



NUTRIFAX

Nutrition News and Information Update



PASTURE MANAGEMENT FOR BEEF COWS



**Dennis Lunn, Ruminant Nutritionist
Shur-Gain, Maple Leaf Animal Nutrition**

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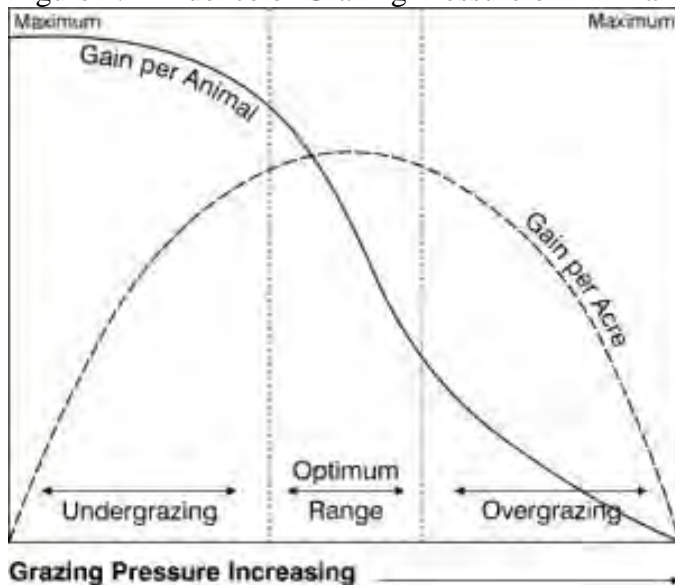
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Well-managed pastures are key in any cow/calf operation. Research results show that an annual forage yield of 3,000 lbs of dry matter per acre can be achieved on pasture. These same pastures can produce 500-600 pounds of gain per acre in growing cattle. Managing stocking density and grazing management can improve forage inventory and production per acre of pasture. This will improve profitability.

Pasture Stocking Rate and Carrying Capacity

Stocking density has a large impact on pasture and animal productivity. Under grazing will result in maximum animal gains but will underutilize pasture forage. Overgrazing pasture decreases animal and per acre gain. Proper stocking rates will maximize both animal and per acre gains.

Figure 1. Influence of Grazing Pressure on Animal and Per Acre Gain.



Mott, 1973

Stocking rate is defined as the number of animals per unit of pasture. Stocking rate influences:

- How well the plant can recover from grazing during the pasture season
- Future forage production
- Quality of forage available
- Animal performance

Animal Unit Month (AUM) has been used to determine stocking rates of cattle on pasture. AUM is defined as the average amount of forage required by an “animal unit” (AU) grazing for one month. It is estimated that one AU requires about 1,000 pounds of forage (dry matter basis). An AU will be different for cattle class as they each have different forage requirements. Typical AUs for cattle are as followed:

Animal Unit Based on Cattle Type

Cattle Class	Animal Unit (AU)
Mature Cow – with or without calf	1.0
Mature Bull	1.5
Yearling Steer or Heifer	0.8
Weaned Calf	0.6

One AU is defined as one mature cow (1,000 lb) with or without her suckling calf. However, the AU will vary based on body size. Large framed, mature cows will have a higher forage requirement than smaller cows. The body size of the cow needs to be factored in to determine forage requirements.

Animal Size and Animal Unit Equivalent

Animal Size	Animal Unit
1,000 lb cow	1.0
1,250 lb cow	1.25
1,500 lb cow	1.5

The following is an example calculation to estimate the stocking density of a pasture:

It is estimated that for every inch of good quality pasture contains about 150 – 200 lbs of forage dry matter per acre.

If cattle were allowed on pasture that was 12 inches high and they were to consume 8 inches (leaving 4 inches for regrowth) of the pasture there would be about 1,400 lbs of forage DM available (8 inches x 175/lbs forage per inch). The pasture would be enough to support 1.4 AU per acre (1,400 lbs/1,000 required by an AU) for a month.

If the pasture was 6 inches high and cattle were to consume 2 inches of pasture there would be about 350 lbs of forage DM available. There would be enough forage to support 0.35 AU per acre for a month.

Stocking densities will change over the grazing season. In late spring stocking densities can be higher due to more rapid pasture growth. Late summer stocking densities will be lower due to lower pasture growth (especially during dry conditions).

