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INTRODUCTION

Dairy producers are facing increased volatility in milk prices and feed costs within and between years. To stay profitable farmers tend to explore alternative feeding management practices such as pasture-based dairy systems with low inputs. When well managed, pasture can be a low cost, high quality feed for dairy cows (Peyraud and Delaby, 2001). However, grazing can be a challenge when it comes to balancing the ration. The impact of feed supplementation strategy on overall cost of milk production and milk composition is a major concern among organic conventional and grazing dairy producers (Paine and Gildersleeve, 2011).

An integrated long-term research project has been designed to investigate impacts of supplementation decisions made by Wisconsin organic and conventional grazing dairies on selected economic and production variables.

An ongoing survey is being implemented since fall 2010 in order to describe feeding practices used on distinct Wisconsin dairy farm systems to study the link between feeding management and milk production, feed costs and milk income over feed cost (IOFC).

MATERIALS AND METHODS

A highly interdisciplinary and comprehensive survey instrument has been developed and field-tested with 5 farm operations in the summer of 2010. The 50-page survey includes 10 sections covering production, environment, and economic aspects of the farm operation.

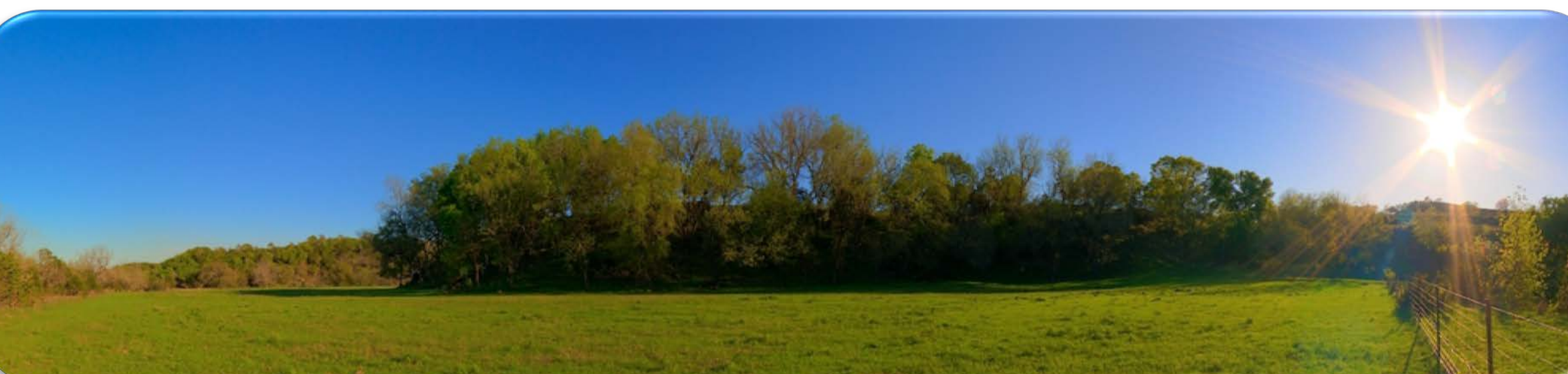
On-farm data collection started in fall 2010 and will continue through 2011. Farms have been randomly selected from the southwest quadrant of Wisconsin using official lists of certified milk producers and organic milk producers from the State of Wisconsin. Dairy farms have been classified across 3 different feeding systems: Conventional (CON), Grazing (GRA), and Organic (ORG).

A 2-day workshop was conducted to train enumerators. A survey user-manual has also been developed and a protocol of implementation has been established.

Figure 1: Screenshot of 50-page survey being used in this study

Preliminary analysis of feeding management, milk production, milk composition, feed cost and milk IOFC from 13 selected surveys is presented here. Within this sample, 3 farms were ORG, 3 GRA, and 7 CON.

Only means and standard deviations are reported and discussed because of limited number of farms.



