

RESEARCH UPDATE 1993

DAIRY

Alabama Dairy Producers Surveyed About Milk Handling Services

The dairy industry of Alabama has experienced major changes during the last decade. The number of farms with milk cows has declined more than 60% since 1982. However, the number of milk cows in the state has declined only about 30%, suggesting that mostly small farms have been exiting the dairy business (see figure). Moreover, milk production and cash receipts from dairying have declined even less than

cow numbers, indicating improved production and economic efficiencies among the remaining dairy operations. This trend in efficiency is reflected in the steady increase in average milk production per cow over the decade.

Changes also have occurred in marketing strategies for milk. Many commercial dairies now have more options in choosing who will handle their milk. A survey of dairy farmers

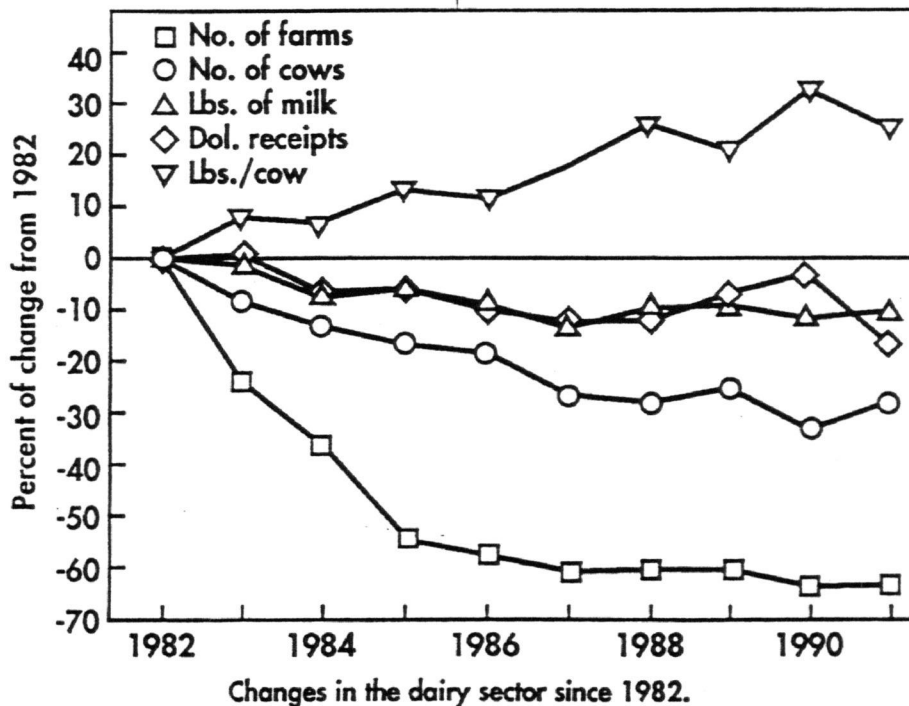
in the Southeast was conducted by the AAES in conjunction with the U.S. Department of Agriculture-Agricultural Research Service. The survey was designed to evaluate dairy farmers' satisfaction with the services provided by their milk handlers.

In Alabama, about half of the survey respondents were members of a milk marketing cooperative, while the other half were affiliated with independent, proprietary milk handlers. More than one-third of the respondents had changed handlers in the last five years, with "better prices" being the most common reason cited for changing handlers. Most of these had changed from a cooperative to an independent plant (59%) or from one independent plant to another (23%). Only 5% had changed from an independent plant to a cooperative.

Those who had remained with a cooperative for the previous five years cited "assured market" and "stable and secure operation" as the strongest influences for their allegiance. Only 10% had to market their milk through a cooperative because no other handlers were available.

One way of estimating the value of belonging to a cooperative is to compare the price received from the

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Nutritional Value of White Lupin Ensiled Under Different Regimes

The grain of sweet white lupine, a large tall-growing winter legume, has been used successfully as a protein supplement for dairy cows and calves. The high protein (18%) and dry matter yields of lupin plants indicate that lupin may be a good forage source. However, information on using the whole lupin plant as a forage is limited.

The study sought to determine whether addition of ground corn or a live microbial inoculant at ensiling would improve fermentation characteristics and digestibility of lupin silage. Different cultivars of lupin also were evaluated to see if these cultivars would have similar responses to ensiling treatments.

COMPOSITION OF TIFWHITE-78 AND LUNOBLE WHITE LUPIN

Quality variable	Tifwhite-78		Lunoble
	April 29	May 14	May 19
Dry matter, %	25	28	30
Crude protein, %	18.4	14.7	14.7
ADF, %	33.6	36.8	38.5
NDF, %	38.7	46.5	45.1
ASH, %	—	4.7	4.7
NEL, Mcal/lb.	.6	.6	.5
RFV	153	120	122

An AAES study was conducted to evaluate lupin's potential as a forage.

