

Good Corn Silage Will Reduce Feed Costs

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Based on current feed prices, the nutrients in 1 ton of average corn silage (35% dry matter) are worth approximately \$80 which is usually higher than the cost of growing, making, and storing corn silage. Therefore, homegrown silage can be an economical feed. The only factors left that will have a significant effect on production costs of corn silage is yield and shrink. In September, stage of maturity at harvest is about the only thing left that can influence yield. Delaying harvest until corn plants are fully mature (kernel at black layer) will increase dry matter (DM) yield which will reduce the cost per ton of DM. However, cost of nutrients, not cost of DM is what matters. For corn silage, yield of net energy (NEL) is of primary importance and that is a function of DM yield and digestibility. Dry matter yield is usually maximum at black layer but because of lower fiber digestibility and decreased starch digestibility, black layer is usually not the highest yield of NEL. Kernel processing mature corn silage will increase starch digestibility but has little effect on fiber digestibility. High fiber digestibility not only increases NEL concentration it allows feeding more corn silage and less concentrate without adversely affecting milk yields. Usually harvesting at 30 to 35% DM results in good starch and fiber digestibilities. Consider kernel processing silage that contains more than about 32% dry matter (some data show negative responses when wet silage is processed). High cutting corn (leaving 15 to 20 inches of stubble) can increase digestibility of DM and the NEL concentration of the silage but also reduces DM yield by 5 to 10%. Based on today's feed costs, high cutting is not recommended.

The cost of the silage should be calculated by summing all production costs and dividing by the amount of silage that is actually fed, not by the amount of forage harvested. The difference between the amount of forage harvested and the amount of silage actually available for feeding is called shrink. In the best case it can be as low as 5% but in the worse case it can exceed 20%. To have 1000 tons of silage available for feeding you need to harvest between 1050 tons (best case) to more than 1250 tons (worse case) of corn forage. Shrink can be controlled by:

- Harvesting at the correct DM concentration (30 to 35% for a bunker, 32 to 38% for bags and uprights)
- Using good silage-making techniques (rapid filling, good packing, covering silage quickly with plastic)
- Using a good quality inoculant. If you usually do not experience heating during feed out, a conventional lactic acid bacteria should be used. If heating is a problem, then use a *buchneri* product. Typically losses during feed out are likely for corn silage so that *buchneri* is usually a better bet for corn silage.

If possible, delay opening the silo for at least 30 days after filling. This reduces shrink and increases energy concentration. Digestibility improves as the silage ages (NEL values may increase by about 10% from time of filling to 6 months after filling).