

Is Corn Silage Stable After 3 Weeks of Fermentation?

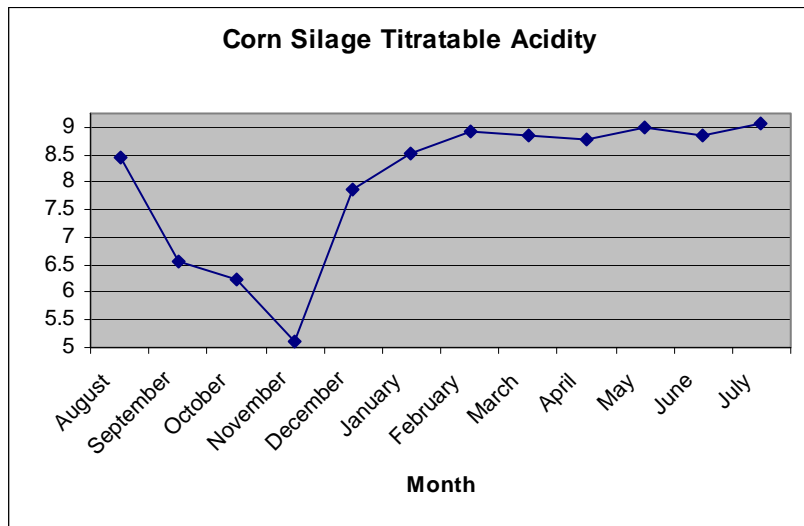
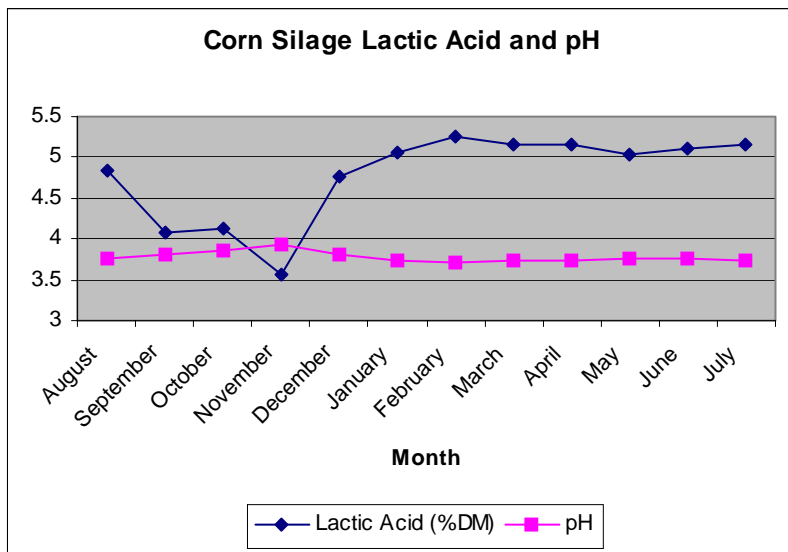
Ralph Ward, Cumberland Valley Analytical Services, Inc.
Mary Beth de Ondarza, Paradox Nutrition, LLC
November 12, 2007

A major goal of corn silage making is to reduce oxygen and increase acidity rapidly so that lactic acid bacteria grow to stabilize and preserve or “pickle” the silage. Often, producers and nutritionists believe that corn silage is fairly well fermented after three weeks of fermentation and it is O.K. to start feeding it. We analyzed a set of corn silage fermentation profile data from New York which was between 26 and 38% DM. We looked at how the fermentation profiles varied according to the month of the year that the samples were sent to CVAS.

