The Herd Summary is the primary source of AgSource DHI information on herd level milk production, reproduction, genetics and inventory. Individual cow data is found in AgSource's production reports.

AgSource offers optional reports such as the Udder Health Management Summary, Fresh Cow Summary and Management MUN Summary that deal with specific management areas. Information from those reports is not duplicated in AgSource's new Herd Summary.

Milk Production

Block A

This block enables the user to track...

- short and long term responses to management changes
- up to 13 test days of production history
- cow numbers over the past year

Block A has two subdivisions, "Test Day Average Production" and Rolling Herd Averages" (RHAs). For measuring the effect of month to month management changes, the "Test Day Average Production" section will have more value because it does not have the lag time and momentum issues the "Rolling Herd Averages" data has. The current month's "Rolling Herd Averages" are averages of the past twelve months. In contrast, the "Test Day Average Production" values are herd averages based on the current test day's information.

Test Day Average Production

"Averages" The averages on the top line are the herd's twelve month averages for each of the categories. Depending on the herd's testing interval, and the number of DHI tests in a year, averages are not necessarily the averages of the individual months below. Data from twelve test days are provided.

Below this information you may see a "Dropped" row. If there are 12 or fewer tests in the last year (365 days), all tests in those 365 days will print above the "month dropped" line and the test closest to one year ago will print in the month dropped line. If there are 13 or more tests in the last year, the most recent 13 test results (and RHAs) will print (12 above + 1 will print in place of month dropped. If we are printing back the 13 tests in 365 days the light teal color changes to black and the line that normally separates the month dropped goes away. All tests for 365 days are displayed unless a herd tests more than 13 times in 365 days.

Cows

"Total" equals all the active cows (milking and dry) on your dairy at the time you tested.

"Milk" is the number of milking cows on test day that were sampled. Cows milking less than five days after calving are excluded. .

Milking Cows Only

"DIM" represents the average days since calving for all milking cows in the herd as of the test date.

'%DIM" is the percent of cow days from the last test period that came from milking cows. %DIM is lower when more of the herd is dry and higher when more of the herd is milking.

"MLM" is the acronym for Management Level Milk. MLM is a standardized tool for comparisons and is a conversion of test day milk production to a common base: 150th day of lactation, second lactation, 4.0% fat and 3.3% protein. For each pound gain in MLM, expect an eventual 300-350 pound increase in the RHA. MLM is not calculated for cows less than six days or more than 305 days into their lactation. MLM is commonly used to measure month to month progress and to measure the effect of management changes. It is more responsive and sensitive than ME305 Lactation Averages and has much less lag time than the Rolling Herd Average.

"Milk" is the average milk production for all milking cows sampled on test day. This is an A/P adjusted value. Over 95% of AgSource herds utilize A/P testing whereby only one milking per day is sampled and weighed. Actual milk weights are adjusted based on the time of day sampling was done and the time interval between the test day milking and the recorded time of the previous milking.

"% Fat" is a weighted average of the percent butterfat of all milking cows sampled on test day. A/P adjustments are made on each individual cow's percent butterfat before the herd average is calculated.

"%Pro" denotes the weighted average percent protein for all milking cows sampled on this test day. A/P adjustments are made on each individual cow's percent protein before the herd average is calculated.

"SCC" is the weighted average Somatic Cell Count (SCC) of all milking cows sampled on this test day.

"MUN" is the simple average of raw Milk Urea Nitrogen (MUN) values for all cows tested for MUN test on the current test day. MUN is an option available to AgSource members.

Rolling Herd Averages

"Entire Herd" will appear unless you are using the Permanent Strings option. If this report is a Permanent String Summary, Permanent String will show in this space. "Entire Herd" will appear on the composite Herd Summary for Permanent String herds. (With the Permanent String option, a herd owner with multiple breeds receives a separate Herd

Summary and Production Report for each breed and a composite Herd Summary for the whole herd. The Permanent String option is also valuable for dairies where cows are owned by multiple owners. Each owner will receive a Permanent String Summary and Production Report for their herd and a composite Herd Summary for the whole herd.)