Grazing Management Strategies and Systems

One-half to three-quarters of forage growth on pasture occurs by the beginning of July. This results in excess pasture being available for cattle during spring. In spring cattle should be allowed onto pasture when forage height is at 6-8 inches. If the pasture contains a higher amount of legume cattle should be moved to pasture at a higher forage height (8-12 inches). Grazing cattle too early on pasture will lead to poorer pasture conditions later on in the grazing season. It is estimated that grazing cattle one week too early on pasture in the spring will sacrifice 3 weeks of grazing in the fall.

Cattle should be moved to different pasture paddocks based on forage height, not by the calendar. In the spring, when forages are growing rapidly, move cattle to new paddocks quickly to avoid grasses from becoming too mature. Cattle can be moved to new pastures when forage height is around 4-6 inches. During the summer forage growth will decline. Cattle can graze to a pasture height of 4 inches before being moved to another pasture. The final grazing should allow a pasture height of 2-3 inches for the next spring.

Rest periods for pastures will vary based on species, management and climatic factors. Plants start to grow about 5-6 days after grazing occurs. A 3-5 week rest period is generally needed before the next grazing period. This period is crucial for high stocking densities. When pasture shortages occur reducing stocking densities can help improve pasture conditions. If pasture quantity is extremely poor supplemental hay may need to occur to meet cattle requirements.

There are many pasture-grazing systems that can be utilized. Each has its own advantages and disadvantages. Pasture production, land base and labour requirements all need to be considered to determine which management system are most applicable. Grazing options include:

Continuous Grazing:

With this system cattle are maintained on a single pasture during the entire grazing season. Stocking densities are ideal for spring and early summer but will be too high later in the grazing season. Less labour is involved with this system. Stocking densities will be lower compared to other grazing systems.

Rotational Grazing:

In a rotational grazing system cattle graze on one paddock and are then moved to a new pasture based on forage quality and quantity. As cattle are moved to a new pasture, the old pasture is allowed to regrow. Rotational grazing gives producers better control over pastures, reduces forage waste and improves total animal production per acre. Carrying capacity of pastures will be higher. Rotational grazing is more costly due to higher fencing and labour costs.

The Effect of Continuous vs. Rotational Grazing (2 year average)

	Continuous	Rotational	Change, %
Stocking rate, cow-calf units/acre	0.50	0.69	+38
Calf weaning weight, lb.	500	496	0
Total calf gain/acre, lb.	248	340	+37
Cow pregnancy rate, %	96	95	0
Hay fed/cow, lb.	2,570	1,750	-32

University of Arkansas

Total weight gain may not be different between continuous and rotational grazing but weight gain per acre can be improved by 25 to 50%.

Forward Grazing:

This is a variation of rotational grazing. Access to a pasture is first given to animals with higher nutritional requirements (i.e. growing cattle with a high potential rate of gain). These animals are then moved to another pasture. Animals with a lower nutrient requirement are allowed to follow to graze the remaining lower quality pasture.

Creep Grazing:

Creep grazing involves having 2 pastures – a higher quality pasture adjacent to a pasture with low quality forage. Through the use of an electric fence or gate calves are allowed access to the high quality pasture. Beef cows are only allowed access to the low quality forage pasture. This can result in a 10-20% improvement in daily gain of calves.

Strip Grazing:

This involves moving a portable electric fence ahead and behind grazing animals to ration daily forage consumption. This method results in high forage utilization and is most effective with excellent quality pasture during cool weather. This system requires more labour and may not be as economical as other grazing strategies.

Limit Grazing:

This system involves maintaining cattle on low quality pasture for the bulk of their daily forage needs. These cattle would be allowed access to high quality pasture for a couple of hours each day. Another option is to allow cows access to the high quality pasture every couple of days to reduce labour costs.

Stockpile Grazing:

This system allows forage to grow and accumulate in the summer. Cattle are not allowed access to a pasture (generally starting in late July) as it generally takes about 70 days of forage growth to have adequate pasture by the fall. This pasture would then be accessible to cattle in the fall or early winter. Cows can be fed more economically as there is less need to feed baled hay and stored forages. Stockpile grazing is best achieved in fields where animal movement can be controlled and new strips of forage can be provided every few days. This will reduce the amount of forage being wasted.

Swath Grazing:

Swath grazing involves cutting pasture into rows (generally in late August/September) and leaving it on the field. Cattle are then allowed access to pasture on this forage during fall and winter. A portable electric fence is used to control access to feed and reduce wastage. Less labour and machinery costs are associated with this system as there are less baling, storage and feeding costs with this grazing system.

