



Results of Organic Dairy Economic Survey

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Objectives

Today discussion

Wisconsin organic dairy farms

General characteristics
Emphasis on feeding



Productivity and profitability

Related to feeding strategies

Materials and methods

Sampling

**Wisconsin certified
organic producers**

2009 DATCP list

**Wisconsin certified
organic dairy producers**

n = 554

**Wisconsin active dairy
producers**

2009 DATCP list

**All invited to participate
in study**

Study year = 2010

Materials and methods

Participating farms

70 Wisconsin certified organic dairy producers
Surveyed between January 2011 and January 2012

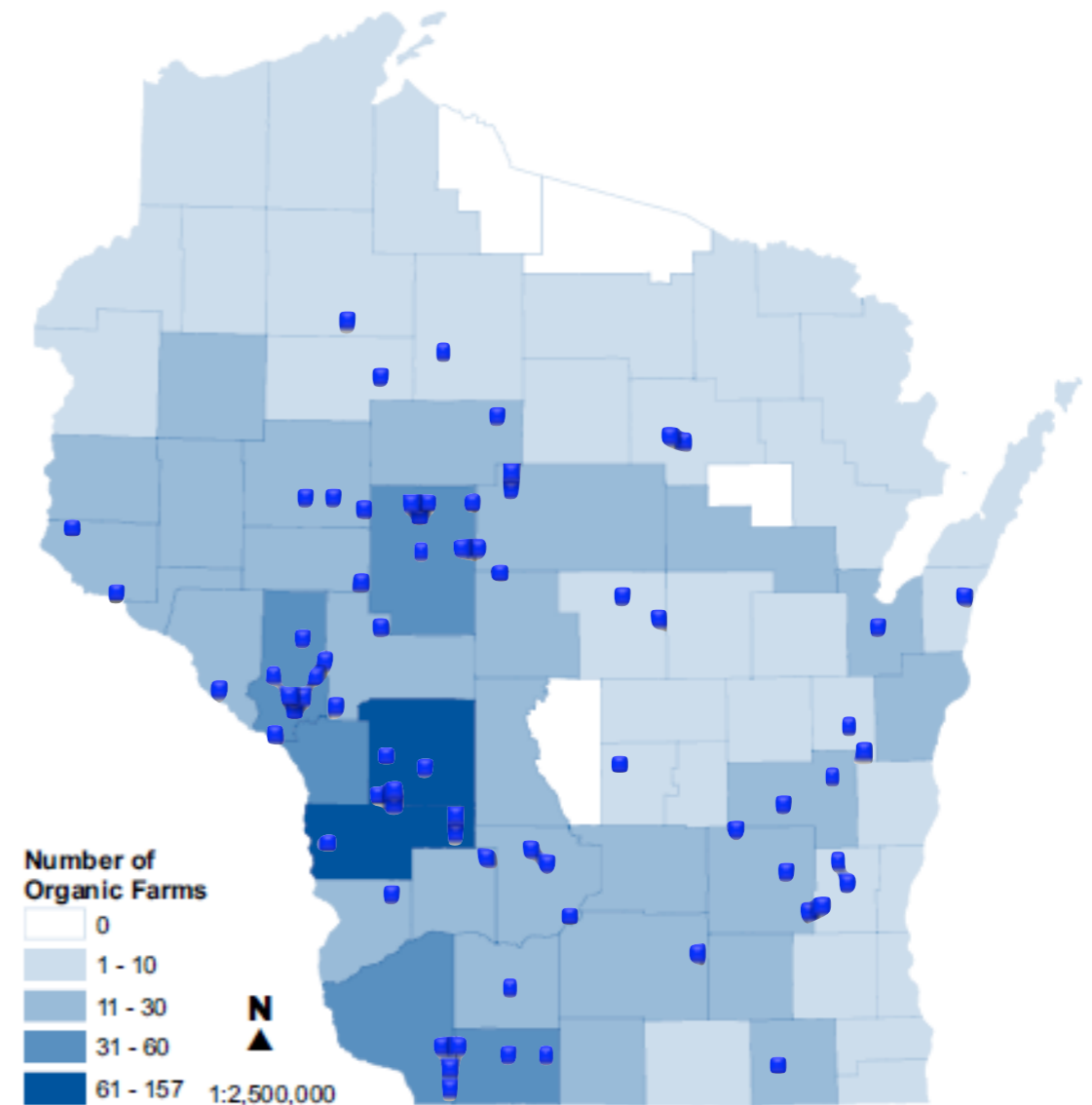


Figure 2. Distribution of certified organic farms in Wisconsin.

Farm locations geocoded from addresses provided by a 2009 Wisconsin DATCP survey of seven organic certifiers. Map by Larry Cutforth.





Materials and methods


Survey instrument

**53 pages long containing
9 sections**

1. Business structure
2. People on farm
3. Dairy herd
4. Feeding
5. Pasture
6. Crops
7. Nutrient management
8. Economic parameters
9. Farm satisfaction

**Feeding Strategies on Wisconsin Dairy Farms:
Economic, Production, and Environmental Outcomes**





Participation in the study is **voluntary**. All answers to questions in this survey will be kept *strictly confidential*, and the results will only be used in statistical summaries. Individual farm information will not be identified in any publication. University of Wisconsin-Madison, Social and Behavioral Sciences, IRB Protocol Number SE-2009-0401.

Consent forms need to be signed prior to the start of the interview

We welcome your comments and suggestions
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Contact: Brad Barham 608-265-3090 barham@aae.wisc.edu

ENUMERATOR: _____

DATE OF SURVEY: _____

SURVEY STARTING TIME: _____ SURVEY ENDING TIME: _____

FARMER ID#: _____

Materials and methods

Survey protocol

Face to face interview

- Lasted between 3 and 6 hours
- 2 students



M. Dutreuil



C. Hardie



General characteristics

Wisconsin organic dairy farms

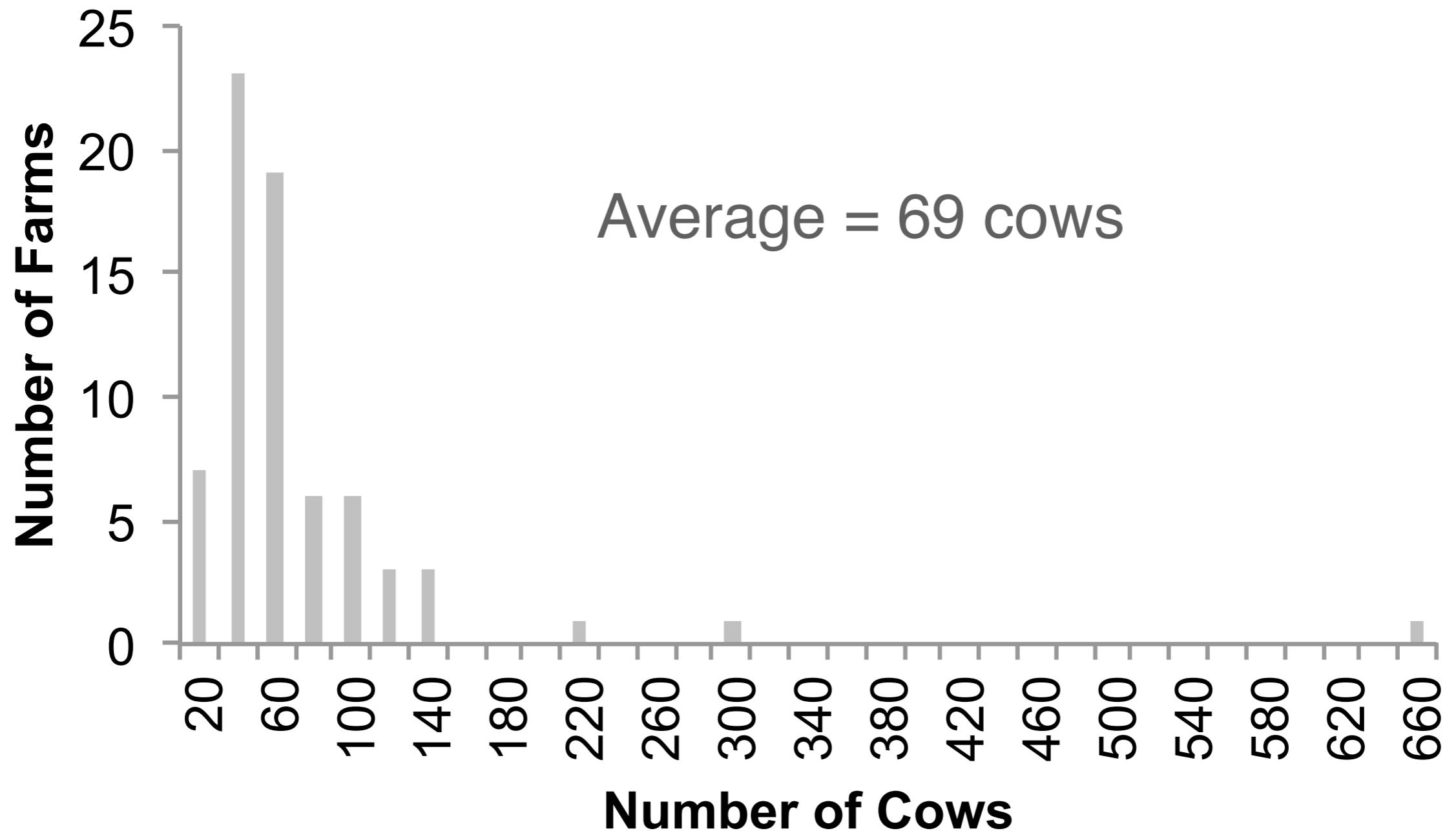
Table 2.1. Land operated and owned by the surveyed Wisconsin organic dairy farms

	Minimum	Maximum	Median	Mean	SD
Total land operated (ha)	17.8	786	85.5	118	124
Owned, %	0.0	100	69.9	67.0	29.9
Cropland operated (ha)	0.0	640	49.2	77.6	110
Owned, %	0.0	100	70.7	61.1	37.4
Pasture operated (ha)	6.1	146	27.3	40.8	31.4
Owned, %	0.0	100	100	77.5	32.9
Woodland ¹ (ha)	0.0	81.0	4.9	13.3	18.6

¹Only owned woodland was considered in the survey. Also, one farm did not have woodland data available.

