



TECH NOTES

Setting and Achieving Dairy Heifer Development Goals

Today's heifer calves are – hopefully – tomorrow's profit centers. Knowing that, are we giving our replacement heifer development programs the attention they deserve?

Goals of a successful heifer program

- ☑ Minimize stress and maintain calf health.
- ☑ Promote desirable frame and tissue growth.
- ☑ Achieve body weight and body condition targets economically.
- ☑ Freshen at 24 months of age.

Heifers need to achieve 60 – 65% of their mature body weight by 14 months in order to begin cycling and get bred at this time. The following chart illustrates weight ranges to target throughout development for various breeds.

Delayed breeding increases the time until heifers generate income, increases the number of replacements needed in the program to maintain herd size, and increases development costs (\$40 per head for each month delay in first breeding, according to one study). Heifers that do become pregnant at a smaller size will be significantly less productive their entire time in the herd, and are more likely to have calving problems. Conversely, heifers fed diets that support excess fat deposition will also exhibit reduced lifetime milk and longevity.

Desirable Weights for Dairy Heifers (pounds)			
Age	Holstein Brown Swiss	Ayshire Guernsey	Jersey
Birth	90-100	65-75	55-60
6 months	390-400	315-325	270-280
12 months	750-780	585-600	510-520
14 months *	825-875	680-700	580-600
22 months	1,200-1,275	1,025-1,075	900-950
24 months	1,300-1,500	1,100-1,150	950-1,000

* Optimal breeding weights.

Keys to a good start – keeping nutrition high and stress low

- Force-feed quality colostrum within 30 minutes of birth.
- Feed adequate volumes of whole milk or equivalent milk replacer, and provide high-quality starter.
- Provide dry, draft-free resting areas for calves.
- Do not wean calves until they are consuming adequate amounts (1 to 1.5 lb/day) of dry matter.
- Place weaned calves in small groups, sorted by weight.
- Design and manage feeding programs to ensure maximum dry matter intake.
- Utilize an ionophore to improve efficiency and support increased gains.
- Re-evaluate procedures and facilities if health issues are widespread, or death losses exceed 5%.

Nutrition is the driver

Steady, moderate gains – the kind that reach target weights without putting on excess fat – come from diets designed to meet every nutrient requirement, in balance and without excess, fed in a way that supports adequate and consistent intakes. Westway liquid supplements can play a key role in meeting these goals across a wide range of feeding programs.

Westway liquid solutions

Value-added liquid supplements from Westway help our customers optimize heifer nutrition, forage utilization, and the economics of heifer development. Our molasses-based feeds help stimulate early rumen development through butyrate production, and their palatability encourages and maintains feed intake. The sugars and degradable protein they supply support rumen fermentation and improved digestion of the overall diet. Liquid supplements are also ideal carriers for minerals, vitamins, and many additives. Depending on the goals and resources of an individual operation, they may be fed free-choice or as part of a total or partial mixed ration. Regardless of delivery method, dairies realize multiple values when using Westway supplements.

Lick Tank Benefits

- Nutritionally complement forage diets
- Dependable high quality
- Consistent consumption
- Convenience
- Minimal time and labor
- Practical additive delivery
- Little waste
- Low total costs

TMR Benefits

- Targeted nutrition
- Ease of handling
- Encourage and maintain intakes
- Better initial mix
- Less ingredient separation
- Reduced dustiness
- Reduced animal sorting
- Feeding simplicity and accuracy
- Minimal shrink
- Improved additive delivery

Proven Results

A study was conducted at Penn State (Heinrichs et al., 2008) with heifers that had been bred at 15 to 17 months of age. All four treatment groups received 80% forage diets offered as a TMR (total mixed ration), formulated to be isocaloric, similar in protein solubility, and to contain approximately 30% NSC (non-structural carbohydrates). All animals received 200 mg of Bovatec® per day.

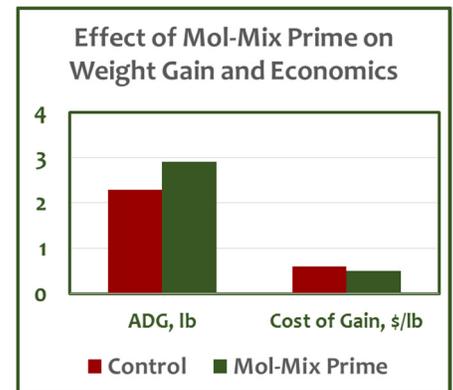
Treatments consisted of combinations of two levels of dietary crude protein (100% or 114% of NRC requirements) and two supplementation strategies (with and without 2 lb/head/day of Mol-Mix Prime with Bovatec).

Results

As shown in the chart, inclusion of the liquid supplement increased gains from 2.29 to 2.90 lb/day. Cost of gain was reduced from \$.60 to \$.50/lb. No differences were seen due to increasing protein level from 13.5 to 16.4%.

Take-home messages

- Mol-Mix inclusion supported increased gains, apparently due to improved rumen function.
- Mol-Mix inclusion reduced the cost of putting needed weight on heifers.
- The urea in the Mol-Mix was utilized at least as effectively as the amino acid protein it replaced in the control diet.



Mol-Mix Prime 32 with Bovatec

Typical Nutrient Profile

Crude Protein	32%
NPN equivalents	max 25%
Total Sugar as Invert	30%
Phosphorus	1%
Vitamin A	40,000 IU/lb
Vitamin D3	10,000 IU/lb
Vitamin E	10 IU/lb
Dry Matter	67%

Free Choice Feeding Guidelines

1. Feed to animals with a functional rumen (over 450 lb).
2. Provide unlimited drinking water of good quality.
3. Provide adequate roughage, of a quality sufficient to support desired gains.
4. Do not allow starved animals free access to product.
5. Provide a free-choice mineral supplement containing appropriate levels and proportions of calcium, phosphorus, salt, and essential trace minerals.
6. Properly maintain lick tanks.
7. Do not feed Bovatec to lactating dairy cows.