UNDERSTANDING THE
FRESH COW SUMMARY

The Fresh Cow Summary (FCS) is a management tool to help you benchmark the effectiveness of your transition cow programs and monitor changes, for better or worse, from month to month. The emphasis is on the herd, not the individual cow. The report is focused on four objective tests of herd performance:

1. Transition Cow Index® (TCI)®
2. First Test Fat% to Protein% Ratio (FPR)
3. Linear Score at First Test Date
4. Percent of Fresh Cows Sold/Died
   in Less Than 60 Days in Milk

These four parts of the Fresh Cow Summary identify the strengths and weaknesses of your transition management and help you evaluate whether changes in management are producing the results you want. In addition, the report provides tables showing the number of cows and heifers calving over the past year.

General Information

This report features four graphs and six tables, lettered A through J. It is important to note that data found in the tables supports the information illustrated in the related graphs. However, numbers within the tables do not represent the data points graphed.

Tables: Tables C, D, E, H and I show data for the previous 14 months and all the data is sorted by month of calving, not by DHI test dates. Data is summarized by month because most people prefer to summarize information on a month-by-month basis.

While each column represents all cows that calved within the identified month, the asterisked column to the far right is an exception. This column will be identified as the most recent complete month, but it will also include cows that subsequently calved in the current, partially completed month. For example, your last test day may have occurred on May 10, 2012. The most recent completed month would be identified as April-12, but any cows that have calved in the first ten days of May would be included in the April-12 column this time only. In this example, the May fresh cows included in the April-12 column will be moved into the May-12 column for the next report.

This method allows for the inclusion of the most recent information. The increased number of cows included in the most current calculations increases the "statistical" certainty of the current direction of herd performance that is shown in the graphs found in Blocks A, B and F.

Graphs: Graphs A, B, and F are a specific type of graph called a "whiskerless box". This graph type was selected to make information about the current performance of your herd more easily seen. In the previous version of the FCS, the information for each cow was plotted on the graph. In this new version, only the central trend of the herd is shown.

The dotted line in the middle charts the percentile or middle TCI value and the bar spans the range of the TCI scores of the 25th to the 75th percentile cows that were assigned a TCI score in that time period. By not showing the full range of individual cow scores, the vertical scale is smaller and the herd trend is shown more clearly. In evaluating this type of graph, the most important feature is the height of the bottom and top of each bar.

This type of graph is called a "whisker-less box" graph because it is based upon a graph type called a "box and whisker" graph. In a box and whisker graph, box or bars are shown just as in the example below and then a single vertical line called the whisker projects above and below the box to represent the single highest and lowest value in the herd. By eliminating the traditional whisker, the vertical scale is reduced which improves the graph as a monitor of herd trends.

In looking at the graph below, the bars vary considerably in height. For example, the third bar from the left is quite narrow which means the TCI scores of the cow at the 25th percent of the herd was relatively close to the score of the cow ranked at the 75th percentile. In addition, the scores were

