



California Grazing Academy
**Fall & Winter Rangeland
Supplementation**



David W. Pratt
U.C.C.E. Farm Advisor

FALL SUPPLEMENTATION: FEEDING THE MICROBES

Destocking due to six years of drought and a terrific growing season last spring left us with more dry feed on our rangelands this fall than we've had the pleasure of dealing with for several years. While low in protein (3-5% crude protein), that dry grass contains a lot of energy. However, without protein supplementation the energy may be unavailable to grazing animals. Here's why:

When it comes to ruminant nutrition, we are feeding more than just a cow or sheep. We are also feeding the microorganisms in the animal's rumen. A cow or sheep can't digest grass any better than you or I. It's the microbes in their rumen that do the job. These microbes require vitamins, minerals, protein and energy just like we do. If one of these nutrients is missing, we've got a problem.

When the microbes lack protein (as is often the case this time of year) they are unable to utilize the energy in the grass the cow or sheep eats. The rumen stays full of undigested feed so the animal eats less and performance suffers. The result: what starts out as shortage of protein causes an energy deficiency. As ranching consultant Stan Parsons says "*Our cows may be standing belly deep in grass, starving to death.*" We can overcome the protein deficiency by providing *degradable* protein (e.g. non-protein nitrogen). By feeding the microbes the protein they need, they will make the energy in the grass available and meet the grazing animal's protein requirement.

CAUTION: FEED THE RIGHT TYPE OF PROTEIN

There are two basic types of dietary protein: *degradable protein*, which rumen microbes are able to use, and *bypass protein*, which "bypasses" the rumen microbes and is digested by the animal in the abomasum. Rumen microbes cannot utilize the energy in dry range forage if the cow is supplemented with bypass protein. Table 1 shows the average proportion of bypass vs. degradable protein in several common feeds.

Supplementation with degradable protein only works when there is dry forage available for the cow. Supplementation with degradable protein, particularly NPN (non-protein nitrogen), on overgrazed and severely grazed ranges, or ranges without much dry feed is *not* recommended.

WINTER SUPPLEMENTATION: FEEDING THE ANIMAL

It's not uncommon to see dry standing feed "melt away" with the rains of late fall and early winter. While these rains will green up the range, we aren't likely to see significant growth until spring. What green feed there is, is good. It is high in protein, but there isn't much feed out there. There is a shortage of dietary energy.

There are several ways to overcome the energy shortage. Most local ranchers overcome it by feeding hay during the winter. However, feeding hay is expensive and some ranchers have found that by shifting their herd's production cycle to better match seasonal range supply, they can significantly reduce and in some cases even eliminate, hay feeding. These producers may find it beneficial to provide a bypass protein supplement in the winter.

Here's why: Stock in good condition can meet their energy requirements by utilizing body fat. However, since this energy goes straight into the blood stream and bypasses the rumen, the rumen microbes have insufficient energy to produce the protein the animal needs. Feeding bypass protein will give the animal the protein she needs.

There are really two important points to remember regarding protein supplementation:

1. When there is plenty of low quality forage you should supplement the microbes. *Supplement microbes with degradable protein.*
2. When there is a lack of dietary energy (lack of forage) you should supplement the animal. *Supplement the cow with bypass protein.*

BYPASS V. DEGRADABLE PROTEIN

NPN (urea) is 100% degradable, but most other protein sources contain both bypass and degradable protein. The following chart shows the relative proportion of bypass and degradable protein in some common protein sources.

**TABLE 1. PROPORTION OF PROTEIN PRESENT AS
BYPASS & DEGRADABLE PROTEIN IN SOME COMMON PROTEIN FEEDS**

	% CRUDE PROTEIN	% OF PROTEIN PRESENT AS: BYPASS DEGRADABLE	
ALFALFA (fresh)	20	20	80
ALFALFA HAY (early bloom)	20	18	82
ALFALFA HAY (midbloom)	19	22	78
ALFALFA HAY (full bloom)	17	28	72
ALFALFA PELLETS	17	35	65
COTTONSEED MEAL	44	50	50
FEATHER MEAL	90	71	29
FISH MEAL	68	60	40
POULTRY MANURE	29	29	71
SOYBEAN MEAL	49	26	74
UREA	282	0	100