



# Understanding the Genetic Summary Report

With the onset of genomics, the rate at which genetic progress can be seen has increased very rapidly. The ability to find the highest genetic merit sires and cows has become much easier. Ultimately, the key decisions are what semen to buy and which cows to breed to which bulls, while increasing the genetics within your herd. To make good decisions, it is important to understand the genetic makeup within your herd. Because genomics has allowed us to select from the "best of the best", not only in our own herds, but also in the industry, the diversity in the genetic pool of available AI sires has shrunk. Knowing the prominence of bloodlines in your herd will allow for more informed breeding decisions, faster genetic progress, and the ability to control inbreeding.

AgSource's Genetic Summary Report is designed to provide you with valuable information about the current genetic makeup within your herd, the future genetics entering your herd, and inbreeding data that can only be found once an animal enters the national database through DHI testing. The genetic and inbreeding information for your cows and heifers is obtained through the Council on Dairy Cattle Breeding (CDCB) and USDA AIPL. With the genetic and production data on your cows and heifers, AgSource is able to provide you with short and long term management information that you might not have known otherwise.

## Benchmarking

The Genetic Summary Report offers many unique charts and graphs that allow users to compare their genetics and genetic progress to not only AgSource herds and cows, but also the national benchmarks. Whether you are making breeding decisions to improve NM\$, PTA PL, PTA DPR, just to name a few, you will be able to quickly identify how you compare to other cows and herds.

Block A of the Genetic Summary gives you a breakdown of your herd's genetic values in comparison to all other AgSource cows that are eligible to receive a PTA proof. This chart illustrates the 20th, 50th, and 80th percentile values for AgSource cows, as well as the average of the top 20 percent (Avg 80th). Through the use of highlights, you are quickly able to identify where your animals fall in the comparison.

### ▼ Block A

A Genetic Summary - Active Cows & Youngstock										
	Your Herd	Cows				Youngstock				
		Percentile			Avg 80th	Percentile			Avg 80th	
		20th	50th	80th		20th	50th	80th		
Number	635	402646			238	429	364515			
NM\$	136	-74	47	162	238	285	41	170	286	361
CM\$	142	-78	48	169	248	296	42	175	297	374
FM\$	123	-72	43	152	225	259	34	156	266	336
PTA Milk	202	-377	28	435	709	429	-86	272	619	851
PTA Fat	9	-14	2	18	28	20	-1	14	28	37
PTA Fat %	0.01	-0.06	0.00	0.07	0.12	0.02	-0.04	0.02	0.07	0.12
PTA Pro	8	-9	2	12	19	17	0	11	20	26
PTA Pro %	0.01	-0.03	0.00	0.03	0.05	0.02	-0.02	0.01	0.04	0.05
PTA SCS	2.93	3.07	2.96	2.86	2.74	2.81	3.01	2.91	2.72	2.24
PTA PL	1.3	-1.0	0.5	1.9	2.9	2.9	0.0	1.6	3.0	3.9
PTA DPR	1.0	-0.8	0.4	1.6	2.4	1.4	-0.2	1.1	2.4	3.2
Avg Inbred %	5.6	5.5				6.3	5.8			
Avg Fut Inbred %	5.9	6.0				6.2	6.2			

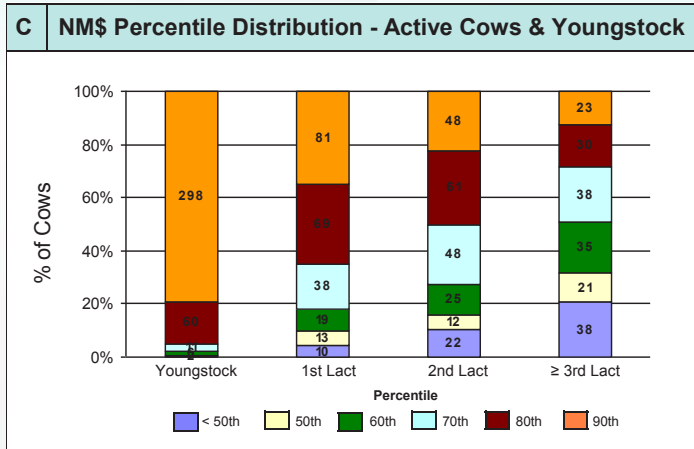


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Block C shows you how your animals stack up to all animals in the national database. Each color indicates a percentile ranking; i.e. the orange section identifies the 90th percentile, or the top 10 percent of the breed, while the purple depicts the bottom 50th percentile of the breed. Beginning with your youngstock, you would expect more animals to be in the top 10 percent of the breed than your older cows, if you are seeing good genetic progress.

