

Beef Logic

by Bob Long



Uniform product or genetic diversity?

Beef cattle breeders, both purebred and commercial, must find current articles in livestock publications confusing. A single issue can contain a piece pointing out the great variation in beef carcasses and the need for increased quality control and uniformity of product. The following page may be devoted to an article underlining the need to maintain genetic diversity to provide genes that will contribute to the future quantity and quality of beef products.

Obviously, genetic diversity is in conflict with uniformity of product — hence the confusion.

It's a fact that the carcasses produced by the nation's beef herds vary greatly in weight, degree of fatness, muscle to bone ratio, tenderness, marbling and percent yield of edible portion. Since these characteristics are known to be largely influenced by genetics, it's obvious there is currently no shortage of genetic diversity.

Each of these viewpoints has merit. Without question, a uniform product of excellence is desirable. Ideally every carcass should be within a narrow range in weight, of good cutability and with good eating quality. Such uniformity assures uniform cut size in retail packages as well as consumer confidence in palatability.

Likewise genetic diversity can contribute to uniformity and production efficiency through intelligent, well-planned crossbreeding. Remember, crossbreeding is not a guarantee of excellence. It improves traits of low heritability but only slightly above the average of the parent stock. Further, practically no heterosis is realized in growth rate and none in carcass traits. Therefore, it's better to have a productive straightbred herd than a crossbreeding program based on inferior germplasm.

A successful commercial crossbreeding

program must employ cow herds superior in maternal traits mated with terminal cross bulls which excel in growth rate and carcass value. Perhaps the best solution of all is an F1 cow herd resulting from crossing two breeds or strains each of which is superior in maternal traits and adapted to range conditions. These F1 cows should be mated with bulls which have been individually

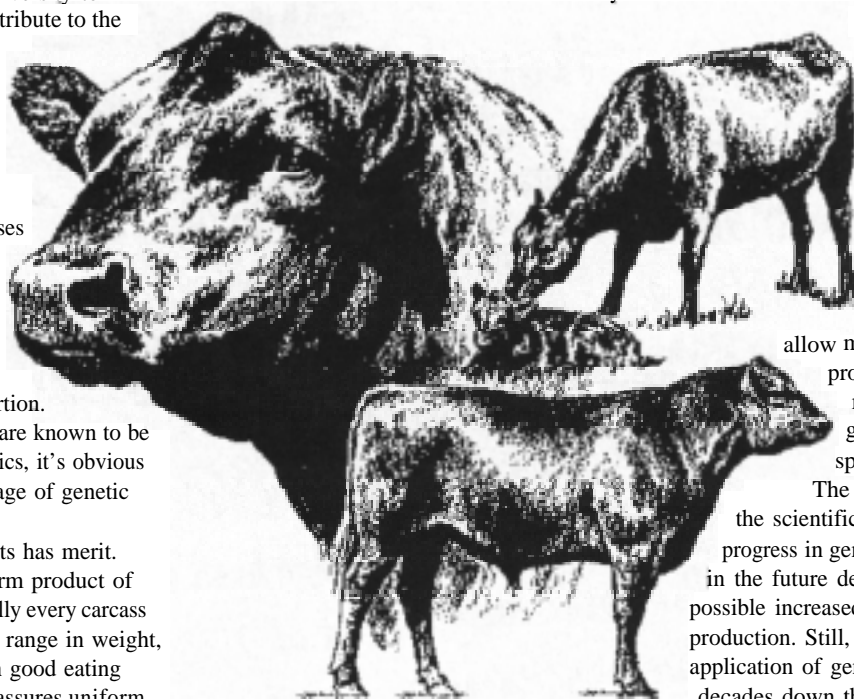
develop strains of seedstock superior in specific traits. This makes available the genetic material necessary to furnish the unrelated maternal strains for producing the F1 cows as well as the terminal-cross bulls.

Unfortunately, some proponents of genetic diversity are not referring to the "strains of seedstock superior in specific traits" mentioned above, but simply to

nonspecific genetic variation. Some scientists believe it's important to maintain all the world's genetic material. This opinion is based on the assumption that biotechnology techniques such as gene mapping and gene transfer will soon allow more precise breeding programs and speed the movement of desirable genes into widely used species

The author has no doubt that the scientific community will make progress in genetic engineering and years in the future developments will make possible increased efficiency of animal production. Still, the timetable for practical application of gene mapping and transfer is decades down the road, not months or years as has been implied by some scientists and the media.

While waiting for such procedures to be developed many beef producers could lose the ranch. Therefore, breeders must continue to maintain complete and accurate performance records. These records must be tied together on a national basis and the total data bank maintained in a central location. This will enable the computation of expected progeny differences (EPDs) for performance traits and permit continued improvement in beef production efficiency.



selected for rapid growth and carcass quality and cutability. These traits are highly heritable so the bulls must themselves have recorded rapid post-weaning gains on high energy diets and be lean, trim and heavily muscled.

The female offspring should all be fed and slaughtered along with the steers since their terminal-cross sire will add too much growth, muscle and mature size for good breeding females under range conditions.

This breeding plan for commercial production is not possible unless purebred breeders take advantage of their respective breed's performance record programs and