Managing Corn Silage Input Costs

Joe Lauer, University of Wisconsin

As the 2016 production year approaches, two threats loom on the horizon: weather concerns and economic forecasts for corn production. The El Niño event taking place is unprecedented and data collected so far has been extraordinary. However, we cannot plan for weather and must approach management using average recommendations. Current corn grain cost of production economic forecasts are $680/acre, making it extremely difficult to be profitable. Cost of production for corn silage is usually 10-20% higher than grain due to storage shrink. We can plan for economics forecasts by adjusting some management inputs. Often as price is lowered, the economically optimum input cost is lowered as well. Corn silage farmers have the advantage of adding value to corn by marketing it through the dairy cow, however, milk price forecasts are not strong either. So how should a farmer adjust his field management for 2016?

One place to start is with hybrid selection. Increasingly, the hybrid selected will dictate your management style. The presence (or absence) of transgenic traits, pest resistance, and forage quality traits influence management options and affect profitability. One way to spread weather risk is to diversify hybrid genetics so they are pollinating at different times during the season. Although not recommended due to harvesting issues, planting hybrids in 4-8 row strips across a field can lengthen the "nick" or overlap between pollen drop and silk emergence. Selecting earlier hybrids might avoid late-season drought, however, the trade-off is lower yield (1.9 bu/acre for each relative maturity unit). Ensuring hybrids you select have adequate pest resistance may reduce costs associated with applying a fungicide later during the growing season. Do you need all of the transgenic traits currently available?

Crop rotation is an easy way to increase yield and is an easy low-cost decision that can be made in advance. Many research studies document an average 10-20% grain yield increase over continuous corn. Fewer studies document corn silage increases, but the increase over continuous corn has been ~10%. Rotation effect lasts at most two years and depends upon the number of "break" years. The rotation effect is even more dramatic in stressful years.

Seeding rate has the most potential to move from current yield levels and might be the place to start when moving off a yield plateau. Corn grown for silage is more responsive to seeding rate than corn grown for grain. The economic optimum for corn grain is ~5,000 plants/acre lower than the harvest plant density for maximizing grain yield in a field, while for corn silage ~6,000 more plants/acre are needed to maximize milk per acre. So the key is to know what plant density produces maximum grain yield for each field. This can vary dramatically by hybrid and environment. For example, at Arlington the plant density which produces the greatest grain yield is 39,000 plants/acre. The economic optimum plant density for grain is 34,000 plants/acre while for milk per acre it is 45,000 plants/acre. A farmer can be within 95% of maximum grain yield and milk per acre by having a harvest plant density of 30,000 plants/acre.

Planting in a timely fashion sets up the season. Often, what's in the bunker is corn from late-planted and poorly managed fields. Planting May 1 vs. June 1 has a 30% impact on milk per acre and is similar to the response observed for grain yield impact. Forage quality as measured by milk per ton is not affected much by planting date. Follow local extension recommendations and crop insurance requirements; generally earlier is better. Focus on seedbed conditions and date rather than on soil temperature. After April 20-30, disregard the calendar and plant as quickly as field conditions allow.

Row spacing can increase silage yield about 7% as it narrows from 30˝ to 15-20˝. The response is consistent for silage, but not for grain (average = 3%). Little effect is measured on forage quality as measured by milk per ton.

Fertilizer is NOT a place to cut inputs. Follow extension recommendations and soil test. Apply needed nutrients as efficiently as possible and use the cheapest form of N, P, or K. Use manure and legume credits to reduce purchased fertilizer costs. Do not cut back on overall N supplied unless you have historically been overapplying. Corn is responsive to N up to a point. Do not use micronutrients unless soil tests predict a response. A corn silage yield of 24 tons/acre at 65% moisture removes from the soil 86 lbs/acre of P_2O_5 and 199 lbs/acre of K_20, so it is important to add manure and fertilizer and check nutrients with a soil test.

Crop scouting for pests is well worth the expense and time. Genetic traits can control many pests during the season. Often, the difference between profit and loss comes down to the timeliness of pesticide applications. Knowing economic threshold levels for pests are key to profitability.

The 2016 production season is shaping up to be a difficult one. Farmers have been slow to buy inputs due to market uncertainty and weather concerns. Soon input decisions need to be made. Remember to plan for an average weather year, but carefully adjust the economics of your agronomic decisions.

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