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. . HERD >ROUND THE RANGE

OCTOBER 2000

IN THIS ISSUE

TAX CREDITS FOR FEEDING RICE STRAW

There is a $15/ton tax credit for the purchase of California-grown rice straw that can be used against the "net tax" of California state income tax. The Rice Straw Utilization Tax Credit Program was established by SB 38 (Lockyer, Ch 954, 1996) as Section 17052.10 of the State Revenue and Taxation Code allows for aggregate amount State Tax credit of $400,000 each year granted to all taxpayers on a first-come-first-served basis, for rice straw purchased on or after January 1, 1997 and before January 1, 2008. The taxpayer must be the "end user" of the rice straw, which includes the use for livestock feed, and cannot be related to the person selling the straw.

Under the law, the California Department of Food and Agriculture (CDFA) must:

- certify that a taxpayer has purchased rice straw during a specific taxable year,
- issue certificates to qualified taxpayers on a first-come, first-served basis,
- provide an annual listing to Franchise Tax Board,
- provide the taxpayer with a copy of the certification,
- obtain the taxpayer's identification number,
- provide an annual informational report to the Legislature.

The CDFA will be accepting tax credit applications for purchases made during 2000 starting on Wednesday, December 6, 2000 at 8 A.M. The CDFA is still accepting applications for prior years.

For more information and certification contact CDFA representative, Steve Shaffer at (916) 653-5658 or at <sshaffer@cdfa.ca.gov>. He has provided a complete packet, of which copies can be obtained at both the Yuba City and Oroville Cooperative Extension offices.

TIPS FOR SELECTION OF RICE STRAW FOR FEED

Because the forage quality of the rice straw varies greatly, it would be prudent to evaluate each stack before purchase. Here are some suggested actions and questions to ask the grower before purchasing rice straw for feed.

ACTION TO EVALUATE THE STRAW

- Laboratory test for feed value (crude protein, crude fiber, and silica or ash)
- Look for grain retention in the heads
- Sample for mold

QUESTIONS TO ASK THE GROWER

- What Rice Variety is it (Akita, M401, Calmati tend to have better feed quality)
- Type of harvester (the rotary tends to chop the straw in shorter pieces)
- Was the straw cut above the water line? (silica or ash levels tend to increase when cut lower)
- How many days after harvest was it baled. (the longer straw is in the field lowers the palatability)
- What was the nitrogen fertilization level (higher levels have increased protein content of straw)

