

A comparison of feeding strategies on Wisconsin organic dairy farms



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Introduction

- Limited research focuses on US organic dairy farming general herd management and feeding practices
- Implementation of the NOP pasture rule requirements and natural phenomena create challenges for organic dairy farmers when making feeding management decisions

Objectives

- Group and describe WI organic dairy farms based on their general farm characteristics and feeding strategies
- Assess productivity and profitability of farm systems studied

Materials & Methods

Sampling

- Two Wisconsin's Department of Agriculture Trade and Consumer Protection directories were compared for a list of potential farm participants.
 - 2009 WI Active Dairy Producers list
 - WI Certified Organic Producers list
- All farms on the resulting list of Wisconsin certified organic dairy farmers received an invitation to participate in the project.

Surveying

- Willing farmers were surveyed on-farm, face-to-face, with a traditional paper questionnaire, by one of the project's two graduate students between January 2011 and January 2012.
- The 44-page survey contained sections on general farm characteristics, feeding, pasture management, and economics.

Clustering

- A non-hierarchical clustering method using nine variables related to general farm characteristics, feed supplementation, and grazing was applied to partition the farms into four clusters (Table 1).

Results

Table 1. Cluster and total sample medians (interquartile ranges) for the clustering and evaluated variables

Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Total
	(n=8)	(n=5)	(n=32)	(n=24)	(n=69)
	mdn ¹ (iqr) ²	mdn (iqr)	mdn (iqr)	mdn (iqr)	mdn (iqr)
Clustering					
Herd size, number of cows	129 ^a (56)	50 ^b (35)	41 ^b (14)	43 ^b (51)	45 (41)
Proportion Holstein	0.90 ^a (0.14)	0.00 ^b (0.00)	0.89 ^a (0.25)	0.06 ^b (0.22)	0.71 (0.89)
Average number of milkings per day	2.0 ^a (0.0)	1.5 ^b (0.0)	2.0 ^a (0.0)	2.0 ^a (0.0)	2.0 (0.0)
Number of cow feeding groups	2.0 ^a (0.25)	1.0 ^b (0.0)	2.0 ^a (1.0)	2.0 ^b (1.0)	2.0 (1.0)
Number of supplemented feeds	8.0 ^a (2.3)	2.0 ^b (2.0)	6.0 ^{ac} (2.0)	6.0 ^c (1.3)	6.0 (2.0)
Concentrates fed, lbs/lactating cow per day	12.6 ^a (6.2)	5.9 ^{ab} (6.0)	9.1 ^a (3.1)	4.2 ^b (5.8)	7.9 (5.8)
Proportion pasture	0.22 ^a (0.20)	1.00 ^b (0.00)	0.31 ^a (0.14)	0.49 ^c (0.28)	0.36 (0.24)
Grazing rotation frequency, days	1.25 ^a (1.25)	0.50 ^b (0.50)	2.00 ^a (3.25)	0.50 ^b (0.50)	1.00 (2.00)
Length of grazing season, days	203 ^a (21)	216 ^a (24)	176 ^b (36)	199 ^b (25)	189 (39)
Evaluated					
RHA ³ , lbs/lactating cow per year	15,150 ^a (2,286)	8,000 ^b (1,725)	16,425 ^a (3,863)	11,931 ^c (3,877)	14,500 (5,550)
IOFC ⁴ , \$/lactating cow per day	10.17 ^a (2.99)	5.07 ^{ab} (2.62)	8.59 ^a (2.66)	5.83 ^b (2.66)	7.73 (4.07)

¹ mdn = median

² iqr = interquartile range

³ Rolling herd average (RHA)

⁴ Income minus feed costs (IOFC) for January through November for clusters 1, 3, and 4 and May through November for cluster 2

^{abc} Kruskal-Wallis test ($P \leq 0.001$). Medians within a row not sharing a common superscript differ, Wilcoxon test with Bonferroni correction ($P < 0.05$)