Here’s what we found:

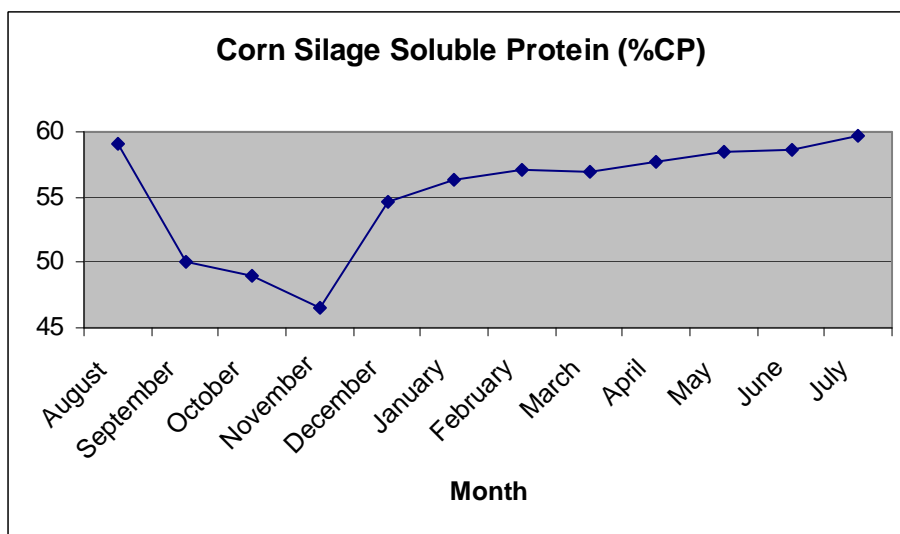
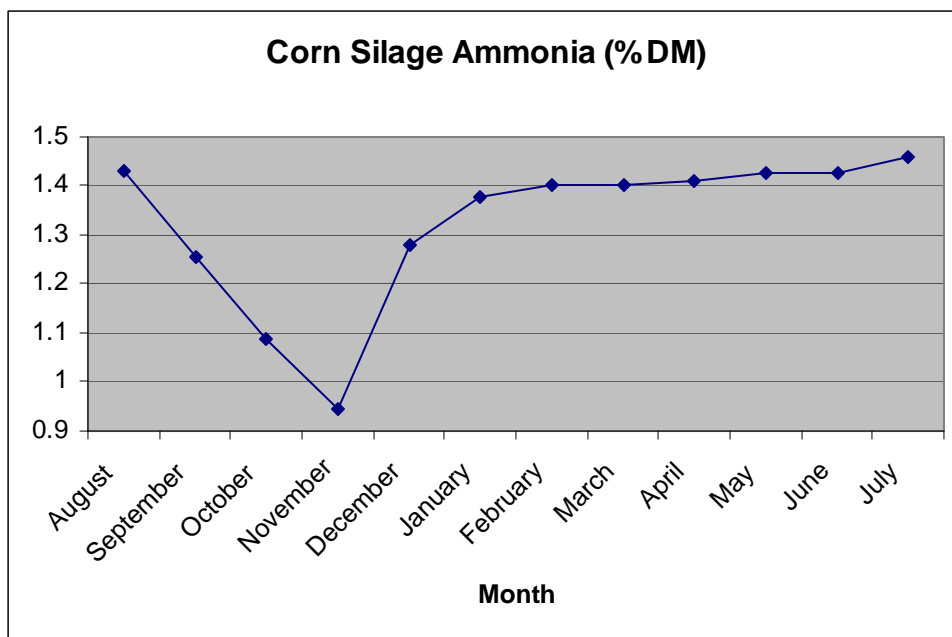
There was significantly ($P < 0.05$) less lactic acid in corn silage analyzed at CVAS in September, October, and November. Lactic acid is a significant end-product of good corn silage fermentations. Higher levels indicate that the corn silage is stable.

Higher pH levels mean less acidity. pH was significantly ($P < 0.05$) higher in September, October, November, and even December.



Titratable Acidity (meq/g) was significantly ($P < 0.05$) less in samples analyzed in September, October, November, and December than in samples analyzed from January to July. Titratable acidity accounts for the strength of acids present in the corn silage and is highly correlated with total acid levels in corn silage.

Although we don't want extensive protein degradation in our corn silages, the level of ammonia and the level of soluble protein will continue to increase until the fermentation has stabilized. Both ammonia and soluble protein levels were significantly ($P < 0.05$) lower in samples of corn silage sent to CVAS in September, October, November, and December than from February to August. This indicates that those corn silage samples sent in the fall had not fully fermented.



Most nutritionists and producers would agree that cows milk best on fully fermented corn silage. Our data indicate that most corn silage will not be fully fermented until it has fermented for about four months.