Treatments Used on Organic Dairy Farms

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INTRODUCTION

Organic regulations in the US strictly regulate medications may be used on organic farms (USDA, 2011). While both Canadian and EU organic standards discourage the use of antibiotics or prohibited synthetic compounds, both standards contain provisions that allow limited usage of antibiotics (without loss of organic status of the animal) under strictly defined conditions and with extended withholding periods. In contrast, U.S. organic standards contain a unique and rigorous prohibition against use of most conventional allopathic veterinary treatments. There are no FDA approved antimicrobial compounds on the USDA approved list of organic treatments and FDA guidelines do not allow for the use of unapproved drugs (regardless of whether or not the substance is a botanical, homeopathic remedy or food supplement) for treatment of food producing animals even under the supervision of a veterinarian. Organic producers are required to provide appropriate medical treatment for sick cows, but those animals that receive that care are permanently disqualified from organic production, thereby effectively providing a strong economic disincentive against the provision of necessary treatments This paper presents data collected in USDA NIFA project 2008-51106-19463, "Impact of Organic Management on Dairy Animal Health and Well-being." More complete data can be found in Cicconi-Hogan et al (2013), Richert et al., (in press) and Stiglbauer et al., (2013).

COLLECTION OF DATA AND HERD CHARACTERISTICS

Herds in NY, OR and WI were eligible if they had a minimum herd size of 30 lactating cows and ORG herds had to have been shipping certified ORG milk for at least 2 years. Each farm was visited once by one of 3 trained study personnel who administered a 45 page animal health questionnaire that included questions about: case definition of selected diseases; methods and frequency of disease detection, treatments used for defined case scenarios, usage of veterinarians, and methods used to evaluate results of treatments. Data on the incidence, severity and economic consequences of selected diseases was collected during a period of 120 days.

Data was collected from 48, 96, and 147 herds in OR, NY and WI, respectively. The average herd size was 60, 69 and 85 cows for ORG, Conventional Grazing herds (CONGR) and Conventional non-grazing (CONNG), respectively. While Holsteins were the primary breed for all management systems, a greater proportion of ORG herds utilized crossbred cattle as compared to herds with conventional management systems. Similar to previous studies, the rolling herd average was least for ORG herds (13,700 lbs) as compared to CONGR (18,500 lbs) and CONNG herds (21,900 lbs).

ROUTINE PREVENTIVE PURPOSES

Like the organic standards of Canada and the EU, the U.S. ORG standards for health management of livestock emphasize preventive health management. Producers are encouraged to "establish and maintain preventive animal health care practices" and to "establish appropriate housing, pasture conditions, and sanitation practices to minimize the occurrence and spread of diseases and parasites." Additionally, all physical alterations performed on animals in an organic livestock operation must be conducted to promote the animals' welfare and in a manner that minimizes stress and pain." While it is apparent that ORG cattle are maintained on pasture, results of the current study do not indicate that a greater proportion of ORG farmers use traditional preventive practices such as vaccinations, footbaths, or hoof trimming as compared CON farmers that use both grazing and confinement practices (Table 1).

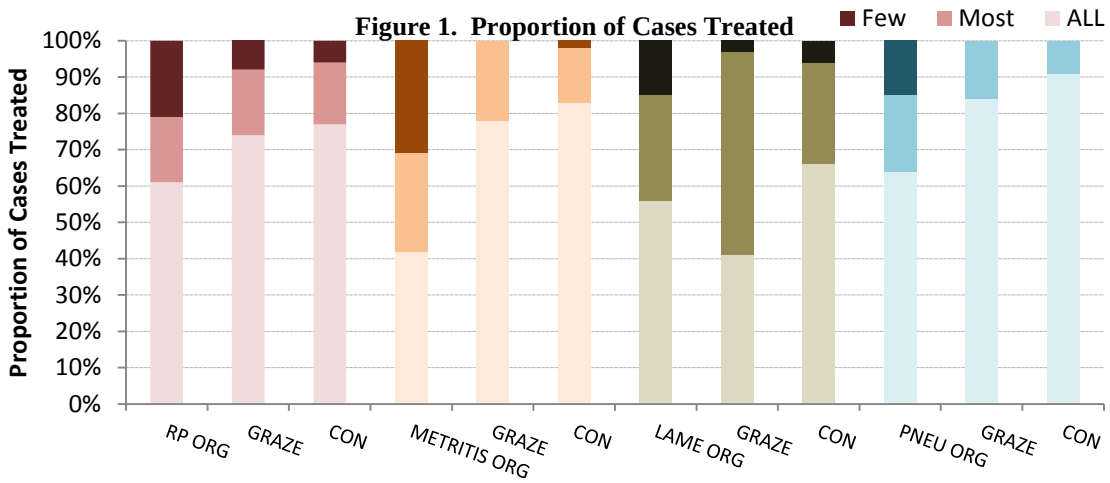
Table 1. Routine preventive practices based on farm management system

