*Problems with the Exotic Cross

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The problems of heavily muscled exotic cattle the practitioners see more frequently now are dystocia, insufficient milk, reduced fertility, slow maturity, post-partem sluggishness, and lack of resistance to calfhood diseases and nutritional stress. Cattlemen that breed beyond the first cross for a higher percentage blood of the exotics will have an increase of the above mentioned problems. The heavily muscled cattle in Europe are called "intensive care animals." The European farmer has actually selected for years for more extreme muscling as the most important hereditary trait and mostly disregarded the above problems. The European breeder gets about twice as much money for an extremely heavily muscled calf or yearling as he gets paid for a non-muscular calf. Frenchmen can make as much profit out of a double muscled calf, including the Caesarean section, as they can out of two non-muscular calves.

Not all exotics imported are double muscle carriers, but it was the original reason Canadian and American breeders desired the European exotic, i.e., to get more lean (intense muscling and less fat) in our North American cattle. With the advent of 70 to 80% of our slaughter cattle in the sixties consuming large amounts of grain prior to marketing, there was too much fat in the British breeds in relation to lean (muscle) to satisfy the beef trade. Not only did it cost twice as much to put on a pound of fat as compared to lean (muscle), but the wholesaler and retailer were having to trim away many pounds of fat (with a value of two cents a pound) to entice the consumer to purchase the meat without excess fat.

The first imports of Charolais, along with the few domestic Charolais that came from Mexico many years ago, proved in the first cross on the British breeds (i.e., those we have adopted as our domestic breeds) to be more economical by growth and gain in the feed lot and had a less wastive fat carcass.

With the success of the first Charolais crosses, some cattlemen as well as many "fast cattle promoters" went to Europe to import heavily muscled cattle and while doing so completely ignored all the management problems these new breeds may have in our cattle economy. These importers ignored the genetically troublesome gene we commonly call "double muscling."

It should be made very clear that the name "double muscling" is a misnomer. There are no double muscles present. It is a case of hypertrophy of the muscles. It is a very desirable characteristic in Europe in veal production. Researchers in France are trying to increase the incidence of double muscling. *It will not be a desirable characteristic in American beef production due to our different management and cost price systems.*

The problem of double muscling starts with the newborn calf. It may need help to stand and nurse for several days or in extreme cases two or three weeks: thus the name in Europe "intensive care animal." At birth, the tongue is so thick in some cases, the calf is unable to nurse for a few days. Not only hypertrophy of muscles make the calf unable to stand and walk, but usually it is a difficult birth with at least 20% of the time in Europe a Caesarean section being performed on the average fullblood carrier exotic cow.

As the double muscled calf is observed during growth you will note hypertrophy of shoulder muscles. In many cases the depth of body is shallow, the rump is deeper, and the attachment of the tailhead appears to be further forward than in a normal animal. The lay term "double muscling" probably has its origin from the lateral thigh area, which has considerable hypertrophy. A large superficial groove appears between the semitendinous and biceps femoris, and also between the biceps femoris and the tensor fascia latae. Also, there is slightly less superficial groove between the semimembranosus and the semitendinosus muscles. Even the casual observer can see these grooves plus gluteus medius is much enlarged. These grooves appear for two reasons: (1) the virtual absence of fat as compared to the normal British breeds and (2) due to the hypertrophy of the round shaped muscles.

The economic problems of double muscling in these exotic cattle are as follows:

1. Calves are very weak at birth.
   a. Many die if some labor is not available to nurse them along.
   b. Some are as weak as dwarf calves.
   c. Very susceptible to newborn calf diseases.
2. Some heifers and bulls have complete sterility and others very delayed and retarded reproductive tracts.
3. Gestation is usually ten days longer.
4. Dystocia is severe
   a. There is a smaller pelvic area associated with double muscling plus a high birth weight
   b. French research shows where they mate severe double muscle cattle with each other, there will be practically 100% loss at calving unless Caesarean section is performed.

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5. Low milk production in direct correlation with degree of double muscling.
6. Rebreeding and regularity of calving is so severe in females that about 50% will calve every two years.

Most genetic researchers in muscle hypertrophy are not sure whether the cause is a single major gene or by multi-gene situation. The French have results from matings as follows:

1. Extreme double muscling mated will produce 100% double muscling with 100% dystocia unless "C-section" is performed.
2. Mating extreme muscled bulls to non-muscled small dual-purpose cow, no double muscled calves resulted.
3. When mating the progeny of the above (2) with a double muscle bull about 40% double muscle calves.
4. When mating the progeny of the above (3) which is third generation to double muscle bull, about 90% were extreme double muscle calves.

As the above illustrates, there will be a serious undesirable gene and terrible losses in a North American cow herd if double muscled bulls of the exotic breeds are used continuously. The real dangerous problem exists when the carrier for the double muscle gene varies from nearly normal to severe symptoms. Some herd owners will have a costly problem in the future as more generations of double muscled exotics are used.

Some of you may recall the results of a test conducted at the USDA meat animal center in Nebraska, where over 900 head of Angus and Hereford heifers and mature cows were bred to various sire breeds. Assistance in calving was required by 80% of the two-year-old cows bred to Limousin sires; 77% of those bred to Charolais and 70% of those bred to Simmental.

Even when bred to mature three- to five-year-old cows, calving difficulties continued. Assistance was required by 25% of the mature cows bred to Charolais and 24% of those bred to Simmental. Ten percent of their Charolais cross calves and 11% of their Simmental cross calves were born dead or died shortly after birth.

There are new breeds from Europe that are relatively free from the double muscle gene. These are M.R.I., Normandie, Norway Reds, Friesians, and perhaps Chianina. The Simmental breeders of Canada and USA have confused everyone, including themselves, by mixing many distinct breeds of several countries of Europe into one breed here. Some of the strains of Simmentals are relatively free from the double muscled gene while others show excessive double muscling.

In summarizing, I would point out that the impact of double muscled exotics will create dystocia and related problems mentioned above as the exotic percentage of cattle get closer to 100%. There may be a large swing away from extreme muscled exotic cattle in North America if economics of extra expense needed for calving and low infertility which is brought about by the dangerous double muscling gene.

The British breeds were profitable in North America before the advent of cheap grain and feed lots. Their popularity may return if we use mostly roughage to prepare them for market. The so called "excess fat" of British breeds will be needed for cattle to grade choice with a roughage only ration. The original reason to import the less fat and more lean exotic heavy muscled animals may evaporate when the feed prices become too high for grain fed cattle in the USA and Canada.

The best suggestion to your cattle clients to prevent excessive losses in the new breeds is to cull heavily for fertility. There is a direct correlation between high fertility and very low incidence of double muscling.