
Top Seven Factors in Crop Production

In March the Pioneer Growing Point e-newsletter had an article I was interested in which listed and ranked the top seven factors in crop production. The University of Illinois author listed 1. Weather, 2. Nitrogen, 3. Hybrid Selection, 4. Previous Crop, 5. Population, 6. Tillage Choices, and 7. Chemicals as his top seven in order. I was interested in the points discussed in the article and decided I should list my top seven and compare. I do this not to criticize Pioneer or the author, but to examine my own thinking to what is important and how much can it be weighted. My list is quite different.

1. **Soil and Water Resources** - Your soil and how you manage it and protect it has a huge impact of productivity. I regularly answer questions concerning leases and land values. All soil types are not the same. How the land has been managed in the past also makes a huge difference. Holdrege silt loam is the Nebraska State Soil. Our Wymore silty clay loam soils have one-tenth the intake rate of the Holdrege soil. Our management has to reflect the difference. How much water we can save in the soil and our access to irrigation potential can dramatically impact crop yield. In our past, present, and future soil and water has to be our number one limiting factor and our greatest challenge to improve.

2. **Weed Control** - The first 45 days after planting are critical. If our weed control program is not up to par during this period no amount of herbicide or cultivation will save the yield. Crop rotation, herbicide selection, identifying emerging weed threats, good residue distribution, and getting a good crop stand are all part of good weed control. The lesser extent let's put insect control and disease protection in this same category.

3. **Plant Nutrients** - Nitrogen and phosphorus are the big two nutrients. I believe these are actually rivaled by carbon. We can't ignore the response to organic matter and its role in helping store and release water and nutrients. Soil testing is important in knowing what is needed and providing adequate and affordable amounts of nitrogen, phosphorus and other nutrients as needed like zinc, sulfur, etc.

4. **Hybrid or Variety Selection** - This is easier in crops like wheat than higher turnover crops like corn and soybeans. It is becoming increasingly harder to find independent data. Major seed suppliers are going to have to increase their willingness to make sure materials are genetically diverse and truly in the best interest of the farmer. This may at times conflict with marketing and sales motives.

5. **Previous Crop** - Crops like corn and milo are very responsive in yield to the previous crop. Soybeans and wheat tend to be less responsive. Crop rotation is good, but we need to increase our diversity of crop selection in our future. The advance of biotech traits in corn and soybeans is continuing to push us to be less diverse. Cover crops may help us to add diversity in the future.

6. **Population** - There is no question that population in corn adds to yield if there is water enough. In other crops it's a matter of enough stand and a uniform stand, versus adding more population.

7. **Weather** - From number one to number seven on my rating. You can get crop insurance to help protect you from the ravages of wind and hail. In items one through six you stand on your resources and your management. If management doesn't get the crop in position to succeed the weather is the least of your concerns.

Paul C Hay, Extension Educator

University of Nebraska-Lincoln Extension in Gage County • 1115 West Scott Street, Beatrice NE 68310
(402) 223-1384 • FAX: (402) 223-1370 • email: phay1@unl.edu