Animal Health and Pasture Management

Proper pasture management will not only improve animal productivity it can also improve animal health. Some health problems that can be associated with pasture cattle include:

Grass Tetany:

This is a metabolic disorder caused by low blood magnesium. Symptoms include lack of coordination, nervousness, muscle spasm and staggering in cattle. In severe cases death can occur. It generally occurs when older, nursing cows that are placed on lush, immature grasses. Some ways to reduce the incidence of grass tetany include:

- Holding cattle off new pasture until it is 4-6 inches high
- Feed dry hay or grain to cattle on new pasture
- Graze less susceptible animals on high risk pastures (steers, heifers and dry cows)

Pasture Bloat:

Pasture bloat in cattle can be a serious problem in cattle. Signs of bloat in cattle include mild to severe distension of the left side of the animal and indications of discomfort such as kicking at the belly. In severe cases it will restrict breathing in cattle. Plants such as alfalfa, red clover, white clover, sweet clover and alsike clover can cause bloat in cattle. Birdsfoot trefoil, sanfoin and most perennial grass species are generally regarded as “boat safe” plants. Grazing strategies to reduce the risk of bloat include:

- Have less than 50% bloat causing plants as part of the sward composition.
- Keep grazing intervals short. This helps keep the nutritional quality of pasture more consistent. Introduce cattle onto pasture when plant height is 8 to 10 inches.
- Leave pasture length at 3 to 4 inches when moving cattle to new pastures. This helps avoid cattle going onto a new pasture hungry. Feeding hay prior to going onto pasture will help fill up cattle, reducing the incidence of bloat.
- Avoid going from poor quality to high quality pasture. Uniform and regular intake is key to managing and reducing the risk of bloat in cattle. Graze pastures to maintain consistent pasture quality.
- Avoid moving cattle in the morning with dew on the pasture. Move cattle later in the day.

Coccidiosis:

Coccidiosis does not have a severe impact on mature cows but can have a devastating effect on calves. Symptoms of coccidiosis include bloody diarrhea, dehydration, weakness, depression, weight loss, rough hair coats and in severe cases death. Management strategies to reduce the incidence of coccidiosis include:

- Prevent drinking water from becoming contaminated with manure.
- Overgrazed pastures may increase the risk of coccidiosis. Cattle eating directly off the ground have a higher risk of getting coccidiosis.
- Keep grazing to a minimum along the edges of ponds and streams where cattle congregate and overgrazing can occur. The protozoal species responsible for coccidiosis thrive well in wet environments. Avoiding cattle from grazing in wet areas can help reduce the incidence of coccidiosis.

Feeding Rumensin®, Bovatec® or Deccox® either in a mineral or creep feed will help prevent coccidiosis.

Gastro-Intestinal Worms:

Symptoms of worms in cattle include unthrifty appearance in cattle, anemia, diarrhea, weight loss and in severe cases death. Good grazing conditions can reduce the incidence of worms in cattle. Management tips include:

- Lower stocking rates to decrease the risk of worms. Herds with ample pasture and good grazing conditions are less likely to have worm problems compared to cattle on over-grazed pastures.
- Rotating pastures can reduce the incidence of worms. Resting a pasture will allow sunlight to dry, heat and kill worms on pasture between grazing periods.
- Do not follow up a group of stocker calves with a group of suckling calves on pasture. Pastures can be heavily contaminated with worms from stocker calves.
- Provide clean water. Cattle drinking from ponds and streams have the potential to contaminate the water (i.e. defecate in the water) leading to the spread of worms and parasites to other animals.

Deworming cattle prior to going out on pasture is generally recommended. Follow manufacturers instructions for deworming cattle.

