AgSource Cooperative Services

A subsidiary of Cooperative Resources International

Profit Opportunity Analyzer®

Prepared especially for
Example Dairy

The Profit Opportunity Analyzer identifies the areas where your time and management focus will generate the most revenue and profit. The following areas are analyzed:

- **Turnover management**
- **Milking herd reproductive management**
- **Heifers age at first calving management**
- **Udder health management**
- **Transition cow management**
- **Genetics management**
- **Production management**

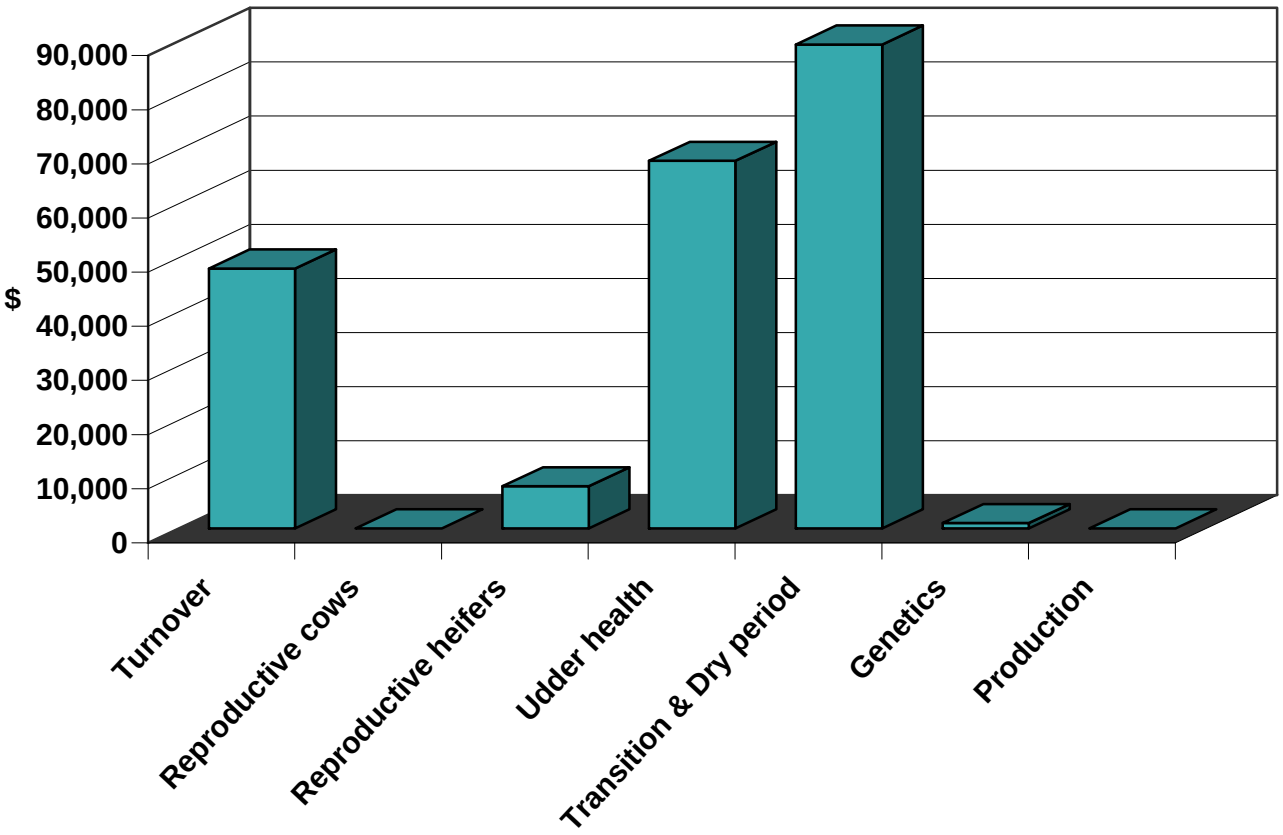
Profit Opportunities in most cases are based on the difference between your dairy's annual performance and that of 80th percentile AgSource herds in your size range. If you are outperforming these 80th percentile managers, your Profit Opportunity in this area is $0. Raising performance above the 80th percentile can make you money. However, this program is designed to identify "the low hanging fruit" or areas where your time and resources will get the biggest return. Generally, these are areas where you are significantly below 80th percentile performance.

The fine print…
Revenue opportunities are based on research observations of average responses. It is important to recognize there are variations in farm to farm responses. For example, lowering Linear Score (LSCR) from 4.0 to 3.0 is expected to increase milk production on second and greater lactation cows 585 pounds per lactation. However, if nutrition is a major limiting factor on a dairy, lowering the LSCR might result in a smaller response. On another dairy where subclinical mastitis is the limiting factor, the same LSCR drop may result in a response larger than 585 pounds.

Profit Opportunity Analyzer

Herd Owner:	**Example Dairy**
Provided By:	**AgSource**
Date:	**05/29/09**
Herd Code:	**99999999**

Profit Opportunities



Turnover Management

AgSource Cooperative Services
A subsidiary of Cooperative Resources International

Your dairy's turnover management profit opportunity from lowering Annual turnover and death loss to 27% and 3.8% respectively **$48,000**