A Transition Cow Index® (TCI®) by Fresh Month
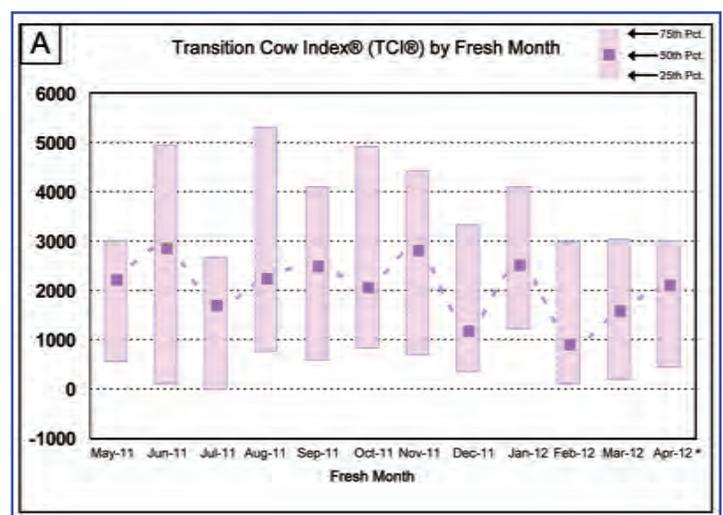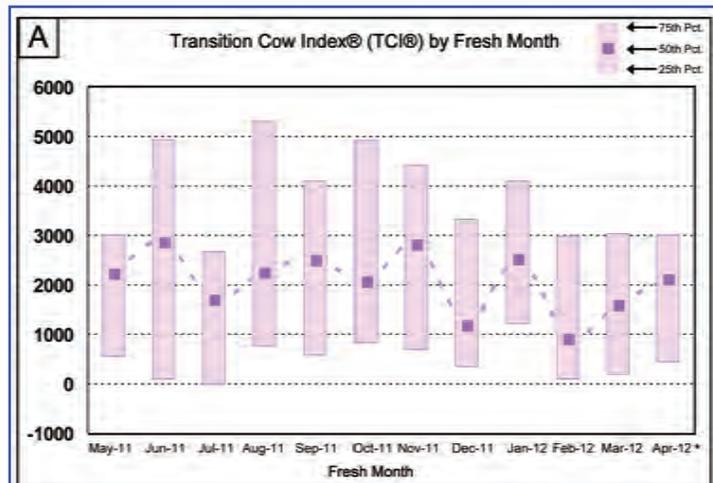
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much lower than in the month before and after. In other words, the TCI scores on that third column represent cows quite consistently low. In contrast, the range of scores both before and after were more varied and higher.

Depending on herd size, the bars can represent different periods of time. For herds of more than 475 cows, each bar reflects the cows that calved that month. For herds of 176-475 cows, each bar reflects the cows that have calved in the past two months, and for herds of 175 cows or less, each bar reflects the cows that have calved in the previous three months. By including the data from either two or three months of time, the summary bar will include a larger number of cows and will provide a more reliable trend of herd performance. If months were not combined, there might be times when only one or two cows calve during a one-month period and the trend line of the herd would be represented by a single cow or two.

the graph in Block A, you should focus primarily on the height of the top and bottom of the bars, NOT on the center line. In the example graph shown here, TCI values are above zero indicating excellent fresh cow management. The 25th percentile values do not change much from month to month, however the 75th percentile values have become lower over the past three months.

Each bar shows the range from the 25th percentile to the 75th percentile score of the cows receiving TCI scores that month. For herds with more than 475 cows, it represents cows calving in the indicated month. For herds with less than 476 cows, each bar will summarize the current month plus either the prior or prior two months. The squares and dotted line connecting them represent the 50th percentile cow in the group, not the average.

Fresh Month	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12*	Annual	
C Number of Cows (actual number by month)															Avg#/Mo	Total
1st Lact Calving	16	12	7	17	11	7	30	41	24	21	10	10	17	18	18	213
2nd+ Lact Calving	26	33	29	33	39	40	37	43	30	34	35	34	30	30	34	414
Total	42	45	36	50	50	47	67	84	54	55	45	44	47	48	51	627

Transition Cow Index® (TCI®) by Fresh Month

In Block D, the average TCI for each time period is shown as well as the annual average in the column (shown in bold) to the right. In the second line, the percentage of fresh cows receiving a TCI score is shown. TCI values are calculated only for test dates occuring between five and 40 days in milk and this is the primary reason cows do not receive a TCI score. If herd test day intervals are lengthened, more cows miss the TCI calculation period. If you look at the actual values in Block D, herd average TCI scores are lower than the 50th percentile. This happens because sick cows tend to get extremely low TCI scores. While the 50th percentile or middle cow score tends toward normal, the average represents all cows including the very sick ones.

The graph in Block A should be used to monitor changes or trends in the herd transition management program, while the annual average TCI value in Block D should be used to benchmark the program against the industry and to calculate economic potential from improvements in the annual average herd TCI score. The industry benchmarks for herds of equal or similar size are shown in Block D. In the example to the right, the industry average TCI score is -6 lbs., the 20th percentile of herds is -747 lbs., and the 80th percentile of herds is at +719 lbs. The example herd averages 2,139 lbs. so it would be ranked in the top 20% of herds. Looking at the trends in the Block A graph, the changes in the 25th percentile are modest but the changes in the upper 75th percentile indicate less cows with high TCI scores freshened since November. The average TCI scores from December through April reflect these problems.