		Conventional Herds	
	Organic	Graze	Confined
Vaccinations	64%	100%	97%
Routine use of footbath	14%	33%	43%
Routinely trim hooves	25%	53%	75%
Regular veterinary visits	36%	56%	77%
Use of postdipping during milking routine	90%	97%	95%
Wear gloves during milking	66%	53%	80%
Have DHIA records	53%	69%	70%

TREATMENTS USED FOR SELECTED DISEASES

There are a couple of studies that discuss products used by ORG farmers to treat mastitis but data about products used by ORG farmers to treat other diseases has been extremely limited. Occasional usage of ceftiofur for treatment of respiratory disease has been reported by a few ORG dairy farms (Zwald et al., 2004). In general, ORG farmers seem to utilize a variety of non-antimicrobial compounds to treat respiratory, uterine and foot infections (Pol and Ruegg, 2007). In the current study, comprehensive information about treatment protocols and retrospective and prospective information about treatment of selected diseases were collected. Very few herds of any management type reported that they had arrangement to move sick cows to other farms: 4% of ORG and 5% of CON herds reported using this strategy. Almost all cases of milk fever and >85% of all cases of ketosis were reported to be treated by farmers of all management strategies. Likewise the proportion of cases of calf pneumonia treated approached 100% for CON herds in comparison to 81% of treated cases in ORG herds. A greater proportion of cases of metritis, and pneumonia were treated by CON herds (both grazers and confinement) (Fig 1). There tended to be somewhat fewer cases of retained placenta and lameness that were treated by ORG as compared to CON farmers (Fig 1). About 22% of ORG farmers reported that they treated few or no cases of calf diarrhea in contrast to 11% of CON farmers.

Figure 1. Proportion of cases of selected adult cow disorders reported treated with any product



A variety of products and routes of administration are used to administer products to sick animals on both ORG and CON farms (Table 2). The data is reported only for herds that experienced each disease.

Table 2. Herds reporting use of selected product types to treat selected diseases (preliminary data)

	Mastitis		Ketosis		Pneumonia - cows		Pneumonia – calf	
Product	ORG	CON	ORG	CON	ORG	CON	ORG	CON
Aloe	15%	0%	11%	0%	28%	0%	29%	0%
Antimicrobials	0%	71%	0%	0%	11%	75%	16%	81%
Aspirin or NSAID	10%	14%	1%	4%	31%	20%	14%	16%
Colostrum whey	19%	1%	0%	0%	6%	0%	4%	0%
Fluids	0%	2%	47%	40%	0%	0%	2%	0%
Garlic	18%	0%	1%	0%	31%	0%	30%	0%
Glycerin	0%	0%	4%	1%	0%	0%	0%	0%
Herbal products	26%	2%	7%	0%	23%	0%	1%	0%
Homeopathy	9%	0%	4%	0%	4%	0%	3%	0%
Mineral or Mineral + herbal	1%	0%	14%	4%	1%	0%	7%	3%
Mint cream	60%	27%	0%	0%	0%	0%	0%	0%
Multivitamin mixes	7%	0%	22%	3%	29%	0%	19%	0%
Nutritional supplement	1%	0%	18%	4%	3%	0%	3%	0%
Propylene glycol	1%	0%	14%	49%	0%	1%	0%	0%
Oxytocin	0%	9%	0%	0%	0%	0%	0%	0%
Vitamins	11%	5%	9%	27%	10%	0%	8%	3%

SATISFACTION WITH TREATMENT OUTCOMES

Virtually no data about efficacy of alternative treatments for dairy cows is available but perception of cure after a treatment of clinical mastitis was not significantly different between CON and ORG farmers and almost 74% of ORG farmers were satisfied or very satisfied, with treatment outcomes, in contrast to only 40% of CON farmers (Pol and Ruegg, 2007). In the current study farmers were asked to categorize satisfaction with treatment outcomes for selected diseases. Almost all dairy farmers of all management types were satisfied or very satisfied with treatment outcomes for milk fever, ketosis and calf diarrhea. At least 20% of farmers of all types were dissatisfied or somewhat dissatisfied with treatments for metritis and lameness (Table 3). Considerable proportions of farmers were dissatisfied or somewhat dissatisfied with treatments administered for clinical mastitis (Table 3). A greater proportion of ORG farmers were dissatisfied with treatments administered for pneumonia in both calves and adult cows (Table 3).

