CANADIAN LUING
Cattle Association

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Welcome to the Summer edition of our Luing Newsletter. I hope you will find our articles of interest but if you don't and wish to be removed from our mailing list, please let me know.

Luing In An Extreme Environment

By Iain Aitken

In mid June Jeff Longard and I made the trip to deliver a bull to Lucy Copp and Burns Thomas who ranch west of Twin Butte. Due to a number of unique environmental factors, Cloudy Ridge Ranch is one of the toughest ranches in Alberta. The land is over 5000 feet of elevation and backs up to the Rockies close to Waterton Park and only 25 miles from the American border post at Chief Mountain. The effects of altitude, exposure and living in the rain shadow of the mountains is easily seen on the short, eastward leaning trees and bushes that dot the landscape. Despite usually being short of precipitation, late storms have been known to drop 4 feet of snow on this ranch in May or June. The other big challenge at Cloudy Ridge is predation due to a large bear population as well as wolves and cougars.

With all these challenges a very different type of cow is maintained on this ranch with less emphasis on production and more on survival than most of us in easier climes are used to. The cowherd was founded on Longhorns crossed with Salers with Luing bulls added to the mix later.

A three-way combination of these breeds produces a cow that does well on this ranch. Natural selection and the wild terrain produce cattle that are higher-headed than I would like on my operation, but what is a negative trait in my situation is a necessity in this tougher environment. Calves need the ability to get up and go as soon as they are born and the Luing calves certainly have that characteristic. As a defense against predators, horned genetics are used exclusively and none of the replacement stock is dehorned. Burns mentioned that there is also less stress on the horned cattle if they need to apprehend one out in the bush as roping around the horns is preferable to roping around the neck.

Scenic backdrop to the Cloudy Ridge Ranch

It is pleasing to see the Luing helping make ranching possible in tough country like this and we thank Lucy and Burns for their continued belief in the value of Luing genetics.

Commercial Advantages to Cross-bred and Purebred Cattle

By Jeff Longard

What are now known as pure breeds of livestock originated in one of two ways: either by the long and somewhat unconscious process of selection out of a regional population so that certain characteristics became associated with the livestock of that region, or by the careful and selected mating of individuals with a view to producing a certain type that would breed true (that is, reproduce its distinctive characteristics consistently).

"Luing Type"

To be more accurate, the former process actually produces a landrace, or regional type, which then is selected, developed and limited by the latter process into a breed. Still, it remains that some breeds have developed in a rather unbroken line from local types (for example, Galloway and Aberdeen Angus from the generally homogenous Scottish black polled landrace) while others are the result of deliberate engineering for a specific purpose (for example, Luing, from a cross of Beef Shorthorn and Highland, in order to be productive on the nutritionally-challenged forage and windswept conditions of the island of Luing and surrounding areas).

The next step in the formation of a pure breed is that people recognize the value of traits specific to a type, and in the interest of preserving those traits, form breed societies to lay down an explicit definition of breed character and to prevent breed development contrary to the definition, either by dilution from without or by alteration from within.

It is evident, then, that breeds were developed with two specific notions in mind: 1) a definite regional adaptation, and 2) a definite production goal. The Charolais breed, for example, was designed to flourish in the warm-temperate balminess of southern France, and there to produce prodigious amounts of beef. On the other hand, the Jersey was developed to thrive on the mineral-poor soils of the Channel Islands and to support on its meager frame the richest milk-generating organ on the planet. It follows that a pure breed by definition is not adapted to all environments and is not suitable for all production goals. Jerseys produce very little beef, Luings suffer in the warm south and Charolais require all the wooly blankets of extra inputs to survive the bitter north.

Cross-breeding is often the answer to the environmental or production limitations of a given breed. Luing are not a terminal breed, but are unequalled as hardy and efficient mother cows in northern climes. Introducing Charolais into Canadian winters should create some hesitation - but introducing Charolais calves into Canadian summers should not.

If the maternal herd is adapted to the dual goals of regional adaptation and production, the terminal breed need only be adapted for the single goal of production within a limited environmental window.

To those of you who are reading this with some boredom as "Stock Breeding 101", my apologies -- but you will at least admit that these basic principles have been forgotten and even reversed by the great majority of the cattle industry today, both in the purebred and the commercial sectors. In the interest of introducing more growth and frame into the calves, commercial cattlemen retain a higher and higher percentage of immense ox-like dual-purpose genetics in the maternal herd. Then, to correct calving problems, they use a "low-birth-weight maternal" bull as the sire of terminal calves, selling these off in the fall and keeping their gentle giants to feed and bed all the winter long (and here, the winter is long!). As an added twist, they retain more and more of the heifers born of this mix, still breeding them back to the "maternal" sire and losing in the process any of the gains they might have made in breed complementarity and crossbreeding heterosis. Meanwhile, the purebred breeders are rushing to choose whatever animals are least typical of their breed: maternal animals that are fast-growing, immense and dull; terminal animals that are low birth-weight, active, maternal, polled and solid-coloured. (Why do most purebred breeders so dislike the breed of their choice?) In all of this, it is impossible to believe that the "Stock Breeding 101" which I have outlined above is a class ever taken by most seedstock or commercial cattlemen!

