



PHOTO BY SHAUNA ROSE HERMEL

# Computer Matings

Software helps target multiple end uses in beef cattle breeding programs.

Story & photo by **Troy Smith**, field editor

One way to manage the occurrence of genetic abnormalities in cattle is to avoid mating two animals known to be carriers of a gene associated with a particular defect. It was for that purpose that Brian Kinghorn of Australia's University of New England developed a mating decision aid called MateSel. This software program is designed to optimize mating selections, showing the tradeoff between genetic gain achieved by mating the very best sire to the very best dams irrespective of their relationship to each other, and genetic diversity, which is maintained by avoiding or minimizing inbreeding.

Kinghorn and fellow geneticist Alison VanEenennaam, of the University of California–Davis, talked about an alternative application of mate-selection software during the Applied Reproductive Strategies in Beef



►“It has a lot of potential to become a powerful tool for making the right mating decisions, particularly in an era when we have an increasing number of genetic issues to consider,” said Alison Van Eenennaam of UC–Davis.

Cattle (ARSBC) symposium in Davis, Calif. That application is to select matings of parent animals that target multiple end uses for the resulting progeny.

In other words, a seedstock breeder could select matings to generate progeny that satisfy the needs of different kinds of bull-buying customers. For example, terminal-type bulls could be produced for customers raising only market animals and maternal-type bulls could be produced for customers wanting bulls to sire replacement females. At the same time, matings could be planned to generate progeny that would go back into the seedstock breeder's nucleus herd.

“This means that there would be three selection indices used for the three end uses,” explained Kinghorn, “including a combined index for the ongoing nucleus seedstock program, a terminal index to target the customers that are producing slaughter progeny alone, and a maternal index to accommodate customers that are retaining replacement heifers.”

With a mate-selection program, added Kinghorn, each selection index could be customized by weighting various traits according to their relative importance to each different end use. At the same time, breeders could also manage genetic abnormalities.

VanEenennaam said application of a computer program for optimizing mate selection should allow breeders to maximize genetic gain in their own herds and minimize lethal combinations of genes, while producing groups of bulls specifically suited to both customer sets.

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► Brian Kinghorn of Australia's University of New England introduced an alternative application of mate-selection software to attendees of the ARSBC symposium.

powerful tool for making the right mating decisions, particularly in an era when we have an increasing number of genetic issues to consider,” offered VanEenennaam, adding that work is under way to develop a genomic test whose results could be incorporated in the software.

Kinghorn and VanEenennaam spoke during Tuesday's ARSBC session focused on the future. Visit the Newsroom at [www.appliedreprostrategies.com](http://www.appliedreprostrategies.com) to view their PowerPoint, read the proceedings or listen to their presentations.



**Editor's Note:** Troy Smith is a freelance writer and cattleman from Sargent, Neb. Comprehensive coverage of the symposium is available online at [www.appliedreprostrategies.com](http://www.appliedreprostrategies.com). Compiled by the Angus Journal editorial team, the site is made possible through sponsorship by the Beef Reproduction Task Force.