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INTRODUCTION

The diversity within Wisconsin's dairy industry contributes a wide variety of viewpoints regarding dairy operation, modernization, and growth. As a result, vast differences in information and outreach needs exist among dairy producers. To fully accommodate the needs of those they serve, members of both research and extension communities must have a thorough understanding of current demographics and trends within their specific discipline. Results from the Wisconsin Dairy Business and Production Survey provide valuable insight on the differences in information and outreach needs of dairy producers planning to expand and those not planning to expand their operations.

A Dairy Expansion Decision Support System (DE-DSS) tool was created in response to the informational needs of dairy producers. The DE-DSS represents a powerful risk management tool used to simulate "what-if" scenarios regarding production, management, and expansion. A case study represents the application of this tool to a situation in which questions surrounding dairy expansion are explored.

OBJECTIVES

- Facilitate all aspects of the Wisconsin Dairy Business and Production Survey.
- Identify and contrast differences in information and outreach needs between dairy producers planning to expand and those not planning to expand.
- Showcase application of the DE-DSS through a case study.

MATERIALS AND METHODS

- The Wisconsin Dairy Business and Production Survey was administered to a sample of 1,000 randomly selected Wisconsin dairy producers.
- Two separate mailings (September 2009 & January 2010) were employed to achieve a combined 30% response rate.
- Results were categorized into two groups: dairy producers planning to expand their operations and those not planning to expand their operations.
- Using the DE-DSS, simulations were conducted and outcomes compared for exploring aggressive dairy expansion vs. growing a herd naturally from within under identical market conditions over a period of 55 months.

RESULTS

Table 1. General demographics of survey respondents.

Characteristic	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Age (Mean)		
Age of Respondent*	47.1 (SD 10.7)	51.2 (SD 10.7)
Gender (%)		
Male	94.8	95.5
Female	5.2	4.5
Experience (Mean)		
Years Farming*	25.1 (SD 13.0)	29.1 (SD 12.1)
Education (Mean)		
Years of Formal Education ^(NS)	12.8 (SD 2.2)	12.4 (SD 2.1)
Education (%)		
Ph.D.	0	0.5
M.S.	1.3	0
B.S.	18.7	5.5
4 Year College	1.3	2.3
Technical College	20.0	19.7
High School	42.7	53.2
Other (%)		
8 th Grade	9.3	10.1
Farm & Industry Short Course	5.3	3.2
Night Classes	0	1.8
Other	1.3	3.7
Total Respondents (%)	33.1	66.5

* Denotes significant difference between means at (P<0.05) for t-test
^(NS) Denotes no significant difference between means at (P<0.05) for t-test
 (SD) Denotes standard deviation from the mean

Figure 1. Top three reasons for and against expansion.

