

Selection of Highland Cattle from a Health Standpoint

by Pat White, DVM

Whether purchasing Highland cattle for the first time, or making selections from your own calf crop for a bull or heifer replacement, your decisions should be based on sound principles that minimize future problems and maximize future returns. Selecting cattle from a health standpoint actually overlaps selection based on productivity and the two go hand in hand. This applies whether your interests lie in the cow/calf business, the beef market or the show ring. Healthy cattle will accomplish more of your goals than unhealthy cattle will.

Health is not limited to being free of disease. Certainly vaccination programs, manure management and deworming strategies all contribute to the health of the herd, but proper selection of breeding stock can increase the likelihood of maintaining a healthy herd.

Highland cattle are noted for their longevity, and when that longevity is based on production standards, it will automatically include health issues. Longevity implies not only a long life, but a long productive life. Select daughters out of older, productive cows as these should stand a higher chance of becoming older, productive cows themselves. This same principle applies to sons of older cows, and offspring of older bulls, but since longevity in bulls is more difficult to come by (due to generally much earlier culling of the males) more attention will have to be paid to the dam. The key word here, of course, is “productive”. The older cow should be “well-aged” rather than just being long lived. In order to be a productive member of the herd for 14-18 years a cow must possess multiple traits that would allow her to prosper as an old cow and to have avoided rigorous culling at a younger age. By definition, a “productive” cow is going to be sound, with reasonably good conformation and adequate milk production even into old age.

The key to longevity lies in conformation. While the show ring may be just a beauty pageant to some, a good judge will always base winning decisions on conformation. Good conformation is absolutely essential for any animal to be sound theoretically for their entire life.

Starting from the ground up; feet should be large, hard and healthy to remain trouble free for life. It is important that animals be chosen with plenty of heel: the line where the hoof meets the skin on the back of the foot should be several inches high if possible. Many Highland cattle are low-heeled: that skin/hoof junction at the

back of the foot is very close to the ground. Often this is associated with a lot of angulation in the back legs in particular (sickle hocks). Angulation in the legs is necessary for cattle traversing steep grades in mountainous areas, but low heels can contribute to overgrown toes in the less rigorous environment found in most US farms raising Highland cattle. For most Highland breeders, selection of cattle with slight to moderate degrees of angulation is desirable. Very straight legged animals (post-legged), while more attractive on a side profile, actually suffer from a far more serious conformational fault that excessive angulation. When the angulation of the legs is extremely straight, this puts tremendous stress and concussive forces on the joints and is a cause of chronic lameness in the hock. Many club calves are extremely straight in their joints, and while very attractive, do not have a long productive life nor do they need one, as they are destined to be beef at a young age.

Hooves should face forward and the legs should come out straight below the body. The hip (between the hook bones and the pin bones) should be as long as possible and straight across or only slightly sloped to the rear. This allows for proper locomotion. Short hips coincide with a shortened stride that do more work to cover the same amount of ground. Toes that turn out put abnormal stresses on the inner claw and inside of the joints. Obviously, the closer the animal is to ideal conformation, the healthier that animal’s musculoskeletal system can expect to be.

If possible, choose offspring out of cows that need minimal hoof trimming. This is a hard trait to deal with, because the same hoof may not be ideal for all conditions. But in your herd, on your own soil, select offspring from the old cow who have never **needed** her hooves trimmed (as opposed to just never having had them trimmed, even though they look like skis). Sometimes there will be conflicting traits to confuse the issue, and that is the beauty and frustration of the art of breeding cattle. In my own herd, I have a line of cattle with absolutely excellent feet. Not one of a group of ½ sisters (same sire) ever needed their feet trimmed. This came at a cost, however, the vast majority of these sisters were culled due to reproductive failures at relatively young ages (8-12 years of age). Fortunately I have daughters out of these cows that are sired by bulls with family histories of extremely consistent calving intervals in related females. Time will tell if I made the right choices or not.

