



## Calf Math<sup>SM</sup> Program User Guide

Follow this user guide as it explains how to navigate through the 7 sections of the Calf Math<sup>SM</sup> program.

The different colored cells have different meanings, as explained below:

<input type="text"/>	Input Cells	<input type="text"/>	Conventional Semen
<input type="text"/>	Calculating/Results Cells	<input type="text"/>	GenChoice <sup>TM</sup> Sexed Semen

### Section 1

Input herd-specific numbers in Section 1 at the top of the program. Follow the instructions below on determining these herd-specific numbers.

<input type="text" value="500"/>	Number of Cows (Milking and Dry)	Enter the average total number of cows in the herd (milking + dry).
<input type="text" value="200"/>	Number Breeding Age Heifers	Enter the average total number of heifer bred first service in a year.
<input type="text" value="33%"/>	Annual Cull Rate	Enter the most recent annual culling rate.
<input type="text" value="0%"/>	Percent Annual Growth (Goal)	0% growth would indicate the producer plans to maintain current herd size. If wanting enough replacements to do some voluntary culling within the lactation herd at least a 5% goal is recommended. A herd can choose a negative number if planning to downsize the current herd.

### Section 2

The default numbers may be used for conception rate and female sex ratios for all the semen products. However, if herd-specific information is available, it can be used to get the most accurate results. The default conception rate for GenChoice<sup>TM</sup> semen on cows (3% lower than the conception rate with conventional semen) is based on 5,000 observations collected by GENEX. Within the observations, the animals bred were "cherry picked," meaning the cows were in their first lactation and showed strong heats. If not planning to cherry pick, it is recommended to use the -15% conception rate expected for sexed semen. The conception rate for conventional beef semen is slightly higher for both cows and heifers because of the perception that beef semen settles better. There is no literature to support this theory; however, note that a straw of conventional beef semen contains 3-4 times more sperm cells than conventional dairy semen.

	Dairy Conventional		Dairy GenChoice <sup>TM</sup>		Beef Conventional	
	Cows	Heifers	Cows	Heifers	Cows	Heifers
Conception Rate	35%	62%	32%	47%	40%	64%
Female Sex Ratio	48%	48%	90%	90%	48%	48%

### Section 3

In the light gray cells, designate the percentage of each semen product the herd will use. 0% can be used as an input if the herd wishes not to use a product. The total for cows must equal 100%, and the total for heifers must equal 100%.

#### Cows

Percent Dairy Conventional Semen	80%
Percent Dairy GenChoice™ Semen	0%
Percent Beef Conventional Semen	20%
Total	100%

#### Heifers

Percent Dairy Conventional Semen	20%
Percent Dairy GenChoice™ Semen	80%
Percent Beef Conventional Semen	0%
Total	100%

### Section 4

The calculations shown below are made by the program. The program calculates the overall conception rate from the new mix of semen products and the expected average services per conception. It also estimates the number of semen units needed for each product. The columns on the left are for cows. The columns on the right are for heifers.

Overall Conception Rate	35%
Services per Conception	2.9
Total Units	1275
Dairy Conventional Semen Units	701
Dairy GenChoice™ Semen Units	0
Beef Conventional Semen Units	191

Overall Conception Rate	50%
Services per Conception	2.0
Total Units	392
Dairy Conventional Semen Units	78
Dairy GenChoice™ Semen Units	255
Beef Conventional Semen Units	0

### Section 5

The inputs in this section have a research-based default, but can be updated with herd-specific data if available. Without the inputs in this section, the Calf Math™ program is very optimistic in the number of calves produced.

Calving Interval	13.5
Percent DNB	2%
Pregnant Cows Culled	13%
Pregnancy Loss (Post Preg Check)	10%
Stillborn % of Male Calves	8%
Stillborn % of Female Calves	4%
Heifer Rearing Loss	10%

Age at First Calving	24.5
Heifer Death Loss (Post Preg Check)	5%
Pregnancy Loss (Post Preg Check)	10%
Stillborn % of Male Calves	13%
Stillborn % of Female Calves	9%
Heifer Rearing Loss	10%

## Section 6

This section totals the number of calves produced according to the inputs used above. The columns on the left indicate the number of calves produced from cows. The columns on the right indicate the number of calves produced from heifers.

Total Dairy Male Calves	99	Total Dairy Male Calves	26
Total Dairy Female Calves	123	Total Dairy Female Calves	81
Total Beef Male Calves	27	Total Beef Male Calves	16
Total Beef Female Calves	25	Total Beef Female Calves	5
Total Calves	274	Total Calves	128

## Section 7

The first number below is the number of dairy heifers needed annually to meet the herd's growth goal, keeping in mind the herd size and the annual cull rate. The second number shows how many dairy heifers are projected to be produced annually using the selected mix of semen products.

Annual Dairy Heifers Needed	183
Number of Dairy Heifers Yielded	204

For a more detailed analysis using the full version of the Calf Math<sup>SM</sup> program, contact your local GENEX representative.