This month's "Lead in" by Dick Spader, American Angus Assn. director of performance programs, introduces the association's soon-to-be-released sire evaluation report based on AHIR field data. In the following article Dr. Richard Willham, advisor to the association's Performance Programs Dept., expands on Spader's explanation of the new report.

A CHALLENGE

Field Data Sire Evaluation

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The first national sire evaluation listing based on AHIR data includes some 564 Angus sires, giving their expected progeny difference for yearling and weaning weight as well as birth weight if available. The choice of sires to be listed was based on the number and distribution of progeny over contemporary groups and herds and only those that directly or indirectly were compared with the Reference Sires or those sires used extensively in the breed. The list represents sires that have had a reasonable evaluation that would make them candidates for use by Angus breeders provided their expected progeny differences would help a particular breeder move in his chosen direction. The purpose of this sire evaluation is to describe the germ plasm available in the Angus breed, not to define direction.

The analysis was conducted by first expressing the progeny performance of a sire as a difference from the contempory group average. This was done for each contemporary group in which a sire had progeny. A record was kept of other sires with which a sire was compared in each contemporary group.

To preclude a sire value from being overly influenced by dam selection or preferential treatment of progeny in a few contemporary groups, a sire was given credit for up to five progeny per contemporary group for yearling weight, seven for weaning and 10 for birth. This way a sire to be listed had progeny in numerous contemporary groups.

A record was also kept of the effective progeny number credited to a sire from each contemporary group. Effective progeny number is always less than the actual number and reflects number of progeny in direct comparison with progeny from other sires. Both number of progeny and their distribution is considered in the effective progeny number of a sire.

Independent Sire Groups

Information on each sire was checked to see just which sires the sire was compared with either directly or indirectly through the sires acting as Reference Sires. The result of this check was that there are 309 independent sire groups with no ties between them, but one group contained 9,275 sires representing 89% of all the sires having progeny with yearling weights in the 213,746 records on AHIR from 1972 to August 1980.

Next, all information on each sire was grouped by birth year of the sires. Then simultaneous solutions were obtained for the average difference between birth year groups and sire differences within these groups. The sire differences were regressed back toward the age group effects based on their effective progeny number and heritability. Grouping the sires by age helps remove any genetic trend in the evaluation of sires. There exists a 2.5-lb. increase in yearling weight per year, indicating that the younger sires come from groups with a higher yearling weight than the older sires. Angus breeders responded to the challenge of the '60s to increase the growth rate of Angus cattle.

The prediction of the performance of future progeny is given by the expected progeny difference, which is the sum of the group effect and the sire effect within group. The expected progeny difference for any sire is directly comparable with any other, since differences in the effective progeny numbers already have been accounted for by the analysis procedure.

Sires chosen to be listed had an effective progeny number of 20 progeny or more. In future listings, more sires will be included as they increase in progeny number and distribution in herds and contemporary groups. It is possible to have a sire listed after one breeding season as a 3-year-old when in comparison with one or more widely used sires. For example, one progeny per comtemporary group with 10 calves each and two such groups in each of 15 herds for a total of 30 calves will list a young sire. Or 10 progeny per contemporary group with 20 calves each and two such groups in each of six herds for a total of 120 calves will list a sire.

More Accurate Analysis

This sire evaluation analysis of the data will be more accurate than the breeding values reported on the current performance pedigree because competition of a sire is accounted for in the procedure. However, because the same data is used, with exception of the designed sire evaluation data in this analysis, the results are similar.

As with all sire evaluation listings, this list represents a participating educational experience for Angus breeders. If you have a sire listed or have yearling weights on your sires at all, you participated. This is the first presentation of field data results for the Angus breed. Others will follow.

In the evaluation to come, we will build on what has been learned and add new features that will make future evaluations more accurate than the previous. The next step will be to include the relationship of every sire with every other sire. This will tie more independent groups of sires together into the big group of sires by relationship ties. This also will do the job of age-grouping sires to correctly account for genetic trend (increase in weight through the years) as well as give sires credit for their sons' progeny performance and vice versa.

In the future we hope to work out procedures to eliminate the effect of dam selection. The results in this listing are the first step in the utilization of your AHIR records for significant breed improvement. Treat them as such.

No Angus breeder must keep performance records; but you must compete with those who do and with creative breeders who understand their use in selection. We are in a specification-of-product age. You sell breeding value, the value of your product in terms of progeny produced in your buyers' herds. Plan to utilize the results of this listing in your breeding program. Also plan to get your product (young sires) evaluated so you can better define your program by knowing where you are relative to other breeders.