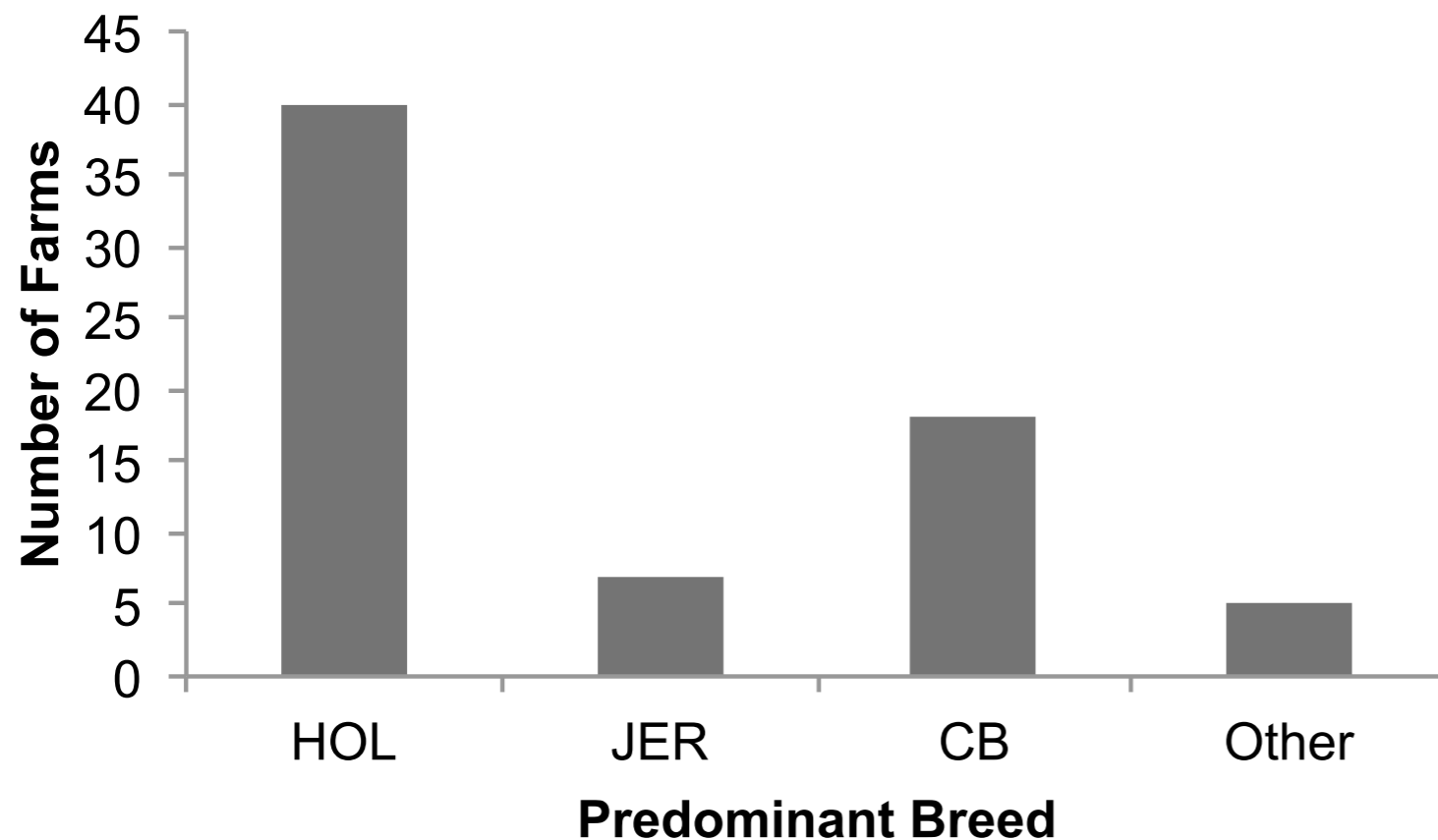
General characteristics

Wisconsin organic dairy farms

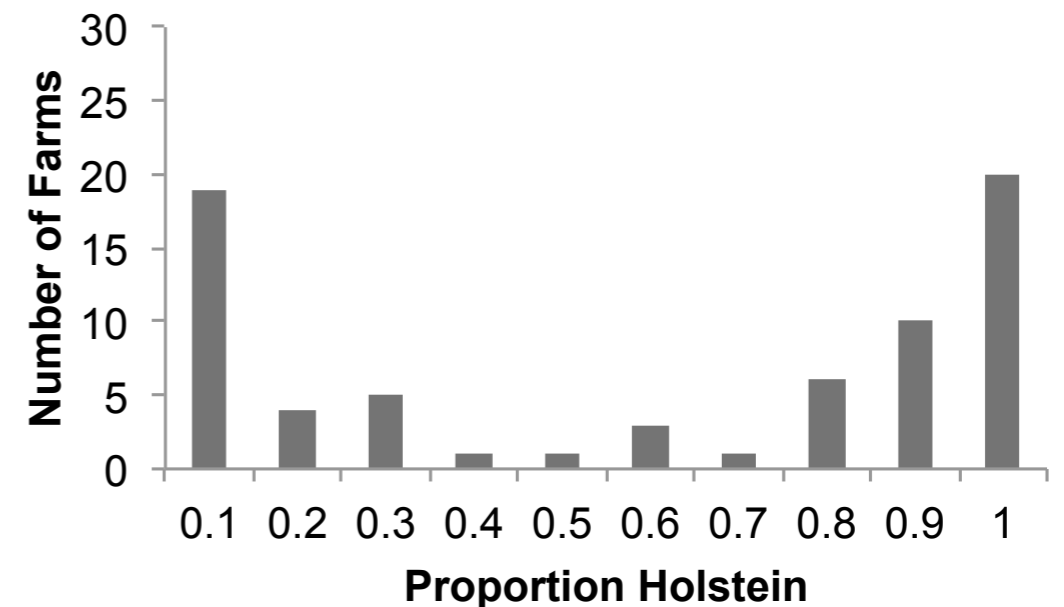
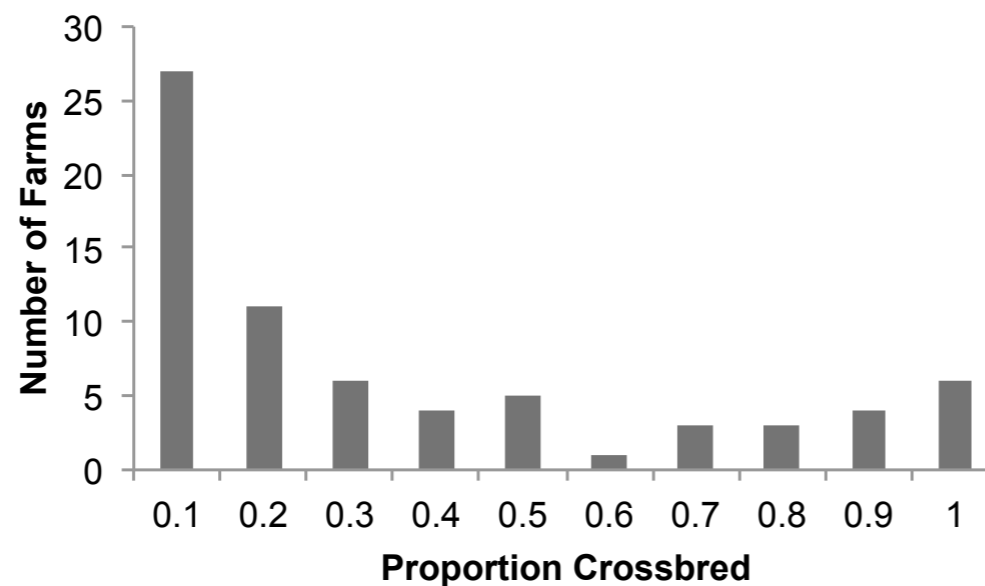


General characteristics

Wisconsin organic dairy farms



HOL = Holstein
JER = Jersey
CB = Crossbred



General characteristics

Wisconsin organic dairy farms

Table 2.2b. Milk production characteristics of the surveyed organic dairy farms^{1,2}

Trait	%	Minimum	Maximum	Median	Average	SD
Milk production (kg/cow per year)	-	2,356	10,785	6,606	6,368	1,860
(lbs/cow per year)	-	(5,190)	(23,755)	(14,550)	(14,027)	(4,097)
Fat content (%)	-	3.47	5.19	3.88	3.98	0.34
Protein content (%)	-	2.76	3.67	3.04	3.09	0.20
SCC (x1,000 cells/ml)	-	87.8	707	245	250	99.8
Length of dry period (d)	-	35	140	60	62.9	15.8
Used DHIA (% of farms)	50.9	-	-	-	-	-

¹Fat and protein concentrations and SCC are for January – November.

²Thirteen farms did not have %fat, %protein, SCC, or DHIA data available.