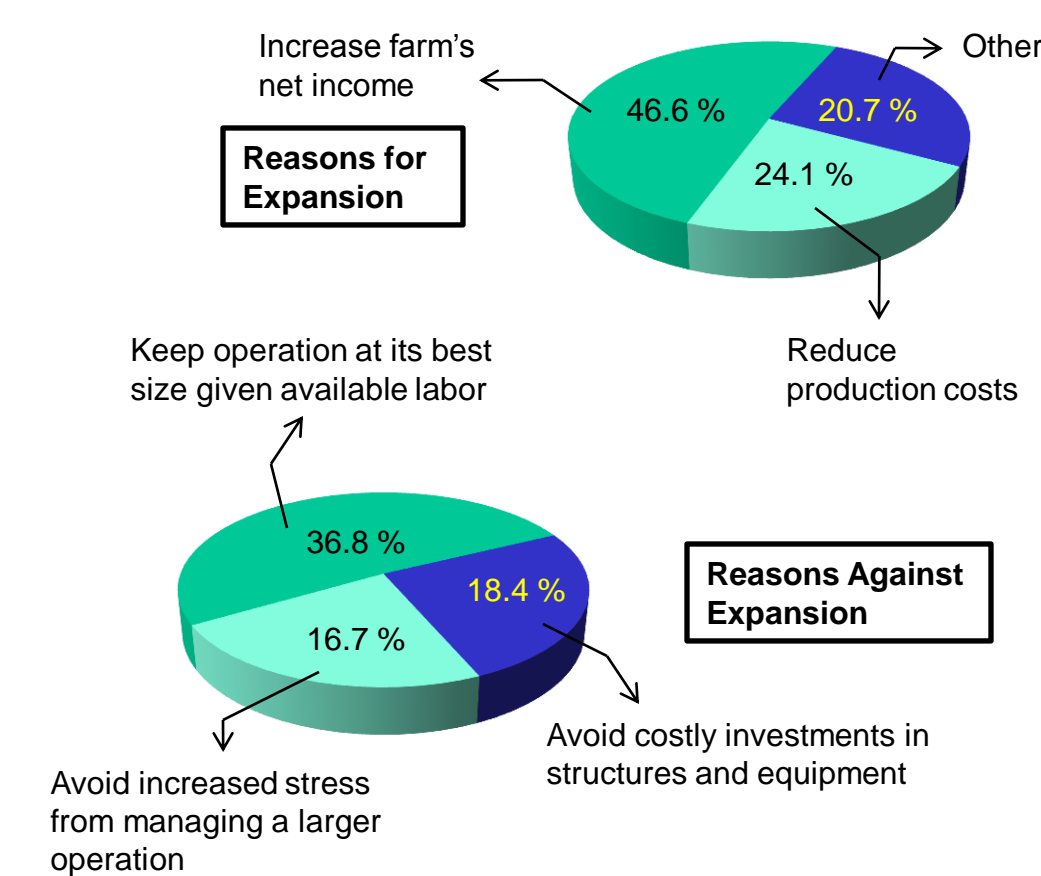


Figure 2. Three most limiting factors to improve or grow an operation.

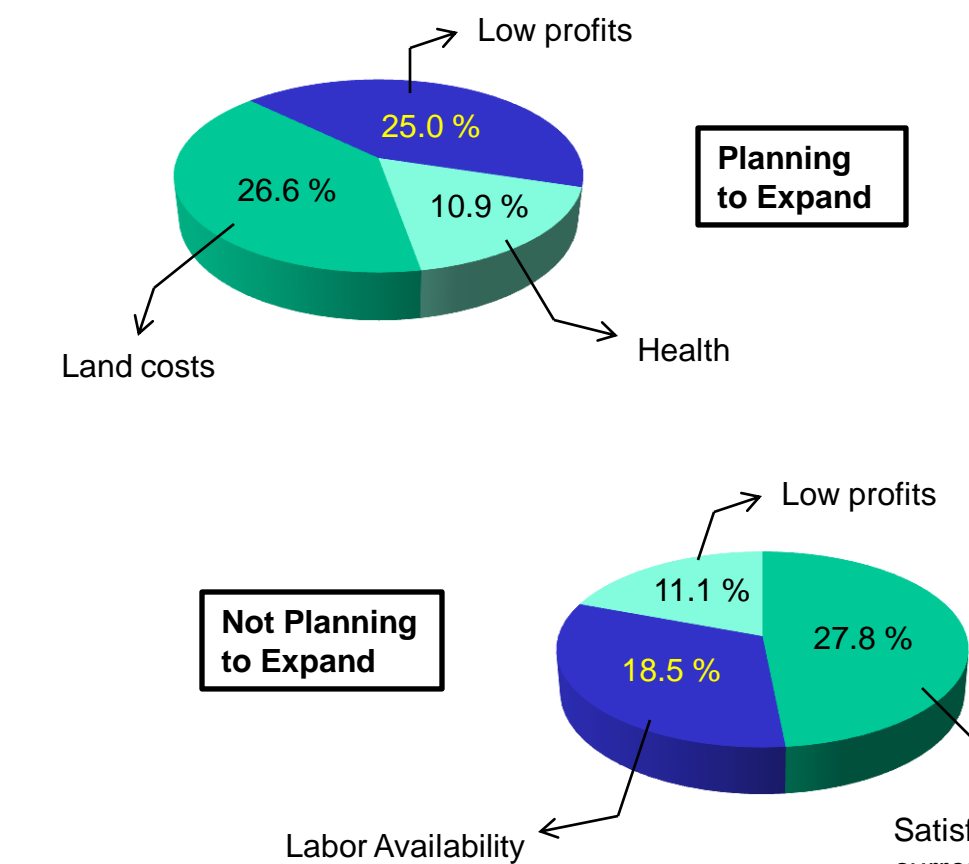


Table 2. General farm characteristics related to dairy production.