But the fun is far from over. The heterosis effect, or "2+2=5" of crossbreeding, has now been seized on by the purebred breeder. Instead of selling predictable breed genetics, many breeders are selling F1 crossbred bulls. Allegedly, this is to give the commercial cattleman the best of both breeds, but what it ends up doing is giving the purebred breeder all the benefits of the delightful F1 cross and the commercial cattlemen all the headaches of a crossbred bull on a mixed herd: diminished or even regressive heterosis and wildly un-predictable genetics, all over the board

A Modern Angus – maternal or terminal?

but generally below the average of the maternal herd. I confess, my hat is off, not to the ethics of such breeders but to their business acumen. The morality of the practice may be open to question but their children will inherit more than mine. So back to our final classes of "Stock Breeding 101." Crossbreeding is the best option for an operation that produces terminal calves and does not retain heifers. It has the two remarkable advantages of heterosis and of seasonal adaptation. After all, there is no better place on earth to raise fat spring born

calves than the pasturelands of Canada with our strong soils and long summer days. And by the time the weather starts to threaten, the calves - now sturdy and well-grown - are on their way off the farm. To do this well, I believe that the operation benefits from a predictable pure maternal herd (or F1 maternal cross, with all the benefits of that first cross retained in the mother cow, to the advantage of the commercial operator) upon which is crossed a true terminal breed. In the case of an operation which retains heifers as replacements or finishes calves for sale as fats, a pure breed (which means a true landrace adapted to both environment and production) will be a better choice, with economic and production benefits accruing over the longer and more challenging keeping period. Large operations could run both breeding programs, and even add a third (maternal herd to produce pure replacements, maternal cross to produce F1 maternal females, to be put to the terminal bull).

Like mother…

That is the most complicated of the systems but it can be simplified if you can find a good, reliable source of pure or F1 replacements. As noted above, this is becoming nearly impossible in the mainstream industry.

We believe in the Luing breed, but we do not believe that it is the answer for everything, your one-stop shop for small/ big, fast/slow, vigorous/gentle, wet/dry. Since its creation some 60 years ago, Luing has been called "The Cow Breed" and showing was not allowed. This means simply that what a bull looks like according to the show-ring fads or how fast he grows has no bearing on the breed -- in this breed the bull is simply the transmitter of cow genetics. How the cow performs, how fertile she is, how long she lives, how consistently she weans a calf, how she manages under human care and on easily-sourced local feeds, how many pounds of beef she raises and how many vet bills she saves, all this is what the Luing breed is about. Depending on the type of operation, pure breeding or cross-breeding may be your wisest option, but of course we believe that Luing cattle are an essential component of both!

Further Thoughts On Close-Breeding

By Iain Aitken

Towards the end of my article in the last newsletter I speculated that although Luings originated from a two-breed base we probably have lower levels of heterosis today than many others breeds that have been "pure" for much longer. This was based on my observations of the "type" a Luing bull nearly always stamps on his offspring regardless of the dam's influence. After some further study it appears there is some evidence to support my claim.

As a quick recap heterosis is basically the hybrid vigor you get from crossing two unrelated or distantly related animals. For an animal, particularly a bull, to put his stamp on a calf crop or on a herd he needs to be prepotent – that is to say low in heterosis. The only way to get that is by close breeding to reduce the diversity within the gene pool otherwise known as purifying the bloodline.

A tool we can use to measure the degree of close breeding we are doing is an Inbreeding Co-efficiency Score (IBC). I don't understand the complexities of calculating IBC scores but there are a number of computer programs that simply perform the calculations on any given animal or mating. IBC scores typically range from 0% for two unrelated animals to 25% (technically the point inbreeding starts) for father/daughter or full brother/sister matings. By very close breeding over several generations you can exceed 25% but this is generally avoided as the effects of inbred regression will be encountered.

Jeff Longard made a discovery recently while calculating IBC scores for his animals as a result of laboriously entering all the ancestors right back to the foundation of the breed in Scotland. To create a breed or stabilize a type, close breeding is essential at the outset whether it is line-breeding or in-breeding so it is no surprise to find that the early generations of Luings bred by the Cadzows in Scotland had IBC scores in the 15-20% range. As a result of the longevity within our breed some of these foundational animals are only 10-15 generations back from the cows we are using today. In my own herd we have increased the IBC scores of our core line-bred genetic group to the point where many animals are in the 12-20% range as we purify the bloodline and reduce heterosis. The only reason the IBC scores of the animals I started with in Canada were below those of their Scottish ancestors was the infusion of the Snowlander blood into the gene pool. While this was definitely out-crossing it was not random out-crossing given that the Snowlanders came from similar Shorthorn/Highland origins. In all likelihood the Snowlanders were themselves tightly bred and of high IBC scores given that this strain of cattle was developed by one family within one herd, just as the Luings had been. Compare this to many of the breeds in Canada today that have crossed their exotic cattle with Angus to turn them polled and black and I think we can justifiably claim that Luings will have lower levels of heterosis than most.

The obsession some Luing breeders have with these genetic intricacies may not be shared by you if you are a commercial breeder using a Luing bull but we believe that you will ultimately be the beneficiary of our endeavors as we strive to breed more consistent cattle that will breed true to type.

… like daughter in a close-bred gene pool

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