In another AgSource publication called *"Using the Fresh Cow Summary,"* information is provided on how to approach problems with the herd using TCI.

Specific Information about Each Block in the Fresh Cow Summary

Block C – Number of Cows
The "Number of Cows" table reports the total number of first lactation and second and greater lactation cows calving by month for the past 14 months. The bottom line shows the total number of cows calving each month. In the two columns on the far right are calculations of the average number per month, as well as the total of the previous 12 months.
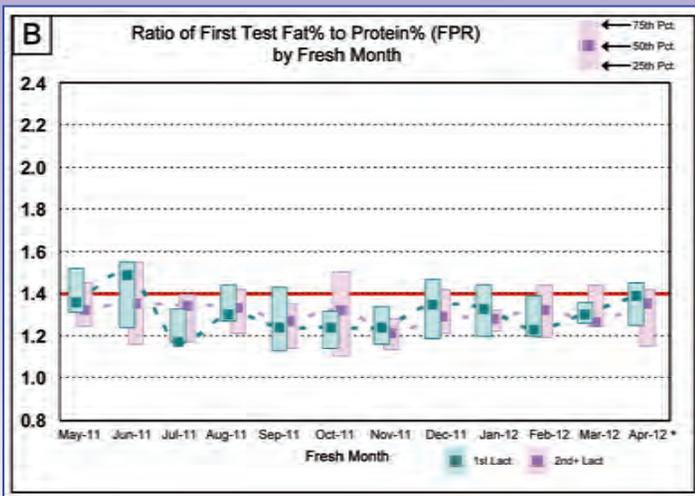
Blocks A and D – Transition Cow Index
Details on Transition Cow Index (TCI) are presented in another AgSource publication called *"Introduction to the Transition Cow Index."* TCI is a calculated value that primarily reflects fresh cow health. The units of TCI are lbs. of First Test Projected Milk above or below the expected projection for the cow.

Block A presents the herd TCI information in graphic form while Block D presents TCI data in a table. As you evaluate

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Blocks B and E – Ratio of First Test Fat% to Protein%
The fat % is divided by the protein % of milk produced at the first test date between five and 40 days in milk. For example, a cow that produced milk with 4.0% fat and 3.2% protein on her first test date has a Fat% to Protein% Ratio (FPR) of 1.25. Extremely high fat % milk on first test date is frequently associated with Ketosis in fresh cows. Researchers at the University of Guelph have found when 40% or more of the cows in a herd have an FPR of 1.4 or greater, the herd likely has a problem with Ketosis.

The graph in Block B shows the herd trends for FPR for the past 12 months. The lavender bars show the trend for the cows in their second or greater lactation, while the green bars show performance of first lactation cows. As before, the most important part of the graph is the upper and lower limit of the bars.

In this example graph, the first lactation cows have had FPR values similar to those of the older cows for the entire year. The trend shows the FPR values are very consistent from month to month and only crossed the 1.4 mark significantly in May, June and October.

In Block E, the actual percentage of cows above 1.4 FPR are shown for each month, separated by first lactation and cows in their second or greater lactation. In the column to the right, the annual average rate of cows above 1.4 FPR at first test date is shown (listed in bold).

