

Progress made in beef cattle breeding

UNIVERSITY PARK - Beef cattle breeders have come a long way in improving their animals during the past 40 years, according to Lowell L. Wilson, professor of animal science at Penn State. Even into the 1930's, Dr. Wilson noted, steers tended to be late-maturing, slow-growing and difficult to feed efficiently for market.

Then cattle breeders turned to more intensive management systems, combined with improved breeding methods developed through research, he pointed out. Attention was given in particular to certain economically important characteristics of beef cattle - growth rate, carcass meatiness, carcass eatability, structural soundness, fertility, and milk production.

Studies at Penn State determined the relative influence of inheritance on each of these characteristics. Next, methods of selection to bring about maximum improvement were developed, Wilson commented.

Over time, beef cattle breeders gave increased attention to selecting replacements for growth rate and carcass muscling, both highly inherited

characteristics. Fertility, on the other hand, was not emphasized in selecting breeding stock since fertility is not highly heritable.

Cooperating with researchers at other institutions, the Penn States have developed reasons and techniques for recording performance on individual animals while they are maturing. Records are kept on weaning weight, yearling weight, structural soundness, and - in some cases - ultrasonic estimates of fat cover and loin-eye area.

Highly heritable characteristics, such as yearling weight, must be obtained accurately to use in selection programs. Ten years ago, less than five per cent of all purebred beef cattle breeders collected such information. Now, said Wilson, all purebred beef

associations sponsor performance and most have progeny tests programs. In addition, about 100 bull test stations in the U.S. collect performance records.

"Performance records on individual calves automatically become progeny records on sires and dams. Progeny testing is positive proof of a bull's or cow's genetic ability," he stated.

Penn State studies indicate that Angus-Holstein crossbred cows can produce calves averaging 80 pounds more at eight months of age than most other purebred or crossbred cows. However, nutrition and management must be relatively good for cows producing high yields of milk to have acceptable fertility.

"Success with crossbreeding programs still

relies on selection of herd replacements with the genetic ability for high levels of growth rate, structural soundness, and carcass meatiness. Fortunately, crossbreeding has the greatest effect on calving per cent, one criteria of reproductive performance," Dr. Wilson affirmed.

He indicated the English beef cattle breeds - Angus,

Hereford, and Shorthorn - continue their popularity in most commercial herds. However, other breeds such as Charolais, Chianina, Limousin, Maine-Anjou, and Simmental, are used to infuse highly desirable growth rate and other characteristics into crossbred cattle.

Experiments at Penn State have shown that carcass conformation is not necessarily related to the proportion of edible meat. Another factor, marbling score - an estimate of the

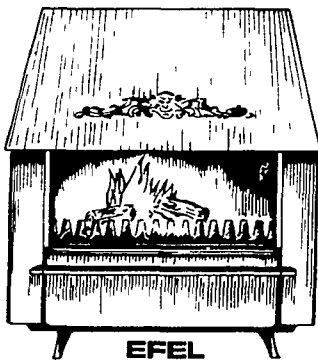
amount of fat in the lean meat - is not as accurate in predicting eating pleasure from different types of beef as once thought.

Practically all cattle from beef breeding projects at Penn State are evaluated for traits reflecting consumer satisfaction. One important aspect is the taste panel, in which eight trained people evaluate differences in juiciness, tenderness, and flavor. These measurements aid in breeding or producing cattle with high acceptability.

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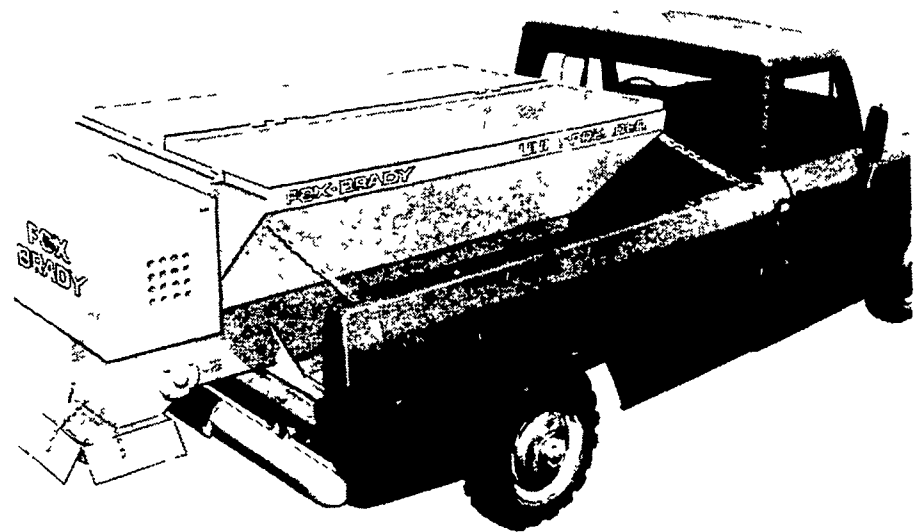
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