

## BYPASS PROTEIN RESEARCH IN NORTH-EAST VICTORIA

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On average, the growing season in Northern Victoria extends from May to November which means that dry forage is the major feed available to grazing ruminants, for the balance of the year (except in the non-irrigated areas). This base feed of either dry, annual pasture or crop stubbles provides little better than stock maintenance. Livestock production in such areas could be considerably improved if higher levels of performance (growth, reproduction, lactation) were possible on this feed.

Hence, one line of research at the Rutherglen Research Institute is examining the potential of bypass protein supplements to boost the performance of ruminants grazing dry feed.

An initial experiment examined the effect of four protein supplements on the consumption of poor quality roughage by lambs over a seven-week period. Twenty, cross-bred lambs of mixed sex and about six-months old were penned individually indoors. After a conditioning period of four-weeks, the lambs were randomly allocated to five treatments. All lambs were provided with an ad lib. supply of hammer-milled, poor quality roughage (mature, dry annual pasture of 43% digestible organic matter, 7% crude protein and 40% crude fibre). The roughage was withdrawn for about 15 minutes each day while the protein supplements were fed and consumed. The same quantity of supplementary, crude protein was fed in each treatment. Individual intakes of the roughage and liveweights of the lambs were measured weekly.

TABLE 1 Roughage consumption and liveweight changes of lambs

Supplement	Treatment		Roughage consumption (g/d)	Liveweight change (g/d)
	Crude Protein (%)	Daily Protein (%)		
Control	-	-	491	-76
Rolled lupins	30	100	597	-12
Lupin pellets	33	90	658	10
Soyabean meal	46	64	643	22
Protected protein nuts**	37	80	739	61

\*\* Fielder-Gillespie Ltd; Tamworth

That experiment identified the protected protein nuts as the most effective supplement in stimulating appetite for the dry pasture and promoting growth. A subsequent experiment examined the response of young cattle fed this supplement while grazing typical, dry forage over the summer of 1980/81.

Two groups of 24 weaner steers (Polled Hereford, about 250 kg liveweight, 12 months old) were stocked on either oaten stubble or dry, annual pasture in late December, 1980. The stocking rate was such that the availability of dry feed would not become limiting over the experimental period.

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The bypass protein supplement was fed daily at levels of 0, 200, 400, 800 and 1000 g per head per day - there being four beasts per treatment. The daily procedure involved yarding the cattle into a small enclosure adjacent to their paddock of dry feed and feeding the supplement to each beast individually in stalls.

The cattle were weighed after a 24 hour fast at the start and end of the experimental feeding period and also weighed full fortnightly during the experiment.

After a conditioning period, the experimental feeding began in mid January and continued for 70 days. To some extent, the experiment was frustrated by above average summer rain (January 63 mm, (37 mm average); February 85 mm (38. mm average)) which caused germination in February. To counter this, the oaten stubble paddock was sprayed to kill the germination, but this was not practical in the dry pasture paddock.

Hence, the results from the steers grazing oaten stubble are probably a true indication of relative performance in that dry feed. But for the pasture treatments, the results at 70 days were no doubt considerably influenced by the green feed available after about mid-February. Therefore results after six weeks are also presented for those treatments.

TABLE 2. Growth of steers grazing oaten stubble or dry pasture and supplemented with bypass protein.

Daily ration of protected protein nuts (g/d)	Average growth rate of steers (g/d)	
	Oaten stubble (70 days)	Dry, annual pasture (70 days)      (42 days)
0	489	570      231
200	583	574      374
400	630	636      464
600	936	650      452
800	811	700      519
1000	961	754      674

Under the grazing conditions of this experiment, oaten stubble provided a more productive base feed than did dry annual pasture.

The bypass protein supplement appeared to be effective in stimulating appetite for dry feed because the response to the supplementary feeding were greater than could be accounted for by the supplement alone.

The results suggest that if a producer is not satisfied with the performance of stock grazing dry feed, then bypass protein should be an effective supplement to feed. Appropriate stock to supplement might include: weaner sheep, yearling bulis and summer calving cows.