

Abstract

Characterization and usage of sexed semen from US field data

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The objectives were to characterize sexed semen available and its usage from US field data. This included investigating active Holstein proven bulls with sexed semen available, as well as percentages and frequencies of sexed semen matings for heifers and cows. Herds were also characterized for their use of sexed semen. Inseminations with sexed semen were distinguished through the use of the National Association of Animal Breeders 500 series marketing code numbers as well as through the Animal Improvement Programs Laboratory Format 5 reproduction record, which provides information on individual breedings for both cows and heifers supplied by the dairy records processing centers. Marketing code 514 was not counted as sexed semen because the technology used and results expected are not the same.

Of the 717 active Holstein bulls born after January 1, 1994, 211 (29%) had sexed semen available as of the April, 2008 genetic evaluation. When bulls were stratified by deciles based on Net Merit, the percentage of bulls with sexed semen was 6, 18, 28, 31, 35, 35, 42, 46, 48, and 33% (with the Net Merit range of each decile being –340 to 40, 50–125, 128–174, 177–211, 216–245, 247–281, 282–328, 331–363, 366–414, and 418–529, respectively). Bulls with sexed semen available are slightly better than average for milk yield traits, productive life, daughter pregnancy rate, and net merit. They are slightly superior for somatic cell score, calving ease and stillbirth. The mean age for bulls with sexed semen available is 7.3 years. Since 2006, 9.2% of Holstein heifers have had at least one breeding with sexed semen, accounting for 6.8% of all heifer breedings; in contrast, 2.4% of all Holstein cows have had at least one sexed semen breeding, or 0.9% of all cow inseminations. The current status of on-farm usage is different from the overall usage across all years because sexed semen was just starting to become commercially available in

2006. For heifers, sexed semen matings accounted for 1.5, 9.6, and 14.2% of all reported breedings for 2006, 2007, and 2008, respectively. For cows, sexed semen matings accounted for 0.1, 1.3, and 2.1%, respectively; thus, showing an increase in usage. Although the percentage of sexed semen usage is much higher in heifers, in terms of total number of sexed semen matings, the frequencies are more equal in cows and heifers (54% of sexed semen inseminations are to heifers while 46% are to cows).

For heifers, 80% of sexed semen usage is on first service, whereas subsequent breedings tend to be done using non-sexed semen. For cows, 49% of sexed semen usage is on first lactation including 21% used on first service. Across all lactations, first service accounted for 42% of all breedings with sexed semen in cows, and first and second services combined accounted for 70% of all sexed semen inseminations in cows. Inseminations using sexed semen achieved 91% heifer calves indicating that sexed semen is effective in producing heifers. While sexed semen usage is fairly uniform throughout the country, there is some variation by region. Herds in the Northwest, Mideast, and Midwest have used sexed semen on a percentage basis more than other regions of the country. A lower percentage of herds in the South have used sexed semen, perhaps due to already lower conception rates in that region. Usage varied more by herd size and production level than by region. Larger herds and herds with higher production levels tended to use sexed semen more frequently; for example, 49% of herds with 501–1000 cows used sexed semen, compared to 21% of herds with 51–100 cows using sexed semen.

Further research will focus on the effect of conception rates on cows and heifers as well as a look into gestation length, stillbirth, and calving ease scores when sexed semen is used.

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