Control Inbreeding Losses with GMS®

Inbreeding on the Rise
As the industry continues to improve genetics, the relationship between animals will increase in all herds and in all cattle, including natural service sire usage. Figure A demonstrates how the inbreeding coefficients have increased over the last 48 years.

Figure A: Trend in Inbreeding Coefficients - USDA 2008

Inbreeding Losses Are Measurable
In a recent study by Croquet et. al on the effects of inbreeding on type traits, it was found that a 1% increase in inbreeding had a significant effect on type traits. In general, in a non-standardized scale, the type traits most affected by inbreeding were overall development, conformation score, feet and leg score, rear udder, stature and body depth.

The effects of inbreeding on production and health traits have been well documented by L.A. Smith et. al and include the following:

- Nearly $24 less net income over an animal's lifetime per 1% inbred
- Loss of 790 pounds of milk over a cow's lifetime per 1% inbred
- Loss of 29 pounds of fat and 25 pounds of protein over a lifetime per 1% inbred
- Shorter productive life of 13 fewer days per 1% inbred
- Increase of 0.36 days age at first freshening per 1% inbred
- Poorer fertility and higher incidence of early embryonic death
- Less hybrid vigor and more health problems

On a 100-cow herd with an average inbreeding of 4% over the lifetime of the herd, they are losing 316,000 pounds of milk, 11,600 pounds of fat and 10,000 pounds of protein and nearly $10,000. Meanwhile they are adding 144 days to the age at first freshening.

First Critical Steps
Controlling inbreeding in a herd requires two basic steps that dairy producers should follow:

1) Keep a good identification program. Accurate pedigree data including sire and dam identification in addition to sires used as mates are an essential part of a well-identified herd.
2) Use a powerful and competent computerized mating program to calculate inbreeding and assign individual mating sires to each herd member.

Control Inbreeding with GMS
Since 1968, GMS has continued providing new ways to utilize prioritized mating recommendations through selection indices. Producers benefit from built-in flexibility where they may choose the maximum level of inbreeding acceptable (not to exceed 6.25%). Figure B is one pedigree example of the GMS advantage in calculating the percent inbreeding and its relative economic value in the herd.

Figure B: Inbreeding Comparison Using Example Pedigree*

| GMS Calculated Inbreeding | = | 9.766% |
| Population inbreeding average | = | 4.5% |
| GMS Difference | = | 5.266% |
| Lifetime Inbreeding Loss per 1% | × | $24 |
| Unaccounted economic LOSS if using other programs | = | $126.38 |

*Note: BURT mated to a MANGO x PIPPEN x Luke pedigree

Contact your ABS Representative or call 1-800-ABS-STUD to start controlling your inbreeding losses with GMS today.

REFERENCES