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TECHNICAL NOTE:

THE EFFECT OF GLIRICIDIA SUPPLEMENTED DRY SEASON FORAGE ON THE MILK YIELD AND COMPOSITION OF MRY (NETHERLAND) COWS IN SRI LANKA

P. A. CHADHOKAR

Sri Lank/IDA Dairy Development Project, Getambe, Peradeniya, Sri Lanka

ABSTRACT

The usefulness of rice polish and gliricidia supplemented grass silage or paddy-rice straw as an alternative feed for MRY milking cows in Sri Lanka, was compared with the traditional dry grass plus commercial concentrate supplemented dry season feed. There were no differences in milk yield or its composition between the alternative feeds and the traditional dry season rations.

INTRODUCTION

A shortage of feed for dairy cattle during the dry season of the Mid-Country region of Sri Lanka (Chadhokar and Lecamwasam 1977) and poor availability of concentrate feed supplements often results in severe reduction in milk production. Alternative feed resources (Ranjhan 1980a, 1980b) including silage, paddy-rice straw, rice polish or good quality rice bran and fodder trees, e.g. *Gliricidia maculata* (Chadhokar 1980) could be used to alleviate this problem. Gliricidia has been shown previously to be a valuable high protein supplement for sheep (Chadhokar and Kantharaju 1980) and jersey cows (Chadhokar and Lecamwasam 1982). This note reports on the effect of supplementing paddy-rice straw and silage with Gliricidia on the milk production of MRY (Netherland) cows.

MATERIALS AND METHODS

Maas Kyn Yssel (MRY) imported cattle, from the Mahaberiatenne Farm of the National Livestock Development Board (20 km from Kandy), 2.5 to 3.5 months into their first lactation were fed various rations supplemented with freshly cut gliricidia in an indoor feeding trial. The three treatments (on a dry weight basis) were:

1) Freshly cut and chopped mature herbage of *Panicum maximum* and *Brachiaria brizantha* provided daily and supplemented with 4.3 kg of a commercial concentrate mixture, Poonac (sold as Morlac plus, containing coconut cake, rice polish and wheat flour).

2) A 50:50 mixture of paddy-rice straw and freshly cut leaves of 6–8 month old gliricidia, plus 3.3 kg rice polish and 0.9 kg Poonac daily.
3) A 50:50 mixture *P. maximum* and *B. brizanthia* silage and gliricidia plus rice polish and Poonac as in treatment 2.

These treatments were replicated six times (individual cows) in a randomized block design. Animals were supplied with fresh water and a daily dose of 50 g of a commercial mineral mixture.

After a two week adjustment period cattle were fed at a rate 20% greater than the estimated requirement for a 450 kg cow producing 10 l milk day^{-1}. Leftover feed was weighed daily to determine intake. Samples from this were retained for determination of chemical composition (Table 1). Intake, milk yield and composition, and liveweight changes were measured over a 60 day period.

TABLE 1

Various feed components and their chemical composition

Treatments	Chemical composition as percentage of drymatter				
Feed components as drymatter	Dry matter	Crude protein	Crude fibre	Ash	Ether extract
Fresh grass	29.5	9.5	29.0	10.6	1.3
Silage	30.0	9.4	30.5	11.5	1.5
Paddy Straw	89.0	6.0	28.7	16.0	1.2
Gliricidia	27.0	18.9	16.1	12.0	1.7
Rice polish	95.0	10.2	9.3	9.8	15.5
Poonac	95.0	17.2	12.2	6.4	5.6

Results

Feed intake was slightly higher (not significantly different) in the experimental period than in the 2-week pre-measurement period. Intake ranged from 12.4 to 13.9 kg cow^{-1} day^{-1}. Milk yield declined from an average of 6.00 to 4.25 kg milk cow^{-1} day^{-1} during the experimental period. There was no significant differences between feeding treatments at any time. The average milk yield (5.7 to 5.9 kg cow^{-1} day^{-1}), fat (4.24 to 4.37%) and solids not fats content (8.89 to 8.98%) also were not significantly different between treatments.

DISCUSSION

These results indicate that the alternative feed sources of paddy-rice straw or grass silage mixed with gliricidia and, supplemented with rice polish and a small amount of Poonac, were as satisfactory as dry season grass and poonac. Milk yields declined with these alternative feed sources but no more so than with the currently used freshly cut mature grass and concentrate system (treatment 1). The decline was attributed to unusually hot weather affecting the MRY cattle (Dharmasiri, personal communication). The generally satisfactory result obtained using gliricidia as a high protein supplement agrees with earlier observations with sheep (Chadhokar and Kantharaju 1980, Kantharaju and Chadhokar 1981), milking Jersey cows (Chadhokar and Lecamwasam 1982) and growing heifers (Chadhokar, unpublished data). The one disadvantage is a slight taint (smell only) of the milk.

In Sri Lanka there are some two million tons of paddy-rice straw available annually (Amarasiri and Wickramasinghe 1977). If this could be supplemented with gliricidia and an energy source, like rice polish, the problem of feed shortage in the dry season could be greatly reduced and animal production levels maintained at a higher level.

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PROCEEDINGS
MITCHELL GRASS MANAGEMENT AND OTHER ASPECTS OF WESTERN QUEENSLAND RANGELANDS
FIELD MEETING—CHARLEVILLE—MARCH 26 and 27, 1982

This two days in the Charleville area, in conjunction with the Queensland Department of Primary Industries (QDPI) and the Australian Rangeland Society, was the first field meeting for 1982. It involved participation in the first of a series of QDPI field days on the theme "Mitchell Grass Management—More Stock Gives More Production, or does it". The "Burenda" concept, setting stocking rates each autumn for the following twelve months on the basis of forage produced over the previous summer, was explained.

This was followed by inspections of CSIRO forage species adaptation trials in the Augathella district and of a property located on mulga (*Acacia aneura*) country. Some of the QDPI research work at Charleville was also seen.

INTRODUCTION TO THE "BURENDA" CONCEPT OF MITCHELL GRASS MANAGEMENT

I. F. BEALE

Department of Primary Industries, Pastoral Laboratory, Charleville, Qld.

If your out-go exceeds your income then your upkeep becomes your downfall. This applies to money but it also applies to animals and plants and land as well. If you've got more animals than feed the results are fairly obvious. Unfortunately for plants the results are not obvious immediately.

Plants harvest the energy of sunlight and use it to convert carbon dioxide to starch for plant growth. The plant in turn can be used as animal fodder. But plant growth is like a bank account. Starting growth after rain depletes the plants savings account of starch i.e. puts it in the red. Leaves have to be relatively large (maybe 100+ mm long) before they can contribute back to the reserves. Grazing at a level that doesn't allow restoration of reserves has out-go exceeding income with downfall of the plant a result. And the downfall of an edible plant species all too often results in the rise of woody or inedible plants e.g. wiregrasses, (*Aristida* spp.) and the downfall of animal production.