

## 2008 Livestock Straw Outlook

The drought has again caused a shortage of lower quality hays to be available to both Dairy and Beef cattle operations. Most range beef operations will have reduced amounts of dry grass on the rangeland for fall and winter feed and will either need to sell off animals or purchase feed. In the past, many have purchased rice straw and spread the straw out on the rangeland and provided high protein supplement to get them through the winter. In Siskiyou County, winter feeding costs have doubled in the last two years due to high hay prices and now are estimated to average \$2.39 per cow per day. Grass hay prices in the mountains range from \$150 to 200/ton. Dairy operators are starting to use rice straw in their replacement heifer rations. Rice straw replaces wheat straw at 2 to 3 pounds per head per day. The slicer baled straw is preferred, as it will mix directly into the feed ration without chopping. Flailed chopped straw will work without chopping, but takes longer



to mix and does not mix as well. The amount of rice straw dairymen will purchase depends on how much wheat straw is available and price. Last year wheat straw was \$90/ton. This year dairies are

reporting that they are paying \$105 to 120/ton. Some rice growers are reporting that the custom bale prices have increased up to \$30/ton.

Rice straw demand will depend on the quantity of

## New Chairman

New RRB directors were elected at the 8/5/08 meeting. The new Chairman is Mike Daddow of Nicholaus, replacing Tom McClellan. Brett Scheidel became the new Vice-Chairman, and the Board welcomed Zachary Dennis as the Secretary Treasurer. Officers are installed for a one year term, though at the pleasure of the Board they often serve for longer periods.



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wheat straw available as well as its price. I would still not recommend putting up straw without a marketing plan. Contact hay brokers, cattlemen, and dairy operations to develop sales outlets.

## PLA Plastic

For decades, the RRB has participated in projects seeking new ways to use rice straw and other “waste” products. Currently, the Board is funding a project at CSU Chico (\$7500) that turns rice hulls and straw into PLA plastic. This project is a cooperative effort with Sierra Nevada Brewery and several other groups. A project summary follows:

Lactic acid can be produced from rice and beer waste materials via bacterial fermentation. Solid agriculture waste from rice bran and rice hulls are converted into sugars and then to lactic acid via fermentation. The fermentation occurs with a strain of *Lactobacillus* in a reactor vessel.

Lactic acid is produced from three essential components, namely, bacterial, nitrogen, and carbohydrate sources. The nitrogen from waste beer yeast was released as peptides and amino acids by boiling in water for 15 minutes to increase lactic acid yields. Rice hulls and rice bran are an acceptable carbohydrate source for lactic acid production. Rice

hulls and rice bran are converted to glucose through hydrolysis step and then the glucose is converted to lactic acid



from the bacterium in the presence of nitrogen media.

The optimum way to convert rice bran or rice hulls to glucose is with exposure to steam and an enzyme. Glucose concentrations were measured with a glucometer. 10.3% of the rice bran and 2.8% of the rice hulls are converted to glucose. Lactic acid is produced from waste beer yeast products of rice bran and beer yeast.

Production of lactic acid from rice bran and beer waste achieved 85% of production of lactic acid as did production of lactic acid from commercial glucose and media. Thus, it is technically feasible to produce lactic acid from rice bran and rice hulls. Further research is needed on the hydrolysis step to increase the amount of rice bran and rice hulls that are converted to glucose.

Also, further research is needed to increase the overall conversion rate of glucose to lactic acid. The next phase of the research will include these two areas as well as polymerization of lactic acid to polylactic acid and production of plastic parts from beer and rice waste.

## 2008-09 Budget

The RRB passed their new preliminary budget for the 2008-09 year. The assessment rate was held at six cents. The focus of the Board’s efforts remains on providing growers with an efficient organization that maximizes the amount of funds going to research.

The actual amount spent on research is determined in March of each year, after a large percentage of the crop is counted. This way, the Board does not spend funds it does not have.

The preliminary budget establishes the Board’s best guess on income for the 2008 crop and sets general parameters for the amount that will be spend on research.

A summary of the budget is shown below:

## 2008-09 Budget Summary

	General fund	Reserve fund	Totals
Carryover	26,000	2,918,500	2,944,500
Income	2,584,000	(98,000)	2,488,000
Total Income	2,610,000	2,822,500	5,432,500
Operating Expenditures	191,200		191,200
Research Expenditures	2,457,032		2,457,032
CDFA Oversight	28,000		28,000
Total Expenditures	2,676,232		2,676,232
Unallocated Reserve	(66,232)	2,822,500	2,756,268