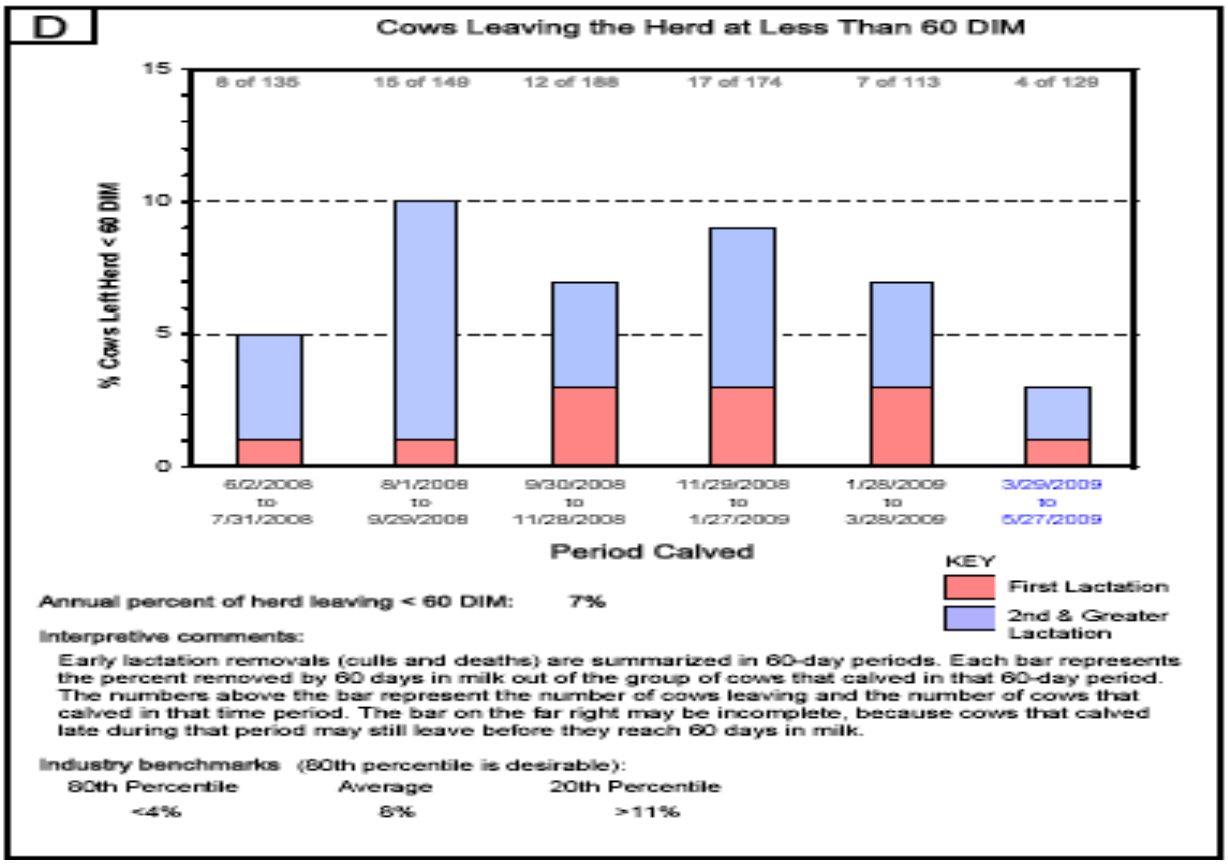
(Annual turnover does not include dairy sales)

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Annual turnover percentage (Excluding dairy)	27%	33%	40%
Annual death rate percentage	5.5%	5.5%	8.7%

Over the past year…	Your herd percent	Your herd No. of cows over 80th percentile	Profit Opportunity
Turnover (Excluding sales for dairy)	30%	20.5	$ 34,900
Death loss	8.0%	20.1	$ 13,100

Your dairy's trend…

(Early lactation turnover is an indicator of annual turnover trends)



Reproductive Management
Milking Herd

AgSource Cooperative Services
A subsidiary of Cooperative Resources International

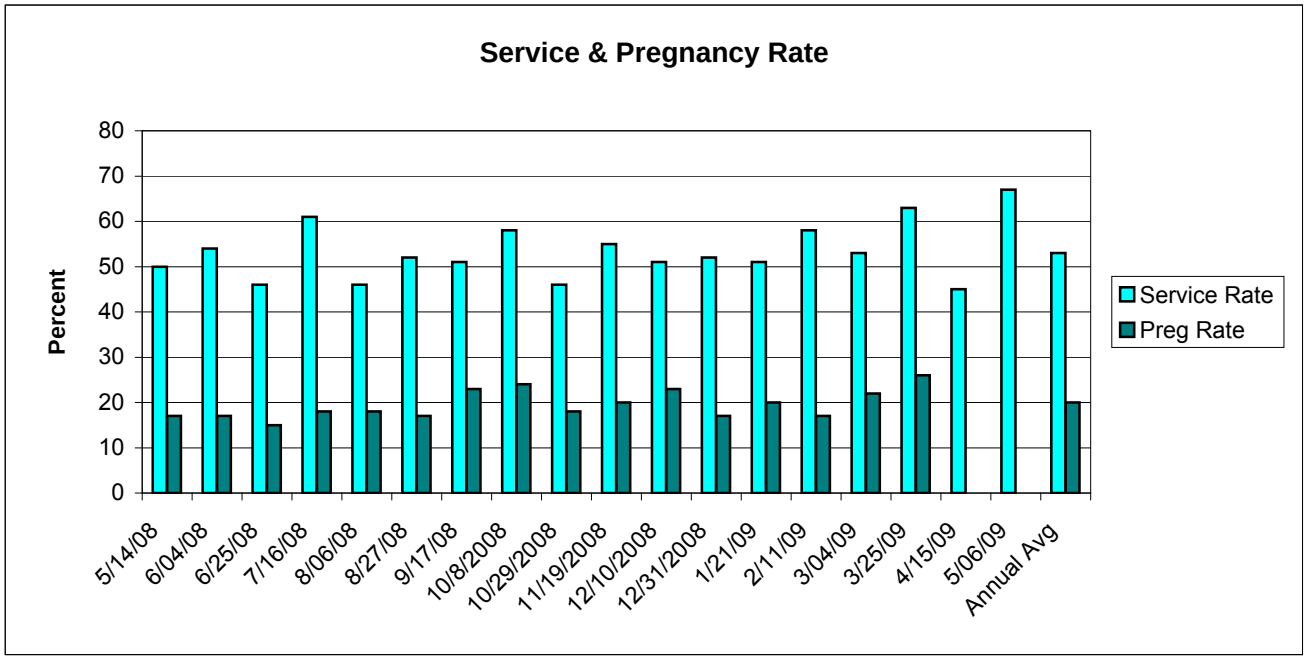
Your dairy's reproductive management profit opportunity **$0**

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Annual 21 day pregnancy rates	20%	18%	15%

Over the past year…	Your herd percent	Your herd number of cows	Profit Opportunity
Your milking herd's pregnancy rate	20%	790	
Estimated percent of herd culled for reproduction if attain 21% Preg. Rate	6.9%	55	
Estimated current reproductive turnover	6.9%	55	
Estimated turnover reduction if attain 80th percentile Pregnancy Rate	0.0%	0	$0
Estimated RHA milk increase (lbs) if attain 80th percentile Pregnancy Rate	Pounds per cow =	0	$0

Note: Itemized Profit Opportunities (turnover and RHA milk increases) in this section are approximations and the sum is not expected to equal the overall Profit Opportunity due to rounding and the use of Net Present Values in calculating the overall Profit Opportunity.