General characteristics

Wisconsin organic dairy farms

Table 2.2d. Feeding characteristics of the surveyed organic dairy farms¹

Trait	%
Fed mixed feed (% of farms)	32.9
Fed concentrates (% of farms)	87.1
Fed soybeans (% of farms)	17.1
Fed corn silage (% of farms)	50.0
Fed kelp (% of farms)	48.6

Table 2.2e. Grazing characteristics of the surveyed organic dairy farms¹

Trait	%	Minimum	Maximum	Median	Average	SD
Used leader-follower system (% of farms)	27.5	-	-	-	-	-
Grazed annual crops (% of farms)	8.7	-	-	-	-	-
Occupancy period (d)	-	0.21	30	1.00	2.25	2.27
Length of grazing season (d)	-	123	257	188	189	29.0

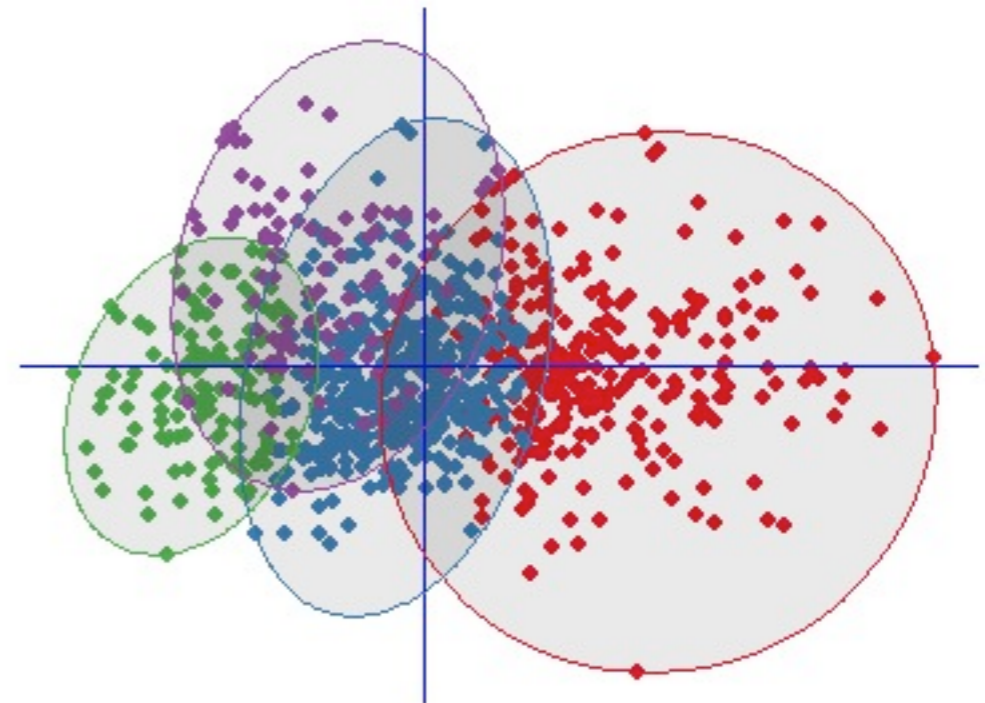
¹One farm did not have leader-follower, grazed annual crops, or occupancy period data available.

Productivity and profitability

Methodology of analysis

Cluster analysis

Compare organic dairy farms based on general characteristics and feeding strategies



Cluster evaluation

Productivity = RHA

Profitability = IOFC

Productivity and profitability

Evaluated variables

Table 3.1a. Cluster and total sample medians (interquartile ranges) for the clustering and evaluated variables

Variables	Cluster 1 (n=8)		Cluster 2 (n=5)		Cluster 3 (n=32)		Cluster 4 (n=24)		Total (n=69)	
	mdn ¹	(iqr) ¹	mdn	(iqr)	mdn	(iqr)	mdn	(iqr)	mdn	(iqr)
Clustering										
Cows per herd	129 ^a	(56)	50 ^b	(35)	41 ^b	(14)	43 ^b	(51)	45	(41)
Percent Holstein ²	90 ^a	(14)	0.0 ^b	(0.0)	89 ^a	(25)	6.0 ^b	(22)	71	(89)
Milking frequency ³	2.0 ^a	(0.0)	1.5 ^b	(0.43)	2.0 ^a	(0.0)	2.0 ^a	(0.0)	2.0	(0.0)
Cow feeding groups ⁴	2.0 ^a	(0.25)	1.0 ^b	(0.00)	2.0 ^a	(1.0)	2.0 ^b	(1.0)	2.0	(1.0)
Supplemented feeds ⁵	8.0 ^a	(2.3)	2.0 ^c	(2.0)	6.0 ^{ab}	(2.0)	6.0 ^b	(1.3)	6.0	(2.0)
Concentrates fed ⁶	5.7 ^a	(2.8)	2.7 ^{ab}	(2.7)	4.2 ^a	(1.4)	1.9 ^b	(2.6)	3.6	(2.6)
Land as pasture (%)	22 ^c	(20)	100 ^a	(0.0)	31 ^c	(14)	49 ^b	(28)	36	(24)
Occupancy period ⁷	1.25 ^a	(1.25)	0.50 ^b	(0.50)	2.00 ^a	(3.25)	0.50 ^b	(0.50)	1.00	(2.00)
Grazing season length (d)	203 ^a	(21)	216 ^a	(24)	176 ^b	(36)	199 ^b	(25)	189	(39)

¹mdn = median, iqr = interquartile range

²Percent of cows within each farm that were Holstein

³Weighted mean number of milkings per day

⁴Total number of cow feeding groups on the farm

⁵Total number of non-pasture feeds incorporated into the farm's lactating cow diet

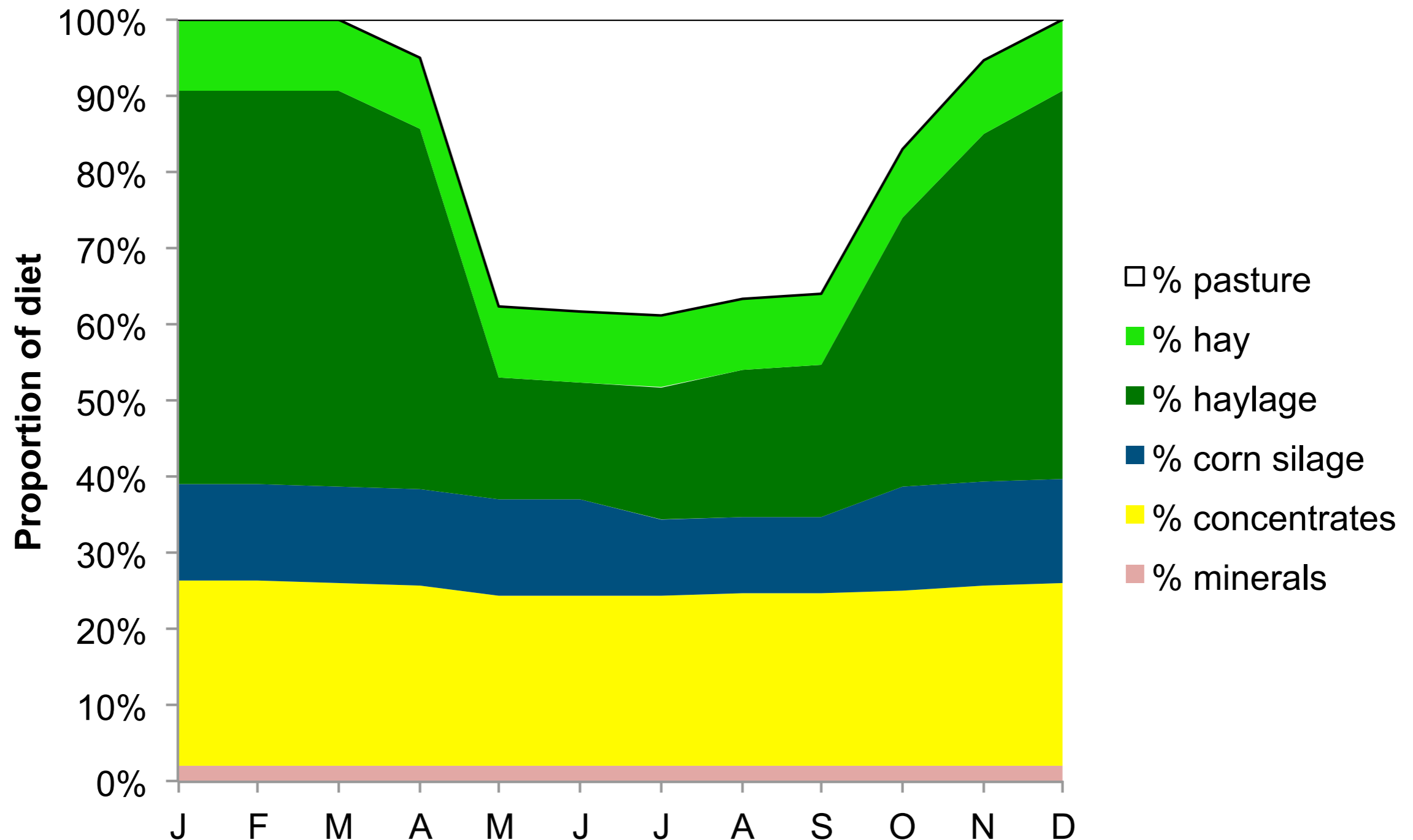
⁶Mean amount of concentrates fed to lactating cows (kg/cow per d)

⁷Number of days lactating cows remained in a paddock before being rotated to new pasture

^{abc}Kruskal-Wallis test ($P \leq 0.05$). Medians within a row not sharing a common superscript are statistically different based on Wilcoxon test with Bonferroni correction ($P < 0.05$).

