

Innovative New Dairy Products From Shur-Gain

Shur-Gain Metabooster 500

A fortified mineral vitamin premix & energy source designed to provide:

- Energy precursors & rapidly available carbohydrate source
- Chelated trace minerals, readily available calcium & B-vitamins
- Diamond V XP Yeast

Feed 500 grams/cow/day 5 days before calving & 5 days after calving

Shur-Gain Dry Care 1612 Premix

Highly fortified mineral vitamin premix designed to provide:

- optimum levels of calcium & magnesium
- optimum levels of vitamins, trace minerals and selenium

Feed 185 grams/head/day

Shur-Gain Hoof Care Pak

A fortified mineral vitamin premix designed to provide optimum levels of:

- Biotin
- Chelated Zinc
- Vitamins & trace minerals

Feed 50 grams/head/day

Shur-Gain Reproductive Pak

A fortified mineral vitamin premix designed to provide:

- Optimum levels of vitamins & trace minerals
- Chelated trace mineral source
- Micro-Aid & mycotoxin binder
- Extra Vitamin E & B-Vitamins

Feed 200 grams/head/day

Shur-Gain 20% Calf Starter Grower Pellets

A complete pelleted calf starter designed to provide optimum levels of nutrients to the young calf:

- Contains a blend of highly palatable grains to encourage early intake
- Contains the proper balance of nutrients for calf growth and health
- Contains molasses sprayed into the pellet for improved consistency, palatability and product flowability
- Medicated with Rumensin as an aid in the prevention of coccidiosis

Feed to appetite up to 4 months of age



Shur-Gain's Dairy Nutrition Advisor

By Your Side



With more than 60 years of experience Shur-Gain is a trusted livestock nutrition supplier to the dairy industry. Our experience in dairy equips us to provide the most precise and reliable understanding of how rumen function and feed ingredients interact to produce the optimum return for your feed dollar.

Shur-Gain focuses on your entire dairy operation; evaluating performance, herd health and profitability.

We are committed to placing the most trained and highly skilled people by your side on your farm. To achieve this we established the Shur-Gain Dairy Nutrition Advisor (DNA) training and certification program. This program provides a comprehensive framework for developing the required skills and experiences to meet your expectations.

Shur-Gain DNA's will have successfully completed training in the key areas fundamental to improving your profitability. Get a Shur-Gain DNA working on your farm today.



The Power of Nutrition at Work

DAIRY DIGEST



Issue 7 • November 2001



Certified
DAIRY
Centre

IN THIS ISSUE:

Dairy Herd Health and Productivity

by Bill Woodley,
Shur-Gain Ruminant
Technical Services
Supervisor

Enhancing Reproductive Performance

by Brian Tarr,
Shur-Gain Ruminant
Nutritionist

Innovative New Dairy Products From Shur-Gain



Dairy Herd Health & Productivity



Bill Woodley, Shur-Gain Ruminant Technical Services Supervisor

One of the key parameters for success on a modern dairy operation is maintaining optimum herd health. As many dairy farms strive for maximum productivity, herd health may be compromised if the total feed and management program is not carefully implemented.

A properly balanced ration on paper may look adequate but if the dairy cow does not consume the proper amounts of feed, then production and herd health may suffer. Management issues such as access to feed and water, cow comfort and bunk space can also play a larger role than the ration formulation.

Understanding the relationship between nutrition and management to herd health issues will lead to improved productivity. Health and productivity are intricately connected.

The Transition "Tail-Spin"

The dry cow and transition cow program is one of the most critical areas to manage. Fresh cow metabolic disorders can cause a cascade of health problems. There is a strong interrelationship between metabolic disorders. Dairy cows with a specific metabolic disorder such as milk fever are more likely to develop other disorders. In a New York study with 1,400 dairy cows on 31 commercial herds, Curtis et al. (1985)

quantified these relationships. Milk fever is often described as a pivotal disease. Dairy cows with incidence of milk fever were:

- 4 times more likely to develop retained placenta
- 23.6 times more likely to develop ketosis
- 7.2 times more likely to experience calving difficulty
- 5.4 times more likely to develop mastitis

Preventing fresh cow disorders will lead to improved productivity. A number of studies have looked at the incidence of metabolic disorders in commercial herds. This is useful to develop a benchmark for your herd. Listed below are studies that examined the incidence of some key metabolic disorders on commercial operations. The Cornell information from W.S. Burhans was compiled from eight separate studies representing over 32,000 dairy cows!