Your Dairy's Trend…



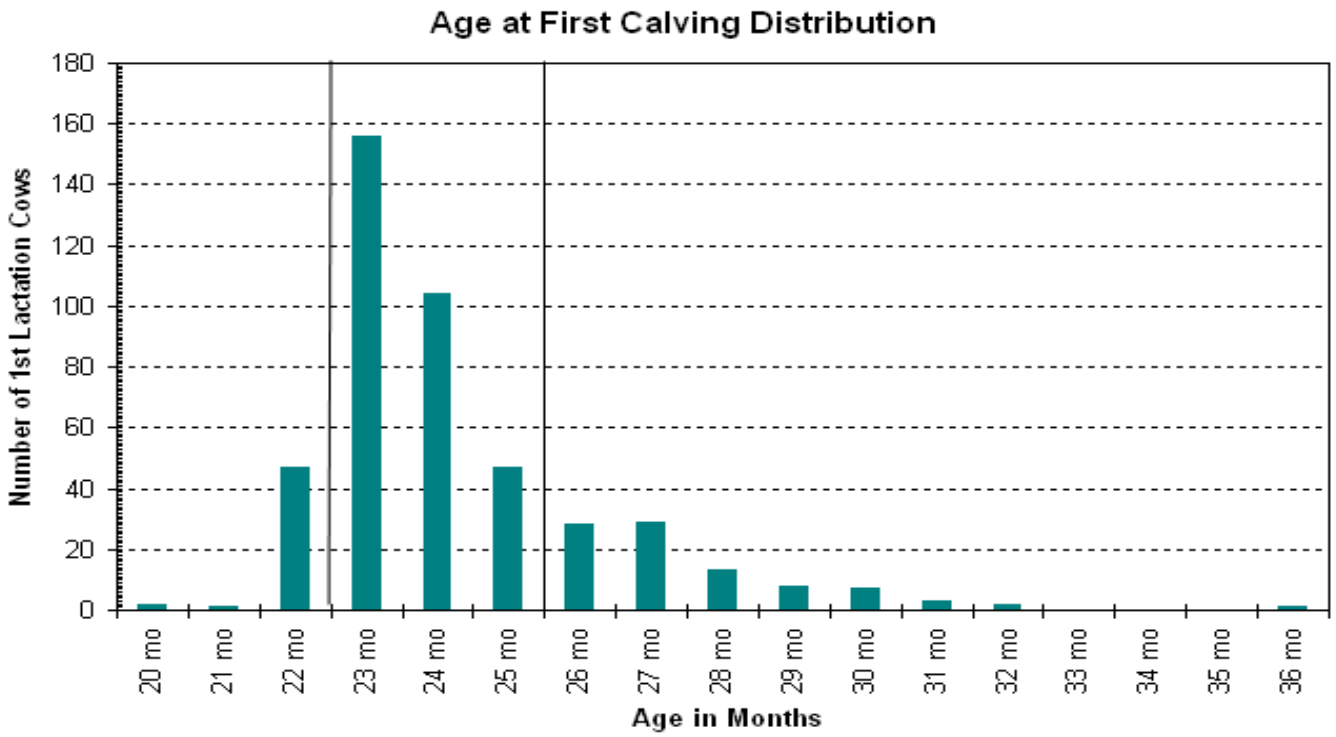
Heifers Age at First Calving Management

Your dairy's heifer reproductive management profit opportunity **$7,800**

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)	80th Percentile	Average	20th Percentile
Percent Heifers Freshening <23 Months Old	3%	20%	34%
Percent Heifers Freshening >25 Months Old	11%	23%	35%

Over the past year…	Your herd percent	Your herd No. of hfrs. over 80th percentile	Profit Opportunity
Heifers freshening <23 months old	13%	44	$3,800
Heifers freshening >25 months old	20%	41	$4,000
Estimated RHA milk increase (lbs) if attain 80th percentile heifer age at first calving performance		41	

Your dairy's trend…



Udder Health Management

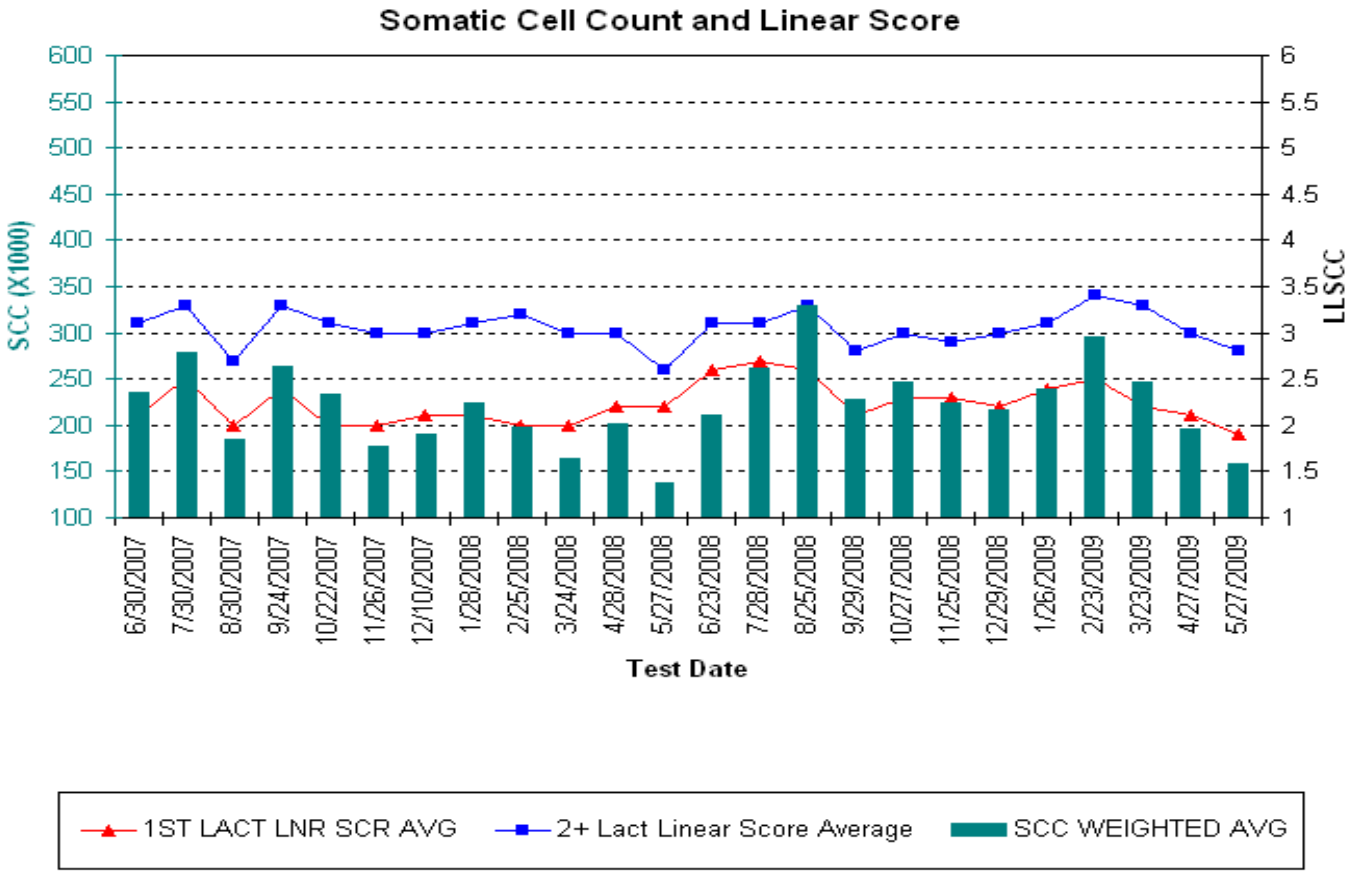
AgSource Cooperative Services
A subsidiary of Cooperative Resources International