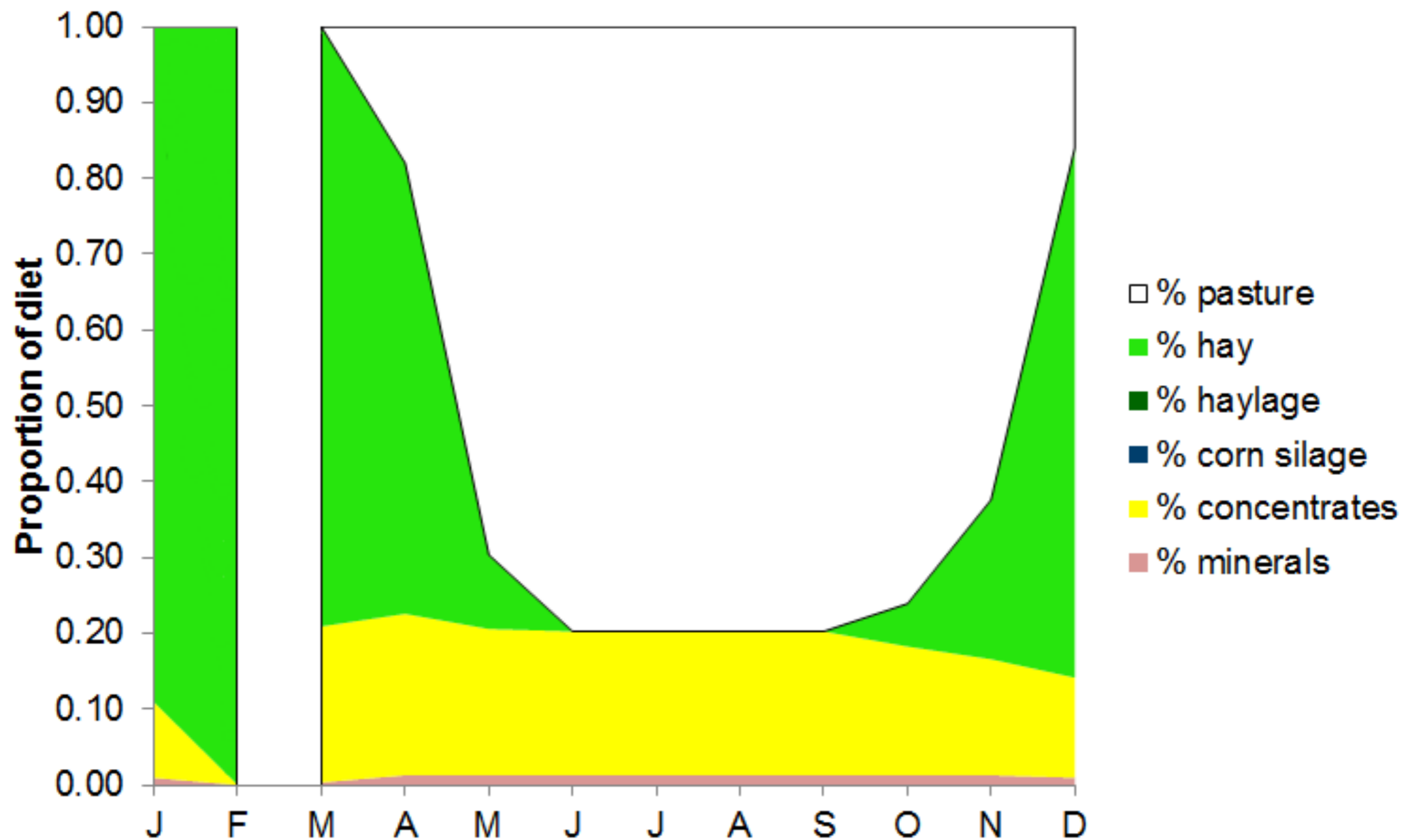
Productivity and profitability

Cluster 1 - Lactating herd



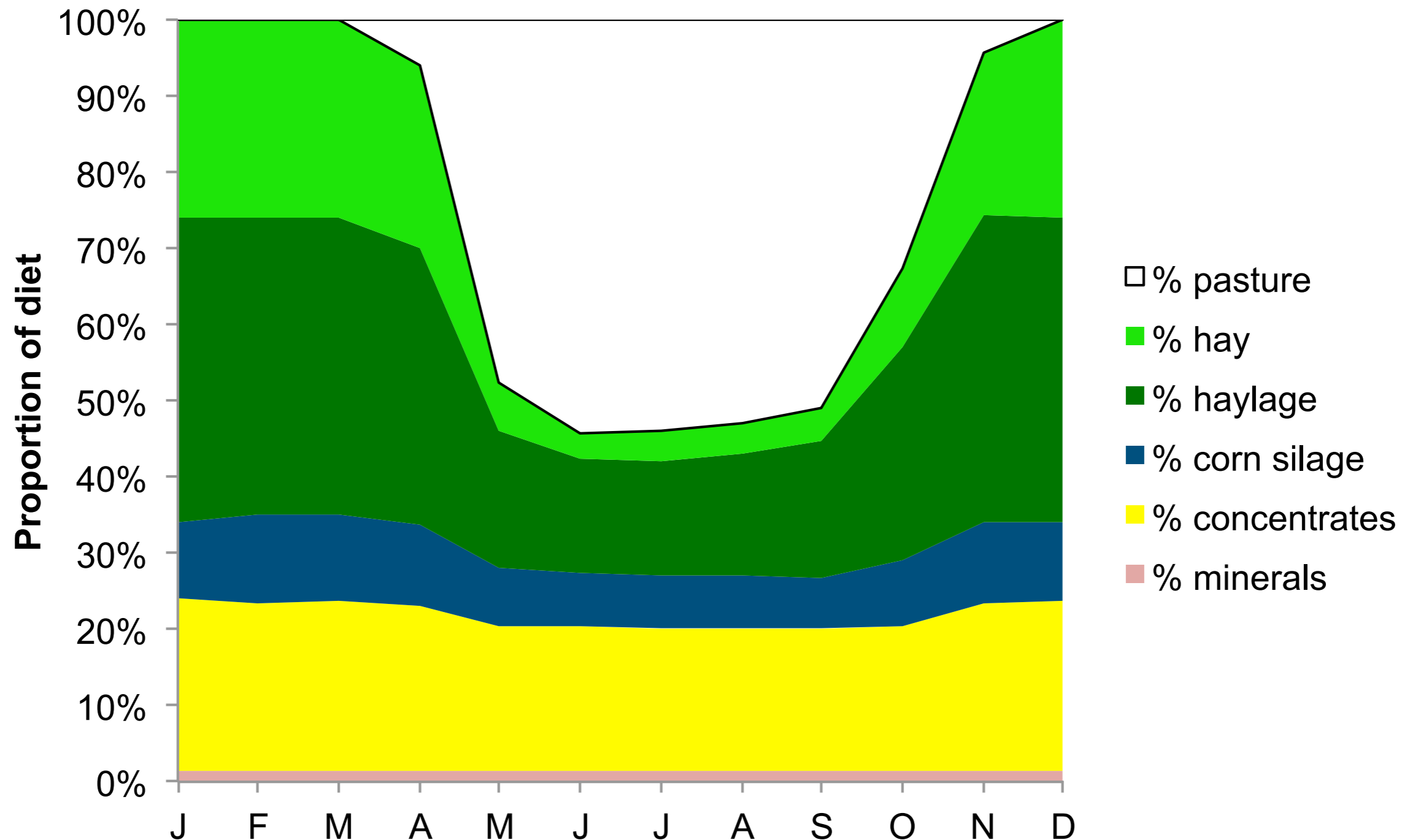
Productivity and profitability

Cluster 2 - Lactating herd



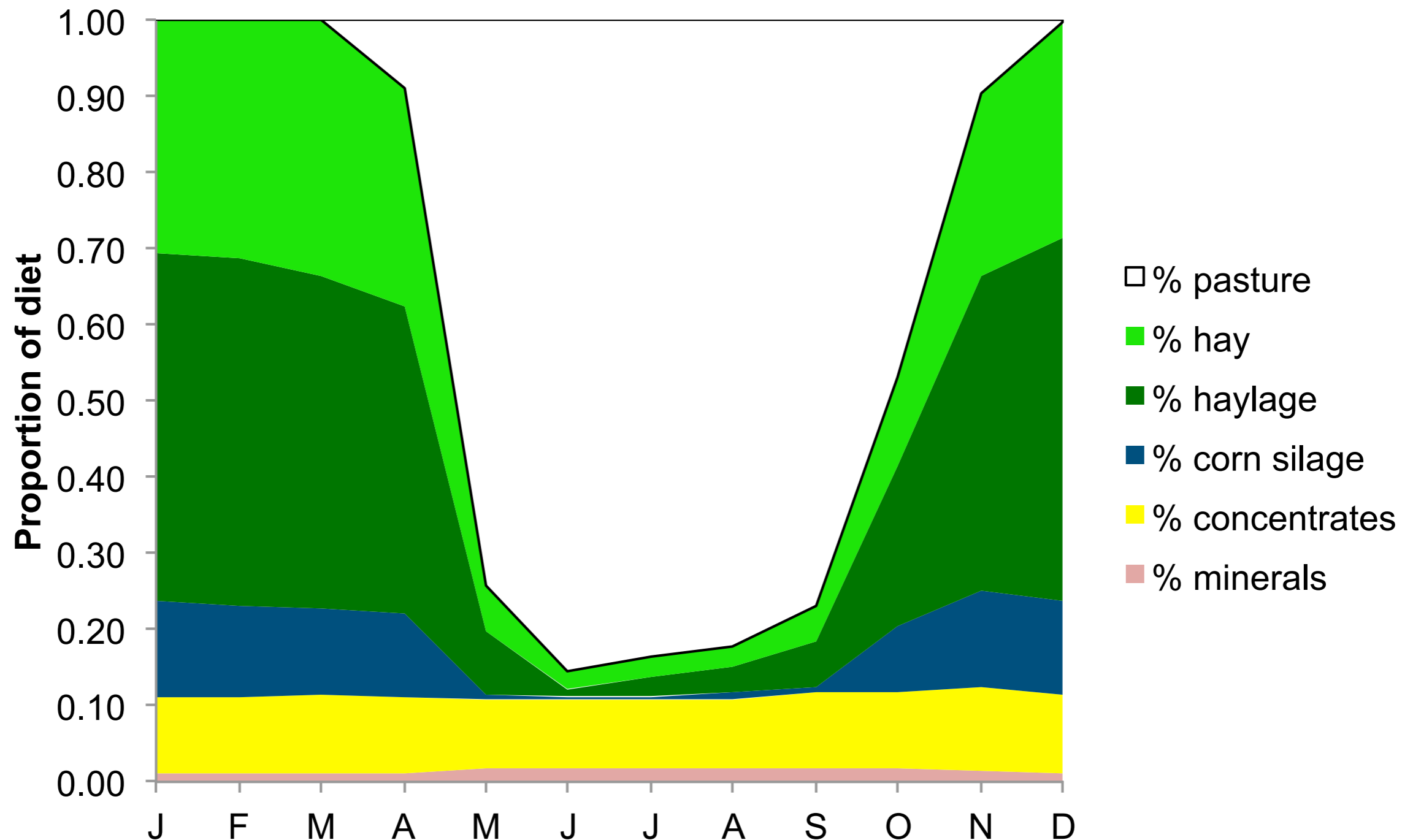
Productivity and profitability

Cluster 3 - Lactating herd



Productivity and profitability

Cluster 4 - Lactating herd



Productivity and profitability

RHA and IOFC - Lactating herd

Table 3.1b. Cluster and total sample medians (interquartile ranges) for the clustering and evaluated variables

