

# Research Roundup

## Studies aim to improve fertility, reproductive rate.

by Shauna Hermel, editor

### Effect of heifer weight at breeding on subsequent performance

Researchers at the University of Nebraska–Lincoln (UNL) evaluated the effects of heifer weight at breeding as a percent of mature body weight (50%, 55%, 60%, 65%, 70%) on performance, calf production and subsequent pregnancy rate in March- and May-calving herds. 1,434 crossbred cows and heifers were included in the study. Body weights of heifers were recorded at breeding. The adjusted average body weight of the 5-, 6- and 7-year-old cows at weaning within each calving season was used to establish the mature body weight for each year, respectively.

Pregnancy rates as heifers and as 2-year-olds were greater for heifers reaching 60%, 65% and 70% of mature body weight by breeding. However, it did not carry through to affect pregnancy rates as 3-, 4- or 5-year-olds (see Fig. 1).

“As heifer percentage of mature body weight at breeding increased, calf birth weight and weaning weight increased,” the researchers report in the 2024

*Nebraska Beef Cattle Report*. For every 5% increase in percentage of mature body weight reached by breeding, average calf birth weight increased by 1.2 pounds.

A greater percentage of heifers reaching 50%, 55% and 60% of mature weight by breeding calved during the first 21 days of the subsequent calving season.

The researchers conclude: “These results indicate that producers developing heifers below 60% of mature body weight at the time of breeding may have increased challenges in rebreeding 2-year-old cows; however, subsequent pregnancy rates as a 3-year-old and older are not impaired by percent of mature body weight at breeding as a heifer.”

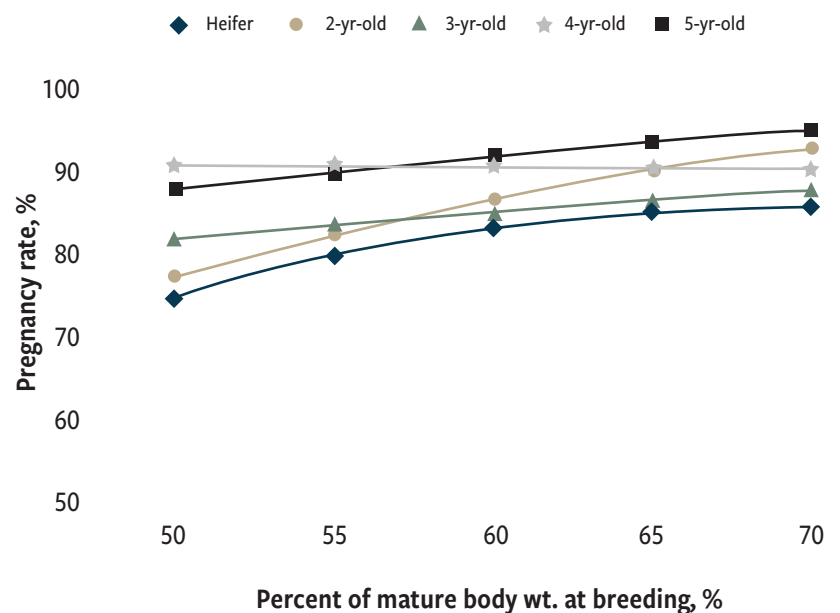
The UNL researchers involved with this project include Travis Mulliniks, Jacki Musgrave, Kathy Hanford and Kacie McCarthy.

### Mobile semen-analysis system evaluated

At Kansas State University’s (K-State) 2023 Cattlemen’s Day program,

researchers gave the thumbs up to iSperm®, a portable semen analyzer, after conducting a study to evaluate the tool. The

**Fig. 1: The impact of percent of mature body weight at breeding in replacement heifers on subsequent pregnancy rates as a heifer, 2-, 3-, 4- and 5-year-old**



objectives of the research trials were twofold:

- ▶ to evaluate the effectiveness of iSperm in comparing sperm motility to a technician’s assessment during a breeding soundness exam (sometimes referred to as a BSE); and
- ▶ to establish the correlation between sperm response to reactive oxygen species (ROS) and functional sperm measurements.

To conduct the study, ejaculates were collected from yearling bulls during a breeding soundness exam via electroejaculation. Those that passed minimum thresholds for passing a breeding soundness exam were diluted and overnighted for flow cytometry evaluation.

Gross and progressive motilities were significantly correlated to the technician’s assessment of progressive motility, report K-State reproductive physiologists Karol Fike and Sandy Johnson in the Cattlemen’s Day proceedings. The research report shares several correlations between ROS status and various morphology measures.

“The iSperm can be used to produce semen assessments similar to those of a trained technician, and may offer a useful tool for producers to perform on-farm semen analysis,” they conclude. “Sperm health and function continue to be related to negative ROS status.” **ABB**