Your dairy's udder health management profit opportunity $67,900

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Linear Score, First Lactation	1.9	2.3	2.6
Linear Score, Second Lactation	2.5	2.9	3.2
Weighted Average Somatic Cell Count	168	234	290

Over the past year…	Your herd	Profit Opportunity
Linear score (1st Lactation)	2.3	$8,200
Linear score (2nd lactation and greater)	3	$21,200
Weighted average SCC (000s)	236	$38,500
Estimated RHA milk increase (lbs) if attain 80th percentile linear score performance	219	

Your dairy's trend...



Transition Cow & Dry Period Length Management

AgSource Cooperative Services
A subsidiary of Cooperative Resources International

Fresh cow and dry period length management profit opportunity* **$89,400**

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Transition Cow Indexes	359	-355	-1194
Percent of Herd Having <30 Day Dry Period	1%	5%	6%
Percent of Herd Having 70-90 Day Dry Periods	4%	8%	10%
Percent of Herd Having >90 Day Dry Period	3%	8%	12%

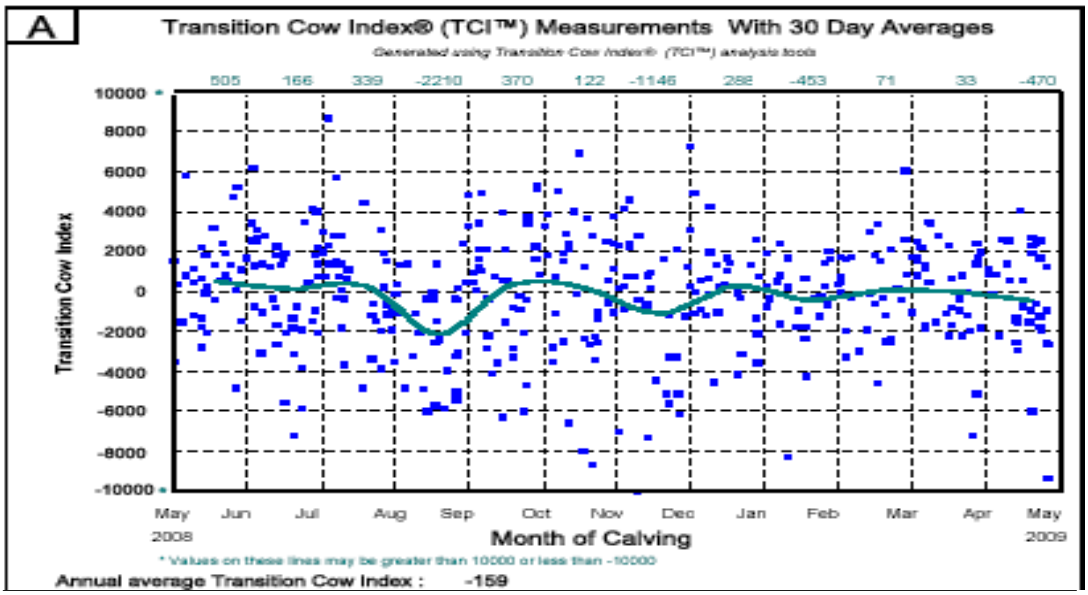
Over the past year…	Your herd TCI	Potential Change	Profit Opportunity
Transition Cow Index	-159		
Increased production (RHA lbs/cow)		400	$50,100
Decreased turnover (Percent)		1.4%	$10,500

*The Transition Cow Index's economic impact is likely underestimated since TCIs are not calculated for first lactation cows; however the opportunities found in the mature cow TCI probably apply to the first lactation cows as well.

Dry Period Length Management

Over the past year…	Your herd percent	No. cows over 80th percentile	Profit Opportunity
Dry periods, <30 days	0.7%	0.0	$0
Dry periods 70-90 days	9.0%	21.6	$10,900
Dry periods > 90 days	8.7%	25.0	$17,900
Dry period management, increased production (RHA/cow)		210	

