



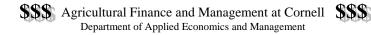
#### Where Do We Start



#### Modeling Improvements to Internal Herd Growth & Predicting Gains









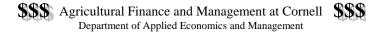


Spreadsheet developed by Dr. Normand St.Pierre, Professor of Animal Science, Ohio State University

Predict internal herd growth for a closed herd based on selected management factors.





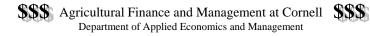




#### **Base Situation - Data**

#### **Representative Dairy Herd** △ Average culling rate(%/year) 36% $\triangle$ Average calving interval(months) 13.9 $\triangle$ Average age at first calving(months) 26 $\triangle$ Dead on arrival(% of births) 8% $\square$ 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







#### SU - 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











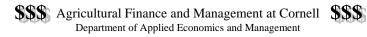
#### **Base Situation - IHG**

Sector: Sec

- #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

·	PRO-DAIF	DAIN	al Science I	Building, 20	)29 Fyffe R	d, Columbu	us, OH-432	210				Average Yearly
		RO-DAIRY PRO-DAIRY			Y	EAR						Growt
	0	D-DAU	RY	3	4	5	6	7	8	9	10	(%)
Cows	100	92 PRO	DAV	87.2	85.5	83.9	82.3	80.8	79.2	77.7	76.3	-2.67
First Lactation % First Lactation		28.5 30.8	PRO-DAIRY PRO-DAIRY	RY _0.5	29.6 34.7	29.2 34.8	28.6 34.8	28.1 34.8	27.6 34.8	27.0 34.8	26.5 34.8	
Heifers, 0-12 Months	37	<b>38.5</b>		PRO-DAIRY	35.8	<b>35.1</b>	<b>34.5</b>	<b>33.8</b>	<b>33.2</b>	<b>32.6</b>	<b>32.0</b>	-1.4
as % of Cows	37.0	41.7	41.8	41.9	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	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	





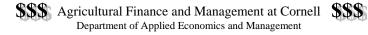




## Lower Culling Rate

 $\Re$ 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.  $\Re$  All other factors remain the same. High Hamilton Hamil







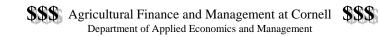
## Lower Culling Rate

 $\Re$ Herd growth = 3.23% a year.

- ₩Projected herd size after 10 years = 137 cows.
- ∺An improvement of 62 cows over the base year.







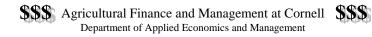


## Lower Calving Interval

Hower 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







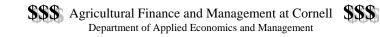
## Lower Calving Interval

 $\Re$ Herd growth = -1.30% a year.

- #Projected herd size after 10 years = 88
  cows.
- #An improvement of 12 cows over base.#Herd still shrinking.





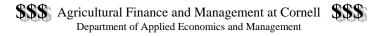




## Lower Calving Age

 $\Re$ Lower calving age to 22 months. **#**Ways this be done:  $\triangle$  Early breeding.  $\square$ Ration balancing. Grouping of heifers. △Targeted growth.  $\Re$  All other factors remain the same.







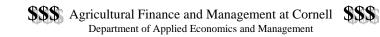
## Lower Calving Age

 $\Re$ Herd growth = -1.12.% a year

- Projected herd size after 10 years = 89
  cows.
- #An improvement of 13 cows over base.#Herd still shrinking.









# Lower DOA

 $\mathbf{H}$ Lower dead on arrival to 4%.

**#Ways this could be done:** 

- △ More frequent fresh pen checks.
- SOP's for calf deliveries.
- $\bigtriangleup$ Calving ease sire's on first calf heifers.
- **#**All other factors remain the same











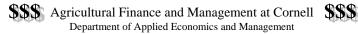
# Lower DOA

Herd growth = -1.80% a year.

- <sup>₭</sup> Projected herd size after 10 years = 83 COWS.
- Harpha An improvement of 7 cows over base. Still not able to maintain herd size.









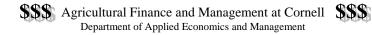


### Lower Heifer Culling Rate

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









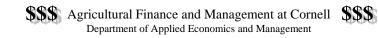
#### Lower Heifer Culling Rate

∺Herd growth = 0.19% a year

- Projected herd size after 10 years = 102
  cows.
- $\Re$  An improvement of 26 cows over base.
- **#**Generating herd growth over time.





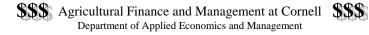


# Summary of Individual Changes

<u>Factor</u>	% Growth	Herd Size
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

Lota: L/aim







#### Power of Combined Changes

**#**Making improvements across all areas.

Multiplying the impact that any one individual area has.

**#**Meet all five goals for performance:

```
\triangleCull rate = 28%
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 $\Box$ Calving interval = 12.5 months

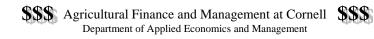
Calving age = 22 months

 $\square DOA = 4\%$ 

△Heifer cull rate = 5%









#### Power of Combined Changes

#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.









## Capturing Value

Bon't have to grow.

# Have the ability to capture the value in different ways.

- HG is important because it gives you options to capture the value.
- How would you capture the value if you could grow like this?



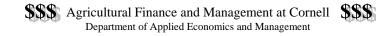


#### **Power of Combined Changes**

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.





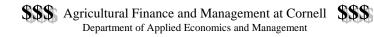


#### Where to Start

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?







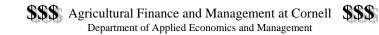
## **Playing With The Numbers**

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









#### 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? Uyes UNo

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?