

KeepOrBeef

DECISIONS FOR THE WAY YOU DAIRY



What is KeepOrBeef?

KeepOrBeef helps with culling and breeding decisions by providing future financial return ("Keep Value") and ranking within the herd ("Keep Percentile") on each cow and heifer. Additionally, KeepOrBeef uses the herd's own data in a sophisticated profitability engine to estimate the greatest financial return for breeding to semen that is dairy sexed, dairy conventional or beef.

Sexed semen has enabled important changes in how producers manage programs for replacement animals while optimizing overall genetic progress. A ready supply of replacement heifers provides more options to replace cows that are low producing, have reproductive problems or are not healthy.

Genomic testing accelerates a herd's overall genetic progress when the highest genetic merit cows and heifers are bred with sexed dairy semen. Recently, in addition to conventional and sorted semen, dairy farmers have added another option when making breeding decisions – semen from beef bulls. Typically, the most valuable animals (heifers and higher genetic merit first lactation cows) are bred to sexed dairy semen at first service. Conventional semen usually is used for later services. Because dairy farmers want to take advantage of higher revenues for a dairy/beef calf, there is increased use of beef semen in the dairy industry.

With so many options available, including using cows as embryo donors or recipients, decisions regarding which animals to replace and which animals to breed and the type of semen to use has become increasingly complex.

Dairy farmers typically consider a couple key individual performance measures in the decision-making process. KeepOrBeef will reduce the guesswork and simplify the process of making replacement and breeding decisions.

This new decision support tool features individual cow genetic information and her performance data, coupled with milk price, replacement cost, value of a dairy replacement versus a dairy male or the value of a dairy beef cross to predict each cow's future performance and economic values for replacement and mating decisions. This information can be used to decide whether a cow should be retained, bred or replaced. In addition, KeepOrBeef assigns an economic value to the cow and a value to each of the three potential mating sire choices: sexed dairy semen, conventional dairy semen or beef semen. As inputs related to each cow's stage of lactation, reproductive status or genetic information may change daily, outcomes from the model will change as well, and replacement and breeding decisions can be made based on the most current data.

Input Values

Data inputs consist of parameters for the herd and individual cows. Listed below are the herd parameters and from where they are pulled.

Items are pulled from the DartSync backups or the last Test Day values.

- 305 Milk Lact 1, 2 and 3+
- 305 Fat Lact 1, 2 and 3+
- 305 Protein Lact 1, 2 and 3+
- Cow Conception Rate
- Cow 1st Service Conception Rate
- Cow Heat Detection Rate
- Heifer Heat Detection Rate
- Heifer 1st Service Conception Rate
- Milk Price \$/cwt
- Fat and Protein Differentials
- Fat and Protein Price References

Values are recorded by the user:

- Heifer Raising Cost
- Conventional Dairy Semen Costs
- Beef Semen
- Dry Matter Costs \$/lb
- Emphasis on breeding to Beef (0 means no beef semen and 100 means primarily beef)
- Cull Cow Revenue
- Sexed Dairy Semen Costs
- Dairy Bull Calf Revenue
- Dairy Beef Calf Revenue

Data are pulled for each animal from either the DartSync data or the last test day.

- Lactation number
- Status (milking or dry)
- Last 2 test day milk, fat, and protein
- Current lactation to date milk, fat, and protein
- Past lactation 305 Day milk, fat, and protein
- Days in milk
- Repro status (bred, pregnant, open)
- Net Merit Dollars

Animal Type	Animal Index	Barn Name	Birth Date	Breed	Keep Value (\$)	Keep Percentile	First Semen Choice	Second Semen Choice	First Over Second Choice (\$)	Breed Now
C	1771	MUTINY	9/21/2017	HO	934	67	S	C	30	Y
C	1794	BONJOUR	10/1/2017	HO	4	5	B	C	4	N
C	2040	KINGROY	4/6/2018	HO	1247	88	S	C	38	Y
C	2116	DELTA	6/12/2018	HO	42	9	S	C	49	Y
C	2201	2201	10/16/2019	HO	181	17	C	S	0	Y
C	2202	2202	12/10/2019	HO	714	50	S	C	22	Y
C	2203	2203	1/15/2020	HO	4	5	B	C	4	N
C	2204	2204	3/7/2020	HO	317	24	S	C	22	Y
C	2205	2205	1/29/2020	HO	320	25	S	C	28	Y
C	2206	2206	1/10/2020	HO	-20	1	B	C	4	N
C	2207	2207	3/16/2020	HO	944	68	B	C	4	N
C	2208	2208	2/15/2020	HO	27	8	S	C	41	Y
C	2210	2210	12/14/2019	HO	392	27	S	C	32	Y

Results

A novel feature of KeepOrBeef is that future cash flows are calculated for each cow based on her best estimated future performance for milk production, fertility, forced culling, genetic merit etc. This allows for accurate future cash flow estimates. KeepOrBeef calculates the differences between the net present values of the future cash flow estimates and presents them as four different economic values. For example, the economic value of the cow (Keep Dollar) is the difference between the net present value of the keep (and optimal breeding) decision and replacing the cow now with a heifer. When this economic value is greater for a cow, the more valuable the cow is to keep in the herd. Cows that rank low for this economic keep value should be culled and replaced. The Keep Percentile ranks

the cows separately from the heifers. Insemination values are calculated as the net present value of breeding with that type of semen compared to the net present value of the decision to delay breeding until the next opportunity.

Three economic insemination values are calculated for breeding the cow to either Sexed Dairy, Conventional Dairy or Beef Semen. The results from KeepOrBeef are merged with other cow data, and the Percentile ranking for the cow's Keep Dollar that provides an easily interpreted rank of relative economic worth for each cow within the herd. The three insemination values are ranked for each cow and the recommendation with the highest economic merit is presented as First Choice, while the next highest value is presented as Second Choice. The dollar difference between First Over Second Choice is provided to

determine the economic difference between the two. An additional value, Breed Now, is provided to determine if now is the best economic time to breed her or if breeding should be delayed. A No result could also indicate she should not be bred at all if the Keep Value is extremely low.

Dairy farmers can use the combination of the cow's Keep Percentile and First semen Choice recommendation to determine which cows to breed (low Keep Percentile cows should be considered for replacement). If semen inventory is limited, ranking cows by First Choice and the economic difference between First Over Second will allow the dairy farmer to select the highest dollar difference values that would be the cows with the strongest recommendation to breed to First Choice.

KeepOrBeef Best Use Practices

KeepOrBeef results are time sensitive and work best based on current data using the results to make decisions shortly after. Therefore:

- Do not use KeepOrBeef breeding results more than 7 days out from when the KeepOrBeef values were generated.
- Create KeepOrBeef report after vetcheck data has been entered.

- Create KeepOrBeef report after your DHIA test day data has been processed.
- Consider data such as health data prior to making a culling decision using KeepOrBeef results.

KeepOrBeef will help dairy farmers make more informed breeding and culling decisions. This new tool is time sensitive and will use the most current

data available from either DartSync and frequent DHI testing will ensure changes in production or reproductive status are reflected in a cow's relative economic value in the herd.