Variables	Cluster 1 (n=8)		Cluster 2 (n=5)		Cluster 3 (n=32)		Cluster 4 (n=24)		Total (n=69)	
	mdn ¹	(iqr) ¹	mdn	(iqr)	mdn	(iqr)	mdn	(iqr)	mdn	(iqr)
RHA ² (kg/cow per yr)	6,878 ^a	(1,038)	3,632 ^c	(783)	7,457 ^a	(1,754)	5,417 ^b	(1,760)	6,583	(2,520)
IOFC ³ (\$/cow per d)	10.17 ^a	(2.99)	5.76 ^{ab}	(1.62)	8.59 ^a	(4.68)	5.92 ^b	(2.47)	7.73	(4.01)

¹mdn = median, iqr = interquartile range

²Milk rolling herd average (RHA)

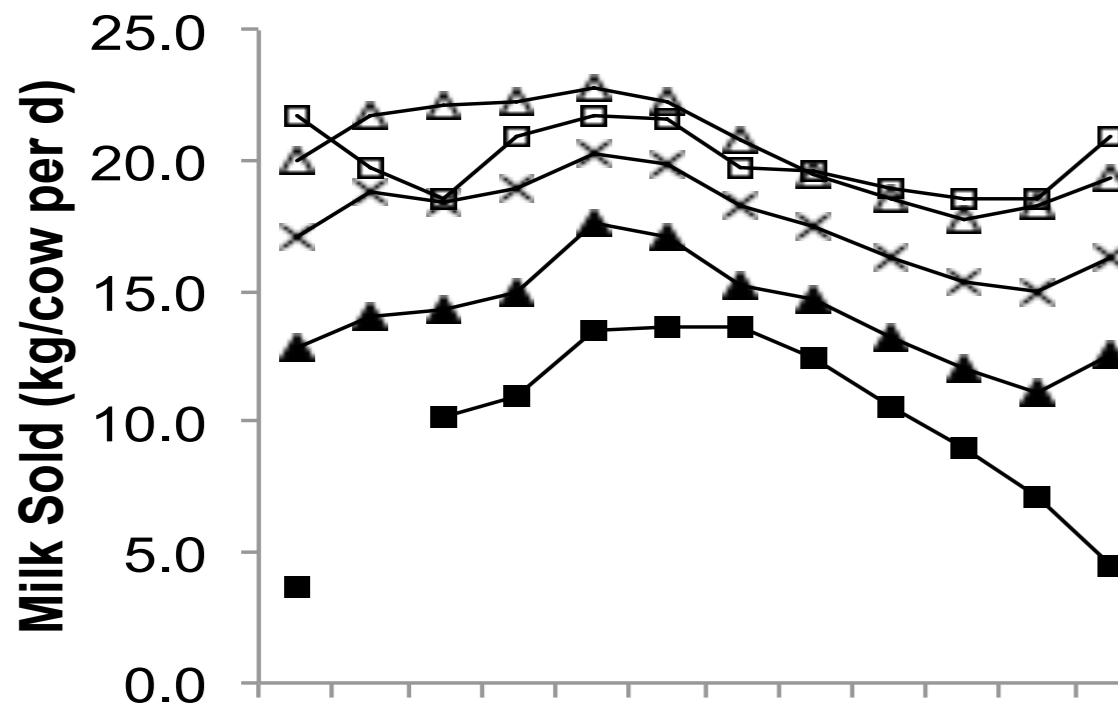
³Milk income over feed costs (IOFC) for lactating cows for January – November 2010. Cluster 2: n = 4, Cluster 3: n = 25, Cluster 4: n = 20.

^{abc}Kruskal-Wallis test ($P \leq 0.05$). Medians within a row not sharing a common superscript are statistically different based on Wilcoxon test with Bonferroni correction ($P < 0.05$).

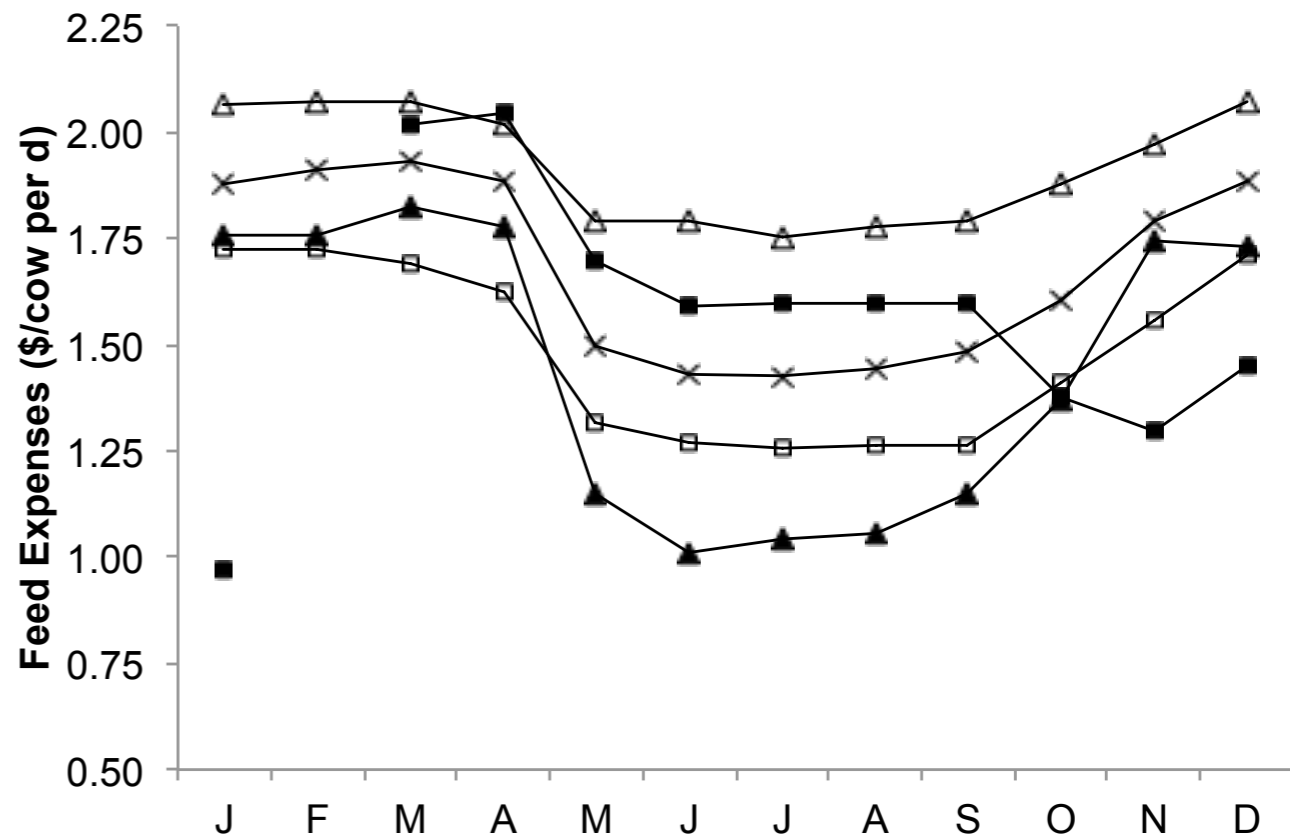
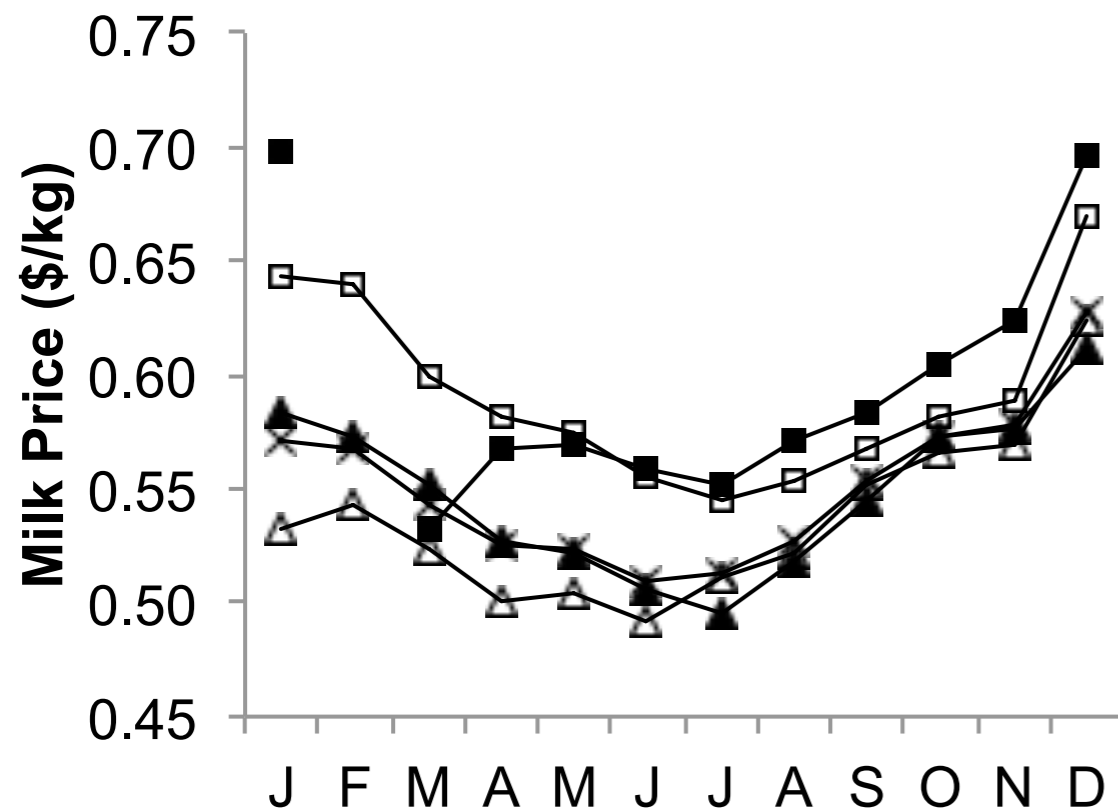


