

Preparing for Breeding Success

Edition 3

Spring Management Series 2025



Breeding excellence in your future herd

With the breeding season underway or looming on most farms, ensuring the key targets for your breeding season are achieved is a priority. With an excellent grazing season thus far ensuring cows are in optimal Body Condition Score (BCS) for the breeding season ahead is critical to ensure target submission and conception rates are achieved on farm. This will ensure the correct number of replacements are produced on the farm in spring 2026 to maintain the herd.

Generating enough replacements

The question is how many cows do you need to breed to dairy AI to ensure adequate numbers of replacement heifer calves? This number will depend on **the number of heifer replacements required and whether the semen being used is conventional, sexed or a combination of both.** Reducing the number of cows that need to be bred to dairy AI will increase the genetic merit of your replacement heifers and reduce the number of dairy male calves born on farm.

This will result in higher numbers of high beef merit calves born instead.

Where a 100-cow herd requires 25 replacements heifers, in these examples we examine how many cows need to be bred to dairy AI depending on the breeding plan for the maiden heifers and the type of semen being used. The remainder of the cows are available to be bred to high DBI beef AI. In each of these examples the conception rates used are guide and somewhat conservative to ensure enough replacement heifer calves are born, there shall be herds that will achieve higher results.

Trial work would show on average a 10% lower conception rate when using sexed semen over conventional semen although the number of animals that need to be bred to dairy AI reduces. These examples assume a 100% submission rate with the maiden heifers and 90% with the milking herd in the first 3 weeks of breeding. It also assumes that all dairy AI is used in the first 3 weeks. The probability of getting a heifer calf using conventional semen is 50% while it stands at 90% if using sexed semen.

Example 1: Conventional dairy AI on both the maiden heifers and the cows

Example 1	Straws	Conception %	No Heifer Calves
Maiden Heifers Sexed Straws	0	55%	0.0
Maiden Heifers Conventional Straws	25	65%	8.1
Total	25		8.1
	Straws	Conception %	No heifer calves
Cows Sexed Straws		45%	0
Cows Conventional Straws	62	55%	17.1
Total	62		17.1
Total Heifer Calves from Cows and Heifers	25.2		
Total Sexed Straws	0		
Total Conventional Straws	87		
Total Dairy Straws	87		

In example 1 using all conventional dairy AI will mean that 8 heifer calves are produced from the replacement heifers assuming a 65% conception rate. Assuming a slightly lower 55% conception rate, 62 cows must be bred to conventional dairy AI to produce the further 17 heifer calves required. Therefore 25 dairy-bred males shall also be born on farm during the same period. There shall be 28 cows bred to high DBI beef AI in the first 3 weeks assuming a 90% submission rate.

Example 2: Sexed dairy AI used on the maiden heifers with conventional dairy AI used on the cows

Example 2	Straws	Conception	No Heifer Calves
Maiden Heifers Sexed Straws	25	55%	12.4
Maiden Heifers Conventional Straws	0	65%	0.0
Total	25		12.4
	Straws	Conception	No heifer calves
Cows Sexed Straws		45%	0
Cows Conventional Straws	45	55%	12.4
Total	45		12.4
Total Heifer Calves from Cows and Heifers	24.8		
Total Sexed Straws	25		
Total Conventional Straws	45		
Total Dairy Straws	70		

In example 2 using dairy sexed AI on the maiden heifers will mean that 12 heifer calves are produced from the replacement heifers assuming a 55% conception rate. Assuming the same 55% conception rate, 45 cows must be bred to conventional dairy AI to produce the further 13 heifer calves required. Therefore, the number of dairy-bred males born on farm during the same period has reduced to 12. The number of cows bred to high DBI beef AI in the first 3 weeks increases to 45.

Example 3: Sexed dairy AI used on the maiden heifers and cows

Example 3	Straws	Conception %	No Heifer Calves
Maiden Heifers Sexed Straws	25	55%	12.4
Maiden Heifers Conventional Straws	0	65%	0.0
Total	25		12.4
	Straws	Conception %	No heifer calves
Cows Sexed Straws	32	45%	13
Cows Conventional Straws		55%	0.0
Total	32		13
Total Heifer Calves from Cows and Heifers	25.4		
Total Sexed Straws	57		
Total Conventional Straws	0		
Total Dairy Straws	57		

In example 3 using dairy sexed AI as seen above will mean that 12 heifer calves are produced. Assuming a conservative 45% conception rate, 32 cows must be bred to sexed dairy AI to produce the further 13 heifer calves required. The number of dairy-bred males born on farm reduces to 3 due to 90% female probability of sexed semen. The number of cows bred to high DBI beef AI in the first 3 weeks increases in this example increases to 58.



Summary

In summary, it's important to work out how many cows you need to breed to dairy AI for your own farm. The best predictor of future performance is past performance so look back at previous breeding seasons and make an informed decision. The use of sexed semen will ensure you breed your replacement females from your best cows, reduce the number of dairy-bred male calves born on farm while increasing the beef merit of your calf crop.

The obvious concern when using sexed semen is reduced conception rates. Therefore, consideration must be given when selecting the animals for sexed dairy AI, the timing of AI and the handling of the straws. The reduction in conception rate is somewhat offset by the fact that its only being used on a percentage of the herd and allows for a larger proportion of the herd to be bred to conventional high DBI beef AI at normal conception rates. Each individual herd should consider how much of their dairy AI should be sexed based on the previous year's breeding performance.