pH were found in ammonia-N and total VFA concentration. The DM and NDF degradability in culture solution was higher for TMRs of BS and RS than those for RSS and SGS TMRs (P<0.01). The CP degradability was lowest in SGS TMR (P<0.01). Degradability of DM, CP and NDF was higher for un-extracted silage TMRs than for extracted silage TMRs. The ruminal ammonia-N concentration was lowest in RSS TMR but the total VFA was not affected by silages and extraction. The whole tract digestibility of DM was lowest in RSS while that of NDF was highest in RS TMR. The whole tract digestibility of CP was not different among diets.

Key Words: protein fractionation, degradability, in vitro

M341 Fermentation profiles of brown midrib and non-brown midrib hybrid corn silage. K. E. Nestor Jr.*, P. Krueger, J. Anderson, J. Brouillette, and K. Emery, *Mycogen Seeds, Inc.*, *Indianapolis, IN*.

The objective of this study was to determine if brown midrib (bmr) corn silage hybrids have a similar fermentation profile over time of storage to non-bmr corn silage hybrids. The first four months of data are presented. A total of 24 non-bmr hybrids and 20 bmr hybrids were collected at harvest at 14 different locations. At each location, hybrids were selected with similar relative maturities. Samples were chopped and collected into vacuum sealed bags. Multiple samples of each hybrid were collected and stored in an environmentally controlled room. Samples were analyzed monthly for soluble protein, starch, sugar, 7 hr. in vitro starch degradability, pH, lactic acid, acetic acid, total volatile fatty acids (VFA), ammonia and 30 h in vitro neutral detergent fiber (NDF) digestibility. Samples were pooled by month for analysis. Data was anlayzed by ANOVA with hybrid and month as main effects. Thirty hour NDF digestibility was higher (P<0.01) in the bmr hybrid class within each month and was unchanged in the bmr hybrid class for each month of fermentation but tended to drop in the first four months of fermentation in the non-bmr hybrid class. Within month, there were no differences between hybrid classes in soluble protein, starch, sugar, 7 hr. in vitro starch degradability, lactic acid, acetic acid, and ammonia. Total VFA was higher in the bmr hybrid class (p<0.07) at month 4 but was not different in other months. The pH was lower (p<0.05) in the bmr hybrid class in month 3 but not in other months. Soluble protein increased (p<0.02) and pH decreased (p<0.01) by month of fermentation for each hybrid class. No difference by month of fermentation was observed in 7 hr in vitro starch degradability, starch, or sugar within each hybrid class. There was a trend (p<0.16) for an increase in acetic acid by month of fermentation. Lactic acid, ammonia, and total VFA increased between month one and two and stabilized afterwards. These data suggest that there is no difference in fermentation profiles of bmr and non-bmr hybrids in the first four months of fermentation.

Key Words: corn silage, brown midrib, fermentation profile

M342 Utilization of solid state fermentation of *Pleurotus sapidus* for sugar cane silages. A. Peláez-Acero[1], M. Meneses-Mayo[1], L. A. Miranda-Romero[2], S. S. González-Muñoz*[1], and O. Loera-Corral[3], [1]*Colegio de Postgraduados*, *Montecillo, Edo. de México, México*, [2]*Universidad Autónoma de Chapingo*, *Chapingo, Edo. de México, México*, [3]*UAM Iztapalapa*, *México D.F., México*.

The objective of this study was to evaluate production of cellulases, xylanases and laccases by *Pleurotus sapidus* using sugar cane (SC) as substrate after 15 days of solid state fermentation. Two trials were performed; in both the experimental design was completely randomized, data was analyzed using PROC GLM (SAS) and means were compared using the Tukey test (P≤0.05). In trial I, sugar cane was fermented 48 hours (SCF), then inoculated with 5% *P. sapidus* and fermented for 15 days (SCF-15). Results showed significant differences (P≤0.05) for: a) 1.96 IU/g DM cellulases, 2.08 IU/g DM xylanases, 5.25 IU/g DM laccases for SCF-15; b) CP was 7.43% for SCF-15 and 5.53% for SCF; c) NDF, ADF and *in vitro* DMD were 72.42, 41.48 and 64.80% for SCF-15, and 44.81, 29.08 and 63.71% for SCF; d) calculated metabolizable energy was 1.80 Mcal for SCF-15, and 2.28 Mcal for SCF. In trial II sugar cane was ensiled 24 days with 0, 10 and 20% SCF-15. There were significant differences (P≤0.05) between day 0 and 24 for: a) pH, 5.16 and 3.90; b) DM, 35.47 and 33.64%; c) soluble carbohydrates, 9.14 and 4.05%; d) NH_3-N, 3.80 and 9.26%; e) lactic acid, 10.32 and 19.44%; f) *in vitro* DMD, 64.28 and 70.13%. Besides, at day 24, significant differences (P≤0.05) were found between 0 and 20% SCF-15 for: a) NH_3-N, 9.89 and 5.65%; b) lactic acid, 12.40 and 18.52%; c) *in vitro* DMD, 66.65 and 71.53%. It may be concluded that fermented sugar cane may be used as substrate for producing fibrolytic enzymes, which then could be utilized to increase quality of sugar cane silages.

Key Words: solid state fermentation, fibrolytic enzymes, sugar cane

M343 As corn plants mature, NDF mass decreases. P. M. Walker[1], J. M. Carmack*[1], L. H. Brown[2], and F. N. Owens[2], [1]*Department of Agriculture, Illinois State University*, *Normal*, [2]*Pioneer Hi-Bred International, a DuPont Business*, *Johnston, IA*.

Determining corn silage value of the corn plant can be difficult. Nine Pioneer ® corn hybrids (107 to 116 day CRM) grown in 2008 near Normal, IL were harvested 15 cm above ground level weekly starting 102 days after seeding until plant DM content reached 50%. One thousandth of an acre was harvested on each date with ten plants from each hybrid being divided into two sections, the bottom 46 cm and the remaining top section. Top sections and total plants (recombined) were assayed commercially for nutrient composition (CP, starch, NDF, ADF, ash) and at the Pioneer Livestock Center for in situ NDF disappearance. Based on regression against harvest date, as harvest date advanced, NDF, ADF, sugars, and ash as a percentage of plant DM all decreased (P < 0.05) largely due to dilution by starch. As harvest date advanced, weight per plant of dry matter, protein, and starch per plant increased (P < 0.01) as expected. However, weight per plant of NDF, ADF, sugars, and ash all decreased (P < 0.01). Transformation to starch (increasing 3.6 g/d) can explain the decrease in sugar (0.8 g/d) mass of plants, but the decrease in weights of NDF and ADF (0.70 and 0.52 g/d per plant or 0.8 and 1.0% of total mass/d) indicates that some portion of these fiber fractions were mobilized. NDF digestibility typically is expressed as a fraction of total NDF. If the mass of NDF decreases as corn plants mature due to mobilization of digestible NDF, then digestibility expressed as a fraction of the remaining NDF is incomplete as an index of the relative energy availability for plants that are harvested at different stages of maturity. Whether the extent of NDF mobilization is altered by environmental conditions, hybrid, or the “stay-green” trait is not yet certain. For estimating energy availability of corn plants at harvest, both NDF content and NDF digestibility must be considered.

Key Words: NDF, corn silage, maturity