Pink Eye:

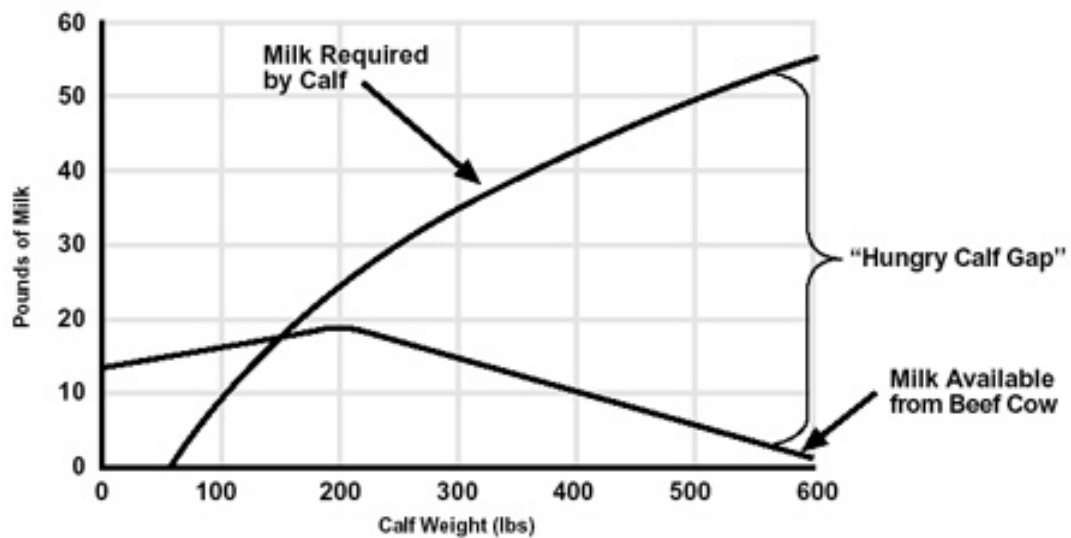
Pink eye is a bacterial infection of the eye. It causes inflammation and in severe cases causes temporary or permanent blindness. Causes of pink eye include dusty conditions, flies, bright sunlight and physical irritation of the eye. Strategies to prevent pink eye in pasture cattle include:

- Fly control of the animal - This can be done through the use of ear tags, sprays, pour-ons and backrubbers.
- Provide shade to reduce ultraviolet light exposure for cattle.
- Proper immunization of animals, isolating infected animals and decreasing environmental and nutritional distress can help reduce the incidence of pink eye.

Creep Feeding Beef Calves

Calves can meet their nutritional requirements when there is adequate milk and pasture. However, as calves get older milk production declines from the beef cow and pasture quality can become poor. When this occurs calves cannot meet their nutritional requirements.

Figure 2. Milk yield of a typical beef cow vs nutrient requirements of a nursing calf.



Virginia Tech University, 2003

Creep feeding calves on pasture is one option to meet the nutritional requirements of beef calves. Creep feeding calves can significantly improve weaning weights of beef calves.

Summary of 31 Trials with Free-Choice Creep Feeding Beef Calves

	Creep Fed Calves	Non Creep Fed Calves	Difference
Total Gains, lbs	279	221	+ 58
Daily Gain, lbs	1.83	1.45	+ 0.38
Total Creep/Calf, lbs	524		
Lb Creep/lb Added Gain	9.0		

Oklahoma State University

Creep feeding can have additional benefits including:

- Improved body condition of beef cows – Cows with calves that were creep fed will have better body condition. This will improve reproductive performance and reduce feed costs during the winter.
- Improved calf health – Creep feeding has been shown to reduce the incidence of respiratory problems when calves enter the feedlot.
- Coccidiosis prevention – Creep feeding allows for the addition of Rumensin®, Bovatec® or Deccox® that can help prevent coccidiosis. This will improve calf health and performance.
- Increase stocking density of cattle on pasture – More cattle can have access to pasture as creep feeding reduces the amount of pasture needed by calves.
- Improve carcass characteristics – Marbling scores can be improved in creep fed calves.

Drought Conditions

Drought conditions can seriously affect profitability and animal performance on pasture. It is difficult to manage but there are strategies that can help improve forage supplies. Some of these include:

- Selectively cull non-productive cows – culling open and poor milking cows will reduce stocking density of pastures. More forage will be available for productive animals.
- Early wean calves – cows will not need to produce milk for the calf. This will reduce the cows' nutritional and feed requirements.
- Reduce stocking rates early - putting fewer cattle on the same acre earlier in the grazing period will help leave more forage available for cows later in the grazing season.
- Provide supplemental feedstuffs – hay or grain may need to be supplied to help meet animal requirements that the pasture cannot supply. Alternative forage sources such as corn stover can be used to extend forage supplies.

Summary

Pasture management is a key component for all cow/calf producers. Through proper forage management pastures can be better utilized resulting in improved animal performance, improved weight gains, lower feed costs and overall improved profitability of the cow/calf herd.

