

## Impact of 2012 Spring Weather on Alfalfa Quality – Week of May 14th Sample Results

Faith Cullens, Mike Allen, Phil Kaatz, Kathy Lee, Jerry Lindquist, and Roberta Osborne

### Unusual spring weather has impacted alfalfa growth patterns across Michigan

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 and third week of May from 16 alfalfa fields across the state. New fields located in Falmouth and McBain and Marion, MI were added to the samples. Samples were analyzed by wet chemistry for NDF and correlations with PEAQ stick measurements and GDD were evaluated.

### Results of the May 14 or 15, 2012 sampling

City	5/1-2 LAB NDF	5/7-8 LAB NDF	5/14-15 LAB NDF	5/14-15 PEAQ	5/14-15 GDD	5/14-15 GDD NDF
West Olive	28.7	35.5	36.2	38.4	752	40
Zeeland	29.7	37.4	37.8	39.2	752	40
Zeeland	30.5	37.2	37.6	36.4	752	40
St Johns	28.3	33	34.4	32.6	698	38.5
St Johns	30.5	35.5	41.2	36.1	698	38.5
St Johns	29.4	36.2	38.5	36.1	698	38.5
Portland	31.1	35.4	35.8	35.9	693	38.3
Coldwater	31.0	36.4	35.9	38	873	42.9
Quincy	29	36.5	36.7	39	873	42.9
Jonesville	30.6	35.1	37.8	*	840	42.2
Brown City	26.4	30.2	32.3	32.9	644	36.8
Brown City	28.1	32.8	35	35.2	722	39.1
Marlette	26.4	30	30.5	32.5	640	36.7
Falmouth			27.6	**	527	32.7
McBain			26.9	**	527	32.7
Marion			30.6	28.7	527	32.7

\* field was harvested before PEAQ measurement was taken

\*\* alfalfa was not tall enough to measure using PEAQ stick

For fields that have been previously sampled, LAB NDF only increased 1.4 percentage units from 34.7% to 36.1% over the last 7 days; an average increase of 0.2 percentage units per day. However, the increase ranged from -0.5 to 5.7 percentage units across locations. NDF predicted by PEAQ increased 3.7 units over the last week while NDF predicted by GDD increased 3.3 units, both were greater than the 1.4 units increase measured by the LAB.

For all locations (including the 3 new locations), NDF predicted by GDD was 3.6 percentage units higher (38.2%) than the LAB values (34.6%) with a range of -2.7 to +6.2 units. NDF values predicted by PEAQ was 0.1 percentage units lower than the LAB values with a range of -5.1 to 2.3 units. However, PEAQ was not measured on several samples (see table footnote).

Overall, the increase in predicted NDF values by GDD and PEAQ was not reflected in the lab values. NDF values predicted by PEAQ are now closer to the lab measured values than GDD predicted NDF values.

This year, because of setbacks in growth by the multiple frosts, we are predicting that alfalfa should be at 40% NDF around 850-900 GDD. 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. To view the Alfalfa Cutting Model predictions for GDD corresponding to your area, go to: [www.enviroweather.msu.edu/run.php?stn=msu&mod=a\\_afc](http://www.enviroweather.msu.edu/run.php?stn=msu&mod=a_afc)

Alfalfa harvest began last week (week of May 14) for most locations in Southern Michigan. Central Michigan and the Thumb area began harvesting the week of May 21. Weather forecasts are predicting GDD to reach 850-900 in the East central part of the state on Friday May 25, 2012 and in the McBain sampling area around the first week of June. Sampling will continue for the week of May 21 and results again will be reported through MSU Extension News ([www.news.msue.msu.edu](http://www.news.msue.msu.edu)). For the article reporting results from the first two weeks of May, go to [www.news.msue.msu.edu](http://www.news.msue.msu.edu)

Financial support for this project has been provided by Byron Seeds, Cumberland Valley Analysis Services, Inc., Mycogen Seeds, and Pioneer Hi-Bred Int'l.