Rolling Herd Averages are an excellent management tool for getting a long term perspective on a herd's performance. A Rolling Herd Average change on this test day's Herd Summary may actually reflect a management change that happened months earlier. Because of this, RHA is not a good method for monitoring test day to test day changes in management.

"Cd" represents Codes. These are test dates where a special situation or condition occurred. Some codes are:
E = Estimated Rolling Herd Average (RHA). This code is used for herds that have been on test less than 365 days. Extrapolating data from available test days, an RHA is calculated and coded "E".
R = Retest
V = Verification test
3 = Three times a day milking
If any cow in the herd was milked three or more times daily in the past year, this code appears. No differentiation is made for cows milked more than three times daily.

"Cows" represents the average number of cows (milking and dry) in the herd on each test day over the past 365 days. If a cow comes into the herd half way into the current 365 day period, she is calculated as 0.5 cow. The same applies to a cow that leaves the herd half way into the current 365 day period.

"LDIM" is an abbreviation for Lactation Days In Milk. This is calculated by dividing the milking days of all cows in the herd over the last 365 days by the number in the "Cows" column. This number represents the average number of days in the last 365 days that the average cow was milking.

"Milk" is calculated by dividing the total pounds of milk recorded over the past 365 days for the herd by the average number of cows over the same 365 day period. The resulting value should closely represent the average cow's production over the past year.

"%Fat" is calculated by dividing the total recorded pounds of butterfat produced over the past year by the total pounds of recorded milk produced in the same one year time period.

"Fat" is calculated by dividing the total pounds of fat recorded over the past 365 days for the herd by the average number of cows over the same 365 day period.

"%Pro" is % Protein and is calculated by dividing the total recorded pounds of protein produced over the past year by the total pounds of recorded milk produced in the same one year time period.

"Pro" is calculated by dividing the total pounds of protein recorded over the past 365 days for the herd by the average number of cows over the same 365 day period.

"Chs Yld" is an abbreviation for Cheese Yield, a performance measure calculated using a herd's milk, butterfat and protein production. SCC is not part of the equation.

Block B Comments

Look in this space for management tips and up to date information on AgSource products.

Block C Milk Shipped

This block enables the user to track...

- the relationship between milk sales and DHI milk weights

The management value of your AgSource records is predicated on their accuracy. Data in this block is derived by comparing a herd's DHI milk weight information to actual milk sales and is helpful as an accuracy check

"Bulk Tank" is calculated by adding the total weights of the last three milk shipments and dividing by the number of days' production represented in the three shipments.

"DHI Weight" This number is calculated by totaling individual cow weights for the current test (after A/P adjustments have been made). Cows recorded with a Withheld (W) code and cows fresh less than five days are not included in the calculation.

"% of Bulk" is calculated by dividing the "DHI Weight" by the "Bulk Tank" weight and then multiplying by 100 to express the number as a percent. This value should be between 96-110%.

"Prev Mo Bulk %" is an abbreviation for the previous month's percent of bulk tank weight. This value should be between 96-110%.

"4 Mo Avg Bulk %" is an abbreviation for the average of the previous four tests' percent of bulk tank weight. This value should also be between 96-110%.

"Milking Freq" denotes the number of times per day this herd is milked. This value is the highest number of milkings any cow has recorded this test day.

Block D Rolling Herd & ME 305 Avg Milk

This block enables the user to graphically track...

- Mature Equivalent 305 day lactation averages over the past 18 test days
- Rolling Herd Averages over the past 18 test days

Covering the past eighteen test days, this graph illustrates the herd's Rolling Herd Average, 1st lactation Mature Equivalent 305 Day Lactation Average and the 2nd and greater lactation Mature Equivalent 305 Day Lactation Average. Seasonality is factored

into Mature Equivalent 305 Lactation Averages, however large drops during certain times of the year are management opportunity areas.