STUDY	Dr. Todd Duffield 1997	ODMAP 1991-1992	Dr. Lissemore 1986-1988	W.S. Burhans Cornell 1999
MILK FEVER	8.0%	12.5%	7.5%	5.3%
KETOSIS	2.0%	3.2%	3.3%	4.7%
RETAINED PLACENTA	8.0%	9.0%	8.1%	9.1%
METRITIS	4.0%	9.6%	N/A	8.7%
DISPLACED ABOMASUM	5.3%	2.2%	1.1%	4.6%

Milk Fever

Milk Fever is perhaps one of the most serious of the fresh cow disorders because of the association with increased risk of developing other metabolic problems.

Milk fever is caused by a lack of calcium in the blood system. The close-up dry cow and the fresh cow experience an enormous draw on calcium to satisfy increased calcium demands from the production of colostrum and milk. Ten litres of colostrum, drawn one hour after calving, may contain up to 23 grams of calcium. This is six times the level found in the blood stream!

Originally researchers identified calcium as the problem nutrient for dry cows but now we recognize the impact of feeding excess potassium. A portion of the calcium used for colostrum production is drawn from bone reserves that are readily available at calving. Researchers have discovered that under high levels of dietary potassium, these critical bone reserves can become depleted. High potassium has the effect of acidifying the blood. The cow tries to maintain a constant blood pH using bone calcium to act as a buffer.

Management Tips to Prevent Milk Fever

- Maintain a potassium level of <1.50% of DMI for the close-up dry cow.
- Feed low potassium ingredients such as corn silage, low potassium hay, and beet pulp. Did you know that beet pulp is less than 1/2 the potassium level of corn silage and 1/5th the level of haylage?
- Take and make use of forage samples – a recent analysis of barley straw revealed a potassium level that was similar to dry hay!
- Establish a >2:1 ratio for calcium: phosphorous. Excess phosphorous, or a narrow ratio, has been associated with a greater risk of milk fever. Shur-Gain developed a new high calcium Dry Care 1612 Premix to adequately balance for calcium levels.
- High dietary potassium has a tendency to tie-up magnesium for the dairy cow. It is important to maintain a 4:1 ratio (or less) for potassium: magnesium. Shur-Gain's Dry Care 1612 Premix has 12% added magnesium.

Ketosis

Ketosis is a metabolic disorder that is associated with liver dysfunction. Dry matter intake, both pre-calving and post-calving, is often compromised for the transition dairy cow. Increased energy demands, due to calf growth, colostrum production and milk production, coupled with lower dry matter intake, may lead to the release of NEFA (nonesterified fatty acids) into the blood stream. High levels of NEFA in the blood stream tend to accumulate in the liver in the form of

triglycerides. Elevated liver triglycerides decrease the ability of the liver to synthesize glucose and increase the risk of ketosis.

Management Tips to Prevent Ketosis

- Lead feed the close-up dry cow with a specific dry cow ration.
- Feed Shur-Gain Metabooster 500 – a convenient source of glucose precursors, from five days before calving to five days after calving.
- Feed grain throughout the dry period to ensure that the rumen is prepared for higher grain levels in the fresh period.
- Maximize dry matter intake (DMI)
 - Resist moving the close-up cow too early to the calving pen. Close-up dry cows respond to other cows and need social interaction to stimulate dry matter intake.
 - Provide adequate space for the close-up dry cow. Ideal: >120 sq. ft./dry cow.
 - Provide adequate bunk space for the dry cow. Ideal: > 30 inches/cow.
 - Provide adequate water: 2-3 gallons warmed and immediately after calving.

Retained Placenta

The increased incidence of retained placentas has been associated with:

- Lack of vitamin E and selenium.
- Lack of dietary protein throughout the dry period.
- Excess potassium levels.

There is a strong association with retained placentas and milk fever, which has been linked to excess potassium levels throughout the dry cow period. Close-up dairy cows may also experience a depression in the immune system during the transition phase with a subsequent increase in the incidence of retained placenta and mastitis (Gunnink JW, Vet. Quarterly). This immunosuppression has been associated with deficiencies of energy and protein during this critical transition phase.



Management Tips to Prevent Retained Placenta

- Provide adequate levels of vitamin E (1000 I.U./day) and selenium (6 mg/day).
- Provide adequate protein levels for the far-off dry cow (>12%) and close-up dry cow (>14%).
- Restrict potassium (K) levels to less than 1.50% of DMI (close-up dry cow).
- Lead feed with a specific close-up ration to ensure that energy requirements are met.

Conclusion

The Transition Phase is a crucial time period for the dairy cow. The close-up dry cow and fresh cow have experienced major shifts in their metabolism. This occurs at the very time when their dry matter intake (DMI) is compromised! Proper nutrition and careful management will ensure a reduction in metabolic disorders and improved performance.

