

Automated Milking

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Welcome to Robotic Technology

General Comments:

1. Robotic Technology Works
 - a. Milkings / Day; Milk Quality; Components; Pg Rate
2. Need Equity – Cash Flow – Cow Flow
3. Reduced Labor Cost (off-set Robot payment?)
 - a. Double # Cows / FTE
4. Building Improvement Cost –
 - a. More cows and/or more Milk

General Comments

5. Trust – Dealers, Nutritionist, Technology
6. Barn layout is Important for Reducing Labor Cost
7. Get Connected – Experienced Folks
 - a. Robotic Producers, Dealer, Support Vendors
8. Develop a Team Concept – Production & Financial
9. Benchmarks – Know your numbers! (2 – 5 yr planning)
10. Visit / tour Robot Farms – If Cows are not your “Thing”, don’t think robotics will make things better.

Benchmarks

Benchmarks –

Debt to Asset Ratio	< 50%	
Loan to Value (RE)	< 65%	
# Milk / robot	+5000	
Total Cows / robot	65-70	
Debt / cwt. Of milk	Mid \$30's	} Combination
Debt Pymt / cwt	\$4.00	
labor \$ / cwt	\$1.75	

		Goal	Current Personal
1 Debt to Asset Ratio	Total Debt/Total Assets	<50%	
	spend up to current Equity		
	Ex \$2 million Equity - spend up to \$2 in new const.		
	Equity should be atleast equal to your age		
	Often new construction is valued at 85% of cost		
2 Debt / Cwt of Milk	Total Debt / Cwts of milk sold annually		
	Conventional	< \$20 / cwt.	
	Robotic	< \$35 / cwt.	
	% of Income from Dairy to pay for dairy debt		
	Ex 90% of Revenue is Dairy related then 90% of Debt paid by dairy		
3 Debt Pymts / Cwt of milk	Total Debt / Cwts of milk sold Annually		
	< 15% of annual revenue		
	Conventional	\$ 2.75	
	Robotic	\$ 4.00	
4 Labor Cost / Cwt of Milk	All Labor cost - including W. Comp, taxes, Unemployment etc		
	Conventional	\$ 3.00	
	Robotic	\$ 1.75	
Summary Targets			
	Conventional	Robotic	
Debt pymts	\$ 2.75	\$ 4.00	
Labor	\$ 3.00	\$ 1.75	
Total	\$ 5.75	\$ 5.75	

Cash Flow For Robots

3 year comparison of 2 robot herds and State-wide data for conventional herds

Data includes Labor and Management Labor Charge.

Net Returns – 3 years / Cow

Robots	Farm A	Farm B
Prod'n	26,624	26,192
Gross Revenue	\$6,141	\$6,396
(Dif \$255/hd)		
Vet	\$ 158	\$ 155
Labor	\$ 493	\$ 384
Feed	\$3,070	\$ 2,827
Bedding	\$ 114	\$ 88

Net Returns – Summary / Cow

Robots	Farm A	Farm B
Revenue	\$ 6,141	\$6,396
Total Expenses	\$ 5,795	\$5,094
Net Return	\$ 345	\$1,005
(Dif. \$660/ hd)		
Net Per Cwt.	\$ 1.30	\$ 4.97

Net Returns – 2012-14 – Cwt.

	Farm A	Farm B
Milk Sales	\$ 20.94	\$ 22.14
Vet	\$.59	\$.59
Labor	\$ 1.85	\$ 1.47
Feed	\$ 11.55	\$ 10.79
Bedding	\$.43	\$.37
Net Return	\$ 1.30	\$ 4.97

Net Returns – Comparison/Cwt.

	Farm A	Farm B	Conv.1073
Lbs. Sold	26,624	26,192	22,856
Milk Sales	\$ 20.94	\$ 22.14	\$19.45
Vet	\$.59	\$.59	\$.53
Labor	\$ 1.85	\$ 1.47	\$ 2.79
Feed	\$ 11.55	\$ 10.79	\$12.06
Bedding	\$.43	\$.37	\$.31
Net Return	\$ 1.30	\$ 4.97	\$.03

Net Returns – Comparison/Cwt.

	Farm A	Farm B	Top 20%
Lbs. Sold	26,624	26,192	24,465
Milk Sales	\$ 20.94	\$ 22.14	\$20.78
Vet	\$.59	\$.59	\$.58
Labor	\$ 1.85	\$ 1.47	\$ 3.38
Feed	\$ 11.55	\$ 10.79	\$10.77
Bedding	\$.43	\$.37	\$.26
Net Return	\$ 1.30	\$ 4.97	\$ 3.22