Productivity and profitability

Milk income

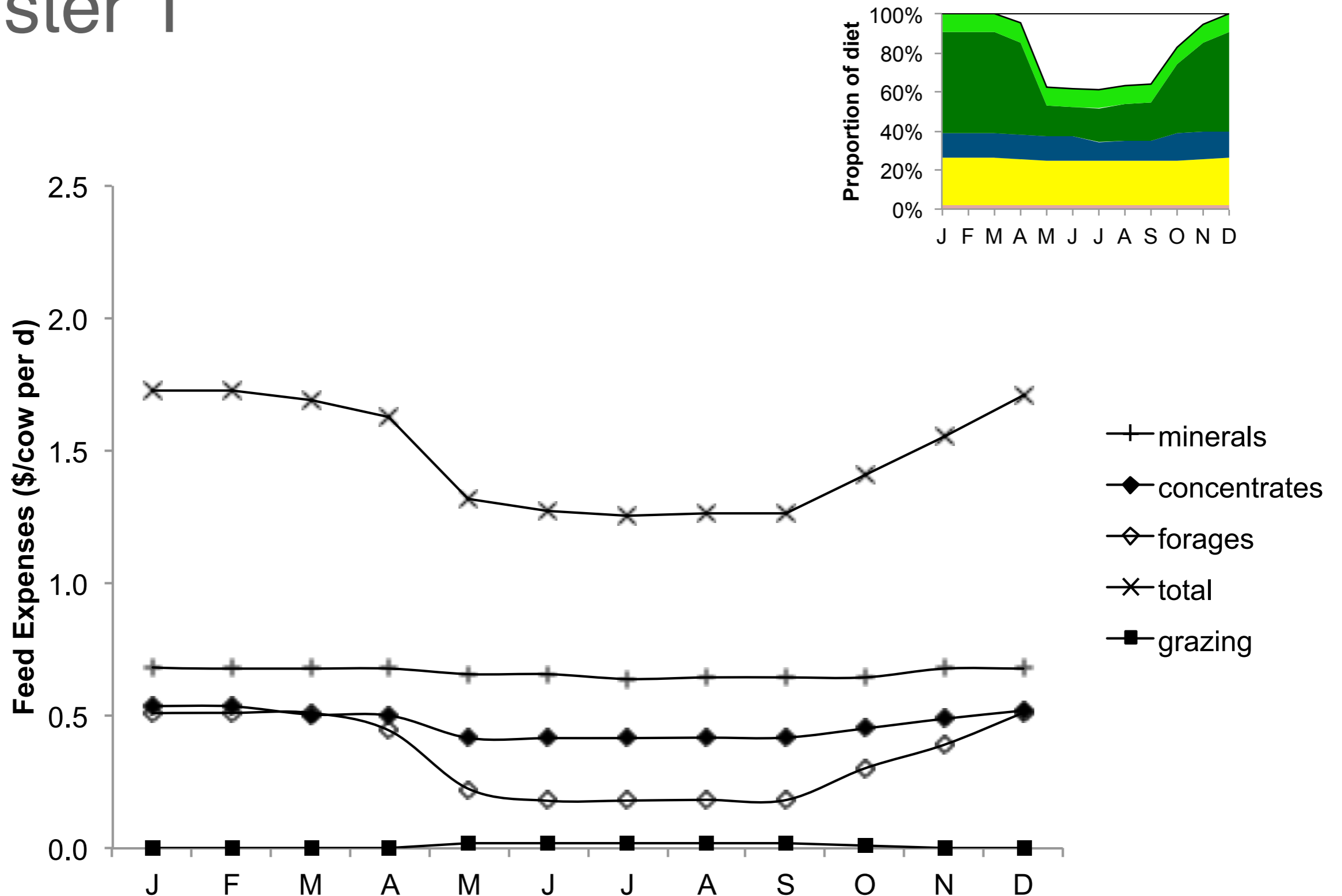


- Cluster 1
- Cluster 2
- △ Cluster 3
- ▲ Cluster 4
- × All farms



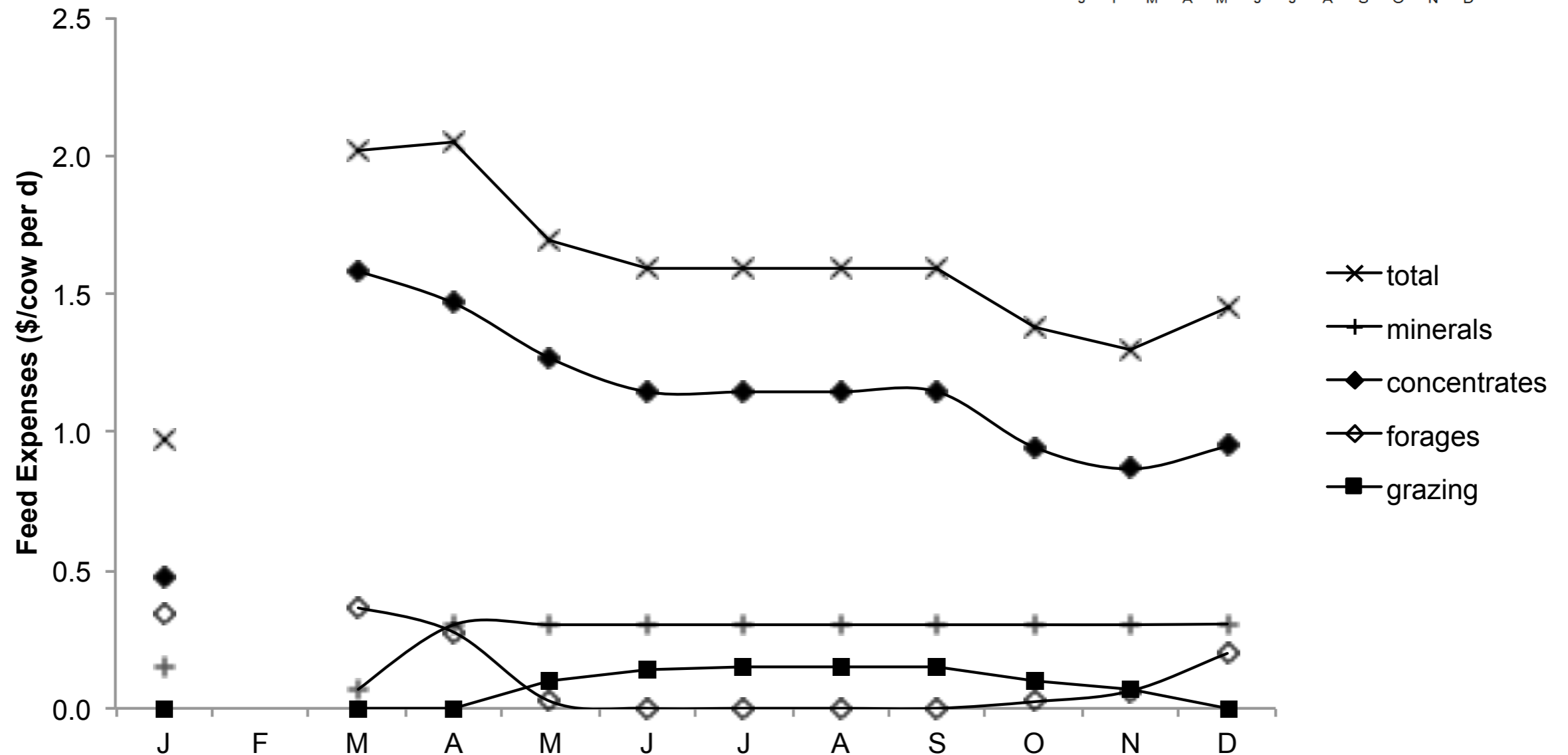
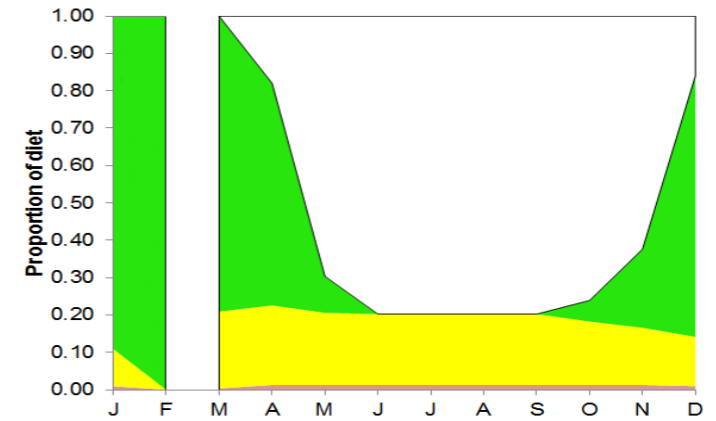
Productivity and profitability

