

In the May issue, we began a discussion of cow value. Cow value is a module in Dairy Comp 305 that estimates the value of each cow in a dairy herd relative to an average fresh heifer. This month we will take a look at some of the ways to use these cow value estimates. Dairy One technicians can generate a report on test day similar to the ones shown here.

How do we define CWVAL and PGVAL?

- CWVAL is the actual dollar (\$) value of the animal right now, when compared to the average springing heifer in this herd.
- In pregnant animals, CWVAL includes the value of the pregnancy.
- PGVAL is the value of that animal if she is pregnant. If she is already pregnant, PGVAL is the value of that pregnancy. If she aborts, her value becomes CWVAL-PGVAL.

Make a report to look at the values

There are many different ways you may want to look at CWVAL and PGVAL. A simple start is to list all adults sorted by CWVAL. The lowest value animals will be on the top of the list. The highest value animals will be on the bottom of the list.

There are several different "FOR" statements to consider in your report. In this example report, we used "FOR DIM>75". This narrows our cow list to those with more reliable production estimates for this lactation. It also excludes lactation zero animals. Once you get to know Cow Value estimates more, you may want to limit the list to cull candidates by using "FOR CWVAL<0".

COWVAL and PGVAL Relative to Reproductive Status

- If an animal is not pregnant, than the value of getting her pregnant would be her current PGVAL. (If she became pregnant today her new CWVAL would be her current CWVAL plus her current PGVAL).
- If the animal is pregnant her CWVAL already includes her PGVAL. If she were to abort then her CWVAL would decrease by the PGVAL.
- If the animal is open and becomes bred her CWVAL goes up because she is more likely to be pregnant than before she was bred so she is more likely to produce more milk into the future.

A Simple Example Cow Value List

Show ID Lact Dim Milk RV RPRO DSLH DCC CWVAL PGVAL By CWVAL ForDIM>75

| ID | LACT | DIM | MILK | RV | RPRO | DSLH | DCC | CWVAL | PGVAL |
|------|------|-----|------|-----|---------|------|-----|-------|-------|
| 4224 | 3 | 84 | 26 | 59 | Bred | 11 | 0 | -757 | -248 |
| 1430 | 3 | 85 | 45 | 70 | Bred | 53 | 0 | -646 | 157 |
| 6848 | 1 | 125 | 48 | 72 | Bred | 27 | 0 | -410 | 587 |
| 32 | 3 | 457 | 47 | 114 | No Bred | 0 | 0 | -330 | 449 |
| 993 | 3 | 209 | 14 | 85 | Bred | 16 | 0 | -330 | -325 |

Animal 4224 is the least valuable animal in this herd. Her CWVAL is -\$757 relative to an average springing heifer in this dairy. Further, If she were to get pregnant her value to this herd would decrease another \$248 because she may be kept another lactation rather than be replaced with a more profitable animal. This suggests that the dairy will make more money, beginning today, if this animal is replaced with an average, fresh, first lactation animal.

Animal 6848 has a negative CWVAL but her PGVAL tells us that if she turns out to be pregnant to this current breeding (27 days ago) her value will become +\$587 + (-\$410) = +\$147. She will become \$147 more valuable

than an average fresh heifer in this herd.

Animal 32 has been coded not to breed. The CWVAL shows that she should be replaced and the PGVAL tells us that she would have been \$449 more valuable had she gotten pregnant earlier in this lactation.

The end of the Cow Value report

| ID | LACT | DIM | MILK | RV | RPRO | DSLH | DCC | CWVAL | PGVAL |
|------|------|-----|------|-----|------|------|-----|-------|-------|
| 5413 | 1 | 484 | 0 | 120 | DRY | 335 | 274 | 1782 | 2789 |
| 2579 | 1 | 465 | 79 | 130 | PREG | 127 | 131 | 1791 | 1359 |
| 2699 | 1 | 332 | 0 | 136 | DRY | 246 | 246 | 1814 | 2821 |
| 5324 | 1 | 343 | 82 | 135 | PREG | 123 | 91 | 1912 | 1426 |

This report lists the most valuable animals at the end. Animal 5324 wins. Notice that if she aborts her value will drop from \$1912 to \$486 (\$1912-\$1426). If 2699 aborts her value will drop from \$1814 to -\$1007 and she should be sold.

Key to the Report Headings

| | |
|-------|-----------------------------------|
| ID | Cow ID number |
| LACT | Lactation number |
| DIM | Days in milk |
| MILK | Last test day milk weight |
| RV | Relative value (internal) |
| RPRO | Repro code (FRESH, BRED, DRY etc) |
| DSLH | Days since last breeding |
| DCC | Days carried calf if pregnant |
| CWVAL | estimate of cow |
| PGVAL | estimate of value of pregnancy |