RICE STRAW HAYLAGE DEMONSTRATION

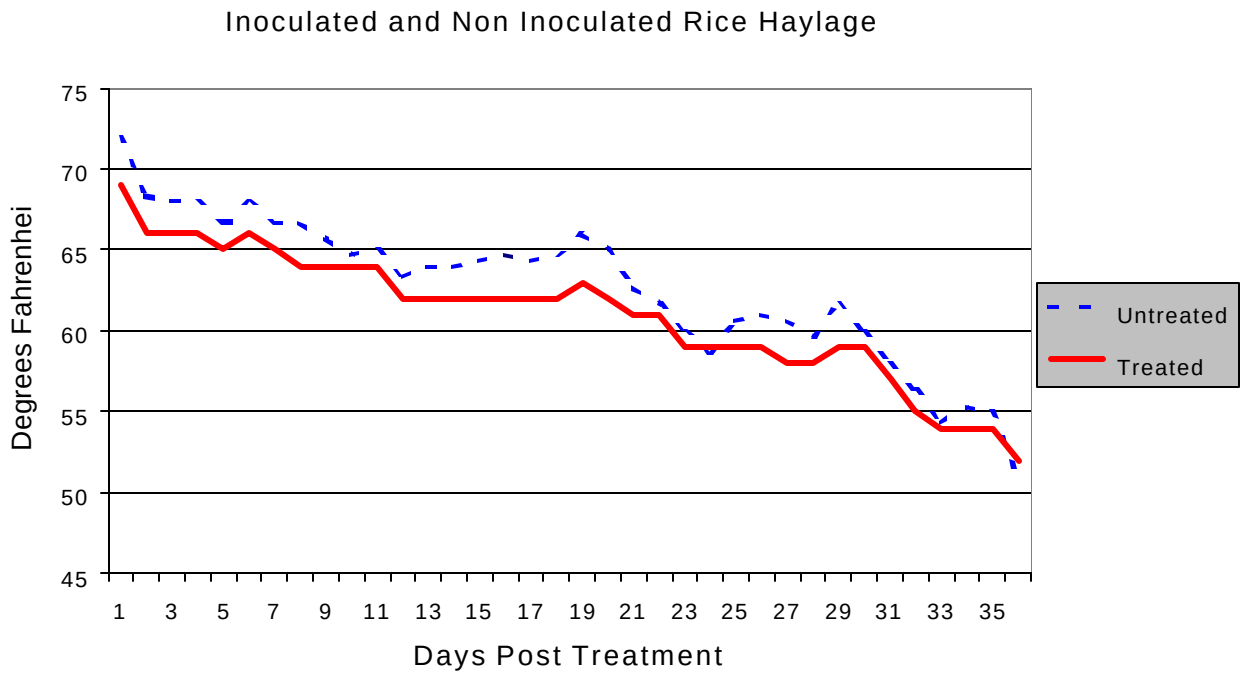
By Glenn Nader and Dustin Flavell

RESEARCH DEMONSTRATION DESIGN

A field of M202 variety rice was baled by a New Holland Silage Round Baler right behind the harvester in the District 10 area, outside of Marysville on October 11, 1999. The harvester cut above the water line of the rice plant. The harvest moisture content of the silage bales ranged from to 58 to 62%. Forty (40) round silage bales of rice straw were baled. Half of the bales where randomly treated with a silage inoculant from J Bar D Ag Ltd. through a blower unit mounted on the baler. The bales were hauled out of the field to the ranch headquarters by forklift and individually wrapped onsite using a New Holland Silage Bale Wrapper with six layers of plastic within two hours of baling and stored there.

TEMPERATURE OF THE BALES DURING ENSILED PERIOD

Eight randomly selected bales (four inoculant treated and four untreated) had computerized thermistors inserted into the bale to monitor temperature during the thirty-day fermentation period. The temperature was recorded every hour for thirty days. The average daily temperature for both groups can be seen in the graph on the next page.



The inoculant treatment did have an observed effect on the temperature of the ensilage process, but it was not scientifically different. The temperature can play an important role in the proper ensilage process. Too warm an oxidation or browning can occur. It is thought, that the difference in these two average temperatures is not enough to alter the ensilage process.

SAMPLING AND NUTRITIONAL ANALYSIS

Samples were taken from 10 bales on the day of processing with a Penn State hay probe. The bales were sampled again thirty days later. The difference between these two sets of samples can be attributed to the ensilage process. Samples were also taken from bales with and without inoculant to determine the impact of its treatment on forage quality. Special tape was used to reseal the holes made in the wrapping when sampling. All samples were frozen and submitted to a private laboratory for analysis and are reported on 100% dry matter basis. The moisture content was 55 to 62% for the bales. If you use 60% moisture, the crude protein content of the rice straw haylage would be 5.92% on an as fed basis.

PRE-ENSILED (REPORTED ON 100% DRY MATTER BASIS)

	Crude Protein	Crude Fat	Fiber	Ash
Treated	10.04	3.6	43.0	15.1
Untreated	9.48	3.2	43.8	14.2

The samples that were submitted to the laboratory after 30 days of ensiling appeared to have errors in the moisture and volatile fatty acids handling and calculations. Thus, no data on the impacts of silage

production process are reported at this time.

ANIMAL CONSUMPTION

Twenty cows were fed rice straw haylage at the Smith Ranch for 14 days to determine consumption. They consumed an average of a bale per day or 721 pounds. On a per cow per day basis that was 36 lbs. as fed and with an average of 60% moisture, 14.9 lbs. on 100% dry matter. At the beginning of the feeding period the cows did not consume the supplement ration provided free choice. The supplement was changed to 33% rice bran and 67% dried poultry litter and the cows started consuming 12 lbs. per head per day. The hair coat improved with the intake of the supplement.

The Rice Research Board and New Holland Equipment Company Service funded this research and Beeler Tractor provided installation of the equipment.

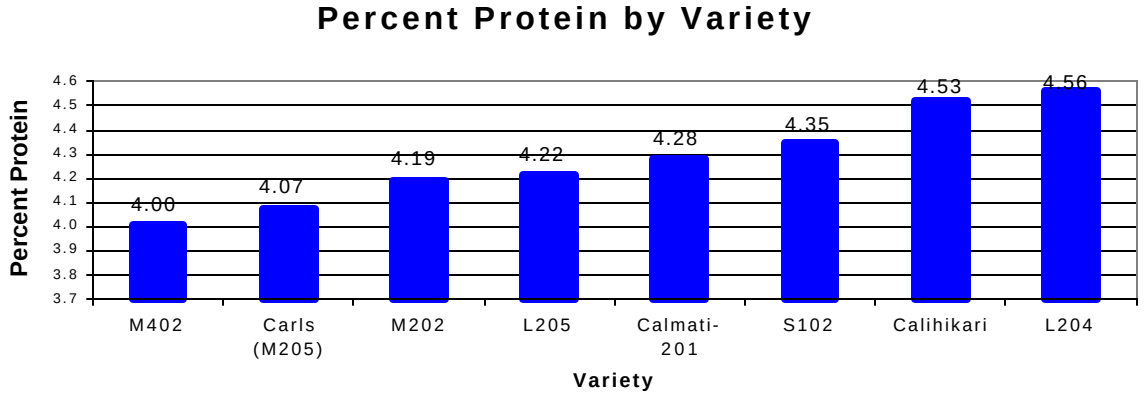
DOES RICE VARIETY MAKE A DIFFERENCE IN STRAW QUALITY?