Cluster 1



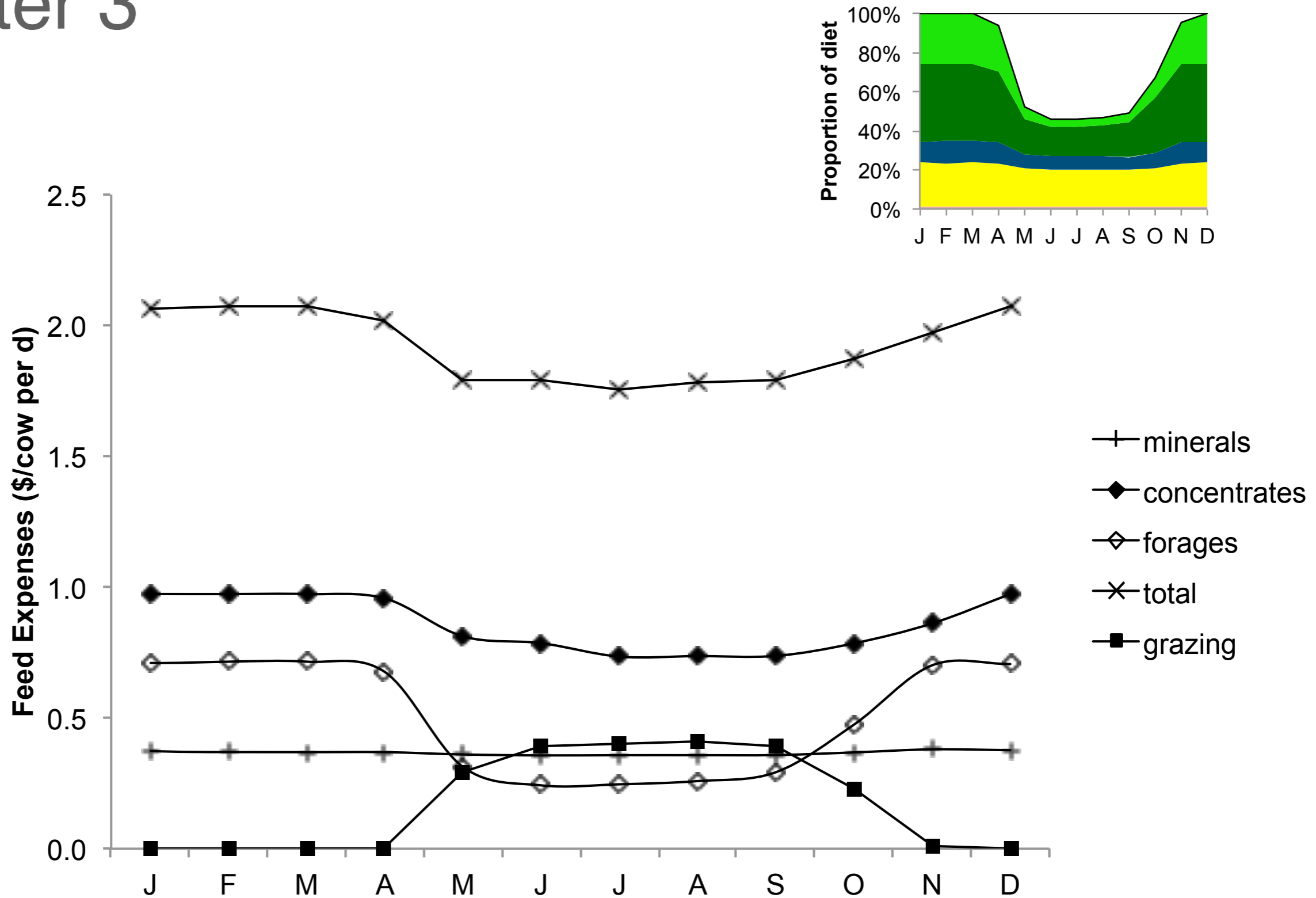
Productivity and profitability

Cluster 2



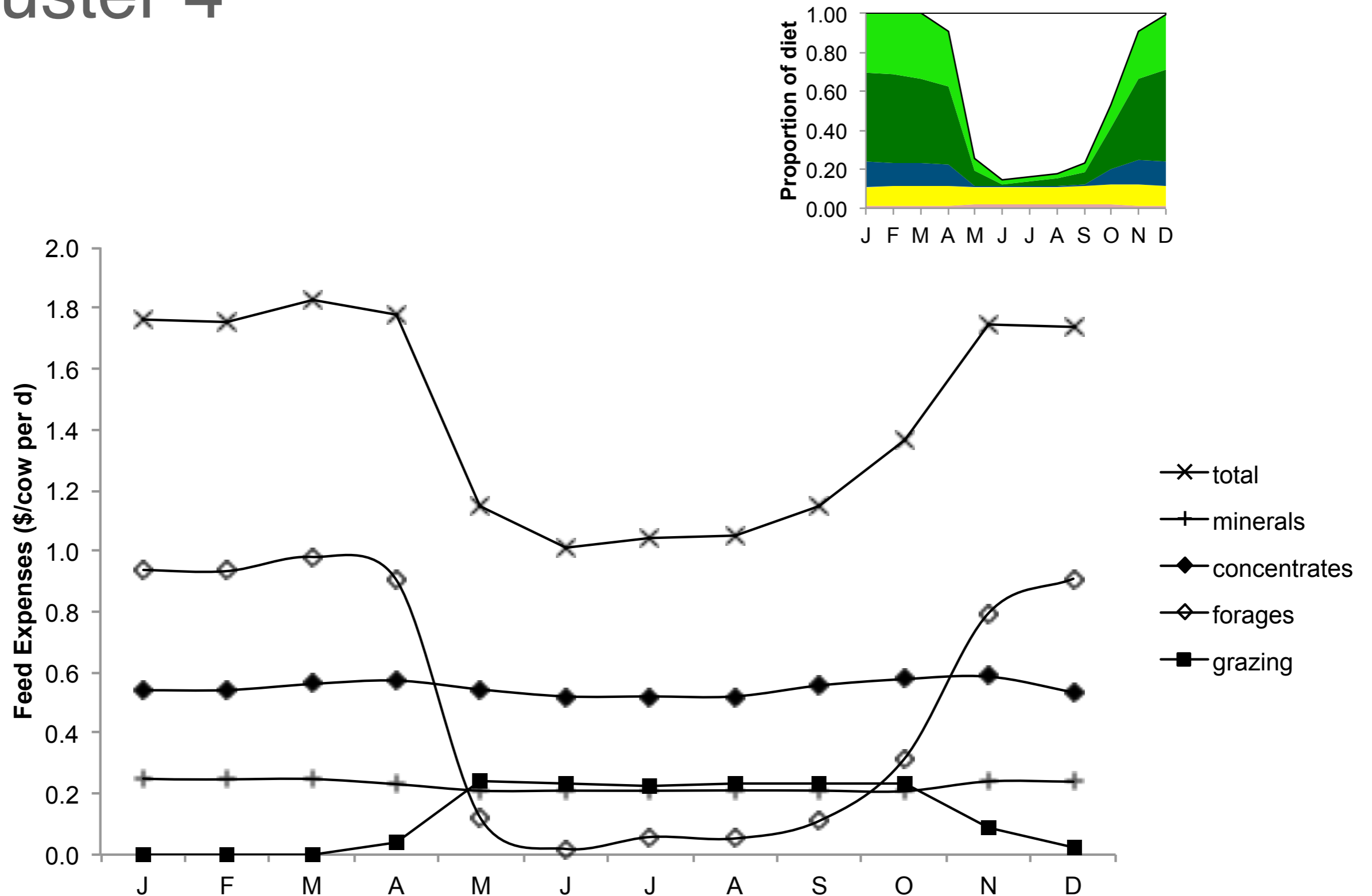
Productivity and profitability

Cluster 3



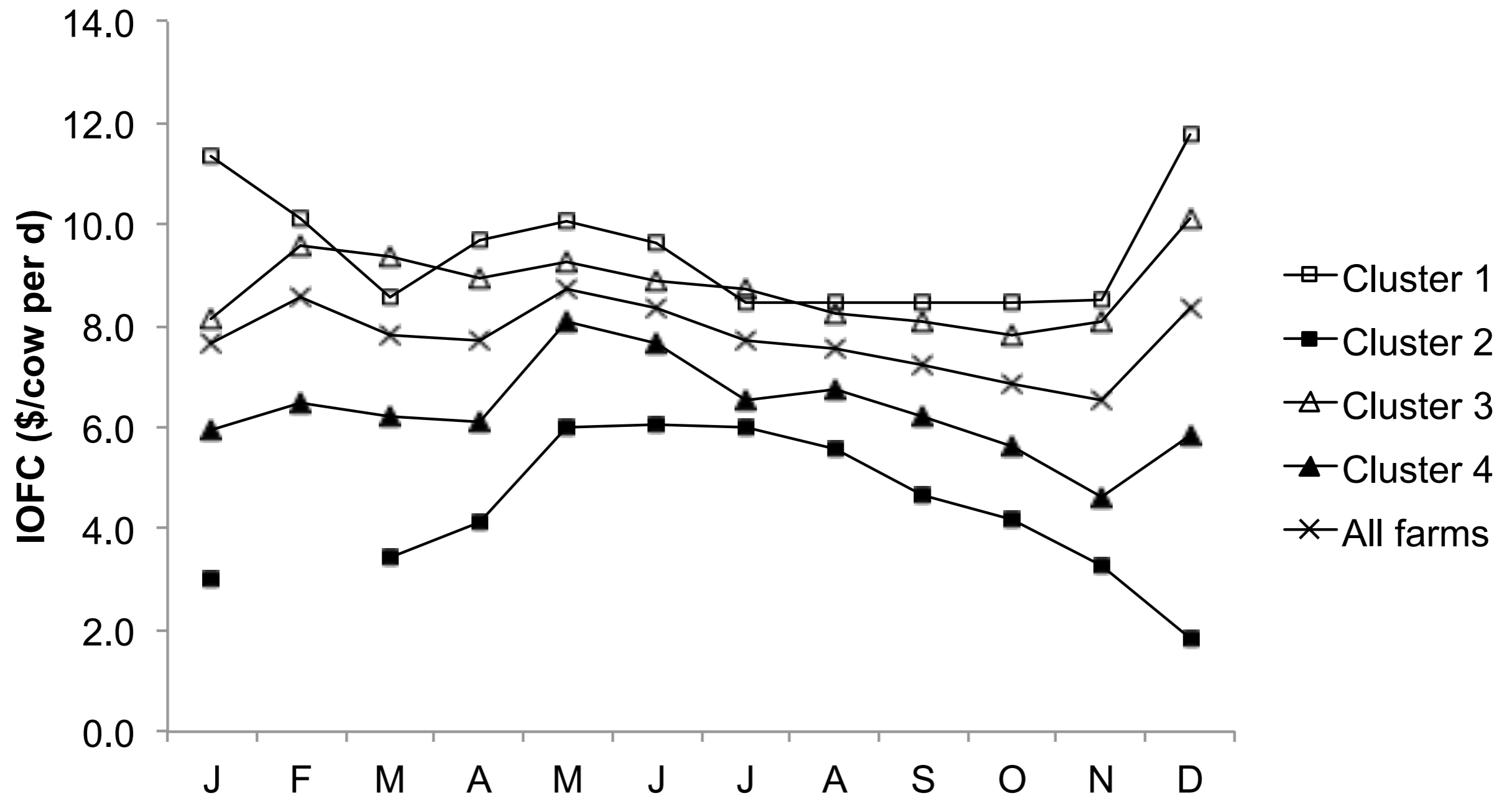
Productivity and profitability

Cluster 4



Productivity and profitability

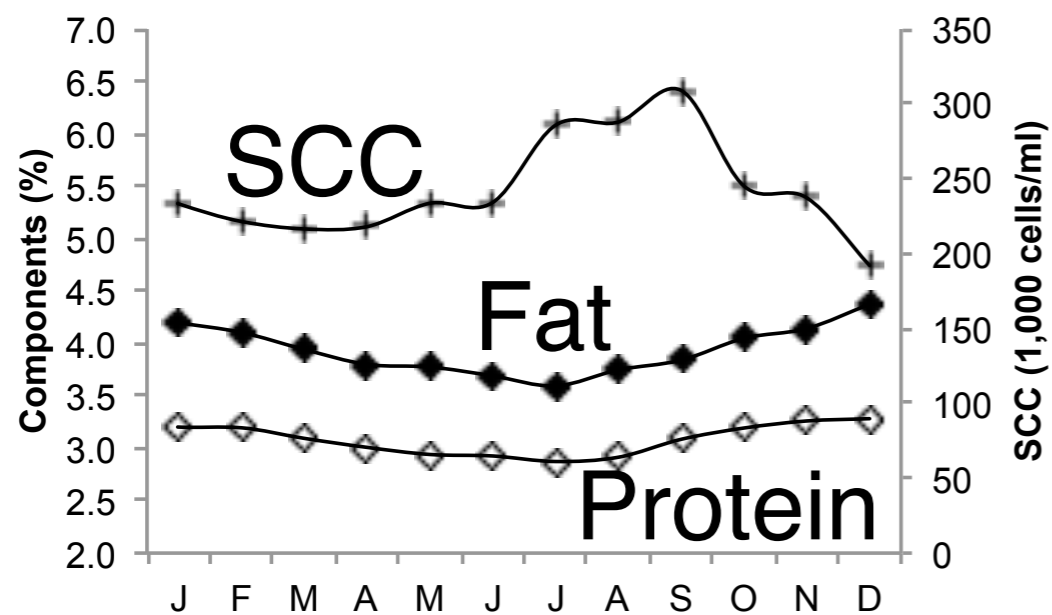
IOFC



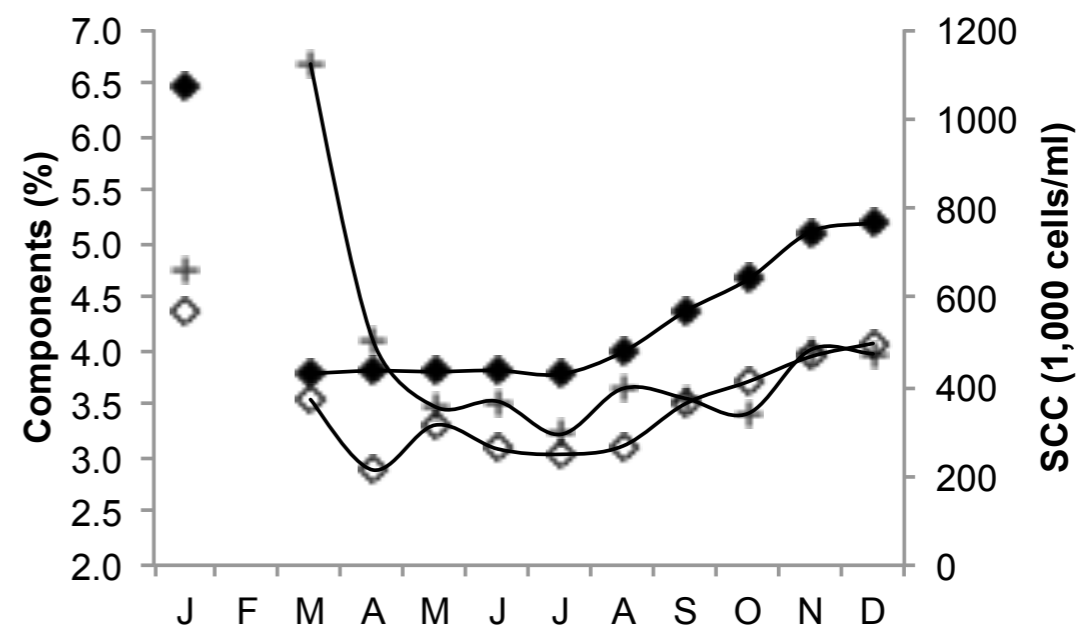
Productivity and profitability

