That's nice, but I raise cows

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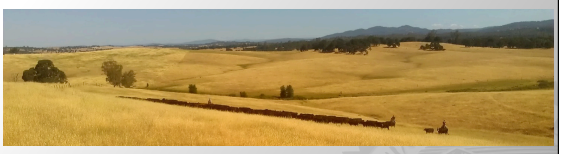

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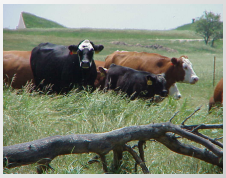
Why are we still talking about heterosis?



The incredible value of the crossbred cow!

Heterosis — "the only free lunch in the beef business"

Genetic Improvement

- Selection — within breed (use of genetic predictors (EPD's and indices)
- Crossbreeding — heterosis / breed complementarity

Breed Complementarity

The degree to which two breeds complement one another…..

- **Heterosis** - the superiority of the crossbred progeny compared to the average of the parental breeds…..
- **Maternal Heterosis** - the increase in calf performance due to the maternal effect of a crossbred cow

Heterosis – what should we expect?

- Primary advantage in the "lowly heritable" traits --- "the non-additive genetic portion"
- Small, net positive effects in many traits
- Fitness traits---often difficult to measure and difficult to "visualize" success
- LARGE NET POSITIVE CUMULATIVE EFFECT.

Direct (individual) vs. maternal heterosis

----Heterosis of the calf = 8.5% (individual)

----Heterosis of the F1 = 14.5% (maternal)

Heterosis Effects – individual (crossbred calves)

- Calving rate 4.4%
- Survival to weaning 1.9%
- Weaning weight 3.9%
- Postweaning ADG 2.6%
- Yearling weight 3.8%
- Feed conversion 2.2%.

Heterosis effects – maternal Crossbred cows

- Calving rate 3.7%
- Survival to weaning 1.5%
- Weaning weight 3.9%
- Longevity 38%
- Number of Calves 17.0%
- CUMULATIVE WEANING WT. 25.3%.

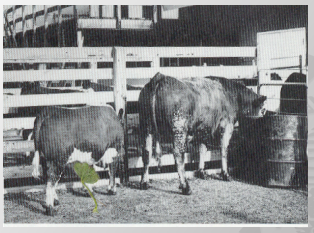
"Crossbreeding has caused our lack of uniformity, inconsistency, and tremendous variability! No wonder we have lost market share. We have too many breeds. What happened to the good old days of straightbred, predictable cattle?"

The Perception of Crossbreeding

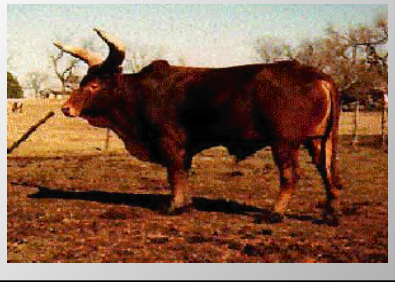
- increase variability
- lack of consistency
- "mongerelize" the nation's cow herd
- "too many breeds"
- lack of predictability.

Utilizing heterosis and selection

It is not the fault of crossbreeding…..it is the fault of the crossbreeder……



Lifetime Membership in "The Breed of the Month Club"



Crossbreeding systems — historical pitfalls

- Complicated systems
- Lack of understanding of basic genetics
- Poor utilization of breed diversity
- Poor selection of genetic inputs
- No long range genetic plan!

The lack of implementation of well-planned crossbreeding systems is the result of……

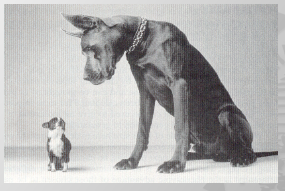
- Early failures because of the wrong genetic inputs…….
- Purebred breeders…….
- Culture……
- We measure the wrong traits!

Planned Crossbreeding Programs

- Systematic – utilize resource base
- Retain HETEROSIS
- Breed complementarity
- SIMPLE
- Marketability
- MATCH COWS TO THEIR ENVIRONMENT
- MEASURE PROFIT.

Heterosis – Ignored or Forgotten?

1. A cultural bias that clearly reflects "purebreds are better!"



Heterosis – Ignored or Forgotten?

2. Our predilection for single-trait selection focusing on "bigger is better."




3. We have decided that measuring outputs is more meaningful than measuring inputs---and easier!

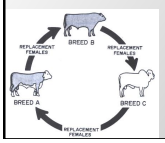
- Average daily gain
- Ribeye area
- Quality grade
- Feed efficiency
- Conception rate
- Weaning weight
- ….and the list goes on…….

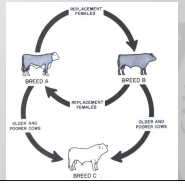
4. Uniform phenotypes for qualitative traits (color) have a distinct and real marketing advantage that is difficult to ignore.

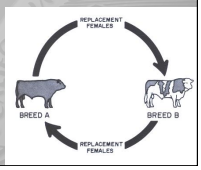

5. Heterosis is very difficult to visualize and even more difficult to measure.

- longevity
- morbidity
- livability
- age at puberty
- lifetime productivity

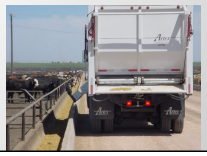
6. The presentation of complicated crossbreeding systems as a "normal practice" to diverse cattle operations, especially the countless small beef herds in the United States.







7. Our penchant for telling people how to modify their environment in order to "get heavier calves, higher percent calf crop and more total pounds."



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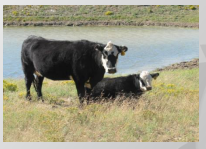
8. Historically, there has been active resistance to crossbreeding from some traditional marketing outlets, some purebred producers and (in some cases) breed associations.



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9. Inappropriate use of breed diversity.

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10. Our industry and University systems have focused on individual trait measurement for over fifty years.

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What is a "good cow"?

- Born in 1995..bad leg at weaning
- Tried to cull in 96..
- Calf in 97
- Calf in 98
- Open in 99? –sent her as a cull to AI school
- She had twins!!!!
- Calf in 00
- Calf in 01
- Calf in 02
- Calf in 03
- Twins in 04
- Calf in 05
- 11 calves by the time she was 10……

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