The cow’s udder is an extremely important

physical trait that needs to be evaluated when looking for animals that will be productive and healthy for a long period of time. If possible, evaluate the udder of any female relatives of the animal you are considering. This would include the dam, the sire’s dam and any sisters or ½ sisters that have already begun producing offspring. While there is some normal deterioration of udder quality with age, the 16-20 year old cow that is still raising and weaning a good calf has to start out with a reasonably good udder. This would include teats that are neither too long, nor too big around, and udder suspension that is good enough to keep the mammary glands off the ground and out of harms way. Cows with huge, pendulous udders are not good candidates to purchase or keep their daughters; combine a pendulous udder with long, huge “banana” sized teats and you have a recipe for disaster. Pendulous udders are more prone to injury from hooves as the cow rises and lies down and the teats are more difficult for a newborn calf to find and suckle. Banana teats are, in my opinion, a far more serious fault, as these may make it impossible for the calf to nurse. If the cow has had multiple calves that have either died, or required human intervention because of the udder quality, the offspring should not be candidates for replacement heifers. Evaluate the dam’s udder after she has had several calves at a bare minimum. Most heifers will have lovely udders but the appearance and functionality may alter considerably after 2-3 calves. A heifer with a huge udder should be viewed with suspicion; one with long thick banana-like teats should be culled and her offspring discriminated against. At the same time, the udder must be large enough to produce adequate quantities of milk. Certainly there are cows with very small, compact udders that raise good calves due to adequate milk production, but generally, larger udders produce more milk, so there is somewhat of a balancing act in finding the perfect udder. Remember too that obesity in heifers has been shown to be capable of drastically reducing the amount of milk they can produce as a cow due to fatty infiltration in the mammary tissue. Winning show heifers may end up being some of the poorest producing cows and a grave disappointment to their owners because of this fact.

Selection for calving ease is another important criteria. Chances are, that a 19 year old mama cow didn’t get there by having to have a C-section every year. Actual birth weight is a heritable trait and many bulls are selected for use based on this. The cow also has an important influence here as well. As cows age, they tend to have

larger and larger calves. As long as those calves are not too big for her, there isn't any real problem with this, and for the most part, calving problems due to oversized calves is more likely to be seen in heifers. Calf vigor is usually increased when calves are born quickly; this would suggest that smaller calves will have an advantage in this regard. However, there are many large calves born that seemingly "pop" out of their mothers. This indicates that size relative to the dam's pelvic measurement might be a better indicator of likelihood of dystocia than just birth weight alone. There are methods available to actually measure the pelvic area in heifers to determine the risk of calving difficulty based on predicted calf size at birth. This can allow the breeder to select those heifers with the larger pelvic areas and reduced risk of dystocia. Pelvic area is considered a highly heritable trait, even more so than calf birth weight. Unfortunately, pelvic area cannot be estimated based on external measurements such as length of hooks to pins, or the slope of the hips. The largest most conformationally correct heifer may well not have an adequate pelvic size. If direct measurement of the pelvic area using a rectal device such as a Rice pelvimeter has not been performed, then a long history in related females of unassisted calving with live and vigorous calves would be your best indirect indication of adequate pelvic size. Dystocia due to large calf size has been historically selected against by use of low birth weight bulls with smoothness, balance

and straightness of lines. This remains an effective selection tool.

Selection for calf vigor in and of itself may also be a helpful trait, although a somewhat difficult one to select for. Vigor is definitely affected by time in labor, which is affected in turn, by body condition of the cow, which does not have a lot to do with genetics. Studies in other beef breeds show that calf vigor also can be decreased by calving in temperatures below 42 degrees F. This probably holds true for Highlands, because that long hair is a detriment until it is dry. Extremely thin cows may be unable to sustain adequate labor to deliver a calf easily and obese females may have difficulty passing the calf through the birth canal. But anecdotally, there are calves out of certain cows or bulls, that seem to always be quicker to get their feet and more persistent in their attempts at nursing. Hopefully, the astute breeder takes note of such things and can benefit from that information. Certainly, selection should be against bloodlines that seem to require an undue amount of human intervention in newborn calves for whatever reason.

Disposition, while not necessarily an important criteria for the cow's overall health and longevity, is definitely something to consider for the breeder's health. Some animals are trained, (usually unintentionally) to be obnoxious, others are naturally protective and this can carry over to aggressiveness towards owners. Natu-

rally high strung animals have a much higher likelihood of producing high strung offspring, whether passed genetically or taught by the dam to the calf. Sires can have a demonstrable effect on disposition and should not be overlooked when it comes to choosing easy-handling cattle.

Probably one of the most important things to consider when selecting cattle, is matching their traits to your program. If you are interested in grass-based production, your selection should be based on animals that are already performing in a grass-based system. A show winning heifer that is 400-500 pounds over ideal breeding weight due to heavy feeding of concentrate is probably not the right choice in this instance. If, on the other hand, you desire a "show herd", choose animals that have ideal conformation and the ability to stay healthy on a heavy show ration. The hooves, in particular, should show limited or no evidence of founder, the animals should appear to be free from chronic bloat and the animal's disposition should be suitable for the show ring even on so-called "hot" rations.

Proper selection of and for healthy, functional cattle is both a science and an art. Choices must be based on sound principles and not emotional attachment. The scientist will recognize that the favorite cow may not be the most productive; just as the artist may realize the prettiest cow is not necessarily the healthiest.