### ▼ Block C



### Other Benchmarking Capabilities:

- Semen Type Analysis (Conventional vs. Sexed vs. Natural/Unknown)
- Genomic Evaluation Analysis (Traditional vs. Genomic vs. Imputed PTA)
- Service Sire Trends
- Milking Herd Trends
- Inbreeding

### Inbreeding

Perhaps the most important and most unique features of the Genetic Summary Report are those that look at inbreeding. Failure to manage inbreeding can lead to significant production losses that could have been easily controlled, if not avoided altogether. With proper identification of both ancestry and the animal herself, AgSource is able to obtain inbreeding data from the CDCB/AIPL and combine it with AgSource information in order to provide very useful management information about the current and future risks related to inbreeding.

According to research done by Dr. Bennet Cassell, for each 1 percent increase in inbreeding, a herd would experience:

- a reduction of 24 NM\$ lifetime performance,
- an increase of .36 days in age-at-first-calving,
- a loss of 13 days Productive Life (PL),
- a loss of 790 pounds of lifetime milk production,
- 25 pounds of lifetime protein production
- .26-month increase in first- calving interval.

What does this mean to you? You need to manage inbreeding while maximizing genetic progress. If your herd's goal is to average 4% inbreeding and you are currently at 6%, your potential loss per cow as a result of the difference is significant. You are potentially losing 48 NM\$, increasing age at first calving by .72 days and interval by .52 months, losing 26 days of PL (that's almost one month), decreasing lifetime protein production by 50 lbs, and leaving 1580 lbs of milk on the table. Just in production alone, that's potentially \$316.00 in loss income per cow.

Block I of the Genetic Summary Report is perhaps the most unique table offered, giving you an analysis of the most prevalent genes found in your herd. This chart evaluates daughters, maternal granddaughters (MG), and paternal granddaughters (PG) to give you a very clear picture of which bloodlines are found in your herd. The most eye opening feature of this chart is the recognition of PG daughters. These genes are found through indirect breeding and can often represent a large percentage of the gene pool found in herds, and is very often forgotten when making breeding decisions. Knowing which genes are currently in your herd will allow you to make more informed mating and breeding decisions, giving you the opportunity to maximize genetic progress and manage the level of inbreeding in your herd.

### ▼ Block I

I Most Prevalent Genes - Top Sires based on Cows and Youngstock					
Sire Name	Sire NAAB	Total Genes	# Daughters	# PG Daughters	# MG Daughters
MALONE	001HO02783	18.75	33	0	9
SEQUOIA	001HO02611	16.00	24	1	15
KARSTEN	001HO09952	15.00	24	8	4
TORNADO *BY	001HO10064	14.25	26	0	5
SEBASTIAN	001HO02683	13.00	14	16	8
TRAVIS	001HO06776	11.25	5	2	33
RIO	001HO06670	11.00	9	0	26
LES	001HO08631	11.00	11	11	11
BOLIVER	029HO10124	10.75	0	43	0
FREDDIE	001HO08784	10.75	0	43	0
RAMOS	011HO08046	10.75	0	43	0
HARVEY	001HO10066	10.25	19	0	3

### Other Inbreeding Features:

- Herd Inbreeding and Genomic Inbreeding Trends
- Inbreeding Distribution
- Top 10 Inbred animal list

The Genetic Summary Report is a cutting edge report that will give you the information needed to assist in both short and long term genetic and reproductive goals. Using this report, along with AgSource's other genetic report offerings, will give you the ability to maximize genetic progress without sacrificing production. Through the recording of official animal identification, reproductive data, and DHI testing, AgSource is able to offer this industry leading report. For more information on how to receive this report, any of the other Genetic Report offerings, or official identification requirements, please contact your AgSource representative.