Your dairy's trend…



Genetics Management

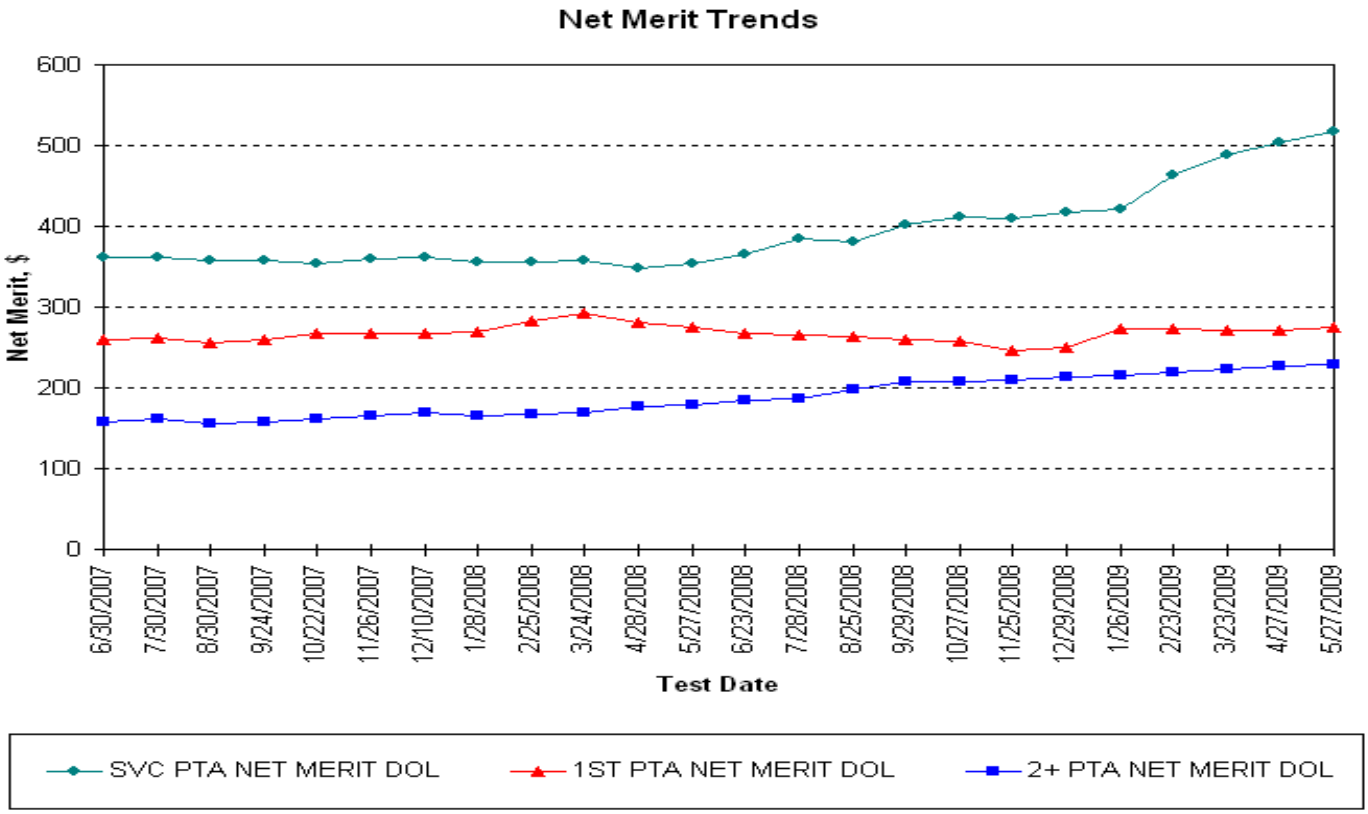
AgSource Cooperative Services
A subsidiary of Cooperative Resources International

Your dairy's genetic management profit opportunity **$1,000**

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Milking Herd Net Merit $	**$255**	**$203**	**$148**

Over the past year...		Your herd	Profit Opportunity
Cows' average sire Net Merit $		**$252**	**$1,000**
Estimated pounds per cow RHA milk increase from attaining 80th percentile Net Merit levels	**0**		

Your dairy's trend…



Production Management

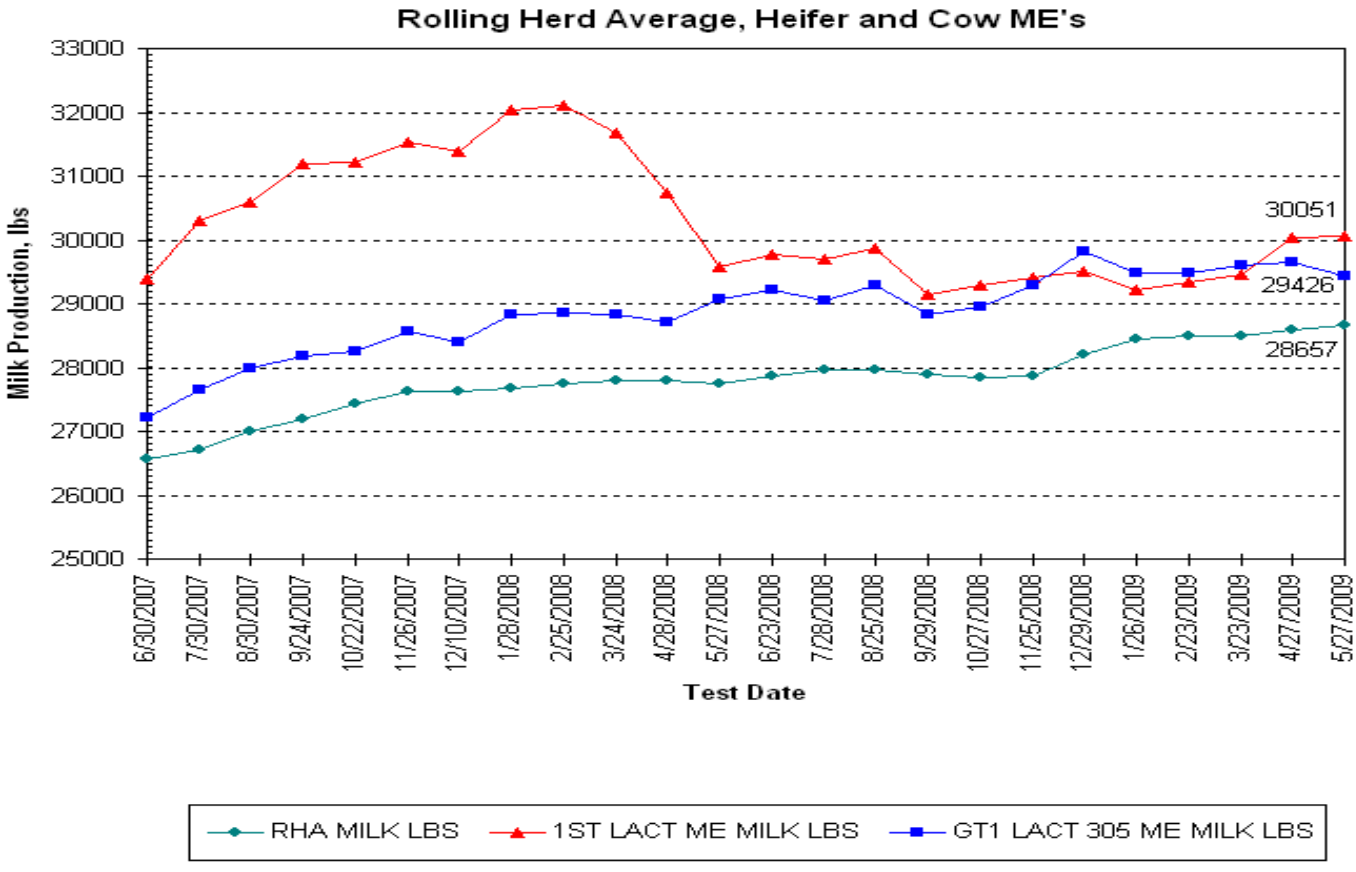
AgSource Cooperative Services
A subsidiary of Cooperative Resources International