PRELIMINARY RESULTS AND DISCUSSION

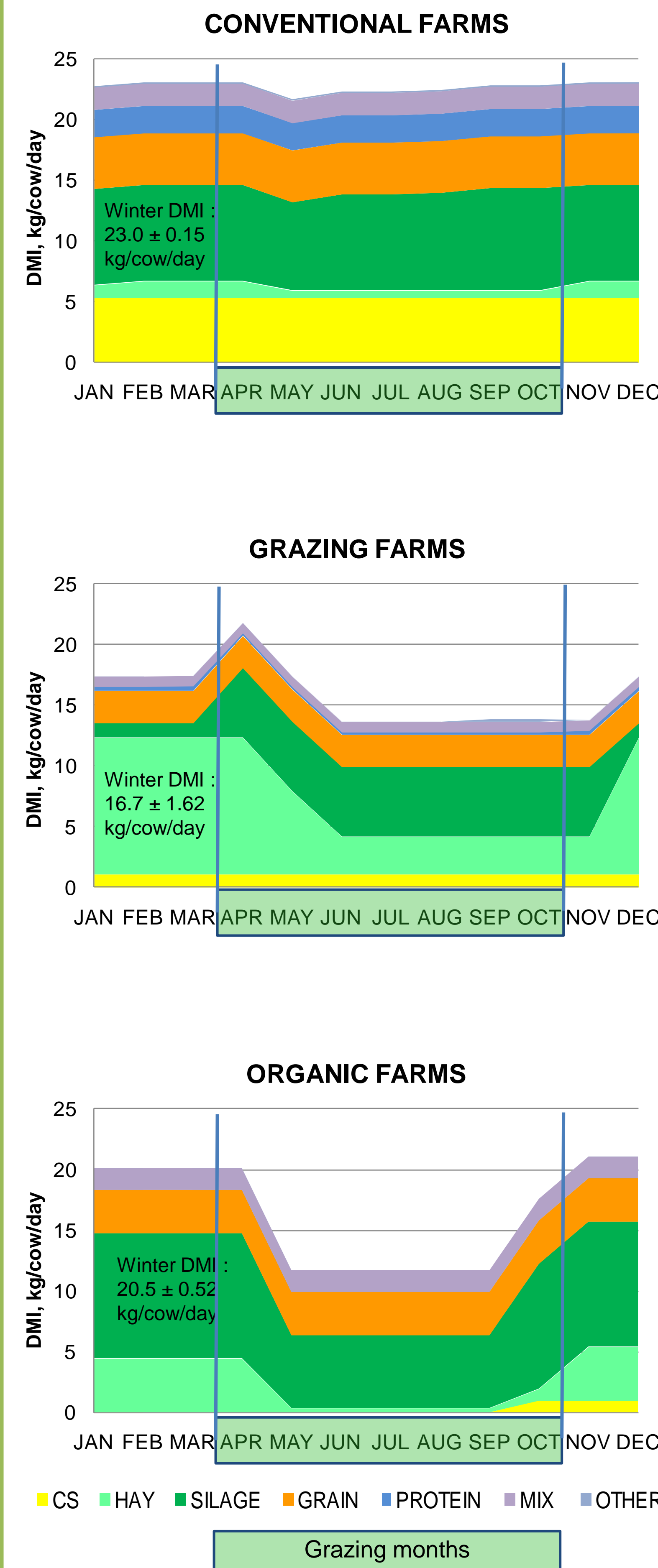


Figure 2: Feeding practices and dry matter intake (DMI; kg/cow/day) excluding pasture use on Wisconsin organic, grazing, and conventional dairy farms during year 2010.

CON farms do not rely on pasture during the grazing season, they use the same ration year round. This ration includes corn silage, hay and grass silage for the forage and grain, protein and mix for the concentrate. They also use other products such as liquid fat, molasses and distillers grains.

ORG and GRAZ farms have very similar rations. They rely on hay and silage during the winter, but they take full advantage of the grazing season by substantially decreasing the use of conserved forages between April and October. ORG and GRAZ use a moderate amount of grain and mix concentrate to supplement feeding rations year round.