Milk fat, protein, and SCC

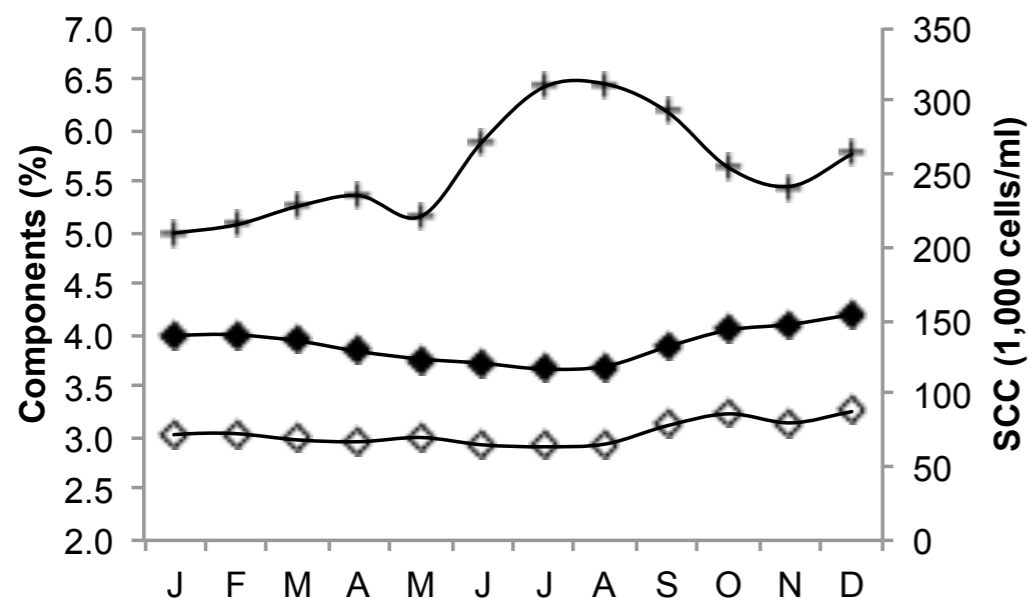
Cluster 1



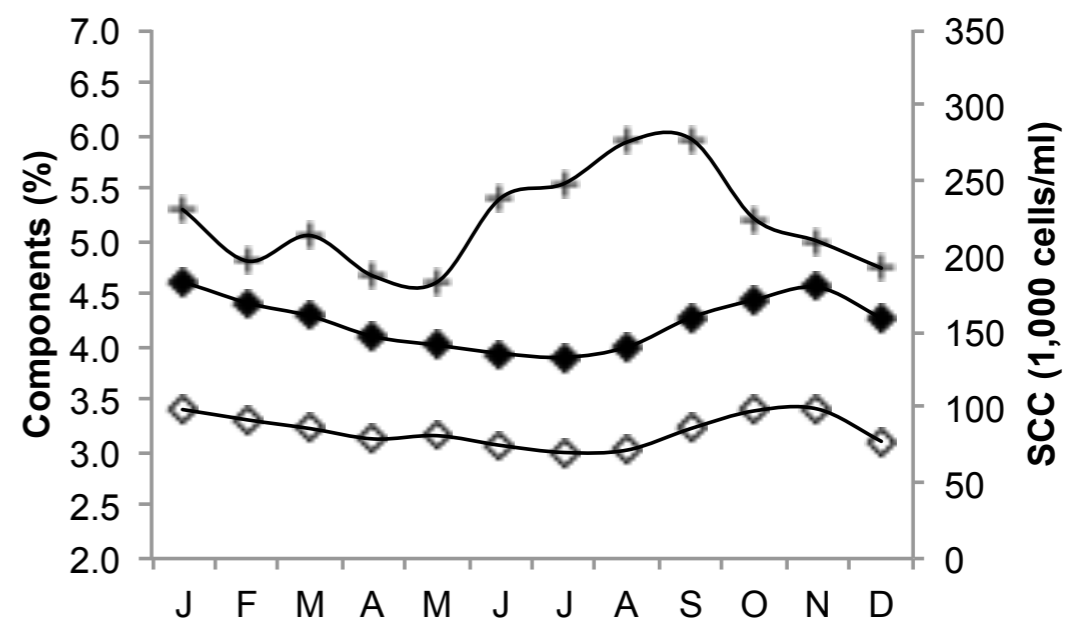
Cluster 2



Cluster 3



Cluster 4



Conclusions

Wisconsin organic dairy farming

Two overall feeding systems

1. Highly supplemented, Holstein-based farms
(Clusters 1 and 3)

2. Pasture-based, non-Holstein farms
(Clusters 2 and 4)



RHA and IOFC

Better on highly supplemented, Holstein-based organic dairy farms



Thanks