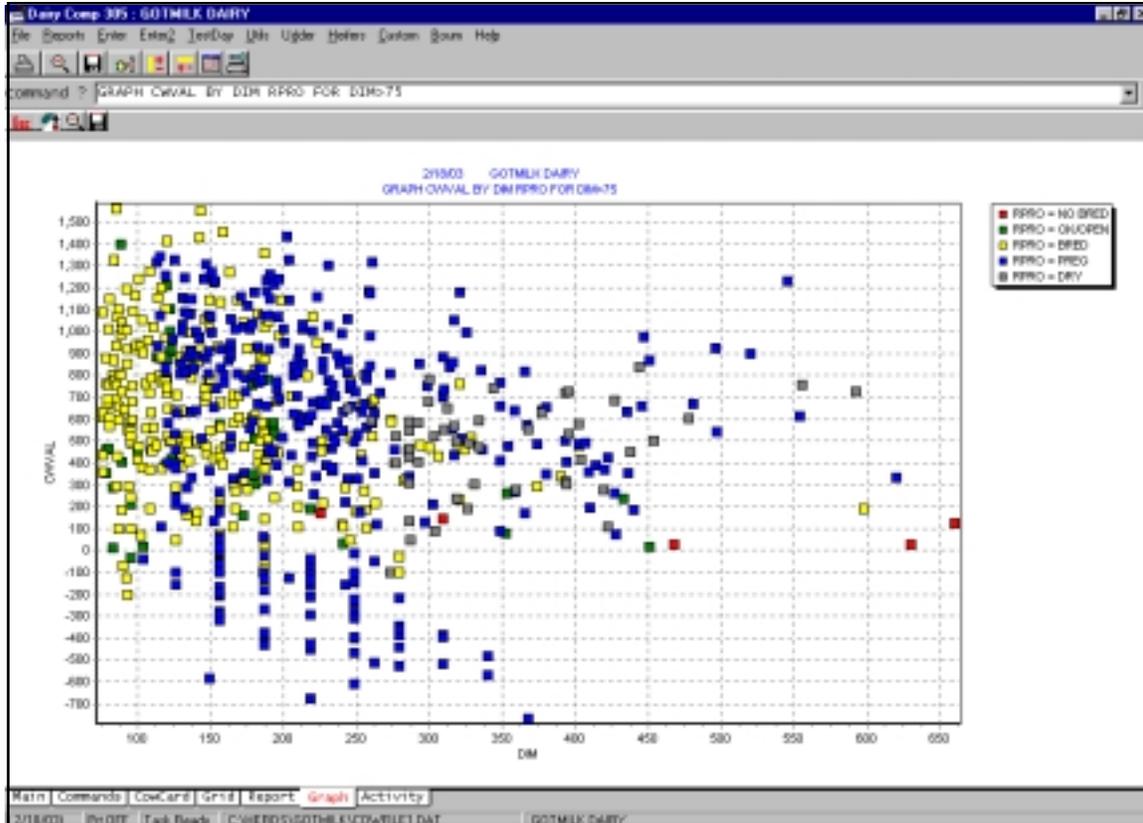
Following are thoughts on using cow value from one of the developers of the module, Dr. Steve Eicker, Valley Agricultural Software.

The future value of a cow is of course, unknown... But certainly, pregnant cows are much more likely to remain in the herd, and higher producing cows are more likely to be more profitable next lactation. Thus, these predictions should be used as guidelines. They are not meant to replace sound judgement, but to augment it.

The value of a cow is always relative to that of a replacement heifer. Thus, a cow with a negative value is a potential cull. A cow with a value of \$150 that is diagnosed with a displaced abomasum may be more profitable shipped than treated.

The estimated value of a pregnancy can assist a dairy in deciding whether it is worth the effort to breed a cow. Likewise, for a pregnant cow, the pregnancy value can help estimate the cost of an abortion. Open cows with negative pregnancy values should not be bred, as spending money on pregnancy will lower their value.

Perhaps the most thought provoking concept arises when an open cow has a negative cow value, and also has a negative pregnancy value. This means she is worth less pregnant than if she remains open. However, the software algorithm assumes that cows that are not coded DNB are still trying to get pregnant, and that a percentage of the time they will. Thus, this cow will have a lower cow value while she is still eligible to be bred. Her value should INCREASE once she is flagged as a DNB. This makes sense - it is sometimes a profitable decision to flag a cow as a DNB cow. Note that a cow flagged as DNB may still have a positive cow value, until her milk production decreases below that cull/cutoff value.



By necessity, we are modeling the future to predict the future production of each cow. We make several assumptions. For example, we assume that eventually, all cows leave the dairy, and when they do, a replacement enters the herd. Crucial to the model is that a dairy farm will operate to maximize profitability. Again, DNB cows demonstrate some of the fundamental concepts.

Flagging a cow DNB means she will not freshen again. It means that she will be sold once her milk production is "too low". What does "too low" mean? Two possibilities:

1. Her feed cost exceeds her income, somewhere around 20 pounds.
2. Her daily profit is less than a replacement, even including the cost (\$1/day) of the replacement, somewhere around 50 pounds.

Assuming a dairy is trying to make a profit, the correct decision is #2. The model sells cows once they produce less than this "Cutoff" milk. Let's say cutoff milk is 50#. A cow producing 60 pounds is profitable until she reaches 50 pounds, about two more months. Her expected production is about 55 for 60 days, which generates about $60 * (55-50) = 300\#$ or \$30 more than the heifer. Fine, her CWVAL will be about \$30.

Another way to look at cow value is graphically. The scattergraph above displays the individual value of each cow in the herd. A different color is used to distinguish each reproductive status. The herd displayed in this graph is different from the one used in the report example above. However, with the graphical representation we can easily spot cows late in lactation and not pregnant yet, who also have a low or negative value.

Another way to use cow value is to include it as a column on your veterinary list. This way, on herd check day, you have the opportunity to evaluate open cows more quantitatively.

Cow value is not meant to replace the "cow sense". It is another tool available to provide information that will lead to an informed, profitable decision.

For more information on Dairy One services,
visit our web site at www.dairyone.com

Dairy One Cooperative Inc.
730 Warren Road, Ithaca NY 14850
1.800.496.3344