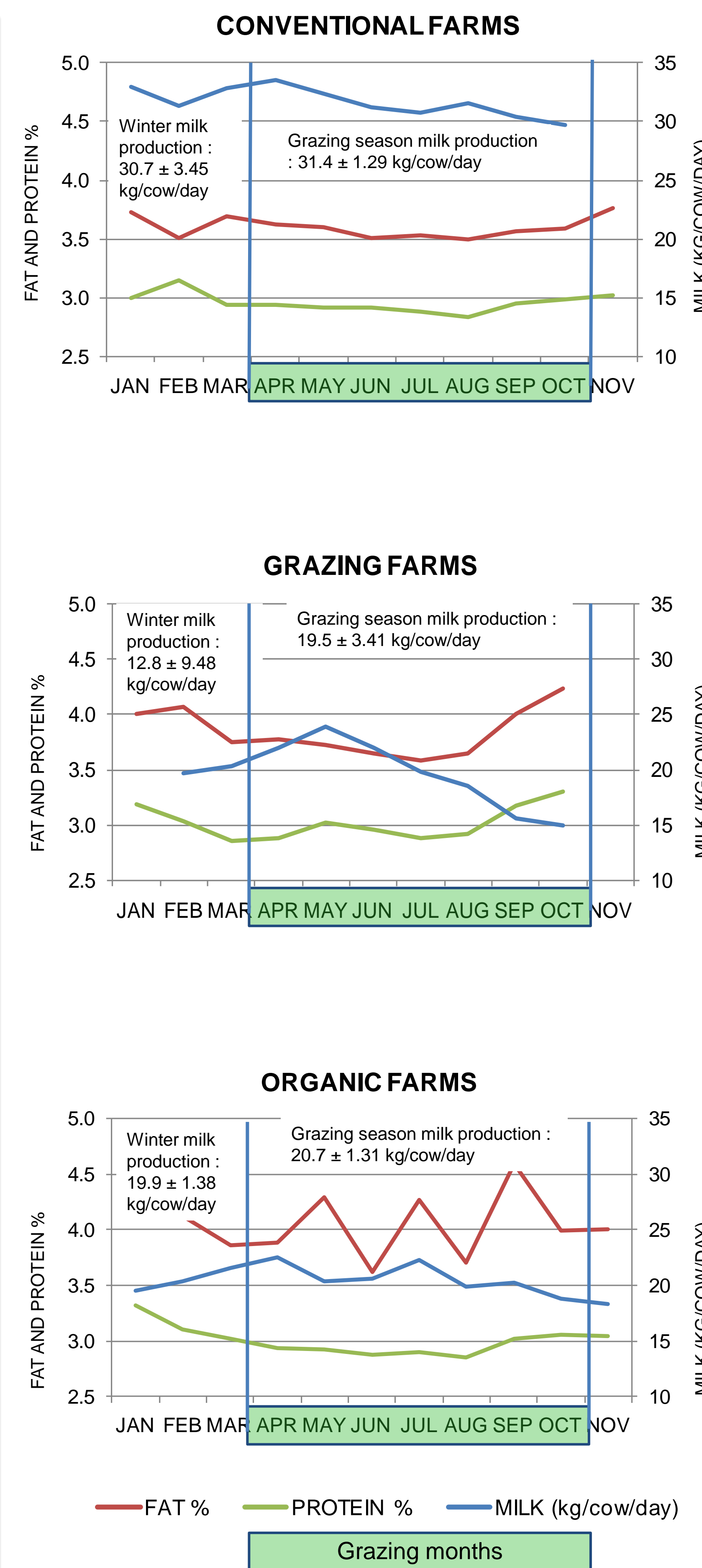


Figure 3: Milk production (kg/cow/day), fat (%) and protein (%) on Wisconsin organic, grazing, and conventional dairy farms during year 2010.

GRA and ORG farms had lower milk production compared to CON farms probably because of a lower feed intake and a less dense diet.

