

Heterosis & Crossbreeding

3 p.m. session, Tuesday, Dec. 6, 2005

Presenter: Jim Gosey, University of Nebraska-Lincoln

RAPID CITY, S.D. (Dec. 6, 2005) — What rancher wouldn't appreciate a 25% improvement in the lifetime productivity of his or her cow herd? According to veteran University of Nebraska geneticist and Extension beef specialist Jim Gosey, that's the potential advantage offered by crossbred cows. Yet, recent years have seen many commercial cow-calf producers opt for straightbred cow herds.

Gosey told attendees of the 2005 Range Beef Cow Symposium that reasons for the shift to straightbreds may include the desire to simplify breeding programs and the belief that straightbred cattle produce more uniformity and consistency. Or, he added, producers may be targeting breed-specific or certain premium markets.

Gosey said he fears too many producers are ignoring two major benefits of crossbreeding: heterosis (hybrid vigor) and the complementary effects of breed differences.

"Many producers are using EPDs (expected progeny differences) to stack good genes on good genes for an additive effect. But why not use heterosis, too?" Gosey asked.

Gosey advised using EPDs to select for highly heritable traits that respond best to direct selection. Heterosis, on the other hand, has the greatest influence on lowly heritable traits such as reproduction, early growth and lifetime productivity of females.

Maternal heterosis accounts for about two-thirds of the total crossbreeding advantage, Gosey said. It affects reproductive performance through earlier puberty, higher conception rates, faster breed-back, greater longevity and the maternal effect on calf performance. Individual heterosis generally accounts for the other one-third of the potential 25% increase in lifetime productivity, affecting early calf vigor and growth rate.

Gosey said an often-overlooked advantage of the crossbred cow is increased longevity — an average of 1.9 years more than the average of straightbred cows, or an average of 766 pounds of greater lifetime productivity.

Crossbreeding allows producers to take advantage of breed differences, he added. By matching the strengths of different breeds, he said, producers can better manage trait



The University of Nebraska's Jim Gosey said producers opting for the simplicity of straightbred programs miss out on heterosis and breed complementarity. [PHOTO BY LYNN GORDON]

antagonisms such as that which exists between marbling and retail product yield.

While some rotational crossbreeding systems that maximize heterosis are complex, Gosey said simple programs to optimize heterosis and utilize breed differences can be developed.

— by Troy Smith, field editor, Angus Productions Inc.
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