# Feedlot Technical Bulletin

## Discovering the Value of Liquid Supplements

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Research conducted in 1995 at South Dakota State University by Dr. Robbi Pritchard's group compared the use of dry or liquid supplements in finishing diets. The trial was designed to measure the effect of five different treatments over 105 days, with 40 head (800 lb initial weight) per treatment on feed efficiency, daily gain, intake, and carcass characteristics at slaughter.

The control diet included all supplemental feed ingredients in a dry pelleted form, with no added fat. The four treatment diets included a liquid supplement with or without 10 percent added fat, and a separate carrier for tylosin, which was either in meal or pellet form. All finishing diets were 12 percent crude protein (Dry Matter Basis).

Cattle receiving the liquid supplement performed similarly across all treatments with no benefit of fat inclusion demonstrated. Therefore, the information presented here is comparing the average of the four liquid supplement treatments to the control, dry supplement treatment.

Liquid supplementation:

- ✓ increased dry matter intake and daily gain 4.4% and 7.5%, respectively (Table 1).
- ✓ improved feed efficiency 2.9%, however, this improvement was not statistically different from the control diet.
- ✓ increased hot carcass weight 25 lbs and dressing percent 0.6% with an 8.7% reduction in liver abscesses (Table 2).
- ✓ improved choice carcasses by 12% compared to a dry supplement.

As demonstrated by this research, liquid supplementation can improve performance. The liquid advantage is obtained through increased palatability and ration conditioning. Ration sorting and fines are reduced, promoting consistent nutrient intakes across all animals. This research reported reduced incidence of liver abscesses in cattle receiving a liquid supplement even though tylosin was not contained within the liquid. This effect was most likely due to the dry tylosin supplement being held into the diet mix by the liquid, creating better dispersion and less sorting.

The liquid supplement's physical characteristics resulted in more uniform intake of tylosin and greater control of liver abscesses. This uniform dispersion also applies to ionophores, other drugs and macro- and micronutrients that are included in the supplement. The net result, consistent intake and consistent performance.

Table 1
Feedlot performance of steers fed various forms of supplements*

| Feedlot Performance Trait | Dry pelleted supplement | Liquid supplement | Percent Improvement |
|---|---|---|---|
| *Dry matter intake* | 22.42 | 23.41 | +4.4% |
| *Ave daily gain* | 3.88 | 4.17 | +7.5% |
| *Feed conversion* | 5.78 | 5.61 | +2.9% |

Table 2
Carcass traits of steers fed various forms of supplements*

| Performance Trait | Dry Pelleted Supplement | Liquid supplement | Unit Improvement |
|---|---|---|---|
| *Dressing precentage* | 60.6 | 61.2 | +0.6 |
| *Hot carcass weight* | 720 | 745 | +25 |
| *Percent select* | 55 | 43 | -12 |
| *Percent choice* | 45 | 57 | +12 |
| *Liver abscesses* | *17.5* | *8.8* | *-8.7* |

*Adapted from Stateler and Pritchard, SDSU Beef Report, 1995

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