Mature Equivalent 305 Day Lactation Averages adjust all cows to the same age, season of calving and lactation length.

- Cows in each month's data are cows currently in the herd.
- Cows in lactation but with less than 305 days in milk have their present lactation's production projected to 305 days.
- Cows with lactations beginning with a purchased in milk date are not included except when they have a true calving date and estimated 305 day production.
- Projected ME 305 production is used for cows dried off or aborting before completing a 305 day lactation.

Mature Equivalent 305 Day Lactation Averages are much more responsive to change than the Rolling Herd Averages. Consequently, expect to see more monthly movement in the lactation averages than the RHA.

Block E Cows Currently in the Herd – Averages

This block enables the user to track...

- numbers of cows in each lactation group
- average age at calving for 1st lactation heifers
- peak milks of different lactation groups
- persistency of different lactation groups

"Lact Group" denotes if the row is made up of cows in their 1st, 2nd or 3rd and greater lactation.

"Cow Lacts" is the number of cows currently in the herd in each of the lactation groups.

"305 ME Lactation Avg" for "Milk", "Fat" and "Protein" are provided. This value includes the dry cows' ME 305 from their just completed lactation. The current test interval includes those cows that were sold or died since the previous test day.

"Age Mos" is an abbreviation for average months. The number provided is the average age at freshening for all cows currently in the herd in each lactation group.

"Peak Milk" This value represents the average peak milk production during the current lactation for cows within the specified lactation group. Peak milk for individual cows is there highest production in the first 100 days of lactation. Cows less than 50 DIM are not included in the calculation.

"MUN" is the average Milk Urea Nitrogen (MUN) of cows in each group measured in milliliters per deciliter. MUN information is an option available to AgSource members and this column only has values if cows in each age group are being tested for MUN.

Lact Group

"Early (1-100 Days), Mid (101 – 240 days) and Late (241 + Days)" lactation groups are summarized by the number of cows in the herd on test day in each group Because some cows are dry, do not expect the total cows in the lactation groups ("Num") to equal the numbers under "Cow Lacts". All cows currently in the herd are in the "Num" and "Milk" columns. However, only those cows milking in their current lactation on both the last and the current test day are included in the "%Last" column.

Block F Average Test Day Milk Production

This block enables the user to track...

- daily per cow production trends over the past eighteen test days
- the relationship of Management Level Milk and average per cow daily milk production over the past eighteen test days

This graph illustrates the direction and level of the two most responsive measures on the Herd Summary: Average Milk/Cow/Day and Average Management Level Milk (MLM). Average Milk/Cow/Day is the average production of every milking cow in the herd with more than five DIM. Average Management Level Milk is a standardized tool for comparisons and is a conversion of test day milk production to a common base: 150th day of lactation, second lactation, 4.0% fat and 3.3% protein. For each pound gain in MLM, expect an eventual 300-350 pound increase in the RHA. MLM is not calculated for cows less than six days or more than 305 days into their lactation. Eighteen test days of information are provided.

Block G Average Test Day Fat & Protein

This block enables the user to track...

- percent fat and percent protein levels and trends over the past 18 test days
- the herd wide relationship of percent fat and percent protein over the past eighteen test days

The average percent fat and percent protein of every milking cow in the herd is calculated for each of the last eighteen test days.

Block H Peak Milk Trends

This block enables the user to track...

- peak milk production trends of first and greater than first lactation cows that freshened between 50 and 360 days ago

Peak milk production for each cow is her highest production in her first 100 DIM. Cows are not represented on the graph until they have reached 50 DIM. If a cow peaks at less than 50 DIM, she will have her early peak recognized at 50 DIM after she is past 100 DIM.

The graph only illustrates the pounds of peak production for each cow, not when in her lactation that she reached peak. The X axis denotes month of calving. The graph allows the user to visually determine if cows recently fresh have higher or lower peaks than those freshening months previously. First lactation cows and cows in their second and greater lactations are differentiated by color. Trend lines illustrate if current peaks are

higher or lower or if the herd has seasonal issues. The Peak Ratio = 1st lactation peak milk pounds / 2nd and greater lactation cows peak milk production.