Preliminary results indicate that milk production is more variable on GRAZ (17.1 ± 6.75 kg/cow/day) farms than on ORG (20.4 ± 1.32 kg/cow/day) and CON (31.1 ± 2.17) farms due to feeding strategies across the year.

Milk production increased on GRA farms during the grazing season.

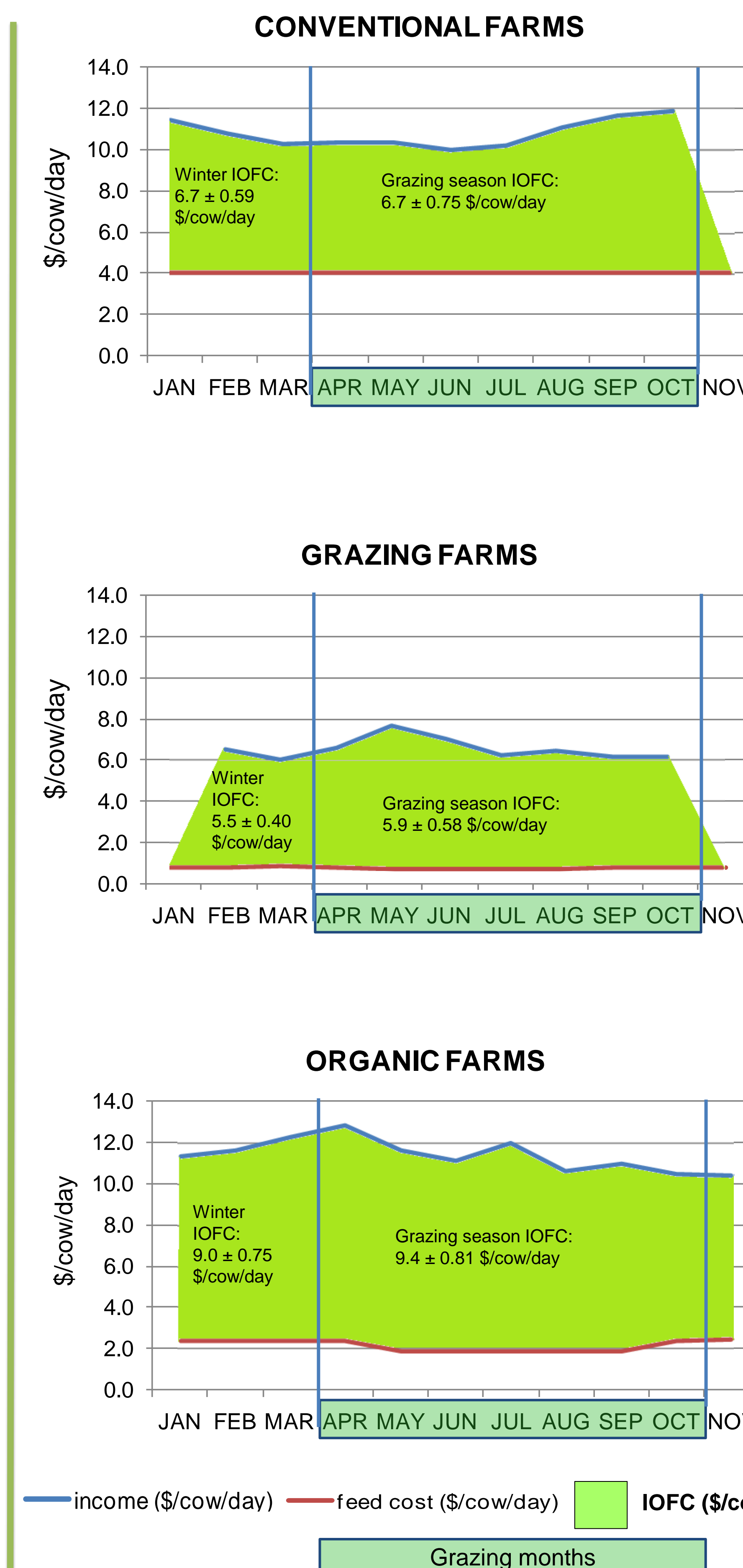


Figure 4: Milk income, feed cost (including an estimate of pasture cost), and milk income over feed cost (IOFC, \$/cow/day) on Wisconsin organic, grazing, and conventional dairy farms during year 2010.