Shur-Gain Pasture Products for Beef Cows

Minerals

Shur-Gain Pasture Mate Beef Cow Mineral – is highly fortified with minerals and vitamins to meet the nutritional requirements of beef cows on pasture. It contains organic zinc to improve hoof integrity of cattle on pasture. It has been designed to withstand the elements of weather. Expected intake is 100 grams/head/day.

Shur-Gain Fresh Start Beef Cow Mineral – is highly fortified with minerals and vitamins designed to be fed to late gestation and early lactation beef cows. This product contains organic trace minerals to improve reproduction and organic selenium and high vitamin E to improve immune function. Expected intake is 100 grams/head/day

Free Choice Pasture Mineral (with Bovatec) – This mineral is designed for pasture-based diets to meet minerals and vitamins of pasture beef cows on pasture. It contains Bovatec to reduce the incidence of coccidiosis. Expected intake is 125 grams/head/day.

Optimizer Mineral for Cattle – This mineral is designed to be fed “free choice” for pasture-based diets to meet mineral and vitamin requirements. It has been designed to withstand the elements of weather. Expected intake is 100 grams/head/day.

Pasture Mineral Beef Premix - This mineral is designed for pasture-based diets to meet mineral and vitamin requirements. Expected intake is 100 grams/head/day.

Shur-Gain Beef Cow Mineral (Plain or Medicated) – This mineral is designed to be fed to beef cows to meet their mineral and vitamin requirements. Expected intake is 100 grams/head/day. Rumensin® can be added as an aid in the prevention of coccidiosis.

TMV Salt for Cattle – is fortified with salt and trace minerals and vitamins to meet the nutritional requirements of beef cattle on good quality forages. Expected intake is 50 grams/head/day.

Custom Beef Cow Mineral - is fortified with salt and trace minerals and vitamins to meet the nutritional requirements of beef cows on pasture. Contains a high level of salt to improve mineral consumption. Expected intake is 150 grams/head/day.

Complete Feeds

Shur-Gain Easy Creep Beef Ration – is a 16% complete feed that can be fed free choice to calves on pasture to increase weight gains. Expected intake is 5 lbs/head/day (2.27 kg).

Shur-Gain Easy Grow HF Beef Ration – is a 13% complete feed that can be fed free choice to calves on pasture to increase daily gains. It can also be fed to stretch out forage supplies when pasture quality is poor. Expected intake is 5 lbs/head/day (2.27 kg).

Rumensin®, Bovatec® and Deccox® medication options are available for all products to reduce the incidence of coccidiosis.



BEEF BULL FEEDING AND MANAGEMENT

Dennis Lunn, Ruminant Nutritionist
Shur-Gain, Maple Leaf Animal Nutrition

Achieving high pregnancy rates in beef cows is essential to all beef producers. Proper bull management is a critical component of this. Bulls can often be neglected on cow/calf operations resulting in reduced performance and higher maintenance costs. From raising young bulls, to managing them during and out of the breeding season, proper care of bulls is critical for optimal reproductive success on farm.

Raising Young Bulls

Feeding a diet too low in energy will delay the onset of puberty in young bulls. Bulls should be at least $\frac{1}{2}$ of their mature body weight by 14-15 months of age if they are to be used for breeding stock as yearlings (see appendix table for weight guidelines in bulls). Using bulls that have not reached this weight for breeding purposes will result in lower pregnancy rates in beef cows.

There are 2 nutritional strategies for raising young bulls. The first is to raise young bulls for a moderate rate of gain. On this program typical daily gains would be from 2 to 3 pounds per day. Average quality hay, when fed to growing bulls by itself, has enough nutrients to support about $1\frac{1}{2}$ pounds of daily gain. A 16-20% grain/protein mix (fed at $\sim 1\%$ of the animals' body weight) with the remainder of the diet consisting of good quality grass hay will meet the requirement for 2-3 lbs of daily gain. Bulls on this growing program require a 12-13% protein in the total diet to achieve this rate of growth.