Your dairy's production management profit opportunity **$0**

AgSource Benchmarks for 500-1,000 Cow Herds (121 Herds)			
	80th Percentile	Average	20th Percentile
Income/Cow/Year Based on Fat & Protein Prices	$3,026	$2,807	$2,587
Rolling Herd Average - Butterfat	1,021	937	865
Rolling Herd Average - Protein	837	782	720
Rolling Herd Average - Milk	28,086	26,057	23,950

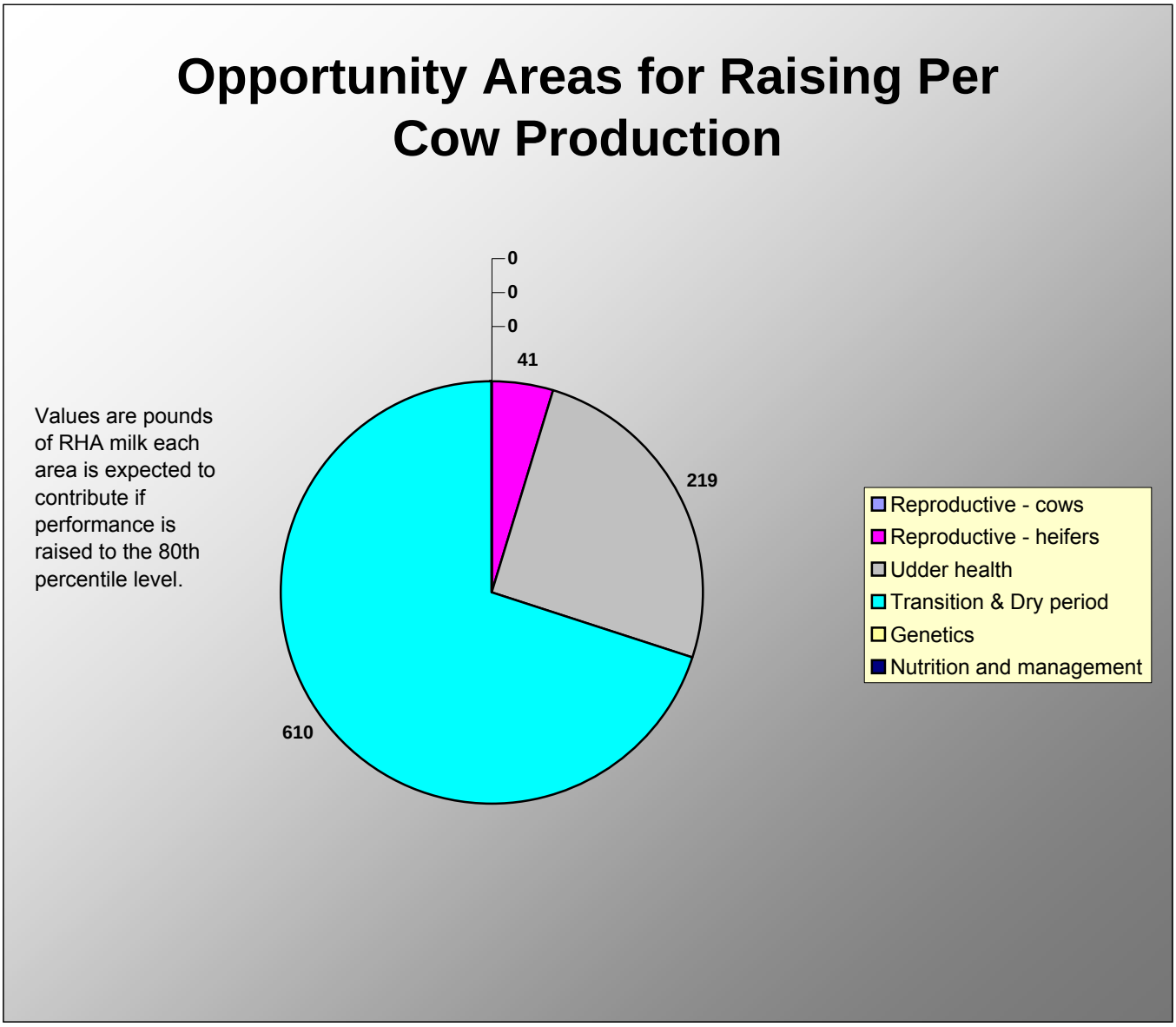
	Your herd	Price/pound	
Income/Cow/Year Based on Fat & Protein Prices	$3,100		
Rolling Herd Average - Butterfat	1,078	$	1.16
Rolling Herd Average - Protein	853	$	2.20
Rolling herd average (Milk)	28,657		
Previous 4 month %, of daily milk sold	104%		

Your dairy's trend...



Herd Owner: Example Dairy
Provided By: AgSource
Date: 05/29/09

Opportunity Areas for Raising Per Cow Production



Profit Opportunities on the previous page's graph are based on increasing milk production, using other methods to increase income and cut expenses. The above graph identifies extra milk per cow you should expect from reaching 80th percentile performance in the listed areas.