Milk IOFC was highest on ORG farms (9.2 \$/cow/day) and lowest on GRAZ farms (5.9 \$/cow/day)

The difference in IOFC between ORG and CON farms can be attributed to the difference in feed costs since the difference in milk production (ORG lower production) is offset by the difference in milk price for ORG farms (ORG higher milk price). CON farms rely more on purchased feed (Table 1, 5.7 vs. 1.8 kg DM/cow/d) than ORG farms which leads to a much higher feed cost.

GRA farms have the lowest feed costs because they rely on pasture during the grazing season and the total DMI is the lowest compared to the two others systems. However, milk production is also the lowest, which results in the lowest IOFC.

PRELIMINARY RESULTS AND DISCUSSION

Table 1: Farm size, milk production, income and feed costs (mean ± SD) for organic, grazing, and conventional dairy farms surveyed.

	CONVENTIONAL FARMS	GRAZING FARMS	ORGANIC FARMS
CROPLAND (ha)	73.5 ± 55.63 ¹	82.4 ± 60.51	52.9 ± 10.03
PASTURE (ha)	13.2 ± 12.26 ¹	23.1 ± 27.63	22.3 ± 17.29
COWS (#)	58 ± 27.8 ¹	47 ± 22.9	44 ± 4.0
MILK PRODUCTION (kg/cow/day)	31.1 ± 2.17	17.1 ± 6.75	20.4 ± 1.32
MILK PRICE (\$/100 kg)	34.4 ± 3.01	34.6 ± 4.69	57.6 ± 1.84
INCOME (\$/cow/day)	10.8 ± 0.67	6.6 ± 0.53	11.34 ± 0.78
CONCENTRATE PURCHASED (kg/cow/day)	4.3 ± 0.08	1.2 ± 0.08	1.8 ± 0.00
FORAGE PURCHASED (kg/cow/day)	1.4 ± 0.00	3.0 ± 2.29	0 ± 0.00
FEED COSTS (\$/cow/day)	4.1 ± 0.00	0.8 ± 0.05	2.2 ± 0.25
IOFC (\$/cow/day)	6.7 ± 0.67	5.8 ± 0.56	9.2 ± 0.79

¹ These values includes only 6 of the conventional farms because the last conventional farm was an outlier that would have skewed these values to: 69.4 ± 258.69 ha for the cropland, 19.4 ± 19.88 ha for the pasture and 162 ± 277.8 for the number of cows.

CONCLUSIONS

Preliminary results showed that, given 2010 prices, ORG farms might be more profitable than CON and GRA farms.

The use of grazing on ORG and GRA farms decreased feed cost and increased milk production, which determined a higher IOFC during the grazing season on those farms.

The scope of this analysis should be restricted to the sample population from which the data were collected.

Results presented here reflect only a small portion of all the data collected with the surveys. Detailed impact of feeding management practices on production, environment and economics will emerge from the analysis of the entire survey results.

Further analysis will identify strategic feeding management practices that leads to desirable outcomes and may serve in decision-making on organic, grazing and conventional dairy farms systems.



References:

- Paine L. and Gildersleeve R., A summary of grazing dairy practices in Wisconsin. Accessed on line on July 5th, 2011 at: <http://datcp.wi.gov/uploads/Farms/pdf/2011DairyGrazingSummary.pdf>
- Peyraud, J. L., and L. Delaby. 2001. Ideal concentrate feeds for grazing dairy cows responses to supplementation in interaction with grazing management and grass quality. Page 203 in Recent Advances in Animal Nutrition. P. C. Garnsworthy and J. Wiseman, eds. Nottingham University Press, UK.