



Where Do We Start



Modeling Improvements to Internal Herd Growth & Predicting Gains



Tools



- ⌘ Spreadsheet developed by Dr. Normand St.Pierre, Professor of Animal Science, Ohio State University
- ⌘ Predict internal herd growth for a closed herd based on selected management factors.

Base Situation - Data



⌘ Representative Dairy Herd

⏏ Average culling rate(%/year)	36%
⏏ Average calving interval(months)	13.9
⏏ Average age at first calving(months)	26
⏏ Dead on arrival(% of births)	8%
⏏ Heifer cull and death rate(%/year)	10%
⏏ Initial number of mature cows	100
⏏ Initial number of heifers, 0-12 months	37
⏏ Initial number of heifers, 12+months	37

PRO-DAIRY
PRO-DAIRY

OSU - Closed Herd Animal Number Projection

Version 1.1

April, 1998

Inputs

Average Culling Rate (%/Year)	36.0
Average Calving Interval (months)	13.9
Average Age at First Calving (months)	26.0
Dead on Arrival (% of births)	8.0
Heifer Cull & Death Rate (%/year)	10.0
Initial Number of Mature Cows (#)	100
Initial Number of Heifers, 0-12 months (#)	37
Initial Number of Heifers, 12+ months (#)	37

Base Situation - IHG



- ⌘ Assuming factors stay the same for 10 years.
- ⌘ Herd size will shrink at -2.67% a year.
- ⌘ After ten years, projected herd size will be 76 cows.
- ⌘ With these parameters, this herd is not able to maintain herd size or grow and will need to buy additional animals to maintain herd size.

Output

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OSU - Closed Herd Animal Number Projection
 Department of Animal Sciences, The Ohio State University
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OSU - Closed Herd Animal Number Projection												Average Yearly Growth (%)
Department of Animal Sciences, The Ohio State University												
Animal Science Building, 2029 Fyffe Rd, Columbus, OH-43210												
	YEAR											
	0	1	2	3	4	5	6	7	8	9	10	
Cows	100	92.5	87.2	85.5	83.9	82.3	80.8	79.2	77.7	76.3	-2.67	
First Lactation		28.5	28.5	29.6	29.2	28.6	28.1	27.6	27.0	26.5		
% First Lactation		30.8	30.8	34.7	34.8	34.8	34.8	34.8	34.8	34.8		
Heifers, 0-12 Months	37	38.5	37.1	35.8	35.1	34.5	33.8	33.2	32.6	32.0	-1.45	
as % of Cows	37.0	41.7	41.8	41.9	41.9	41.9	41.9	41.9	41.9	41.9		
Heifers, 12+ Months	37	38.1	39.6	38.4	37.8	37.1	36.4	35.7	35.0	34.4	33.7	-0.92
as % of Cows	37.0	41.1	44.7	44.0	44.3	44.2	44.2	44.2	44.2	44.2		
Culled Cows		36.0	33.3	31.9	31.4	30.8	30.2	29.6	29.1	28.5	28.0	
Dead Female Calves		3.4	3.2	3.2	3.1	3.1	3.0	2.9	2.9	2.8	2.8	
Culled Heifers, 0-12 M		3.7	3.9	3.7	3.7	3.6	3.5	3.4	3.4	3.3	3.3	
Culled Heifers, 12+ M		3.7	3.8	4.0	3.8	3.8	3.7	3.6	3.6	3.5	3.4	
Heifers, as % of Cows	74.0	82.8	86.5	85.9	86.2	86.1	86.1	86.1	86.1	86.1	86.1	

Lower Culling Rate



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⌘ Lower culling rate from 36% to 28%.

⌘ Ways this may be done:

☑ Better control of mastitis.

☑ Higher pregnancy rate.

☑ Better cow comfort.

☑ Better transition cow management.

⌘ All other factors remain the same.

⌘ Maintain factors for 10 years.

Lower Culling Rate



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- ⌘ Herd growth = 3.23% a year.
- ⌘ Projected herd size after 10 years = 137 COWS.
- ⌘ An improvement of 62 cows over the base year.
- ⌘ Base year was -2.67%

Lower Calving Interval



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⌘ Lower calving interval to 12.5 months.

⌘ Ways this may be done:

☑ Lower voluntary wait period.

☑ Better heat detection.

☑ Hormone breeding programs.

☑ Etc.

⌘ All other factors remain the same

Lower Calving Interval



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- ⌘ Herd growth = -1.30% a year.
- ⌘ Projected herd size after 10 years = 88 COWS.
- ⌘ An improvement of 12 cows over base.
- ⌘ Herd still shrinking.
- ⌘ Base year was -2.67%

Lower Calving Age



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⌘ Lower calving age to 22 months.