Typical Peak Ratios should be 74-78%. Numbers over 80% indicate underperforming older cows. Below 72% indicates underperforming heifers.

Reproduction & Genetics

Block I General Reproductive Info

The accuracy and value of all reproductive information is dependent on reporting all breeding dates and pregnancy confirmations.

This block enables the user to track...

- basic reproductive information such as Calving Interval
- conception rates
- dry period lengths
- Voluntary Waiting Period (VWP) information

"Calv Int, Proj" represents the average number of months between the most recent calving date and the expected due date for all pregnant cows in the herd. Any cows on the current test day who are more than 35 days past their projected calving date are no longer considered pregnant and are removed from the calculation.

"Calv Int, Hist" represents the herd's historical calving interval. The "Calv Int, Proj" animals are those still in the herd while the "Calv Int, Hist" animals includes all animals in the herd over the last year

"Days Open, PG" represents the average days open of all pregnant cows currently in the herd and those that left in the last year. The definition of "pregnant" cows is the same as used above.

"SPC, PG" represents the services per conception of all pregnant cows in the herd and those that left in the last year. The definition of "pregnant" cows is the same as used above.

"Conception Rates:" The population in this equation includes total pregnancies and lost pregnancies confirmed in current and left cows that were a result of a breeding within the past 365 days of the current test date. Conception rates are calculated as (#conceptions/#breedings *100) are provided for heifers (prior to first calving), 1st, 2nd and 3rd or greater parity cows.

"Repeat Breeding Analysis"
All cows and heifers in the herd for current test interval (includes sold/died this test) with breeding events are used. This includes cows/heifers bred, but not pregnant.

See below for the repeat breeding definition:

- Any 2nd or greater breeding in a lactation counts as a repeat breeding.
- Any 2nd or greater breeding that occurs 3 to 17 days after the previous breeding counts as a repeat 3 to 17 day breeding.
- Any 2nd or greater breeding that occurs 18 to 24 days after the previous breeding counts as a repeat 18 to 24 day breeding.

The percent of total 3 to 17 day repeats = count of 3 to 17 day repeats / total number of repeats.

The percent of total 18 to 24 day repeats = count of 18 to 24 day repeats / total number of repeats.

The conception rate for 3 to 17 day repeats = count of 3 to 17 day repeats resulting in pregnancy / total number of 3 to 17 day repeats.

The conception rate for 18 to 24 day repeats = count of 18 to 24 day repeats resulting in pregnancy / total number of 18 to 24 day repeats.

"Days Dry"

"Avg" is the average length of the most recent dry period for all cows currently in the herd.

"% 0 – 39" represents the percent of the most recent dry periods of cows currently in the herd whose dry periods were 39 or less days in length.
"% 40 – 69" represents the percent of the most recent dry periods of cows currently in the herd whose dry periods were 40 to 69 days in length.
"% 70+" represents the percent of the most recent dry periods of cows currently in the herd whose dry periods were 70 or more days in length.
The values in the above three categories must total 100%.

"VWP"

VWP is the acronym for Voluntary Waiting Period and is the planned number of days between a cow's most recent calving date and when she can be bred the first time. "Calculated" is the 95th percentile (the days in milk at which 5% of cows that were bred at or before) for all cows calving in the last 14 months. "Stated" is a user inputted value which denotes the planned length of the VWP.

Block J Service & Pregnancy Rate By Cycle

This block enables the user to track...

- Reproductive management in first six breeding cycles after the VWP of getting cows bred and pregnant. The "Calculated" VWP is used in all calculations.

This table provides an analysis of early to mid lactation breeding performance of animals currently in the herd. Therefore, the data in the "Cycle 1" row is made up of breeding performance information on all cows in the herd on their first 21 day breeding cycle. Some cows may be included in Cycle 1 from the most recent test day period. Others may be included up until one year plus their voluntary waiting period (VWP). Cows that left

(sold or died) are not included. Cycle length is ascribed an interval of 21 days and all cows are aligned by the VWP.