In this example, only 31 percent of the first lactation and older cows exceeded the 1.4 FPR ratio indicating problems related to Ketosis are well taken care of. Only in May and June did we find values above the bench mark of 40 percent and these seemed to be higher in first lactation cows. AgSource's *"Using the Fresh Cow Summmary"* provides more information about how to approach problems related to high FPR.
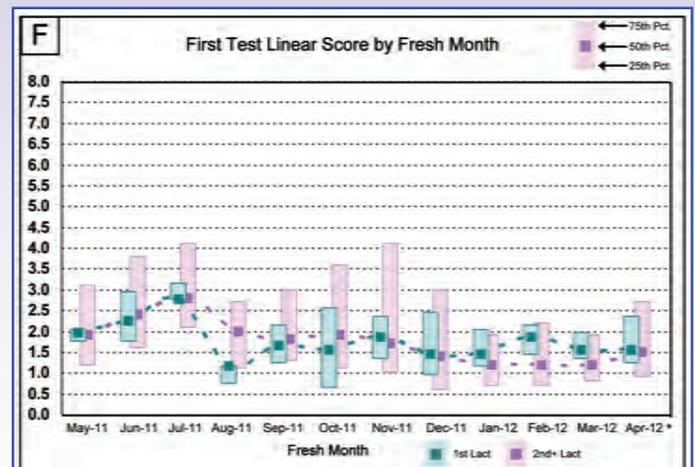
Blocks F and H: First Test Linear Score
The linear score (LS) is a form of somatic cell count. A score of 4.0 is equal to SCC of 200,000 cells per milliliter of milk. Cows with a LS of 4.0 or greater usually have an infection, although they may not have clinical signs of mastitis. The graph in Block F shows the LS trends of the first lactation cows in green and the older cows in lavender. As before, the bars show the range of LS between the 25th percentile cow and the 75th percentile cow in the group for each calving month. The graph of the first and second and older lactation cows represents the LS at their first test date after calving.

In the example graph, the most recent problems with increased LS occurred during the months of October and November in older lactation animals. Block H summarizes three groups of cows; first lactation cows with new infections and divides the older lactation cows into cows with new infections and cows that cured their mastitis when they were dry. These older cows were sorted depending on LS at the last test date before they went dry.

Fresh Month		Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12 *	Annual
D	Transition Cow Index	Industry benchmarks for annual averageTCI: >= 80th percentile is >= 719 lbs; average is -6 lbs; <= 20th percentile is <= -747 lbs														Average
Average TCI		1824	2012	1278	2213	1357	2860	2515	2725	2780	1792	2667	1414	1729	1693	**2139**
Percent With TCI		92%	88%	97%	91%	56%	83%	92%	95%	97%	91%	94%	100%	90%	83%	89%

Fresh Month		Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12 *	Annual
E	Percent FPR > 1.4	Goal is < 40% of cows (1st or 2+ Lact) with a first test fat/protein ratio > 1.4														Average
1st Lact		7%	25%	43%	59%	33%	40%	33%	15%	21%	39%	33%	30%	20%	38%	**31%**
2nd+ Lact		33%	31%	32%	47%	23%	30%	18%	39%	21%	26%	15%	35%	29%	31%	**29%**

Transition Cow Index® and TCI® U.S. Patent #7866691 Wisconsin Alumni Research Foundation

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The first line shows the percentage of first lactation cows infected on their first test date each month. The goal is for less than 11 percent of first lactation cows to have an infection. The industry average is about 25 percent. This example herd shows the annual average infection rate of their first lactation cows was five percent, which would be considered excellent control.

The second line shows the percentage of cows not having an infection before being dried off, but were infected on their first test after calving. The stated benchmark in the table indicates the goal is that less than 11 percent of these cows acquire an infection during the dry and transition period. The example herd shows a new infection rate of 7 percent which would again be considered excellent control.

The third line shows the cure rate of cows. These are cows that had a linear score of 4 or greater before they went dry and had a linear score less then 4 on the first test of the new lactation. The industry goal is at least 78 percent for dry cures. In the example herd, 71 percent of the infections had cleared up. The herd is slightly below industry target, however most recent months show significant improvement.

The AgSource publication, *"Using the Fresh Cow Summary,"* provides more information on how to approach problems when a herd does not meet industry goals.

### Blocks G, I and J - Fresh Cows Sold/Died <= 60 DIM
These blocks focus on the loss of fresh cows to either culling or death. If cows are sold as dairy cows to other farms and designated as dairy sales in your AgSource records, those cows will not appear in this report. These blocks should include ONLY cows that were culled or died during the first 60 days of their new lactation.

