Integrated Pest & Crop Management

Planting Date 2013

By Brent Myers and Bill Wiebold

Because of frequent and heavy rain, corn planting in Missouri has been much slower this year than last year. But, last year was an odd year in nearly every way, including unusually warm and dry March weather. For many reasons, we ought to put 2012 in our rear view mirror and not look back for much help in making crop management decisions. For example, 37% of Missouri's corn acreage was planted by April 14, 2012. Short term normal (5 years) was only 17%, and nearly all of that 17% occurs in the southern part of our state.

This year, Missouri's corn planting progress is 8% - slower than normal, but no reason for alarm, yet. Figure 1 presents the effect of planting date on corn yield for mid-Missouri. Data are averaged over five years and at least four hybrids in each year. Our data indicate, on average, little difference in yield potential for planting dates in April. From May 1 to June 1 corn yields decrease about 25%.

As you might guess, differences occur among years for response of corn yield to planting date. Weather conditions in July and early August affect corn yield far more than planting date and weather during those weeks can mask the effect of planting date. For this reason, it is difficult to predict in any specific year what will happen to corn yield if planting is delayed. However, on average, corn yield potential declines during May, first slowly, but then at an increasing rate toward the end of the month.

The costs and benefits of switching corn acreage to another crop such as soybean vary among farmers and fields. Each farmer must make the decisions for which he/she is comfortable. But, our data indicate that switching out of corn may not be wise even if planting is delayed until the end of May.

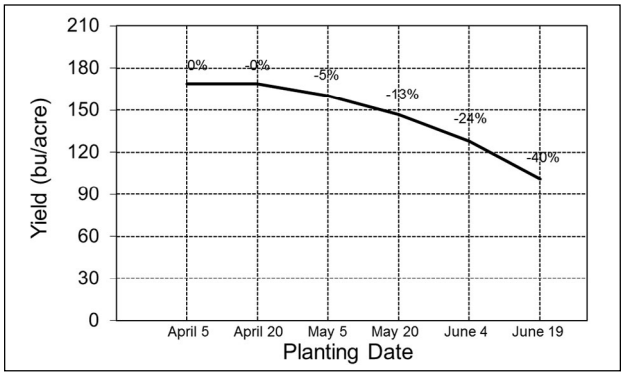

Figure 1. Effect of planting date on corn yield in mid-Missouri.

Although not part of the data in Figure 1, it may not make sense to switch corn maturities, either. We found that corn hybrids with CRM of 110 out yielded corn hybrids with CRM of 100 until the first week of June. Early maturing hybrids are short, have shorter kernel-filling periods, and should be planted at greater seeding rates. We understand that drying costs are important, and our data focuses solely on yield comparisons.

Our data provide some optimism that reasonably high yield can be obtained when corn is planted in mid to late May. However, yield potential is very strongly dependent on weather conditions in summer. The ability for corn to maintain yield in years with dry weather is strongly related to the health of the root system. While it is understandable that planting may begin too soon as soils begin to dry, planting and other traffic on wet soils lead to soil compaction. Soil compaction reduces root growth and may result in increased disease incidence. So, once soil has begun to dry, patience is needed so that harm to developing corn roots is minimized.

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In This Issue

Soil Water Up, Nitrogen Down

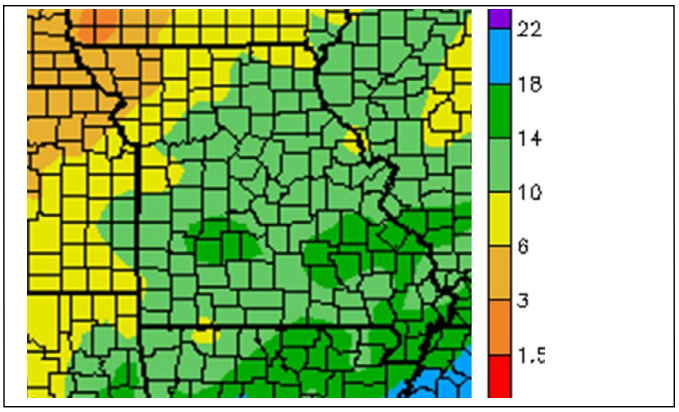
By Peter Scharf

Thunder is booming outside as I write this on the morning of April 16. It's 8:30 and we've already had 3/4 of an inch of rain today.

In the past 10 days, we've had 3.5 inches of rain at our research farm near Columbia, and 5.5 inches in the past 40 days.

A soil sample taken two weeks ago at this farm showed 30% soil moisture in the top 1.5 feet and 25% moisture from 1.5 to 3.5 feet. Not bad, considering how dry it was last fall.

A followup sample taken a week ago showed 25% moisture in the top foot and 30% below that–water had shifted downward. A lot of progress has been made to replenish the water in the subsoil, which was left unusually dry following last year's drought.



Missouri total precipitation, January 1 to April 15

While not everyone has had as much precipitation as we have in Columbia, most of Missouri has had more than 6 inches since the first of the year. (The 6 counties in the northwest corner are the exceptions.) Very little of this water has evaporated back to the air, as it has been a cool late winter and spring.

The story with nitrogen is, if anything, the opposite. I have been telling people that if they're planting corn after corn (or planted wheat after corn), and their corn yields last year were low, they can probably take a credit for some of the leftover N and cut back rates. I'm now worried about this suggestion--two recent deep soil samples suggest that at this point a credit for last year's N should be low.

One sample was taken by Bud Motsinger in Caldwell County. His results came back suggesting that a 30 to 40 lb N/acre credit would be appropriate. This was for a field that received 180 lb N/acre but didn't yield much. There should have been a lot more N left at harvest than he saw in his recent sample, suggesting that some has been lost.