If your herd is below the 80th percentile RHA milk level of peer sized herds, the unidentified difference between your herd average and the 80th percentile milk production is categorized in the graph as "Nutrition and management".

Profit Opportunity and RHA Milk Calculations

Turnover Management

Inputs used:

Replacement price	**$2,350**
Cull cow price	**$650**
Number of cows in herd	**790**

How Profit Opportunities are calculated

Profit Opportunity from lowering turnover

((Number of cows in your herd's turnover - Number of cows turned over if at 80th percentile performance) X (Replacement price - Cull cow price))

((236.2 Cows - 215.7 Cows) X $(2350 - $650)) = $34918

Profit Opportunity from lowering death rate

((Number of cows died - Number of cows died if at 80th percentile performance) X Cull Cow Price)

((63 Cows - 43 Cows) X $650) = $13100

If either Profit Opportunity is less than 0, a "0" is entered

Profit Opportunities are rounded to the nearest $0,X00 in the front pages of this report. In the Calculations section, more detail is provided and less rounding is done.

Milking Herd Reproductive Management

Inputs used:

Replacement price	**$2,350**
Cull cow price	**$650**
Milk price/pound	**$0.1700**
Calf price	**$275**
Annual interest rate	**6.50%**
Milking herd size	**790**

How Profit Opportunities are calculated

The model used to develop the tables calculates milk output and turnover at production levels of <17,000; 17-21,000; 21-25,000;25-30,000 and over 30,000 per cow and at Pregnancy Rates of 5 to 20%. A VWP of 55 days is used and open cows are bred until 318 DIM. Cows open after this point are culled. Production is calculated for the lactation cows are being bred and for a subsequent 305 day lactation. Milk income is calculated using Net Present Values to compensate for differences in calving dates due to later occuring pregancies. Production is standardized to 365 days, replacement costs are added and a value for the analyzed herd is calculated and subtracted from the calculated income of the same herd with a 20% Pregnancy Rate. Assuming management replaces open cows at 318 DIM with a fresh animal, lower Pregnancy Rates affect replacement costs far more than milk income. The chart below illustrates the effect poor reproduction has on turnover. Pregnancy Rates from 25% to 5% are provided for a theoretical 100 cow herd reaching the end of their VWP on the same day. The number of open cows remaining after 318 DIM are provided

Pregnancy Rate and Reproductive Turnover

		Pregnancy Rates Cows becoming pregnant in each 21 day increment				
21 day increment	DIM	25%	20%	15%	10%	5%
1st	55-76	25.0	20.0	15.0	10.0	5.0
2nd	77-98	18.8	16.0	12.8	9.0	4.8
3rd	99-120	14.1	12.8	10.8	8.1	4.5
4th	121-142	10.5	10.2	9.2	7.3	4.3
5th	143-164	7.9	8.2	7.8	6.6	4.1
6th	165-186	5.9	6.6	6.7	5.9	3.9
7th	187-208	4.4	5.2	5.7	5.3	3.7
8th	209-230	3.3	4.2	4.8	4.8	3.5
9th	231-252	2.5	3.4	4.1	4.3	3.3
10th	253-274	1.9	2.7	3.5	3.9	3.2
11th	275-296	1.4	2.1	3.0	3.5	3.0
12th	297-318	1.1	1.7	2.5	3.1	2.8
	Open Cows Culled	3.2	6.9	14.2	28.2	54.0
Percent reproductive culls		3.2%	6.9%	14.2%	28.2%	54.0%

Heifers Age at First Calving Management

Inputs used:

Increased rearing costs per heifer

From heifers freshening before they are 23 months old	**-$40.34**
From heifers freshening later than 25 months old	**$98.81**

(Values obtained from research below)

Decreased first lactation milk income per heifer

From heifers freshening before they are 23 months old	**$127.50**

(750 pound per lactation loss X Milk price) 750 pound value from research below

Cumulative losses

From heifers freshening before they are 23 months old	**$87.16**
From heifers freshening later than 25 months old	**$98.81**

How Profit Opportunities are calculated

((Number of heifers under 23 months at first calving - 80th percentile level of calvings under 23 months) X Cumulative per heifer loss from freshening at less than 23 months)
((57 Cows - 13.4 Cows) X $87) = $3799

((Number of heifers over 25 months at first calving - 80th percentile level of calvings over 25 months) X Cumulative per heifer loss from freshening at more than 25 months)
((90 Cows - 49.2 Cows) X $98.81 per cow) = $4034

The Profit Opportunities are summed for a cumulative value.
$3800 + $4000 = $7800

How RHA Milk per cow increase is calculated

((Number of Heifers < 23 months old at first calving - 80th percentile level of calvings under 23 months) X 750 pounds milk lost per heifer / total number of cows in the herd)

(((57 Cows - 13 Cows) X 750 Pounds per cow) / 790 Cows) = 41

Revenue Opportunities Based On the Following Research:
Impact of Age at Calving on Lactation, Reproduction, Health, and Income in First-Parity Holsteins on Commercial Farms, J.F. Ettma and J.E.P. Santos, Veterinary Medicine Teaching and Research Center, University of California-Davis
J. Dairy Sci. 87:2730–2742
American Dairy Science Association, 2004.

Udder Health Management

How Profit Opportunities are calculated

Linear score losses

Average annual milk gain per 1.0 LSCR drop	**Pounds per cow**
First Lactation Cows	**275**
Second and Greater Lactation Cows	**585**

Milk production losses

((Your herd's LSCR - 80th percentile herd's LSCR) X Average pounds of milk lost in a lactation per 1.0 change in LSCR) X Milk price per pound X Number of cows in lactation group) = Dollar loss

1st Lactation

((2.3 LSCR units - 1.9 LSCR units) X 275 Pounds/LSCR unit X $0.17 X 441 Cows) = $8247

2nd and Greater Lactation

((3 LSCR units - 2.5 LSCR units) X 585 Pounds/LSCR unit X $0.17 X 426 Cows) = $21183

How RHA Milk per cow increase is calculated
(((Your herd's 1st lactation LSCR - 80th percentile herd's LSCR) X Average pounds of milk lost in a lactation per 1.0 change in LSCR X Number of cows in lactation group) + (Your herd's 2nd lactation LSCR - 80th percentile herd's LSCR X Average pounds of milk lost in a lactation per 1.0 change in LSCR X Number of cows in lactation group) / Number of cows in herd)