The second option is to feed bulls on a high-energy ration (for a specific period of time) to support maximal rates of gain. This is used in performance testing bulls. On this program 3-5 lbs of daily gain can be achieved. This feeding program involves 3 stages:

1. Get young bulls adapted to a concentrate-based diet. The goal is to gradually get bulls onto a grain-based diet. Starting bulls too quickly on grain will also result in fluctuating intakes (caused by rumen acidosis), founder and reduced performance. This can result in rumen, liver and hoof problems in bulls. The step-up period should take anywhere from 3 to 4 weeks.
2. Feed bulls the high concentrate diet for maximal daily gains. Concentrate levels are generally between 80-90% of the diet with the rest consisting of hay. Bulls require a 13.5 to 14% protein in the diet to achieve maximal gains. Bulls are generally fed for 112 days during this phase.

3. Transition bulls back to a forage-based diet. This should take place gradually over a 3-4 week period. Bulls would then be fed a forage-based diet for the remainder of the growing period.

Pre-Breeding Season

There are 5 main reasons for bulls having low fertility. These include:

1. Lack of libido
2. Small scrotal circumference
3. Unsatisfactory semen quality, including
 - Sperm motility
 - Sperm morphology
4. Low body condition score
5. Physically unable to breed
 - Poor feet, legs, general poor physical structure
 - Structural problems with genitalia

Beef producers should start to get bulls ready to mate 2-3 months prior to the breeding season. New bulls should be brought to the farm 60 to 90 days prior to the breeding season. This allows new bulls to get adjusted to the feed and environment of the farm. Bulls should be checked for any hoof or feet problems. Hoof trimming may be advisable during this period for older bulls. They should also be checked for their reproductive status and physical soundness (breeding soundness evaluation). Ensure that bulls are physically fit prior to the breeding season. This will result in bulls with a higher libido, ultimately improving reproductive performance. Measuring scrotal circumference is a critical part in evaluating bulls. Scrotal circumference is highly correlated to total sperm output. It is also moderately correlated to normal sperm morphology.

Scoring System and Recommended Scrotal Circumference for Bulls of Various Ages

Age	Very Good	Good	Poor
12-14 months	> 34 cm	30-34 cm	< 30 cm
15-20 months	> 36 cm	31-36 cm	< 31 cm
21-30 months	> 38 cm	32-38 cm	< 32 cm
Over 30 months	> 39 cm	34-39 cm	< 34 cm

Adapted from the Society of Theriogenology

Semen quality should also be checked. A semen sample is taken by a veterinarian and analyzed by microscope. This is to ensure that sperm motility and morphology are both acceptable.

Bulls should be in adequate body condition prior to the breeding season. Bulls that are either under or over conditioned will have poorer reproductive performance than bulls in good body condition. Over conditioned bulls can lose some body condition during this time period, however, if too much condition is lost during the pre-breeding period reproductive performance

will be reduced. Target bulls to have a body condition score of 3 to 3.5 (on a scale of 1-5). Any bulls that do not pass a breeding soundness evaluation should not be used for breeding purposes.

For yearling bulls to be successful at breeding they should reach puberty 3-4 months prior to the breeding season. Yearling bulls should be well grown but not too fat and should be gaining a minimum of 2-3 lbs/day during this period. To meet this requirement they need a diet consisting of about 80% forage and 20% concentrate. 2-year-old bulls need to be at 80 to 90% of their mature body weight (see appendix table) to be used for breeding. Some additional grain (about 5 lbs per day) is necessary to meet their energy requirements (along with good quality hay and mineral). For mature bulls, the nutrition program should be based on body condition. If they are in good body condition 5 lbs of grain (along with free choice hay and mineral) are needed to meet their requirements. If they are thin additional grain should be fed.

Breeding Season

There are 3 goals to achieve during the breeding season:

1. Get cows pregnant as soon as possible
2. Get cows bred with the best bulls on farm
3. Achieve both as economically as possible

Cows will have a higher conception rate earlier in the breeding season. This will increase the number of calves being born. Using the best bulls on farm will result in better quality calves with higher daily gains and improved feed efficiency. Having the optimal bull: female ratio is critical to reproductive success. Breeding too many cows with too few bulls will result in lower pregnancy rates. The number of cows a bull can successfully breed depends on a number of factors including:

- Bull maturity
- Soundness
- Fertility
- Bull body condition
- Pasture quality

An acceptable numbers of cows that can be successfully bred by one bull are provided in the table below:

Maximum Number of Cows Per Bull for Pasture Mating

Bull Age	Number of Cows
Yearlings	15 to 20
2 Year Olds	20 to 30
3+ Years	30 to 40

OMAF Factsheet – Beef Bull Management

If possible, older bulls should be used to breed mature cows and younger bulls should be used to breed heifers. Social dominance can occur when bulls of different ages and size are

mixed together. Older, more dominant bulls will sire more cows than the younger, smaller bulls if they are used together.

