

Inside Grundy County
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Spring Planting Decisions

Spring has officially arrived but soil and air temperatures make it seem otherwise. When I wrote this column, the 4" average soil temperature was only 39°F, a bit cool for planting corn and soybeans. Recent planting date studies have changed the recommended planting date window for corn. In addition delayed planting of soybeans can penalize farmers and there is new data for soybean planting dates. Here's what the ISU Extension research and recommendations indicate for ideal planting time, plant populations for our corn and soybeans and nitrogen recommendation for our corn.

Three previous years of planting date research have influenced new planting date recommendations for corn. Dr. Roger Elmore, ISU Extension corn specialist, recommends planting corn in our region between April 12th and May 2nd. This is a change from previous recommendations of April 20th to May 5th. This is because the response curve for delayed planting indicates yield penalties occur much quicker in the northern part of Iowa than in central and western Iowa. This is because northern Iowa has a shorter growing season and corn needs to maximize the available growing degree days.

But this recommendation comes with a caveat; Wait to plant until the soil temperature is right. Corn should be planted when soil temperatures are near 50° F. Seeds will imbibe water but not grow at lower temperatures. Seeds can absorb 30 percent of its weight in water below 50° F but the initial root (radicle) and coleoptile (shoot) growth is correlated with soil temperature. If soil temperatures are below 50° F and seeds absorb water but do not grow, then seed rots and poor emergence can occur. There are risks with planting early so appropriate planting conditions is important.

Six years of research data from the ISU NE research farm near Nashua indicate soybeans should be planted between mid-April and mid-May. On average, planting by early June created a yield penalty of 9%. This yield penalty was more pronounced for later relative maturity (3.0 R.M) varieties than early maturity varieties (1.7 R.M). As always there are pros and cons to planting early; Pros include increased yields, earlier flowering dates, possible earlier harvest, and more vegetative nodes. Cons of early planting include attraction to bean leaf beetles, germination concerns and sudden death syndrome.

There has been a lot of interest in seeding rates, especially as seed costs rose rapidly the past few years. Dr. Roger Elmore and graduate student, Lori Abendroth, did a study analyzing the appropriate seeding rate relative to maximizing net return. Their study showed that 36,000 seed planted per acre resulted in maximum yield and maximum net income in all yield results between 180 and 240 bu./acre regardless of seed price. The 30,000 seeding rate was a close second and the gap was quickly closed the higher the seed cost. It was interesting to note that higher seeding rates (42,000 and 48,000) showed considerably lower returns.

At one time, many farmers planted 20% to 30% more soybeans per acre as an insurance against emergence and other problems. But according to former ISU Extension soybean specialist, Palle Pederson, the final stand for soybeans needs to be a minimum of 100,000, assuming they are evenly distributed. Therefore, under optimum planting conditions, Dr. Pederson recommends

planting 125,000 to 140,000 for 15 and 30 inch rows. However, consider increasing the planting rate if the germination rate is low (<90%) and planting conditions aren't optimum.

Many producers were not able to apply or finish their fall nitrogen (N) application. In some respects, this could be a mixed blessing. This is because we reduce the risk of N loss that can occur either during some winters or a warm and wet early spring. In addition, ISU nitrogen recommendations are based on spring applied nitrogen. The reason ISU Extension does not have fall applied N recommendations because there is no current scientific method that can measure how much nitrogen is lost between fall and spring under varying environmental conditions.

The good news is ISU Extension researchers developed the corn nitrogen rate calculator which is based on research and economics to help farmers make N rate decisions for spring application. Using a corn-soybean rotation, I plugged in \$3.60 price for corn and anhydrous ammonia at \$450/ton and the calculations showed the maximum return to N and most profitable N rate was 136 pounds of actual N or 166 lbs of anhydrous ammonia at a cost of \$36.72/acre. The range was 1200 to 150 pounds of N. This calculator can be found at:

<http://extension.agron.iastate.edu/soilfertility/nrate.aspx>