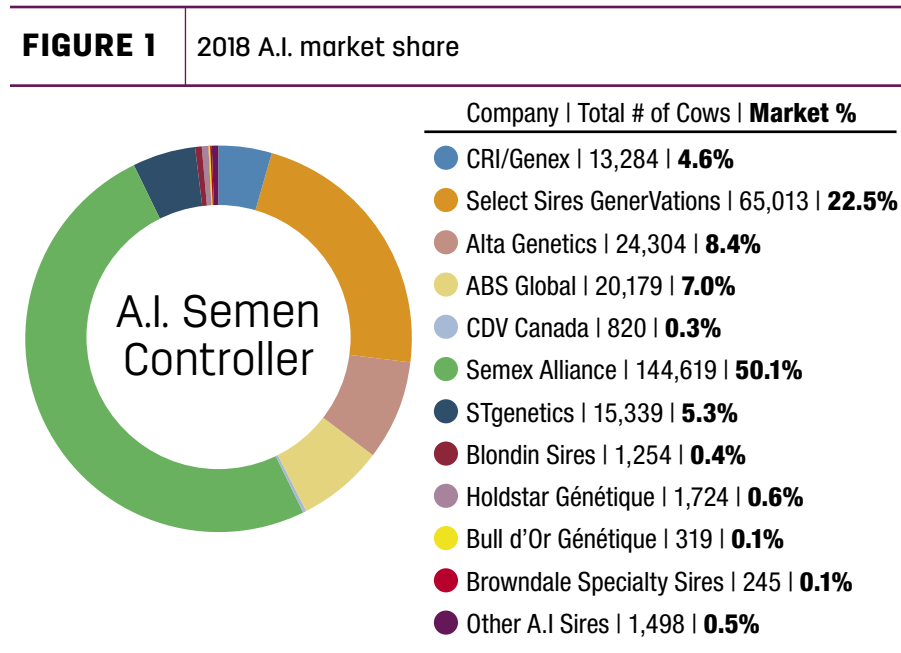


Trends in A.I. and breeding

The following data represents statistics and trends in Canadian dairy cattle breeding.



Source: Canadian Dairy Network, A.I. Market Share Update, May 30, 2019

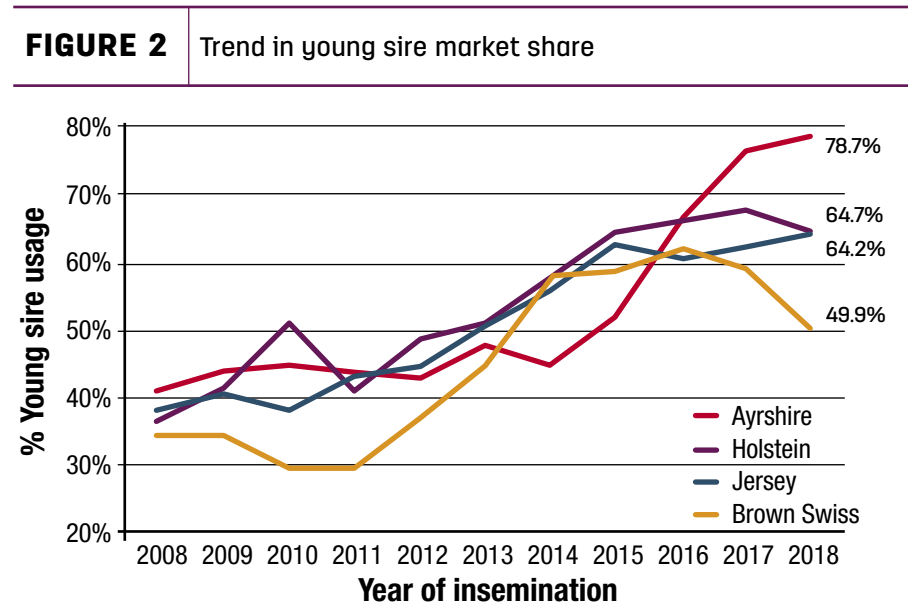
National A.I. market share statistics

(Based on A.I. semen controller of the sires of registered dairy heifers born in Canada in 2018)

Two A.I. semen controllers accounted for 72.5% of all registered dairy heifer calves sired by A.I. bulls in Canada in 2018. One of every two heifer calves was from a Semex Alliance sire, while Select Sires GenerVations accounted for 22.5% of the female-born offspring last year. Contributing single-digit market share were Alta Genetics (8.4%), ABS Global (7%), STgenetics (5.3%) and CRI/Genex (4.6%).

Trends in A.I. young bulls vs. proven sires market share

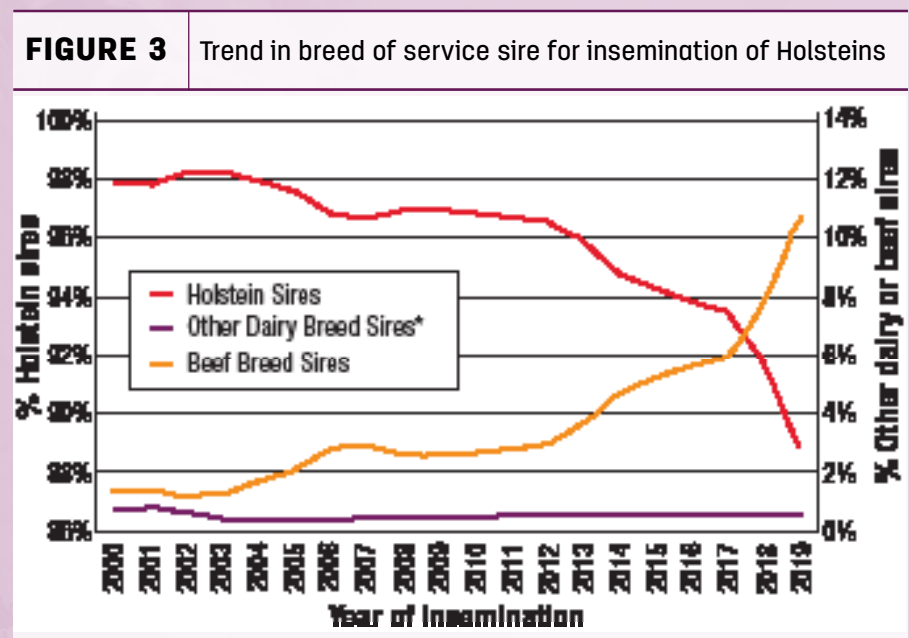
Unproven sires are steadily climbing in market share, now comprising more than two-thirds of A.I. bulls marketed for Canadian dairy herds among the Holstein and Jersey breeds, and more than three-quarters of the Ayrshire breed. Just over half of the Brown Swiss market is made up of proven sires.



Source: Canadian Dairy Network

Use of beef sire semen in the dairy industry

The use of beef-on-dairy was consistently below 3% before 2013 but has now surpassed the 10% level so far in 2019. According to the Canadian Dairy Network, "based on the data currently available for 2019, which represents approximately 40% of the full year, an all-time low has been reached with only 89% of Holsteins being bred with Holstein sire semen, and this statistic is expected to be even lower as the year progresses." Figure 3 demonstrates this, showing the decreasing trend of Holstein on Holstein breeding has completely resulted from a simultaneous increased popularity of breeding Holstein females with beef breed sires.



*Other dairy breed sires includes Ayrshire, Jersey, Brown Swiss, Guernsey, Canadienne and Milking Shorthorn.
Source: Canadian Dairy Network