Due to large stems and the potential for loss of leaf, making silage with the whole lupin plant appears to be the most practical approach for forage use. Lupin harvested for silage could fit well into a double cropping system with tropical corn or sorghum silage. Lupin, as a legume, might not have adequate energy for good fermentation, and the large diameter stalks and time of ensiling of lupin could create moisture problems for ensiling.

Fall-planted Tifwhite-78 and Lunoble sweet white lupin were the forage sources. Each cultivar was ensiled as: (A) no treatment control; (B) 90% silage-10% ground corn; (C) 80% silage-20% ground corn; or (D) microbial inoculation added at 227 mg per pound of wet weight. Eight five-pound samples of each treatment were packed into small laboratory silos made of PVC pipes. Silos were stored under controlled conditions at 77°F for 130 days.

The dry matter (DM) content was 28 and 30%, respectively, for Tifwhite-78 and Lunoble at ensiling (see table). Although DM remained essentially unchanged due to moisture in the stalk, the nutrient content of Tifwhite-78 decreased drastically from initial pod development (April 29) to that at ensiling time. The crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), calculated values of net energy for lactation (NEL), and relative feed value (RFV) were very simi-

lar for both cultivars at ensiling and at 130 days. Energy content was similar but protein content was higher than that of sorghum silage. The calculated RFVs are better than many grass forages, but not greatly different from mid-bloom alfalfa forage or sorghum silage.

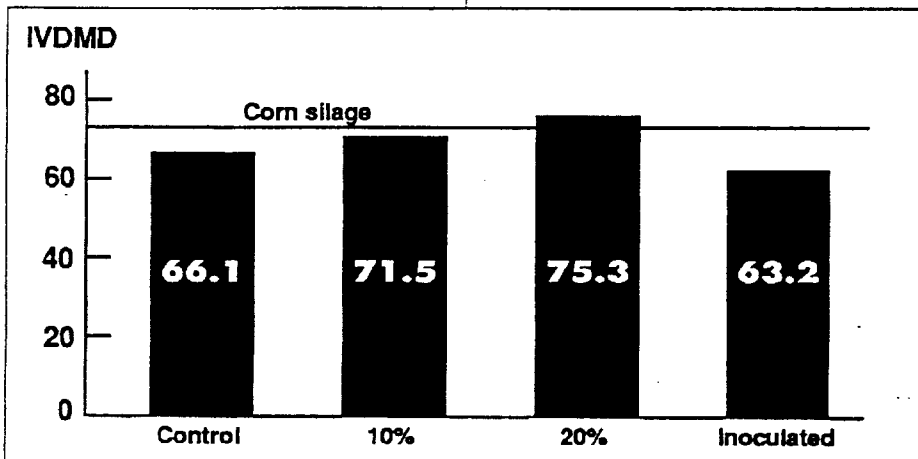
Although initial pH values were similar for all treatments, the pH values of inoculated silage was lower than any other treatment or the control. However, the pH of all silages were considered satisfactory (less than 4.5) for good silage making.

In vitro dry matter digestibilities (IVDMD) were the same for cultivars and were similar for the inoculated and control groups (see figure). The control IVDMD values were less (73.1%) than values for three varieties of corn silage, but compare favorably with nongrain forages. Addition of ground corn increased the IVDMD, but this was due primarily to the addition of corn rather than enhanced fermentation of the ensiled product. A second IVDMD was conducted in which 10 or 20% corn was added to the control silage just prior to analyses. Additions at this time increased IVDMD to values similar to those of the ensiled corn/lupin.

Tifwhite-78 silages had higher acetic and lactic acid concentrations than Lunoble silages during the first three days. Treatments B and C did not affect acetic acid content of Lunoble silage, but acetic acid content was lower for the inoculated treatment at 130 days. Lactic acid concentration was greater in the inoculated treatment than for other treatments. The concentrations of acetic and lactic acid were similar to reported values for grass silage but less than reported values for alfalfa. The lactic:acetic acid ratio for Tifwhite-78 was less than that for Lunoble. A low concentration of butyric acid is desirable for good silage, and butyric acid concentrations of all silages in this study were less than 0.1%.

Results indicate lupins could be stored as silage, but more research is needed on this promising feed alternative.

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In vitro dry matter digestibility (IVDMD) of various treatments compared to whole-corn plant silage IVDMD value (73.1). The corn silage value is an average of three varieties cut at about two-thirds milk time.