crop: $ 60- 95

In this example, the standing value for the entire alfalfa field could range from $230 to $360/acre for the entire growing season. Keep in mind ownership costs can run $300- 400/acre when the seller considers lost rent, establishment costs and top-dress fertilizer to maintain soil fertility. That's why the same price is not always the right price for everyone. Ultimately, a fair price is whatever a willing seller and an able buyer can agree to.

To help farmers and landowners better evaluate their pricing options, Greg Blonde, UWExtension Agriculture Agent developed a mobile app for pricing standing hay. With more than 1500 downloads and 600 users across the country, the app provides quick access to baled hay market prices for reference calculations, with value per acre by cutting displayed using annual yield and harvest cost projections. The Android app is free to download at the Google Play store (search for Hay Pricing) or by going to:

https://play.google.com/store/apps/details?id=com.smartmappsconsulting.haypricing

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