EVALUATION OF DIFFERENT BREED TYPES IN A
ROTATIONAL CROSSBREEDING SYSTEM IN WEST FLORIDA

A. F. Jilek and F. S. Baker, Jr.
Beef Demonstration Unit, Chipley

SUMMARY

A two-breeds rotational crossbreeding system was established at the Beef
Demonstration Unit in Chipley to compare British (Hereford), American (Brangus)
and Continental (Simmental) cattle when crossed with Angus cattle.
Analysis of the data from the 1978 and 1979 calf crops demonstrated a higher
reproductive efficiency in the Hereford herd and heavier calf weights for
the Brangus herd. The pounds of calf weaned, as adjusted 205-day weights,
per cow exposed were 377, 368 and 349 for the Brangus, Simmental and Here-
ford herds, respectively. Differences in condition scores at weaning were
small and feeder calf scores were 2.9, 2.6 and 2.3 for Simmental, Brangus
and Hereford calves, respectively.

INTRODUCTION

The beef herd has been popular with the small farm operators in West
Florida since it could be utilized to supplement income with a minimum of
labor, management and capital outlay. The large farm operators have relied
extensively on the beef herd as one of the enterprises contributing to a
diversified production system. Production costs have been driven upward
recently by inflation, forcing the beef producers to improve efficiency. The
breeds to use in a crossbreeding program can influence the production efficiency.

The importance of reproductive efficiency, growth rate and adaptability
to a subtropical environment has been stressed in Florida. Good reproductive
efficiency is one of the positive traits of the British breeds. Brahman and
Brahman-derivative cattle (often referred to as American breeds) are well
adapted to Florida conditions. Continental cattle have excellent growth
potential in calves. A two breed, rotational crossbreeding program including
a breed from one of these groups with Angus should combine to produce a
productive commercial herd.

OBJECTIVES

The purpose of this demonstration is to evaluate the performance of
three breed types of beef cattle when utilized in a rotational crossbreeding
system with Angus. Brangus, Hereford and Simmental are being used to re-
present the American, British and Continental types of beef cattle, re-
spectively.

PROCEDURES

A demonstration was established at the Chipley Demonstration Unit in
1977 to compare the performance of three breeding programs. The first two
years were utilized to establish representative herds of Hereford-Angus, Brangus-Angus and Simmental-Angus cows and these data are included in this report.

Females for the Hereford and Simmental herds were selected from the existing herd at the Unit. The Hereford herd was established with Angus (A), Hereford (H), 1/2 A 1/2 H and 3/4 A 1/4 H cows. The Simmental (S) herd was established with 1/2 A 1/2 S, 1/2 S 1/2 H and 3/4 A 1/4 S cows. Yearling Brangus heifers were purchased from the Brooksville Station to establish the Brangus herd.

The cows were maintained as one herd and inseminated with semen from the appropriate bulls to produce a rotational crossbreeding system in each breeding program. A 42-day artificial insemination period starting April 1 was used, followed by a 28-day exposure to Angus clean-up bulls. Cows were palpated for pregnancy at weaning time and non-pregnant cows were culled and sold.

The calves were weaned on September 21, 1978 and August 28, 1979. Scores for condition and frame size were determined by visual appraisal for each calf. Condition scores used were: 7 = average standard, 8 = high standard, 9 = low good, 10 = average good, 11 = high good, 12 = low choice. Frame scores were based on the estimated weight at which the calf would reach its optimal slaughter potential (approximately 0.4 inch backfat): 1 = less than 900 lb, 2 = 901-1000 lb, 3 = 1001-1150 lb, 4 = 1151-1250 lb, and 5 = above 1250 lb.

Replacement heifers were selected from calves produced by A.I. within each group. These heifers were bred at 14-16 months of age starting about March 15.

RESULTS AND DISCUSSION

A comparison of the performance of the three breeding herds is shown in table 1. Reproductive rates favored the Hereford herd with an 84% weaning rate as compared to 78% and 76% for the Simmental and Brangus herds, respectively. The weaning rates are lower than desired; however, the high percentage of young cows and the absence of selection in the herds, may have been responsible. Average age of the cows at the time of calving was 2.5, 4.5 and 3.5 years for the Brangus, Hereford, and Simmental herds.

Calves from the Brangus herd were heavier at weaning and had heavier adjusted 205-day weights than those from the Simmental or Hereford herds. The Hereford calves were lightest for each of these weights.

Annual production per cow, designated by the pounds calf weaned (adjusted 205-day weight) per cow exposed, followed the ranking for weaning weights. However, the difference between the Brangus and Hereford herds was reduced. The higher weaning rate of the Hereford compensated to some extent for the lower weaning weight of the calves.

The average calving date and condition scores of the calves at weaning were similar for the three herds. Simmental calves had a larger frame than Hereford calves as indicated by feeder score, with the Brangus calves intermediate in size.
TABLE 1. COMPARISON OF PRODUCTIVITY OF BRANGUS-ANGUS, HEREFORD-ANGUS AND SIMMENTAL-ANGUS HERDS (1978 and 1979 calf crops)

<table>
<thead>
<tr>
<th>Item</th>
<th>Breeding herd</th>
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<tbody>
<tr>
<td></td>
<td>Brangus-Angus</td>
</tr>
<tr>
<td>No. of cows exposed</td>
<td>46</td>
</tr>
<tr>
<td>No. of cows pregnant (%)</td>
<td>39 (85%)</td>
</tr>
<tr>
<td>No. of calves weaned (%)</td>
<td>35 (76%)</td>
</tr>
<tr>
<td>Cow age at time of calving, yr</td>
<td>2.5</td>
</tr>
<tr>
<td>Weaning weight, lb</td>
<td>451</td>
</tr>
<tr>
<td>Adjusted 205-day weight, lb</td>
<td>496</td>
</tr>
<tr>
<td>Annual production per cow, lb</td>
<td>377</td>
</tr>
<tr>
<td>Calving date</td>
<td>Feb. 10</td>
</tr>
<tr>
<td>Condition score&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.5</td>
</tr>
<tr>
<td>Feeder score&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.6</td>
</tr>
</tbody>
</table>

<sup>a</sup>High standard = 8, low good = 9, average good = 10.
<sup>b</sup>Based on weight at which steers expected to reach their optimum slaughter potential: 2 = 900-1000 lb, 3 = 1000-1150 lb.

Only two years data are included in this phase of the report. Continued development of the crossbreeding rotation and of selection should improve the productivity of the herds and demonstrate any differences that may exist among the three types of beef cattle.