Two categories of cows are not included in Block J calculations

1. **Cows that are bred before the end of the herd's VWP and become pregnant from that breeding.**
2. **Cows that receive a DNB (Do Not Breed) status are not included after receiving this code.**

Within each 21 day cycle;
"Bred Elig" refers to the population of cows that are Bred Eligible and achieve the following criteria:

- DIM exceeds the calculated VWP
- Are present for at least half of the cycle (even if they are bred within the first half of the cycle)
- Are not labeled pregnant

Cows that are bred and conceive to a breeding prior to the calculated VWP are not bred eligible in any of the cycles. If they are re-bred, then they are considered bred eligible in the cycle that the repeat breeding occurs, provided that the above criteria are met.

"Bred" refers to the population of bred eligible cows that were bred during the cycle.

"Svc Rate %" is the Service Rate (or Insemination Risk or Submission Rate). This refers to the population of cows that began each cycle as bred eligible that were bred during the cycle.

"Preg Elig" refers to the population of cows that are Pregnant Eligible and achieve the following criteria:

- DIM exceeds the calculated VWP
- Are present for at least half of the cycle
- Are not labeled pregnant
- Are at least 42 days past the breeding within the cycle or 42 DIM past the mid-point of the cycle if not bred

"Preg Rate %" is the Pregnancy Rate. This refers to the population of cows that began each cycle as pregnant eligible that became pregnant during the cycle. Pregnancies include pregnant cows plus those who lost pregnancies that were earlier confirmed pregnant.

"Preg Loss %" is the Pregnancy Loss and refers to the % of pregnancies that were created in each cycle that were subsequently lost through abortion or assumed lost because of a later breeding date entry.

A dairy using a synchronization program as their primary source of when to breed cows might have goal numbers resembling the following:

21 Day Cycle	Svc Rate %	Preg Rate%
1	90%+	35%
2	10%	5%
3	70%	25%
4	10%	5%

Block K Genetic Value of Sires

This block enables the user to track...

- genetic transmitting ability in five key areas of current herd sires

Genetic Group

Six categories made up of all animals currently in the herd. Genetic measures are calculated for each group.

Total Num

This value is the total number of animals in each category for this herd.

Pct AI

Pct AI represents the percent of each genetic group that are sired by bulls with a National Association of Animal Breeders (NAAB) number.

DPR

DPR is the abbreviation for Daughter Pregnancy Rate. This value is the difference between daughters of this bull's Pregnancy Rates versus daughters of a breed average bull. The value displayed is the variation from breed average of the average sire in each Genetic Group in this herd. Data is from AIPL. Example: -0.5 DPR means daughters of this bull average 0.5% lower Pregnancy Rate than average bulls. Daughters of this bull will on average have two more days open than daughters of a bull with an average or 0.0 DPR.

SCS

SCS is the abbreviation for Somatic Cell Count. In this report SCC represents the difference in transmitting ability for the average sire in each Genetic Group for SCC. The value expressed is a Linear Score. Data is from AIPL. The average bull will have daughters averaging 3.0 for this trait, which means his daughters average Linear Score is 3.0. A bull with an SCS ranking of 2.8 will have his average daughter's Linear Score 0.2 LSCR below average. Numbers below 3.0 are good; numbers above 3.0 are not desirable.

Prod Life

Productive Life is a measure of how long daughter's of a bull stay in the herd compared to an adjusted breed average. Data is from AIPL. The value expressed is in months. Average is 0.0, meaning high numbers are desired. Example: 0.8 Productive Life means this bull's daughters on average stay in herds 0.8 months longer than the average bull's daughters do.

Net Merit $

Net Merit $ is a genetic measure of the average difference in lifetime income generated by daughter's of a bull compared to an adjusted breed average. On the new Herd Summary, it represents the average Net Merit $ of sires of each Genetic Group.