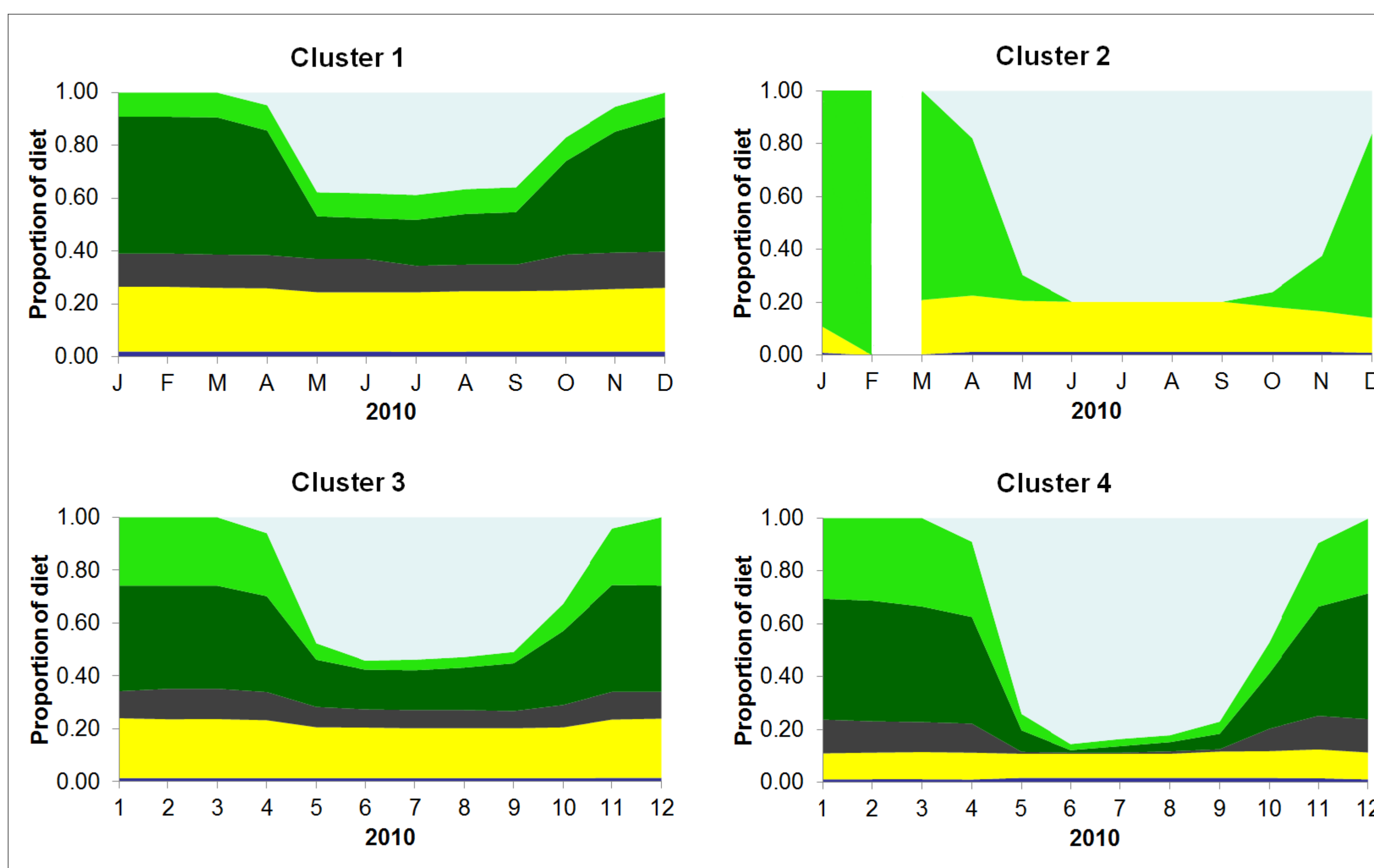


Figure 2: Proportion of each ingredient type in the surveyed farms lactating cows' diets by cluster. Proportion pasture was estimated using the subtraction method. The white space for February in cluster 2 signifies that there were no lactating cows on its farms during that month.

Conclusions

- Wisconsin organic dairy farms differed tremendously in structure and feeding strategies. Farms that supplemented more feed had larger RHA and higher IOFC.
- Research evaluating other farm costs needs to be conducted before assessing farm profitability at the whole-farm level.

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