Farm Enterprise	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Dairy: Milking Herd		
# of Cows*	247.4 (SD 363.0)	82.1 (SD 117.0)
Rolling Herd Avg. (RHA, kg/cow/yr)	9,864 (SD 2,243)	9,363 (SD 1,746)
Milkings per Day (%)		
2x	72.0	94.5
3x	28.0	5.5
Dairy: Recordkeeping		
Actively Keep Records (%)		
Yes	94.8	90.2
No	5.2	9.8
Own A Computer (%)		
Yes	60.5	45.0
No	39.5	55.0
Records Program Used (%)		
DairyCOMP 305	41.7	10.7
Scout	6.3	3.6
PC Dart	2.1	3.6
AgSource DM	12.5	8.3
Other (%)		
QuickBooks	6.5	5.6
Quicken	0	1.9
Ag Manager	1.3	0.9
Excel	0	1.4
Other	14.3	19.1
Dairy: Milking System (%)		
Stall barn w/pipeline	51.9	69.1
Flat Parlor in Existing Building (%)		
Walk-through	0	0.9
Back-out	0	0.5

Table 2 (Cont'd). General farm characteristics related to dairy production.

Farm Enterprise	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Pit Parlor in Existing Building (%)		
Auto-tandem	0	0
Herringbone	8.9	3.2
Parallel	6.3	3.6
Rotary	0	0
Swing	5.1	2.3
Pit Parlor in New Building (%)		
Auto-tandem	0	0.5
Herringbone	6.3	3.2
Parallel	15.2	3.7
Rotary	1.3	0
Swing	0	2.3
Other (%)		
By hand	1.3	3.2
Stall barn w/buckets	1.3	4.5
Robots	1.3	0.9

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 (SD) Denotes standard deviation from the mean

Table 3. Bedding and manure management profile of WI dairy farms.

Farm Enterprise	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Dairy: Primary Bedding Type (%)		
Sand	30.8	15.2
Straw/Cornstalks	52.6	74.0
Compost	0	0
Manure Solids	2.6	0.5
Other	0	0
Dairy: Manure Handling System (%)		
Skid Steer/Tractor Scrape	55.3	35.5
Automatic Scrapers	19.7	2.7
Flush	0	0.3
Other (%)		
Gutter w/barn cleaner	19.7	25.6
By Hand	2.7	4.1
Other	2.6	1.0
Dairy: Manure Storage Length (%)		
Daily Haul	28.2	44.7
Short-term (0-60 Days)	14.1	11.2
Long-term (60+ Days)	57.7	44.2
Dairy: Manure Storage Size (Mean)		
Cubic Meters	1,184.7 (SD 1638.5)	463.3 (SD 711.4)
Liters	13,941,241 (SD 17,867,043)	4,338,951 (SD 7,817,482)
Storage Liner Type (%)		
Concrete	41.8	49.6
Earth/Clay	47.3	41.9
Synthetic	9.1	7.7
Other	1.8	0.9

(SD) Denotes standard deviation from the mean

Table 4. Description of cropping systems on WI dairy farms.