Cheese Merit $

Cheese Merit $ is much like Net Merit $ except prices are based on cheese markets whereas Net Merit $ is based on fluid milk prices.

Block L Service and Pregnancy Rates

This block provides pregnancy rate, service rate and pregnancy loss information for cows currently in the herd and cows that left over the last 12 months, providing they were bred during the past year.

Calculations for service rate and pregnancy rate are similar to those used in Block J, but instead of examining 21 day cycles starting at the VWP for all cows, the starting point is the day prior to the most recent test date. Each set of columns refers to each 21 day period counting back in time from the current test date. Culled cows and previous lactation information ARE included in this analysis to make historical data more accurate.

The annual averages are provided for Service Rate, Pregnancy Rate and Pregnancy loss in the lower right corner of this block.
This block enables the user to track...

- the percent of cows eligible to breed that are actually bred (Service Rate)
- the Pregnancy Rate over the past year

This graph illustrates two important reproductive management measures. “Service Rates” are the number of cows that are bred divided by the number of cows that were eligible to be bred in this 21 day cycle. “Pregnancy Rate” is the number of total pregnancies in this 21 day cycle divided by the number of cows that were eligible to become pregnant.

A year’s worth of data is provided in the graph in 21 day increments (cycles). The most recent cycles are on your right, the most distant on your left.

In contrast to Block J, this block is time sensitive. The graph starts with the current test day and the first cycle includes the 20 previous days also. There are no Pregnancy Rates provided for the two most recent cycles because there are no Pregnant Eligible cows.

Goal Annual Averages:
Service Rate = 70%+
Pregnancy Rate = 20%+

Block M DIM at 1st Breeding

The X axis (along the bottom) denotes the month of calving. Each data point is an individual cow. This scatter graph allows the user to visually observe how tight the time ranges of first breedings are for first and second and greater lactation cows and if there has been any change over the past year. Data points in a tight DIM range indicate a successful synchronization program. The Avg DIM at 1st Breeding ideally should be within 10 days of the Calculated VWP in Block I.

Inventory

Block N Calving – Past 12 Months

This table enables the user to track...

- differences in percent of live births and deaths in different lactation groups

- differences in live births and deaths based on the calf's gender
- the breakdown in numbers of female versus male calves born in the last year

"Dead" calves are defined as stillborns that die within 48 hours of birth.

Block O Cows Leaving the Herd – Past 12 Months

This block enables the user to track...

- percent, number and lactation group breakdown of cows entering the herd.
- percent, number and lactation group breakdown of cows leaving the herd. The percent left is also the herd's turnover rate.
- breakdown by reason (expressed as a percent of the herd) of the cows that left over the past 365 days

The calculation for each group in the COWS ENTER and COWS LEAVE categories is the total number of animals in each category that entered or left over the past 365 days. Dividing these values by the average total number of cows (dry cows included) calculated for each test day over the past 365 days yields the percent values on the right side of the block.

Block P Herd Inventory – Next 6 Months

This block enables the user to track...

- if surplus cows are available to sell in the next six months
- if additional cattle need to be purchased to keep the facility full over the next six months
- if projected calvings will exceed calf housing capacity

Inventory calculations are based on projected calvings. Additionally, the herd's annual milking cow and dry cow turnover values are factored into the equation to provide you with a more accurate estimate of your future inventory. Dry period length is based on your herds historical rates and patterns as are all turnover rates for each group.

"Milking Cows" and "Dry Cows" are the projected numbers on the 15th of each month. "Cows to Calve" and "Heifers to Calve" are the total number of projected calvings during the month.

If breeding dates are not provided, calving dates and dry dates can't be calculated; hence there will be no data in this block and all fields will be blank. If Milking Cow breeding dates are provided but no heifer breeding dates are, the Heifers to Calve row will be blank but the upper three rows will have data.

The accuracy and value of all inventory information is dependent on reporting all breeding dates and pregnancy confirmations.