Pasture quality can affect bull body condition and performance (especially in younger bulls). If pasture conditions are poor supplementing bulls with additional grain can help improve body condition, which will improve overall reproductive performance and bull health.

Post-Breeding Period

After the breeding season bulls can become neglected on farm. Proper planning and care can help ensure that bulls are ready for next year at a minimal cost. Post-breeding bulls should be sorted, fed and managed by groups:

- Mature bulls that are in good body condition
- Younger bulls that are still growing and need better quality feed and grain during the winter.
- Bulls that are extremely thin or need special attention.

During the off-breeding season, mature bulls in good condition can be maintained on pasture. During the fall and winter mature bulls only need to maintain their body condition. Good quality hay is adequate (along with mineral) to meet their nutritional requirements. If mature bulls are thin, supplemental grain should be fed. Over conditioned bulls can lose some condition during this period.

Yearling bulls can lose up to 300 lbs of body weight during the breeding season. This weight needs to be regained along with their normal weight gain as they are still growing. Target these bulls to gain ~2 to 2.5 lbs per day after the breeding season. This can be achieved by feeding grain at a rate of ~1% of the animals' body weight with free choice hay. Yearling bulls should be fed better quality forages compared to mature bulls. A good target is for a 2-year-old bull to weigh approximately 80-90% of his expected mature body weight by the next breeding season. Monitoring body condition of bulls can help determine if additional grain needs to be fed to bulls. A mineral product should be fed to meet their mineral and vitamin requirements.

Special Nutritional Considerations

There are nutritional factors that can help improve reproductive performance and bull health. Some of these include:

- Zinc plays an important role in spermatogenesis. If bulls are deficient in zinc poorer reproductive performance can occur. Providing adequate zinc in the diet will help improve reproductive performance.
- Yeast – With growing bulls on a high concentrate diet, yeast can help improve rumen function.
- Ionophores – Rumensin, Bovatec or Posistac can be fed to help improve feed efficiency and reduce the incidence of coccidiosis. They can also help reduce the incidence of rumen acidosis.

Appendix

Target Weight and Daily Gains for Growing Bulls

Mature Bull Weight in Moderate Condition (lb)	Target Weights (lb)			Minimum Daily Gain (lb)	
	Weaning at 200 days of age *	14 months for breeding**	At 24 months of age ***	Weaning to breeding	Yearling to 24 months
1760	595	1100	1650	3.0	1.8
1980	615	1166	1760	3.0	2.0
2200	640	1232	1892	3.0-3.5	2.2
2420	650	1298	2024	3.5	2.4
2640	685	1364	2156	3.5	2.6

* Estimated as 26 to 34% of mature bull weight

** Estimated as 52 to 62% of mature bull weight

*** Estimated as 82 to 94% of mature bull weight

Source: Winter Feeding of Bulls, Alberta Agriculture, Food and Rural Development

Shur-Gain Bull Products:

Shur-Gain 14% Lifetime of Performance Beef Bull Ration (1.25% ECP) is specifically designed to be fed to young bulls to support optimal growth, health and sound development. It can be fed free choice to growing bulls.

Shur-Gain 15.5% Lifetime of Performance Beef Bull Supplement (1.55% ECP) is specifically designed to be fed to young bulls to support optimal growth, health and sound development. It can be mixed with 200 kg of whole corn and fed free choice to growing bulls.

Benefits of these products include:

- A blend of grain and digestible fiber sources to promote a safe source of energy for growing bulls.
- Formulated with a blend of minerals, trace minerals, chelated and organic minerals and vitamins to improve bull health.
- Contains Rumensin to improve feed efficiency, prevent coccidiosis and improve rumen health
- Contains Diamond V yeast to improve rumen function

Optimizer Mineral for Cattle – This mineral is designed to be fed “free choice” for cattle to meet mineral and vitamin requirements. It has been designed to withstand the elements of weather. Expected intake is 100 grams/head/day.

Shur-Gain Pasture Mate Beef Cow Mineral – is highly fortified with minerals and vitamins to meet the nutritional requirements of beef cattle. It contains organic zinc to improve hoof integrity of cattle. It has been designed to withstand the elements of weather. Expected intake is 100 grams/head/day.