By Glenn Nader, Cass Mutters, and Dustin Flavell

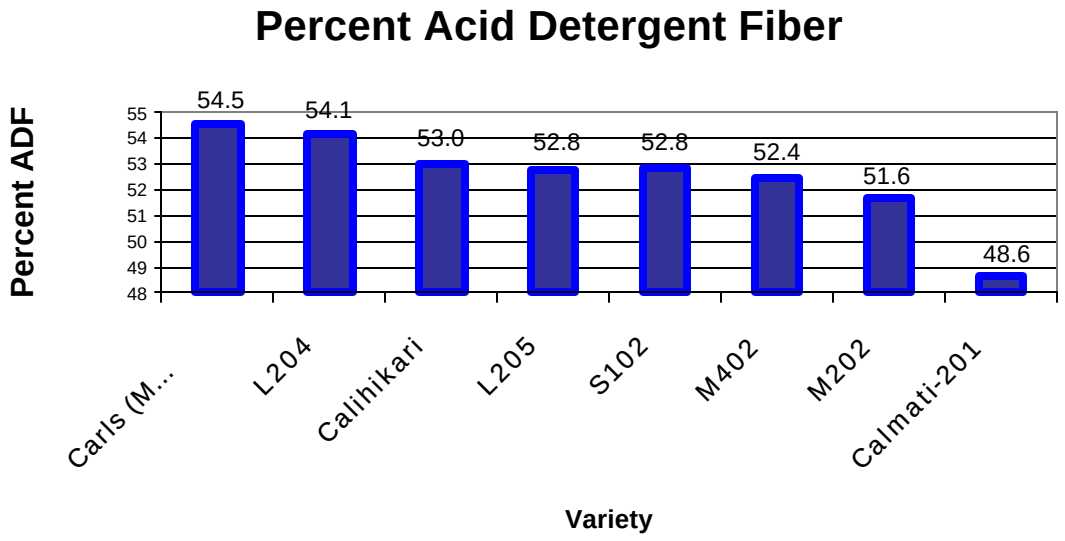
Field studies have revealed a large degree of variation in the nutritional quality of rice straw. Last year straw was harvested from a variety research project of Butte County Rice Farm Advisor Cass Mutters at the Rice Research Station at Biggs. The study investigated eight varieties. The plot size was 10' by 20' replicated four times in different blocks totaling 192 plots. Along with the traditional grain production information the straw was collected one day after combining and air-dried analyzed by the University ANR Laboratory.

Field wisdom is that Akita straw was and is the best variety to use for livestock feed. (See Nader and Dye 1999). Protein and digestibility are the two parameters that are important in nutritional evaluation.

A dry or non-lactating cow requires a total diet that consists of seven percent protein. Other feeds would still be required to balance the protein requirements. Calihikari and L204 are about a half percent higher in the protein levels. This could be attributed to plant physiological state at harvest or how the plant partitions nitrogen.



The fiber was determined by using the process of Acid Detergent Fiber (ADF). The lower the value the more digestible or usable by the animal. This indicates the portion of the plant that consists of cellulose, lignin and variable amounts of silica. ADF is the best predictor of forage digestible dry matter and digestible energy. It was surprising to see M202 on the lower or more digestible of the group. Calmati 201 separated greatly from the rest of the varieties, and since digestibility is one of the limiting factors of the use of rice straw, this is a very significant difference.



