

Seed Selection: prioritizing crop traits and finding the right seed for your farm

by Patty Ristow - Agronomist, Agricultural Consulting Services Inc.

Long-term cropping success starts with selecting the right seed for your farm. Selecting the right seed sounds simple enough but when faced with the sheer number of choices on the market it can be useful to revisit the basics and define selection criteria based on regional and farm specific information. Basically, selecting the 'right' seed requires knowing three things;

1. End yield and quality goals for the crop.
2. Farm resources for growing the crop.
3. Regional and on-farm variety performance data.

By looking at three crops, alfalfa, corn silage and soybeans, we identify more specifically what is important for seed selection.

Alfalfa

Alfalfa variety selection starts by knowing soil drainage and disease profiles and then finishes off with double checking seed weights. Being familiar with the farm's soil drainage is particularly important since branch rooted alfalfa is more prevalent in the market now and offers a management alternative for fields with soils that are not well drained. These wet alfalfas are becoming more popular as people experience first-hand how well these varieties perform.

Disease and pest pressures are regionally different and knowing what needs to be in your alfalfa seed selection requires scouting and testing so you know what is on your farm. For example in some parts of the northeast recent research illustrating the prevalence of *Aphanomyces* Root Rot (ARR) race 2 resulted in heavy selection for resistance to this disease while in other areas the presence of alfalfa snout beetle (ASB) requires a management approach that includes selecting varieties with some resistance to ASB.

Another seed selection criterion that has been challenging is seed weight. Farms usually have a choice to purchase seed with a light inoculum and fungicide coating (about 4% of seed bag by weight) or a heavy lime or gypsum coating (about 30% of seed bag by weight) but sometimes farms receive heavily coated seed without any warning about the difference in seed weight. The coating greatly changes how much pure live seed gets planted per pound of seed. Regardless of the lighter or heavier coating, seeding rates need to deliver about 16 pounds of pure live seed per acre. Figuring out if your seeder can handle the higher weight per acre seeding rate required by the heavier coated seed is important for determining which kind of seed needs to be purchased.

Corn Silage

Corn silage varieties need to be selected first by the relative maturity categories that will work for the farm. After a farm decides which relative maturity category works for their combination of resources then the crop team needs to focus on yield, quality and disease pressure. Identifying a relative maturity category that works for your farm is important because although long-season varieties will always show up looking great in yield trials, if the soil, equipment and personnel limitations result in muddy harvests, muddy plantings, compacted soils, and a frustrated crop team then those long-season varieties do not work on the farm and full yield potential is not being realized anyway.

Once the relative maturity categories that work for the farm are identified, focusing on the performance of the myriad of varieties within a specific relative maturity category is an important factor in getting top yields. Brian Boerman, Senior ACS agronomist, pulls together local variety trials as well as university variety trials published by Cornell, Penn State and Ohio into an annual "variety pick list" for each relative maturity category. ACS agronomists can use this "pick-list" as a starting point when sitting down with crop teams to pull in additional farm-specific information on pests, diseases and management objectives. More reliable decisions can then be made because the farm is not distracted by information not relevant to their farm or their area. In Central New York the disease that has come to the forefront to be considered in variety selection is Northern Corn Leaf Blight (NCLB). If this has been a problem on your farm the past couple years, it should become a factor in selecting corn varieties in the upcoming season.

Additionally farm teams that experiment each year with a few varieties on a few acres each year have the most success in increasing milk per acre or bushel per acre yield on the farm. Combining the information that can be gathered now with yield monitors and on-farm experimentation is allowing farms to get a more complete measure of variety performance on their own farms. They can then combine their results with regional variety trial results for identifying top performing varieties.

Soybeans

The top three seed selection criteria for soybeans success are maturity category, yield potential and disease and pest profiles in the region. As an example of the importance of these selection criteria Agricultural Consulting Services' (ACS) 2014 winter newsletter featured client Bret Meyer's strategy for growing soybeans after Dairy-Knoll Farm received honors in the N.Y. Corn & Soybean Growers association's yield contest with 75.13 bushels per acre on Bret's con-test field and 61 bushels per acre across all of his soybean fields for 2013. When it comes to variety selection Bret identified high tolerance to white mold and high yield potential in his soybean varieties as two top criteria that he uses for selecting seed.



Variety selection needs to start by looking at the yield trials of soybean varieties in relevant maturity groups for your growing conditions. Data combined across multiple locations within a given year provides the most reliable yield estimates with which to select a variety. This kind of data is usually published by the local land grant institute such as Cornell's soybean variety trials which are published each year and the Northern New York Agricultural Development Program which has variety trials with results specific to the growing conditions of Northern New York. Looking at variety trial results is one component in a good seed selection program and when combined with on-farm testing can lead to consistently increasing yields. Bret Meyer reported that he continuously tests new varieties on his farm in small doses and plants the majority of acres to varieties that have proven to perform well on his land.

Identifying disease and pest profiles that are important to your field conditions are as important for high, stable yields as genetic yield potential. This information can be collected by talking to other producers, Agri-service providers and by scouting your fields on a weekly basis throughout the growing season so you know what your specific conditions are. Bret was able to identify that white mold needed to be a top priority selection criterion by knowing the conditions in his fields.

What you need to know before selecting seed

Alfalfa Seed

- a. Soil drainage
- b. Local diseases and pests
- c. Seed weight

Corn Silage and Soybean Seed

- d. Relative maturity category(ies) that work for farm
- e. Yield and quality trial results
- f. Local diseases profile

Links

- Cornell Variety Results: <http://fieldcrops.org/VarietyTrials>
- Northern New York Variety Trial Results: <http://www.nnyagdev.org/index.php/field-crops/research-soybeans>
- ACS Winter 2013 and 2014 newsletters; <http://www.acsoffice.com/newsletters.html>
 - ♦ Consider *Aphanomyces* Root Rot Resistance in 2013 Alfalfa Seedings
 - ♦ One Grower's Recipe for Soybean Success