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## Selecting for muscling in swine and resulting effects on carcass traits

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Summary

Litters farrowed total 147 (25 in 1971, 23 in 1972, 33 in 1973, 32 in 1974 and 34 in 1975); pigs total 1196, 1102 alive at birth 94 (8%) dead at birth. Line differences in loin eye area, backfat thickness and age (adjusted to 220 pounds live-weight) have not been significant. Carcass data collected from 165 barrows indicate the two lines do not yet differ in carcass traits.

Introduction

Objectives of this long term selection project are (1) to develop a well muscled line of Durocs by index selection, (2) to maintain a control line by random selection from the same base population, and (3) compare the two lines for performance and carcass traits.

Procedure

Animals in the select line are chosen on the basis of an index with maximum loin eye area and minimum backfat thickness (estimated by An/Scan and adjusted to 220 pounds live weight) receiving equal emphasis. Boars and gilts in the control line are randomly selected. Pigs are farrowed in May and June and produce litters a year later, for a generation interval of one year.

Results and Discussion

Twenty-five litters born in May, 1971, served as the base population. Average litter size in the base population was 9.24 pigs (8.36 live, 0.88 dead per litter). Sixty select line litters averaged 7.88 pigs (7.25 live, 0.63 dead per litter) and 63 control line litters averaged 7.82 pigs (7.26 live, 0.56 dead per litter). An effort has been made to keep inbreeding to a minimum, but average inbreeding coefficient for parents of the 1975 select line pigs was 10.8 percent and control line average was 15.6 percent.

Average loin eye area, backfat thickness, and age to 220 pounds for 20 boars and 66 gilts in the base population in 1971 and for parents of litters born in subsequent years are shown in table 31.

Table 31. Loin eye area, backfat thickness, and age at 220 lbs. listed by year and line

| Base population - 1971 |               |      |     |               |               |      |     |
|------------------------|---------------|------|-----|---------------|---------------|------|-----|
| Number                 | Loin eye area |      |     | Fat thickness | Age at 100 kg |      |     |
| 20 boars               | 5.24          |      |     | 0.91          | 177           |      |     |
| 66 gilts               | 5.59          |      |     | 0.96          | 185           |      |     |
| <hr/>                  |               |      |     |               |               |      |     |
| 1972                   |               |      |     |               |               |      |     |
| Select                 |               |      |     | Control       |               |      |     |
| No.                    | LEA           | Fat  | Age | No.           | LEA           | Fat  | Age |
| 4 boars                | 5.89          | 0.84 | 179 | 4 boars       | 5.41          | 0.93 | 182 |
| 9 gilts                | 5.73          | 0.86 | 186 | 14 gilts      | 5.47          | 1.00 | 183 |
| <hr/>                  |               |      |     |               |               |      |     |
| 1973                   |               |      |     |               |               |      |     |
| Select                 |               |      |     | Control       |               |      |     |
| No.                    | LEA           | Fat  | Age | No.           | LEA           | Fat  | Age |
| 3 boars                | 5.15          | 0.98 | 193 | 5 boars       | 4.97          | 0.92 | 177 |
| 18 gilts               | 5.24          | 0.99 | 188 | 15 gilts      | 5.26          | 1.06 | 185 |
| <hr/>                  |               |      |     |               |               |      |     |
| 1974                   |               |      |     |               |               |      |     |
| Select                 |               |      |     | Control       |               |      |     |
| No.                    | LEA           | Fat  | Age | No.           | LEA           | Fat  | Age |
| 4 boars                | 5.56          | 0.82 | 183 | 5 boars       | 5.32          | 0.94 | 175 |
| 18 gilts               | 5.75          | 1.07 | 181 | 18 gilts      | 5.47          | 1.19 | 180 |
| <hr/>                  |               |      |     |               |               |      |     |
| 1975                   |               |      |     |               |               |      |     |
| Select                 |               |      |     | Control       |               |      |     |
| No.                    | LEA           | Fat  | Age | No.           | LEA           | Fat  | Age |
| 4 boars                | 6.18          | 0.81 | 180 | 4 boars       | 5.27          | 0.86 | 172 |
| 19 gilts               | 5.94          | 0.86 | 192 | 15 gilts      | 5.27          | 0.90 | 178 |