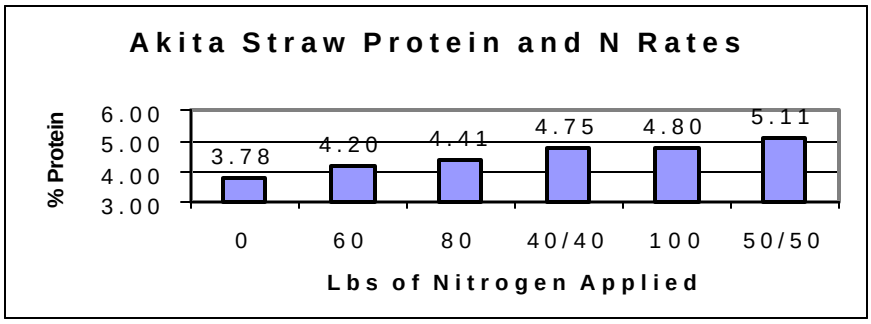
FERTILITY MANAGEMENT AND RICE STRAW QUALITY

By Glenn Nader, Cass Mutters, and Dustin Flavell

Two Akita fertility management locations had both grain and straw data collected. The six different fertilization treatments were as follows:

Treatment	Basal	Panicle Initiation
1	0	0
2	60	0
3	80	0
4	40	40
5	100	0
6	50	50

They were repeated four times in a complete randomized block design. Akita has long been thought to be one of the better straws for livestock feed, due to grain retention and straw structure. The straw protein had a direct and significant response to nitrogen applied. The split applications were even more efficient in the conversion of nitrogen applied to straw protein.



The Acid Detergent Fiber increased with the amount of nitrogen. No fertilization treatment had the best or lowest fiber percent. The fertilization plots had no difference in the ADF.

Lbs. of Nitrogen	% ADF	Homogeneous groups at the .05 level
0	44.5	A
60	46.6	b
80	47.6	bc
40/40	47.6	bc
100	47.8	bc
50/50	48.3	c

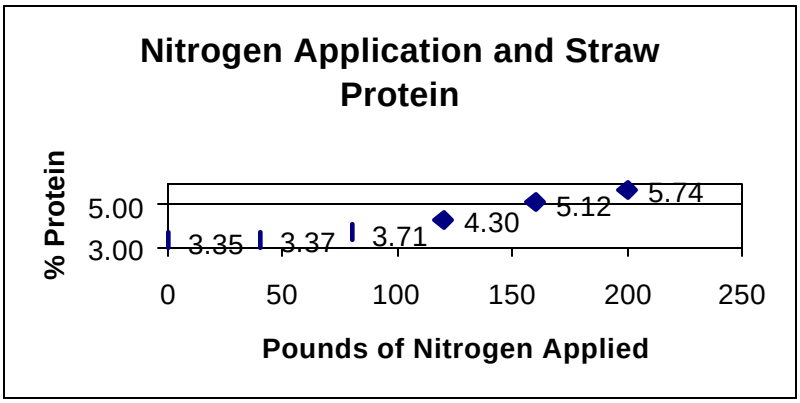
The ADF values did vary by location:

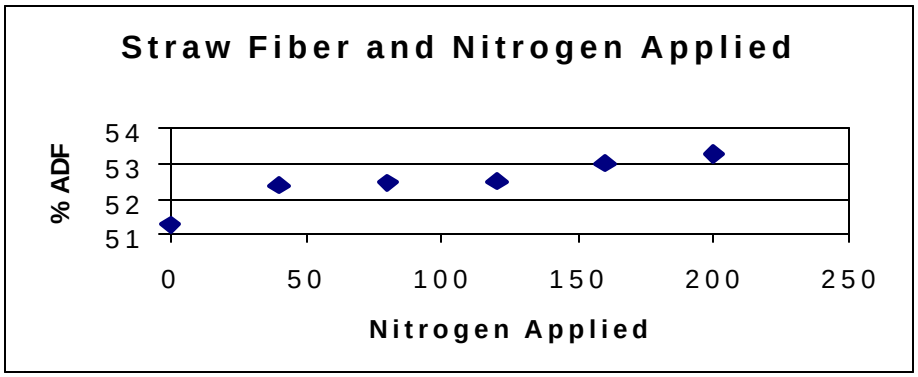
Pleasant Grove	46.2
Biggs	48.0

There were no differences in silica content due to nitrogen application. Some think that the differences in silica are due to soil that is attached to the plant below the water line. Cutting above the waterline on straw does decrease the silica content.

The Rice Research station plot also studied the response of eight different rice varieties (M202, Carls M205, 402, L204, L205, S102, Calmati-201, and Calihikari) straw quality to six different levels on nitrogen fertilization management (0 to 200 pounds) was studied at the Rice Research Station at Biggs.

The response in straw protein quality of these eight varieties to the nitrogen fertilizer was similar to Akita, with a 2.39% difference due to treatment.





ADF increased with the amount of nitrogen applied. Straw silica levels were not affected by the fertilization.

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