⌘ Ways this be done:

☑ Early breeding.

☑ Ration balancing.

☑ Grouping of heifers.

☑ Targeted growth.

⌘ All other factors remain the same.

Lower Calving Age



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- ⌘ Herd growth = -1.12.% a year
- ⌘ Projected herd size after 10 years = 89 COWS.
- ⌘ An improvement of 13 cows over base.
- ⌘ Herd still shrinking.
- ⌘ Base year was -2.67%

Lower DOA



- ⌘ Lower dead on arrival to 4%.
- ⌘ Ways this could be done:
 - ☑ More frequent fresh pen checks.
 - ☑ SOP's for calf deliveries.
 - ☑ Calving ease sire's on first calf heifers.
- ⌘ All other factors remain the same

Lower DOA



- ⌘ Herd growth = -1.80% a year.
- ⌘ Projected herd size after 10 years = 83 COWS.
- ⌘ An improvement of 7 cows over base.
- ⌘ Still not able to maintain herd size.
- ⌘ Base year was -2.67%

Lower Heifer Culling Rate



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⌘ Lower heifer culling/death rate to 5%.

⌘ Ways this could be done:

☐ Less death loss in calves.

☐ Vet program for non-breeders.

☐ Minimizing areas for cattle injuries.

⌘ All other factors remain the same

Lower Heifer Culling Rate



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- ⌘ Herd growth = 0.19% a year
- ⌘ Projected herd size after 10 years = 102 COWS.
- ⌘ An improvement of 26 cows over base.
- ⌘ Generating herd growth over time.
- ⌘ Base year was -2.67%

Summary of Individual Changes



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<u>Factor</u>	<u>% Growth</u>	<u>Herd Size</u>
Base	-2.67	76
Culling Rate	3.23	137
Calving Interval	-1.30	88
Calving Age	-1.12	89
DOA	-1.80	83
Heifer Cull/Death Rate	0.19	102



Total Dairy Management

Power of Combined Changes



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- ⌘ Making improvements across all areas.
- ⌘ Multiplying the impact that any one individual area has.
- ⌘ Meet all five goals for performance:
 - ☑ Cull rate = 28%
 - ☑ Calving interval = 12.5 months
 - ☑ Calving age = 22 months
 - ☑ DOA = 4%
 - ☑ Heifer cull rate = 5%

Power of Combined Changes



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- ⌘ Herd growth = 10.53% a year
- ⌘ Projected herd size after 10 years = 272 COWS.
- ⌘ An Improvement of 196 cows over base.
- ⌘ Generating significant herd growth over time.
- ⌘ Base year was -2.67%

Capturing Value



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- ⌘ Don't have to grow.
- ⌘ Have the ability to capture the value in different ways.
- ⌘ IHG is important because it gives you options to capture the value.
- ⌘ How would you capture the value if you could grow like this?

Power of Combined Changes



- ⌘ Can only make four of the five changes, cull rate stays at 36%.
- ⌘ Still generate 4.33% growth.
- ⌘ Projected herd size after 10 years = 153 COWS.
- ⌘ Still generating growth.
- ⌘ Base year was -2.67%

Where to Start



- ⌘ What is the limiting factor within your business?
- ⌘ What can you have the fastest impact on?
- ⌘ What is the easiest change to make?
- ⌘ What change has the greatest potential to work.
- ⌘ What utilizes the least amount of:
 - ☐ Money?
 - ☐ Management Time?
 - ☐ Labor?
- ⌘ What will have the biggest impact?

Playing With The Numbers



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- ⌘ What scenarios do you want to look at?
- ⌘ How fast can herds grow?

PROGRAM

Thank you for participating in the 2005 "Internal Growth" workshop series

We sincerely hope something was gained for your time and attention. Please help us by filling out this short evaluation. Your feedback helps us meet our goals for continuous improvement!

Were you surprised by your herd's internal growth? ☐ Yes ☐ No

Which of these segments helped you better understand where some potential new profit streams might be found in your business? (check all that apply)

- ☐ "Capturing the Economic Value"
- ☐ Use of the Case Farm to put a real situation to the various topics
- ☐ "Assessing, Improving and Minimizing "Broken" Cows"
- ☐ "Many Cows "Break" in the Transition - Possible "Fixes"
- ☐ "Optimizing Replacement Enterprise for Profitable Internal Growth"
- ☐ "Farm-Specific, Goal-Driven Reproductive Management"
- ☐ "Where do we start? Modeling Improvements to IG and Predictable Gains"

What was the most important thing you learned today?

What suggestions for improving this workshop would you have?

What change or changes do you intend to implement as a result of today's workshop?