We took a sample a week ago at our research farm near Columbia in corn that had received 180 lb N/acre and yielded 80 bushels. Figuring 1 lb N per bushel ends up in grain and stover, that would leave 100 lb N/acre unused. What we measured in our soil sample to a depth of 3 feet was similar to what Bud saw, suggesting about a 30 lb N credit.

Where did the N go? It would have mostly been in the nitrate form at harvest, a form Missouri total precipitation, January 1 to April 15 that moves freely with water. We found almost zero nitrate in the top foot, but about 20 lb N/acre as nitrate in the 2nd foot and another 20 in the 3rd foot. In short: the nitrate has moved down, and it seems likely that a good bit has moved below 3 feet deep. The chances that corn roots can go down and get this N are not great. It doesn't seem to me like it's been wet enough to leach out most of the nitrate left in the soil at harvest, especially in a slowly-draining soil like this one, but the numbers suggest that that's what has happened.

So if you have taken a credit for last year's leftover N, or were planning to–PROCEED WITH CAUTION. These results are only from two fields, and other fields are sure to be different, but they suggest that the risk that comes with taking a nitrogen credit is higher than I would have guessed.

For wheat, time is rapidly running out to correct any potential problems. I would suggest quickly scouting any fields where a credit was taken, and getting an additional 30 lb N/acre applied soon to fields where any sign of N deficiency is seen.

For corn fields where a credit was taken and N was applied at a lower-than-normal rate, I suggest the same thing–watch carefully and run some more nitrogen over the field at the first sign of deficiency.

For corn fields where N has not yet been applied, I would suggest a small credit, no credit, or a deep (2 feet) soil sample for nitrate and ammonium to see if a larger credit is justified. Taking the soil sample from one or two fields would give you a rough guide to the current status of soil N in your area (see MU Extension guide G9177 for details).

It's great to have water back into our subsoils to contribute to the water needs of this year's crops. The downside is that some of the N that was applied last year but not used may no longer be available for use by this year's crop.

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Weather Data for the Week Ending April 29, 2013

By Pat Guinan

Station	County	Weekly Temperature (ºF)						Monthly Precipitation (in.)		Growing Degree Days‡	
		Avg. Max.	Avg. Min.	Extreme High	Extreme Low	Mean	Departure from long term avg.	April 1-29	Departure from long term avg.	Accumulated Since Apr.1	Departure from long term avg.
Corning	Atchison	67	42	86	25	54	-2	6.54	+3.49	116	+30
St. Joseph	Buchanan	61	41	81	28	52	-5	3.90	+0.41	108	+9
Brunswick	Carroll	*	*	*	*	*	*	*	*	*	*
Albany	Gentry	63	39	83	28	52	-4	4.26	+0.62	103	+23
Auxvasse	Audrain	63	43	84	32	51	-7	7.78	+4.05	126	+8
Vandalia	Audrain	61	42	83	33	51	-6	5.84	+2.08	112	+18
Columbia-Bradford Research and Extension Center	Boone	62	41	84	31	50	-9	7.65	+3.47	117	-23
Columbia-Capen Park	Boone	64	41	89	32	52	-7	6.82	+2.55	134	-20
Columbia-Jefferson Farm and Gardens	Boone	63	43	85	32	52	-7	6.91	+2.74	131	-10
Columbia-Sanborn Field	Boone	64	44	87	33	53	-6	6.90	+2.71	148	-7
Columbia-South Farms	Boone	62	42	84	32	51	-8	7.00	+2.76	129	-12
Williamsburg	Callaway	63	42	85	33	51	-7	5.26	+1.35	136	+20
Novelty	Knox	61	41	82	32	51	-6	7.62	+4.14	95	-5
Linneus	Linn	61	41	81	31	51	-6	613	+2.79	106	+10
Monroe City	Monroe	62	42	83	33	51	-7	8.63	+5.15	105	-13
Versailles	Morgan	66	44	87	34	54	-5	6.67	+2.41	183	+10
Green Ridge	Pettis	62	42	83	32	51	-6	4.14	+0.18	128	+10
Lamar	Barton	63	43	82	32	52	-7	5.26	+0.82	142	-31
Cook Station	Crawford	63	0	83	30	52	-7	4.97	+0.66	170	-7
Round Spring	Shannon	63	40	83	28	51	-8	4.32	-0.06	165	+4
Mountain Grove	Wright	62	40	79	30	51	-7	6.41	+1.97	147	+13
Delta	Cape Girardeau	62	45	72	36	54	-7	4.33	-0.25	197	-24
Cardwell	Dunklin	66	46	77	35	56	-7	4.86	+0.26	248	-33
Clarkton	Dunklin	65	46	75	36	55	-8	5.79	+1.44	224	-44
Glennonville	Dunklin	65	46	75	38	56	-7	6.28	+2.04	235	-37
Charleston	Mississippi	63	45	74	36	55	-6	5.11	+0.65	230	+7
Portageville-Delta Center	Pemiscot	64	48	75	40	56	-7	6.01	+1.58	265	-12
Portageville-Lee Farm	Pemiscot	64	48	75	41	56	-7	6.38	+1.94	262	-10
Steele	Pemiscot	66	49	76	40	57	-6	5.99	+1.41	260	-16

‡Growing degree days are calculated by subtracting a 50 degree (Fahrenheit) base temperature from the average daily temperature. Thus, if the average temperature for the day is 75 degrees, then 25 growing degree days will have been accumulated.

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