Farm Enterprise	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Crops: Hectares (Mean)		
Hectares Owned ^(NS)	124.3 (SD 155.5)	106.0 (SD 111.2)
Hectares Rented *	127.2 (SD 198.7)	46.7 (SD 67.6)
Crops: Nutrient Management Plan? (%)		
Yes	85.9	59.0
No	14.1	41.0
Crops: Hectares (Mean)		
Corn Grain	46.0 (SD 62.5)	30.9 (SD 44.5)
Corn Silage	70.1 (SD 116.6)	20.7 (SD 33.6)
Soybeans	17.2 (SD 54.0)	12.9 (SD 26.1)
Alfalfa	88.7 (SD 97.0)	43.3 (SD 40.6)
Pasture/Grazing	12.1 (SD 18.3)	14.9 (SD 23.5)
Other (Mean)		
Wheat	17.5 (SD 10.0)	14.5 (SD 13.9)
Winter Wheat	27.0 (SD 12.4)	27.9 (SD 14.5)
Oats	9.3 (SD 14.0)	8.5 (SD 4.6)
Barley	19.3 (SD 27.7)	9.4 (SD 12.4)
Grassy Hay	10.7 (SD 6.6)	35.1 (SD 23.6)
Peas	14.2 (SD 0)	15.7 (SD 12.6)
Snap Beans	0 (SD 0)	60.7 (SD 24.0)
Other	8.1 (SD 0)	12.4 (SD 12.0)

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Table 5. Areas of interest among dairy producers.

Information Needs	Planning to Expand (N=78)	Not Planning to Expand (N=222)
Dairy Production/Management (%)		
Genetics	15.2	15.5
Reproduction	30.3	36.0
Heifers	16.7	16.1
Calves	34.8	23.6
Herd Management	45.5	26.1
Employee Management	25.8	10.6
Milk Quality	21.2	17.4
Transition Cows	25.8	20.5
Expansion	42.4	4.3
Financial Planning	48.5	30.4
Other	10.6	23.6
Financial Information (%)		
Liquidity Measures	33.3	21.3
Solvency Measures	41.7	12.8
Profitability Measures	54.2	34.0
Repayment Capacity	41.7	20.2
Financial Efficiency	54.2	40.4
Other	1.4	3.2
None	15.3	38.8

Table 6. Likelihood of improvements on expanding dairy farms.

Likelihood to Make Changes/Improvements	Somewhat Likely (%) (N=78)	Very Likely (%) (N=78)
Increase Herd Size by more than 20%	41.0	25.6
Improve Milking Facilities	32.1	23.1
Improve Manure Storage	16.7	19.2
Improve Calf/Heifer Facilities	41.0	26.9

Table 7. Future plans of expanding dairies.

Plans Relating to Expansion	% (N=78)
Timetable to Commence Expansion	
0-1 Years	44.7
1-2 Years	14.5
2-3 Years	15.8
3-4 Years	6.6
4-5 Years	5.3
Not Sure	13.2
Method of Expansion	
Grow from Within	89.7
Purchase Youngstock	11.5
Purchase Bred Heifers	33.3
Purchase Cows	17.9
Not Sure	3.8

Figure 3. Defining criteria for DE-DSS simulation.

Dairy Expansion – Decision Support System (DE-DSS) Simulation

Beginning Herd Structure
 Cows Milking: 171
 Cows Dry: 29
 Total Cows: 200
 Heifers (1-24 mos): 211