Enhancing Reproductive Performance

Brian Tarr, Shur-Gain Ruminant Nutritionist



The three corner stones to profitability in a dairy operation are production, reproduction and health. Improving production often comes at the expense of reproduction and cow health. It is necessary to continually address the balance between these three important aspects to ensure excellent overall productivity. Reproductive performance in a herd is determined by a number of factors.

- Length of the voluntary waiting period (VWP)
- Ability to detect heats accurately
- Conception rate in fertile cows (CR)
- Proportion of infertile and aborting cows and number of early embryonic deaths

These factors are closely linked to enhanced reproductive performance and contribute to overall herd profitability. They affect our ability to reduce average days open and calving interval, to maximize the proportion of time cows in a herd spend in the more productive early lactation and to optimize the length of the dry period.

The key areas to focus on are the voluntary waiting period (VWP), heat detection, days to first service and pregnancy rate. The pregnancy rate (PR) = heat detection rate (HDR) x conception rate (CR). These key determinants of reproductive performance are influenced by many nutritional and management factors. Understanding and controlling these can markedly improve reproductive success.

Poor heat detection is probably the single most limiting factor to reproductive success in most herds. As herd size increases, there is less time to concentrate on all the elements that contribute to overall success. Producers have to prioritize and concentrate their efforts on those areas that have the greatest impact. Accurate heat detection is one of those key areas! Here are some pointers to improve the heat detection rate.

- Formalize heat detection procedures – make procedures and expectations absolutely clear to those responsible for heat detection.
- Record every heat – this helps to track individual reproductive patterns and helps to detect problem cows.
- Allow for group interaction – the amount of activity is related to the number of cows in heat.
- Minimize lame cow problems – lame cows exhibit less activity and weaker standing heats.
- Observe cows more often – this increases the chance of detecting cows in heat. Heat detection aids are useful but don't totally replace careful and regular observation.
- Choose the right place and time to watch. Cows are more likely to show heats during the cooler part of the day and at night. Cows are least likely to show heats in the waiting area and the milk parlour.



Other Factors That May Affect Reproductive Performance

• Proper Insemination

Thawing more than two straws at a time when inseminating reduces conception rate on those cows bred with the third and subsequent inseminations. Research indicates that the time lapse between thawing semen and inseminating cows must be kept under 15 minutes to ensure success. Inseminating technique or proficiency does make a difference. Above average technicians are significantly better at placing semen in the body of the uterus compared to those technicians below average.

• Monitoring Body Condition Score (BCS)

Monitoring change in BCS post-calving is a valuable tool in assessing possible reproductive success. It is also a visual way to assess the extent and duration of negative energy balance in early lactation. The duration of negative energy balance markedly affects reproductive performance. Cows that lose more than one BCS have significantly longer days to first service and lower conception rate. Feeding to better manage body condition has a marked impact on reproductive success.

• Metabolic Disorders

Many of the metabolic disorders at and after calving reduce reproductive performance. In research that compared normal cows to those with sub-clinical and clinical ketosis, it was found that the affected cows had an average of 21 days longer open and a first service conception rate of 42% compared to normal cows at 75%. Cows with retained placenta and post partum uterine disease had significantly poorer reproductive performance, delaying first estrus by 6.9 days and adding 7.3 days to first service compared to healthy cows. Post-calving veterinary checks are an important part of ensuring that the reproductive tract is back to a normal and healthy state.

• Mastitis

Cows diagnosed with mastitis during the VWP and particularly during the breeding period have significantly poorer reproductive performance as shown in the work done by Barker, 1998. Similar results were obtained by Schwick, 1999.

MASTITIS DIAGNOSED	DAYS TO FIRST AI	DAYS OPEN	SERVICES / CONCEPTION
After confirmed pregnant (control)	71	92	1.7
Before first AI (~ VWP)	94*	114	1.6
1st AI to conception (~ breeding)	71	137*	2.9*

* P <0.05, Barker, 1998.

Conclusion

Feeding, management and sanitation are critical elements in setting the stage for reproductive success. Absolutely essential is a proper transition cow feeding and management program. Shur-Gain has developed a number of innovative products to help cows through this difficult period and to get them off to a good start in lactation.

Contact Your Local Shur-Gain Franchised Outlet for Further Details

Shur-Gain is a member of Maple Leaf Foods Inc.
600 James St. S., St. Marys, Ontario N4X 1C7
1-800-265-8507 • Fax: 1-519-349-2675
www.shurgain.com

