



THE VALUE OF FRESH CUT® BRAND PLUS IS IN THE QUALITY OF THE FORAGE IT PROTECTS AND BRINGS TO THE HERD

KEY CONCLUSIONS

- *Well managed, risk reduced hay (22% moisture compared to 15%) treated with Fresh Cut® brand Plus hay preservative (applied at recommended levels), fed to cows producing more than 90 lbs of daily milk (NDFD24 data) can show economically important improvements in milk production -- as much as 1100 lbs of milk per ton of forage (1741 vs. 2800 pounds of milk per ton of forage).*

INTRODUCTION

Bale heating, bale color and protein damage are observations that must be converted to economic value using equations that calculate expected animal performance. Equations that calculate animal performance are based on chemical composition and digestibility of nutrients at the time of feeding. When a producer chooses a hay preservative to protect his investment, he has to base it on the nutrient preservation value and not just upon cost per pound to treat.

OBJECTIVES

The objective of the evaluation reported here was to quantify the value of Fresh Cut® brand Plus hay preservative and three commercially available acid-based hay preservatives based upon their ability to retain as much as possible of the original nutrient content of baled hay at different moisture levels.

RESULTS AND DISCUSSION

Six bales were made of each additive/application rate in each of two cuttings, first (May) and fifth (October). At each cutting, three moisture levels were compared: wet = greater than 26%, medium = 20 to 26% and dry = less than 20%. These were baled and stored for twenty-one days.

For the calculated data in the table, the equations used were those contained in the alfalfa-grass worksheet in Milk 2000 (University of Wisconsin spreadsheet, Madison, WI). The calculations for total digestible nutrients (TDN) were modified so that the measured values for protein digestibility (CPD) could become part of the calculations instead of using the constant 93% as the algorithm was originally written. The second modification allowed the TDN calculation to use NDF digestibility (NDFD) at 48-hours (as the algorithm was originally written) and NDFD at 24-hours (modification). NDFD24 approximates the metabolism of cows producing more than 90 pounds of milk daily. Results of calculations using NDFD24 are shown in the three right columns.



The original digestion values of 97% for crude fat (%EE) and 98% for non-fiber carbohydrates (%NFC) were used. All values for nutrient content used as inputs to the TDN equation were measured for each sample.

Modified TDN equation used for these calculations

$$TDN = (((CPD/100)*\%CP)+(0.97*(\%EE-1)*2.25)+(\%NFC*0.98)+((\%NDF-\%NDICP)*(NDFD/100)))-7$$

The table below illustrates theoretical milk production estimates calculated using Milk 2000 (modified as explained above) based on nutrient measurements of hay treated with Fresh Cut® Plus and untreated hay (Treatments Untreated and Positive Control). All treatments were baled at three moisture levels. Treatments at the same moisture level have similarly colored rows. High moisture is in the white rows; medium in gray rows, and low in blue rows. High Moisture appears to be a hay-making situation with limited practicality. Therefore, all data is omitted to enhance the readability of the table. Results of calculations using NDFD24 are shown in the three right columns.

Treatment	Application Rate lbs/ton	Moisture %	CP % of DM	CP Digestibility 12 h IV % of CP	NDF % of DM	NFC % of DM	NDF Digestibility 24h IV % of NDF	adj TDN % of DM	Milk per Ton (lbs/ton)
Fresh Cut® Plus	8	23.6	21.2	73.6	30.5	36.66	40.6	62.4	2863
Fresh Cut® Plus	8	13.2	21.0	77.0	31.1	37.25	40.1	61.7	2809
Fresh Cut® Plus	12	23.7	21.1	78.3	31.1	37.40	36.6	60.60	2694
Fresh Cut® Plus	5	14.0	20.6	73.6	33.1	35.83	37.6	59.2	2604
22 Untreated	NA	23.6	20.6	63.8	40.1	27.81	24.9	51.9	1938
Positive Control	NA	14.1	20.9	67.6	35.4	33.23	31.3	48.1	1741
High	Situation is of limited Utility.								
Moisture	Therefore, all data is omitted to enhance the clarity of the table.								
Treatments	Data is available upon request.								

From the perspective of hay management and additive use, the NDFD24 data show that:

- At low moisture, TDN for Fresh Cut® Plus is approximately 12 units greater (P<0.10) than the positive control (low moisture and no additive)...61.7 and 59.2 versus 48.1.
- At medium moisture, TDN for Fresh Cut® Plus is approximately 10 units greater (P<0.10) than the positive control (medium moisture and no additive)...62.4 and 60.6 versus 51.9.

Fresh Cut® Plus reduces the losses of feeding value caused by the production of heat-damaged protein and lowered protein digestibility in bales during storage. These improvements can mean a reduction of the risk of lowering feeding value of hay slowly wilting in a windrow during the weather patterns “normal” at the times of first and fifth cuttings. During these wilting conditions, hay can be baled sooner after cutting.