Milk premium (SCC) Profit Opportunity calculations

Assumptions:
Premium of $0.0025 per cwt. of milk per thousand SCC with an SCC under 350,000
There is no premium between 350-400,000 SCC
There is a deduction of $0.0013 per cwt. of milk per thousand SCC of milk if the SCC is above 400,000
When SCC's are subtracted from each other, the ,000's are omitted
How calculations are done:
If your herd's SCC is 350,000 or less
((Your herd's SCC - 80th percentile herd's SCC) X $0.0025 X Total cwt. of milk produced annually)

If your herd's SCC is between 350,000 to 400,000
((350 - 80th percentile herd's SCC in thousands) X $0.0025 X Total cwt of milk produced annually)

If your herd's SCC is above 400,000
(((350 - 80th percentile herd's SCC in thousands) X $0.0025 X Total cwt of milk produced annually) +
(Your herd's SCC - 400) X $0.0013 X Total cwt. of milk produced annually))

Your dairy's SCC Profit Opportunity calculation

((236 - 168) X $0.0025 X 226390 cwt.) = $38486

TransitionCow Management

How Profit Opportunities are calculated
TCI Profit Opportunity
Assumptions
Each pound change in TCI is associated with 1.27 pound milk change in end of lactation production
Milk price (per pound) $0.170
((80th percentile herd's TCI - Your herd's TCI) X Number of second and greater lactation cows X 1.27 X Milk price per pound)

((359 - -159) X 448 2nd Lact and >Cows X 1.27 X $0.17) = $50103

Assumptions
Each pound change in TCI is associated with 0.00265% increase in lactation survival rate
((80th percentile herd's TCI - Your herd's TCI) X 0.0000265 X (Replacement value - Cull value))
((359 TCI pounds - -159 TCI pounds) X 0.0000265 X ($2350 - $650) X 448) Cows= $10500

TCI's RHA production response
((80th percentile herd's TCI - Your herd's TCI) X 1.27 X (Number of second and greater lactation cows/ Total number of cows))

(359 TCI pounds - -159 TCI pounds) X 1.27 X (448/ 790) = 373

Dry period length management Profit Opportunity calculations
The following assumptions are based on research sited below.

Dry period length	Annual per cow milk loss per dry period …
<30 Days	2069
70-90 Days	2980
>90 Days	4221

The "Annual per cow milk loss per dry period" is calculated by averaging lifetime milk losses for each dry period length category from the research sited below. The lifetime loss is converted to an annual loss specific to each herd by dividing one by the herd's annual percent turnover to determine the average number of lactations in this herd. One is subtracted from this number since each dry cow has completed at least one lactation already.

Calculations for annual production loss for short or long dry periods

(Pounds lifetime milk production loss / (1/percent annual turnover)-1)) = Annual per cow milk loss per dry period

Dry periods <30 days

Your dairy exceeds 80th percentile peer group level performance. This is not a high priority revenue opportunity area for you.

Dry periods 70-90 days

(6632 pounds/ ((1/ 0.31) - 1)) = 2980

Dry periods > 90 days

(9395 pounds/ ((1/0.31) - 1)) = 4221

Dry period length Profit Opportunity calculations

Annual Profit Opportunity calculations for short and long dry periods

Annual milk loss per dry period X Number of cows exceeding 80th percentile X Price per pound of milk

Dry periods < 30 days

Your dairy exceeds 80th percentile peer group level performance. This is not a high priority revenue opportunity area for you.

Dry periods, 70-90 day

(2980 pounds X $0.17 X 21.6 cows) = $10942

Dry periods >90 days

(4221 pounds X $0.17 X 24.95 cows) = $17903

Effect on RHA of achieving 80th percentile dry period length management (pounds) **214.8**

"Annual per cow milk loss per dry period" calculated from lifetime production losses reported in

"Dry Period Length to Maximize Production Across Adjacent Lactations and Lifetime Production" divided by the quotient of one divided by your herd's annual turnover rate.

M. T. Kuhn, J. L. Hutchison, and H. D. Norman

Animal Improvements Program Laboratory, Agricultural Research Service, USDA, Beltsville, MD 20705

J. Dairy Sci. 89:1713–1722

Genetics Management

How Profit Opportunities are calculated

Assumptions

Unidentified Holstein sires receive AIPL's Predicted Transmitting Ability for Non-A.I sires born in the last eight years. These sires are then included in all of the above Genetic measures. Currently, these values are as follows:

	Net Merit
Non A.I. Holsteins (May 2007)	$85

USDA uses a default value of $12.70 per hundredweight to calculate NM$. The inputted POA milk price is divided by $12.70 to adjust genetic opportunities.

Net Merit$ is a lifetime value. To adjust to an annual Profit Opportunity, one is divided by the annual turnover percentage to calculate the average number of lactations for each cow.

The Profit Opportunity equation is:

((80th percentile NM$ - Your cow's average sire NM$) X Number of cows in your herd) / (1/Annual % turnover in your herd) X (Inputted price of milk/ $12.70))

Your dairy exceeds 80th percentile peer group level performance. This is not a high priority revenue opportunity area for you.

How RHA Milk per cow increase is calculated

((80th percentile NM$ - Your cow's average sire NM$) / (1/Annual % turnover in your herd)) / USDA milk price)

Your dairy exceeds 80th percentile peer group level performance. This is not a high priority revenue opportunity area for you.

Production Management

The Production Management Profit Opportunity is calculated using Federal Order 32 average prices for butterfat and protein multiplied times the herd's current Rolling Herd Average values. This equation takes into account the herd's solids values. The total income value is calculated and compared to

the 80th percentile peer sized herd performer.

Inputs used:

Butterfat price ($/Pound)	**$**	**1.16**
Protein price ($/Pound)	**$**	**2.20**
Number of cows		**790**

How Profit Opportunities are calculated…

(((80th percentile fat production - Your herd's fat production)X Fat price (per pound)) + ((80th percentile protein price (per Pound)) X Number of RHA cows

= 80th percentile income per cow - Your herd's income per cow

Your dairy exceeds 80th percentile peer group level performance. This is not a high priority revenue opportunity area for you.

Previous 4 month %, of daily milk sold

(Total AgSource milk weights - milk withheld) / Daily weight milk sold [4 month average]

AgSource total milk weight is after processing; daily milk sold calculated from bulk tank or tanker weights