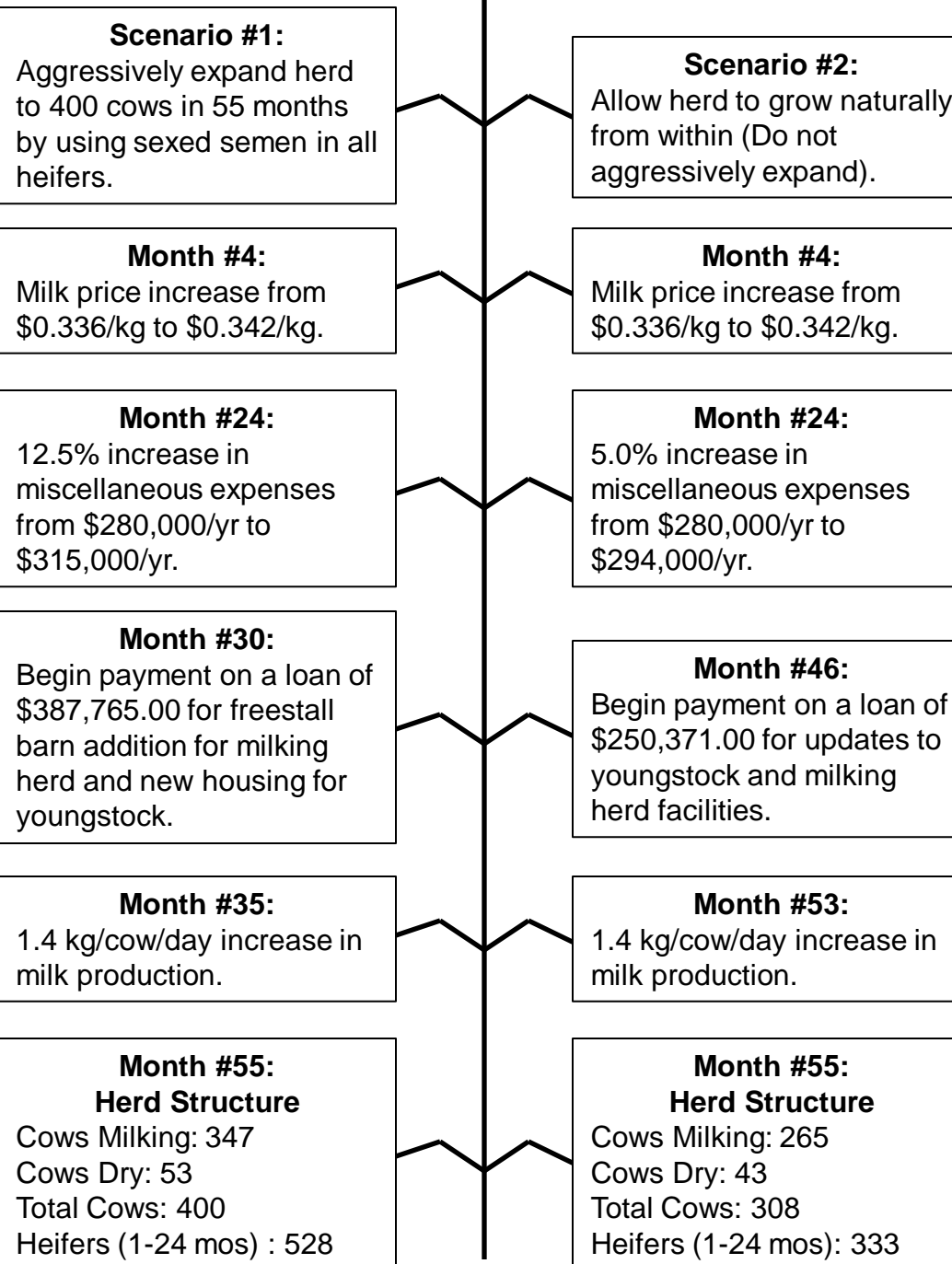


Table 8. Comparison of total net present values (US \$) over 55 months.

Scenario	Present Value of Cash Flows	% Difference
1	\$528,391	9.0%
2	\$480,986	

CONCLUSIONS

- The characteristics of dairy producers planning to expand are often different from those not planning to expand:
 - Producers planning to expand are younger and have less farming experience than producers not planning to expand.
 - Producers planning to expand have larger herd sizes and rent more hectares than producers not planning to expand.
- A great deal of information needs to be processed before, during, and after an aggressive herd expansion – this provides several opportunities for application of risk management tools, such as the Dairy Expansion Decision Support System created by the UW Dairy Management Team.
- Through simulation of two scenarios, viable growth strategies were explored for a 200-cow dairy using the DE-DSS
- Aggressive herd expansion using sexed semen for heifers produced a 9.0% higher net present value over the course of 55 months compared to natural herd growth under identical market conditions
- Dairy producers need more information regarding finances and business-related topics.

A detailed user guide, instructional video, and free download of the DE-DSS are available in the "Tools" section of the UW-Dairy Management website: DairyMGT.info.



Dairy Management UW-Extension University of Wisconsin-Madison