Table 3. Proportion of farmers indicating satisfaction with treatment outcomes for selected diseases

			Conventional Herds	
Condition	Perception of Satisfaction	Organic	Graze	Confined
Retained placenta	Dissatisfied	4%	0%	0%
	Somewhat dissatisfied	11%	9%	30%
	Satisfied	45%	53%	30%
	Very satisfied	41%	37%	39%
Metritis	Dissatisfied	9%	0%	0a%
	Somewhat dissatisfied	17%	20%	33%
	Satisfied	44%	49%	44%
	Very satisfied	30%	31%	22%
Lameness	Dissatisfied	4%	2%	7%
	Somewhat dissatisfied	22%	34%	29%
	Satisfied	47%	47%	43%
	Very satisfied	27%	17%	21%
Clinical Mastitis	Dissatisfied	6%	7%	3%
	Somewhat dissatisfied	42%	30%	43%
	Satisfied	37%	48%	43%
	Very satisfied	16%	14%	10%
Pneumonia – adult cows	Dissatisfied	16%	2%	0%
	Somewhat dissatisfied	27%	20%	16%
	Satisfied	36%	50%	44%
	Very satisfied	22%	28%	40%
Pneumonia – calves	Dissatisfied	11%	4%	4%
	Somewhat dissatisfied	27%	11%	4%
	Satisfied	29%	55%	56%
	Very satisfied	34%	30%	36%

Treatment responses for some diseases are difficult to discern and the perceptions of satisfaction may be influenced by other confounding factors. There is some indication in this data that for some conditions, perception of response is associated with the proportion of animals that are treated (Table 4). The direction of the association cannot be determined and more research is needed to evaluate efficacy of treatment protocols for both alternative and conventional products.

Table 4. Proportion of farmers reporting that they are satisfied or very satisfied with treatment outcomes by proportion of animals that receive a treatment

Condition	Proportion of affected animals that receive a treatment for that condition	Organic	Conventional
Pneumonia - adults	All treated	58%	82%
	Many or most treated	56%	75%
	None treated	54%	na
Clinical mastitis	All treated	59%	65%
	Many or most treated	41%	59%
	None Treated	41%	0%
Ketosis	All treated	92%	83%
	Many or most treated	83%	75%
	All treated	100%	100%

TREATMENT STRATEGIES FOR MASTITIS

Mastitis is the most frequently occurring disease in dairy cattle and a variety of management strategies are used by both ORG and CON farmers to management the disease. The research literature consistently indicates that ORG farmers comply with the prohibition against antimicrobial usage and rarely use these products for treatment of mastitis (Ruegg, 2009). Organic farmers enrolled in the current study appear to be more aggressively using strategies to manage the bulk tank SCC as a greater proportion segregate milk and use cowside tests to detect subclinical infections (Table 5). A greater proportion of cows on ORG herds are being milked on <4 quarters, indicating that a chronically infected quarter was dried off. Similar to previous research (Pol and Ruegg, 2007) definition of clinical mastitis cure varied based on management type.

Table 5. Strategies used for mastitis control

		Conventional Herds	
	Organic	Graze	Confined
Use CMT	75%	78%	61%
Segregate milk from certain cows	70%	27%	30%
Proportion of herd with milk segregated	4%	1%	1%
Herd contains cows milking with <4 quarters	95%	87%	93%
Proportion of herd milked with <4 quarters	11%	9%	6%
Routinely use cowside SCC test	39%	20%	21%
Use non-antibiotic treatment for clinical mastitis	96%	37%	50%
Proportion of clinical mastitis cases treated			
Few or none	10%	0%	7%
Most	29%	40%	48%
All	61%	60%	45%
Proportion of subclinical mastitis cases treated			
Few or none	41%	32%	56%
Most	24%	48%	27%
All	35%	20%	17%
Definition of clinical mastitis cure			
Milk becomes normal	43%	72%	75%
Udder appears normal	24%	36%	41%
CMT negative	44%	23%	24%

CONCLUSION

Traditional preventive practices appear to be no more frequently used on ORG as compared to CON farms. There is some indication that the proportion of treatments for some diseases is less on ORG as compared to CON herds. While treatments for several diseases (eg, milk fever) are similar, a variety of treatments of unknown efficacy are used to treat several other diseases when they occur in cows on ORG farms. Satisfaction with treatment outcomes appears high for diseases that do not involve infectious agents but less for diseases (such as pneumonia and mastitis) of bacteria etiology.

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