2012 Alfalfa Field Project Impact of Spring Weather on Alfalfa Quality – Week of May 7th Sample Results

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Questions have been asked about the effects of this spring's unusual weather conditions on the growth and quality of alfalfa across the state. MSU Extension has coordinated a short-term field project to collect data related to alfalfa quality.

The measure of fiber most commonly used to balance diets of lactating dairy cows is neutral detergent fiber (NDF). The optimum concentration of NDF for alfalfa fed to lactating dairy cows is 40%. Alfalfa containing 40% NDF allows reasonable grain concentrations in the diet while maintaining adequate NDF concentrations. Research at Michigan State University (http://www.extension.org/pages/25471/predicting-optimum-time-of-alfalfa-harvest) demonstrated that both GDD (growing degree days, base 41° F) and PEAQ (predictive equations for alfalfa quality) provide good estimates of NDF for first cutting alfalfa in normal years. However, we don't know if these relationships hold this year because of multiple killing frosts after substantial growth in many locations.

Scissors-cut samples were taken the first and second week of May from 13 alfalfa fields across the state. Samples were analyzed by wet chemistry for NDF and correlations with PEAQ stick measurements and GDD were documented.

For the article reporting results from the first week of May, go to http://msue.anr.msu.edu/news/frosted_alfalfa_might_have_lower_ndf_concentration_than_predicted_by_growing_degree_days/

Results of the May 7 or 8, 2012 sampling

City	5/1-2 LAB NDF	5/7-8 LAB NDF	5/7-8 PEAQ NDF	5/7-8 GDD NDF	5/7-8 GDD
West Olive	28.7	35.5	34.8	36.8	645
Zeeland	29.7	36.7	35.4	36.8	645
Zeeland	30.5	36.6	32.0	36.8	645
St Johns	28.3	33.0	30.5	34.9	587
St Johns	30.5	35.5	31.3	34.9	587
St Johns	29.4	36.2	31.5	34.9	587
Portland	31.1	35.4	33.0	35.1	594
Coldwater	31.0	36.4	35.0	39.4	732
Quincy	29.0	36.5	34.0	39.4	732
Jonesville	30.6	35.1	34.0	38.5	700
Brown City	26.4	30.2	29.4	34.4	573
Brown City	28.1	32.8	30.2	36.3	629
Marlette	26.4	30.0	28.9	33.2	541
Average	29.2	34.6	32.3	36.3	

The sampled alfalfa rapidly increased in NDF over the last week. LAB NDF (as measured by wet chemistry) increased 5.4 percentage units from 29.2% to 34.6% over the last week; an average increase of ~3/4 percentage unit per day. However, the increase during the 6-day period ranged from 3.6 to 7.5 percentage units across locations.

NDF predicted by GDD was 1.7 percentage units higher (36.3%) than the LAB values (34.6%) with a range of -1.3 to +4.2 units difference.

NDF predicted by PEAQ was 2.3 percentage units lower (32.3%) than the LAB values (34.6%) with a range of -0.7 to -4.7 units difference.

While last week NDF predicted by PEAQ was very close to actual LAB values and NDF predicted by GDD was high, as NDF approaches 40% the relationship to GDD may be more accurate.

Typical recommendations are to begin cutting alfalfa at 750 GDD for upright silos and 680 GDD for horizontal silos. According to data collected in the upper Midwest over several years, alfalfa typically averages 38% NDF at 680 GDD and 40% NDF at 750 GDD. Filling horizontal silos with layers of alfalfa of increasing maturity will allow harvest to begin a little earlier because the layers of alfalfa are blended as the alfalfa is removed from the silo.

Alfalfa harvest should begin this week (week of May 14) for most locations in Southern Michigan. Those locations with NDF concentration greater than 35% on May 7 should start early this week and those between 32 and 35% NDF on May 7 might wait a few more days depending upon the weather. Scout fields to determine weed pressure and damage from disease and insects that can make timely harvesting even more important. Sampling will continue for the week of May 14 and results again will be reported through MSU Extension News (news.msue.msu.edu).

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