

# TECHNICAL BULLETIN

## DAIRY



### PHYSICAL BENEFITS OF LIQUID SUPPLEMENTS FOR BIRD'S NEST DRY COW DIETS

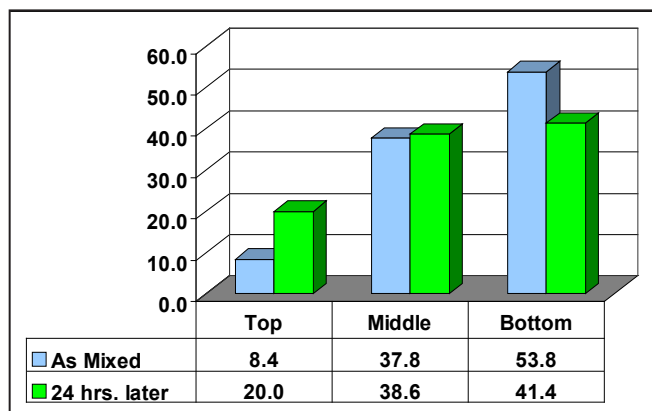
Bird's Nest Dry Cow Diets are bulky, high forage diets – dietary energy is from corn silage, with little grain fed. These diets contain 6-12 lbs/day of low quality forage such as straw, corn stover, or grass hay, to dilute the dietary energy content. Research has demonstrated that preventing energy over consumption during the dry period improves post-calving dry matter intake, milk production, and energy balance (Dann, et. al 2006). Liquid supplement inclusion within a Bird's Nest Dry Cow diet provides physical benefits to enhance diet palatability and consumption of rough forages, ration nutrients, and valuable additives.

#### Decrease Ration Sorting:

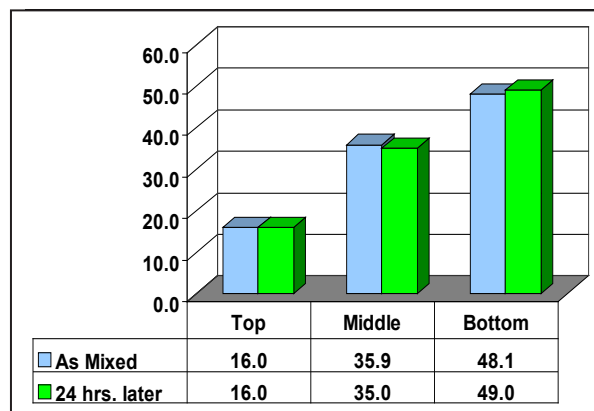
Liquid supplements enhance diet palatability, which reduces ration sorting. QLF Farm Demonstration data shown below shows that addition of 2#/day of QLF Dairy TMR 20 decreased sorting of a high-forage lactation ration.

Low quality forages, which are the “base” of Bird's Nest Dry Cow Diets, such as straw, grass hay, or cornstalks often have low palatability, and cattle will preferentially sort against consuming these rough forages. However, preventing sorting of Bird's Nest Dry Cow Diets is very important. Dr. Jim Drackley, University of IL, states:

“It is critical that the straw or other roughage actually be consumed in the amounts desired. If cows sort out the straw or other high bulk ingredients, then they will consume too much energy from the other [diet] ingredients and the results [of the high forage diets] will be poor” (2007).



Dairy A = Pre Liquid Inclusion 55:45  
Forage:Concentrate



Dairy A = Post Liquid 2#/day TMR 20  
55:45 Forage Concentrate

Continued...

## Improve Intake Consistency:

In addition to enhancing ration palatability and reducing ration sorting, liquid supplements can also improve intake consistency. Adding 3% liquid molasses to the TMR in an 8 week lactation trial at the USDA Dairy Forage Research Center decreased variability in daily dry matter intake from 7.9% in control cows, to 4.9% for cows receiving molasses (Broderick, pers.comm.). Maintaining consistent intakes during the dry period has several benefits for dry cows.

- Feed wastage is reduced.
- Animal nutrient requirements are met on a daily basis.
- Ensures rumen microbes get uniform amounts of rumen fermentable carbohydrate and degradable protein daily.
- Ensures microbial populations are young, growing, and efficient.
- Rumen fill is improved helping prevent displaced abomasum.

## Improve Nutrient & Additive Distribution & Consumption:

QLF offers standard and custom Dry Cow Optimizer products which provide all supplemental dietary macrominerals, microminerals, vitamins, and additives into the Bird's Nest Dry Cow ration. QLF Dry Cow Optimizer offers the advantages of convenient handling and storage, and accurate weighing and metering of product into the daily ration. Also, providing dietary additives through a liquid supplement prevents ration separation from occurring. Dry, powdered additives may sift to the bottom of a feedbunk, where they may not be consumed. When the additives are contained within a liquid supplement, ration separation does not occur.



**Bird's Nest Ration – Dry Mineral**



**Bird's Nest Ration – Dry Cow Optimizer**

QLF Optimizer products also improve ration nutrient distribution, due to the “stickiness” of molasses-based liquid supplements. QLF Farm Demonstration Data indicate that QLF Optimizer products distribute evenly within TMR, which improves ration nutrient uniformity within the feedbunk, which helps ensure consistent nutrient consumption by the cows (see Technical Bulletin 4309 for more details on ration nutrient distribution).

Through the prevention of ration sorting and separation, and improvement of ration nutrient distribution, liquid supplements help facilitate consumption of the correct amount of dietary additives. This is very important, as additives are a valuable, but costly part of the diet, and the response to dietary additives is dose dependent. Notice how dry matter intake, milk production, and milk production efficiency change in response to Rumensin dose in the following table:

**Table 1. Effect of Rumensin Dose on DMI, Milk Yield, and Milk Production Efficiency**

Item	Rumensin Level, g/ton			
	0	11	15	22
Dry Period DMI (lb/d)	28.2	27.6	27.6	26.5 <sup>a</sup>
Lactation DMI (lb/d)	43.9	43.3	42.8 <sup>a</sup>	42.3 <sup>b</sup>
Milk Yield (lb/d)	65.0	66.4	66.8	67.5 <sup>a</sup>
Increase in Milk Production Efficiency	--	+2.0 <sup>a</sup>	+2.5 <sup>a</sup>	+4.0 <sup>a</sup>

Elanco data from 9 North American trial sites, 818 Holsteins

<sup>a</sup>Control vs. Rumensin level (P<0.05)

<sup>b</sup>Control vs. Rumensin level (P<0.01)

Including a Dry Cow Optimizer within a Bird's Nest Dry Cow Diet provides physical benefits which, when combined with proper feeding management help enhance success of a Bird's Nest Dry Cow Ration approach. QLF offers Dry Cow Optimizer 20 or Custom Dry Cow Optimizers are available. QLF Dry Cow Optimizers contain all ration supplemental macrominerals, microminerals, vitamins, and additives, and provide sugar and degradable protein to stimulate rumen microbial growth. For additional information regarding nutritional benefits of QLF Dry Cow Optimizer products, see QLF Technical bulletin TB-4313.