Conventional System 62 herds of Top 40 - 60% Profit Range				Robotic System Actual 2015 161 Cow Herd - 2 Robots			
	# Cows	Cow	Gross Revenue/Cow	Per CWT	# Cows	Cow	Gross Revenue/Cow
Revenue	160	\$ 23,000	\$ 143.75	\$ 11.07	161	\$ 27,400	\$ 169.56
Milk Sold	35%	\$ 18,071	\$ 112.94	\$ 8.63	35%	\$ 18,000	\$ 111.80
Culls %	35%	\$ 7,500	\$ 46.88	\$ 3.63	25%	\$ 7,500	\$ 46.88
Breeding Stock	0%	\$ 1,800	\$ 11.25	\$ 0.87	10%	\$ 2,325	\$ 14.44
Turnover Rate	35%	\$ -	\$ -	\$ -	35%	\$ -	\$ -
Bull Calves		\$ 233.00	\$ 1.46	\$ 0.11		\$ 240.00	\$ 1.49
Inventory Change		\$ -	\$ -	\$ -		\$ 290.00	\$ 1.80
Gross Revenue		\$ 4,852	\$ 30.22	\$ 2.33		\$ 5,862	\$ 36.41
Expenses							
Purchased Feed		\$ 1,027	\$ 6.42	\$ 0.49		\$ 1,355	\$ 8.42
Ruminal Feed		\$ 4,458	\$ 27.86	\$ 2.15		\$ 1,276	\$ 7.92
Total Feed		\$ 2,485	\$ 15.43	\$ 1.19		\$ 2,631	\$ 16.34
Breeding Vet		\$ 96	\$ 0.60	\$ 0.05		\$ 52	\$ 0.32
Vet		\$ 116	\$ 0.72	\$ 0.06		\$ 155	\$ 0.96
Supplies		\$ 365	\$ 2.28	\$ 0.18		\$ 355	\$ 2.20
Heifer Raising		\$ 100	\$ 0.62	\$ 0.05		\$ -	\$ -
Fuel		\$ 66	\$ 0.41	\$ 0.03		\$ 63	\$ 0.39
Custom		\$ 52	\$ 0.32	\$ 0.02		\$ 172	\$ 1.07
Repairs		\$ 131	\$ 0.82	\$ 0.06		\$ 293	\$ 1.82
Hired/Family Labor		\$ 649	\$ 4.05	\$ 0.31		\$ 311	\$ 1.93
Bedding		\$ 115	\$ 0.72	\$ 0.06		\$ 100	\$ 0.62
Utilities		\$ 80	\$ 0.50	\$ 0.04		\$ 162	\$ 1.01
Misc		\$ 95	\$ 0.59	\$ 0.04		\$ 53	\$ 0.33
		\$ -	\$ -	\$ -		\$ 326	\$ 2.02
		\$ -	\$ -	\$ -		\$ -	\$ -
		\$ -	\$ -	\$ -		\$ -	\$ -
Overhead Cost		\$ 26,250	\$ 163.44	\$ 12.55		\$ 125,500	\$ 779.50
Total Cost		\$ 4,424	\$ 27.64	\$ 2.13		\$ 5,092	\$ 31.58
Net		\$ 227	\$ 1.42	\$ 0.11		\$ 790	\$ 4.83

Establish Goals (local Producer)

	Goal	Current
Milkings/day	2.9	3.0
Refusals/day	>1	.8
Failed Milkings per day	<5	4
Free-time per Robot/day	1.5 Hrs	3 Hrs.
# Fetch Cows	5	10
Lbs. Milk per Robot/day	>5,000	5,002

June 2013 - RHA 28,008; DIM 175; SCC 163,000; PG 23
 May 2014 - RHA 28,866, DIM 173; SCC 135,000; PG 26
 2017 - RHA 28,000

- ### Current Results – (Producer Continues)
- Box Time – 6 min 36 sec
 - Treatment Time – 2 min 24 sec
 - Rest Feed – 4.5%
 - Rumination – 475 min
 - Milking's/Robot/Day – 173



Assessment Sheet – 28 herds

	Ave.	Range
Ave # Robots	3.0	1-6
Cows (total)	203.6	
Milking Cows	177.1	90-290
Cows / Box	60	46-68
DIM	180.8	150-195
Milk per cow	86.8	73-108
Milk / Box	5,174	3800-6210

Assessment Sheet – 28 herds

	Ave.	Range
Milkings	2.8	2.6-3.2
Box Time	7:02	6:20-7:50
Free Time	12.11%	9-26%
Fat %	3.56%	3.28-3.8%
Protein	2.96%	2.86-3.44%
SCC	181	73-270

- ### Failure Risk Factors
1. Finance Benchmarks & Cash Flow
 2. Cow Flow – Inadequate # of head – “grow into it”
 3. Barn Design – May limit potential
 4. Feed Consultant – Lack of Experience
 5. Intent of going Robotic – Dairy not a priority.
 6. Lack of Trust in Dealer & Support Team
 7. Robots won't make a poor dairymen a good one.

Commonalities-Profitable Dairy

1. Pg. Rates – Mid 20's
2. Keep calves alive
3. Growing the herd size or
4. Selling breeding stock
5. DIM – 160 - 170

13 Ways to Increase Milk/Profit

1. Cow Comfort – (1 hr. Laying = 3.8 lbs)
2. Feed Bunk Management – Shrink/quality
3. 3x Milking (8 lbs)
4. 4x Milking 1st 21 days – (6-10 lbs)
5. DIM – (160-170) (.17 lbs. lost over 165 d)
6. Healthy Immune System
7. Dry Period (40-60 days)
8. Transition Period
9. Water – (Min of 3 Linear inches/cow)
10. Record Analysis
11. Manipulating Light - (16-18 hrs = 4-6 lbs)
12. Heifers - (breed at 54", Age 23 mo)
13. SCC (1-2 lbs milk for ea. Drop of 50,000)

Brant Groen – FormAFeed

What I am learning

- Planning Time – 2-5 years
- Barn Design – Labor Efficient, Cow Comfort
- More Robots – Less Barn - 60 cows – 50 stalls?
- Manure Systems – Keeping it simple
- Follow Benchmarks –
- Camera's are a great tool

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