Block G is called a "stacked bar" graph. First lactation cows are shown in green, and the older cows are shown in lavender and stacked on top so the total represents the % of all cows that calved each month that were culled or died. Please note, this graph ends two months earlier than the other graphs in the Fresh Cow Summary because current fresh cows sold or died within 60 days in milk have yet to be calculated.

In Block I, the actual numbers of cows that died or were culled are reported for each month. As mentioned previously, the most recent two months, in the columns third and fourth from the right, are not finalized as the time period has not elapsed. The total for the past year is shown in the column second from the right, and the annual percent (Pct) risk is bolded in the furthest right column.

In Block J, the total turnover rate of all cows in the first 60 days is reported. The turnover rate includes cows sold (culled) and those that died. Also shown is the subset of all cows that died in the first 60 days of their lactation.

The industry benchmarks for herds of equal or similar size are shown in Block J. In this example, industry targets show the best performing transition programs have turnover rates during the first 60 days in milk of under 4%, while the industry average turnover rate <60DIM is 8%. The report shows that this example herd has a 7% turnover rate and 2% death rate in under 60 DIM, indicating room for improvement with overall turnover rate, but the death rate is quite well controlled. *"Using the Fresh Cow Summary"* provides more information on how to approach problems when early lactation cull or death rates are higher than desired.
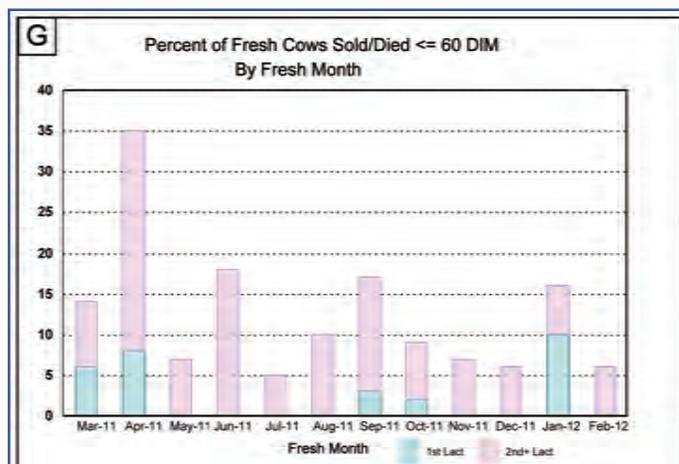
Percent of Fresh Cows Sold/Died <= 60 DIM By Fresh Month

Fresh Month	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12*	Annual
H New Infections and Dry Cures						Goals are < 11% new infection rate (for 1st or 2+ lact cows) and > 78% dry period cure rate									Average
1st Lact New Infections	0%	8%	0%	0%	0%	0%	7%	10%	0%	17%	0%	0%	0%	6%	**5%**
2nd+ Lact New Infections	0%	0%	7%	7%	18%	0%	6%	17%	7%	6%	6%	12%	0%	0%	**7%**
Dry Cures	86%	100%	70%	69%	60%	50%	93%	50%	45%	75%	88%	78%	100%	60%	**71%**
I Number of Sold or Died Events ≤ 60 DIM (actual number by month)							Data in Block I do not include animals sold for dairy							Total [1]	Pct [1]
1st Lact Sold	1	1	0	0	0	0	1	1	0	0	0	0	0**	0**	4	**2%**
1st Lact Died	0	0	0	0	0	0	0	0	0	0	1	0	0**	0**	1	**0%**
2nd+ Lact Sold	1	5	1	4	1	2	5	3	2	1	2	1	3**	1**	28	**7%**
2nd+ Lact Died	1	4	1	2	1	2	0	0	0	1	0	1	1**	0**	13	**3%**
J Turnover Rate ≤ 60 DIM						Industry benchmarks: ≥ 80th percentile is ≤ 4%; average is 8%; ≤ 20th percentile is ≥ 11%									
Sold & Died: 7% Died: 2%															

** These numbers may increase because cows fresh in the last 2 months have not yet reached 60 DIM. [1] The total cows and percents are calculated only for cows that calved 2 to 14 months ago and are now > 60 DIM.

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