Efficiency and costs of homeopathy and phytotherapy in an organic dairy farm

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Abstract

The EU regulation for organic farming explicitly promotes the use of homoeopathy and phytotherapy. The aim of the present study was to investigate both the efficiency and the costs of these methods. The assessment was performed in an organic dairy farm where the animals are normally treated by homeopathy and phytotherapy even if, sometimes, conventional medicines have to be used (integrative medicine). In comparison to the remaining permissible treatments, homeopathy was the preferable form of treatment to cure ailments. Homeopathy and phytotherapy can be used to treat, with a positive outcome, the majority of diseases that occur in a dairy cattle farm. The costs incurred using the homeopathic and phytotherapic treatments were very low in comparison with the conventional treatments.

***Keywords**: Homeopathy, phytotherapy, allopathy, integrative medicine, organic dairy farm.*

Introduction

The EU regulation for organic agriculture sets standards for the treatment of diseased animals in the member countries of the EU (Commission Regulation (EC) No 889/2008, Article 24). The objective of this regulation is to minimise the utilization of traditional veterinary medicines. Additionally, the EU regulation explicitly promotes the use of holistic oriented therapies, such as homoeopathy and phytotherapy (Pignattelli and Martini, 2007).

The ideas and philosophy behind some of these treatments are in accordance with the ideas of organic agriculture. This is evident from the belief that, the use of medical substances obtained from natural sources can circumvent, or reduce, the use of chemicals that may be harmful to either the environment or human beings (Vaarst et al., 2004).

On the other hand, factors such as tradition, lack of knowledge and education, and farm structure, in many parts of EU, limit the use of these treatment methods. Many farmers have doubts regarding both the efficiency and the costs of homeopathy and phytotherapy (Martini et al., 2000a, 2000b, 2001). Interestingly, in many organic farms methods and practices of alternative medicine are combined with conventional medicine. Nowadays, this combination of practices and methods between alternative medicine and conventional medicine is currently defined as 'integrative medicine'.

There is much research on the efficiency of homeopathy and phytotherapy in organic farming, but sparse information on the cost, in comparison to classical treatments. The aim of present study was to investigate both the efficiency and cost of different medical treatments in an organic dairy farm, in which only integrative medicine and predominantly homeopathy has been practices since 1995.

Material and Methods

The financial contribution of the Comunità Montana del Mugello covered the 25 month period of data recording. From December 2006 to December 2008, a trial was carried out on the "Cooperativa Emilio Sereni" situated north of the province of Florence. The farm is a dairy production tenancy co-operative, which has been in operation as a certified organic farm since its conversion (between 1992 and 1995). The total surface of the farm is 352 hectares, with a usable agricultural area of 156 ha. Italian Holstein cows (a number of 297) were kept on the farm (including 133 milking cows) in a loose, open housing system containing a pasture surface where animals were able to graze when possible. All the components of the feed rations were produced on the farm, with the exception of the one part of organic soya bean. Daily milk production was about 31 kg/day/cow, 10.6 tons/lactation/cow. The average milk quality parameters obtained were: 3.62% fat, 3.22% protein and 220,000 somatic cells/ml. All animals are treated with only integrative medicine.

A veterinary homeopath, involved in the present research group, visited the animals every fifteen days, controlling the health status and prescribing the treatments. Animals were treated by the classical unicistic homeopathy (Kent and Ullman, 1979) (HOM) and phytotherapy (PHY), but, when indispensable, and according with limits of EU regulation, allophaty (ALL), antiparasitic drugs (APD), surgery (SUR), and vaccines (VAC) were used (Martini e coll., 2001a, 2001b, 2002a, 2002b; Lorenzini et al. 2009).

During the experimental period, data, regarding the treatments and diseases of the animals, were recorded daily, using software based on Microsoft Access. In this work a decision was made to subdivide the existing diseases into 3 categories:

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diseases of genital apparatus (GAD), diseases of mammae and related pathologies (e.g. puerperal collapse) (MRD) and diseases of the other apparatuses (OAD). In the 25 month duration of the trial, only 18 claw and hoof problems (0,75% of total) were treated. So, these were included in OAD.

Data were always referred to as a single treatment, and not to as a single animal or as a single disease. Sometimes recidivism was observed in the same animal or a different treatment for the same pathology was used. All data is referred to the current month in order to evaluate the results of the treatments.

Furthermore, the results of treatments were classified as follows: recovered = recovered after the treatment; recidivist = ill again within the month; dead = dead in spite of the treatment; eliminated = eliminated by either by the outcome of the disease outcome or sometime by others causes (e.g. old age, low productivity, etc.). The duration of the medical treatments were recorded on the farm database.

The costs of the medical treatments were calculated based on the following considerations: cost of work (number of workers x cost per minute x time in minutes x number days), cost of remedies and medicines and their administration modality (cost of a dose x quantity), cost of external services, and the cost of the veterinarian who visited the animals and prescribed remedies.

Nominal data (type of disease, type of medical treatments used and results of treatment) were analysed by Contingency analysis. The continuous data (treatment duration and calculated costs) was analysed by one-way ANOVA, in which the type of medical treatments was assigned as a fixed factor. The calculated costs were analysed also by two-way ANOVA with month and interaction treatment x month as fixed factor. Data were referred to a month to facilitate the interpretration of the results, and to obtain a graphic representation. Different means were compared by the Tukey test (SAS, 2002).

Results and discussion

In 25 month duration of the experiment, the types of remedies, treatments or medicines that were used, respectively, included: 50 HOM remedies, 22 ALL drugs, 5 PHY products, 5 SUR treatments, 1 APD drug and 1 VAC were administered.

The most widely used HOM remedy was Phytolacca 200 CH. This remedy was used in 207 MRD cases. The most widely used PHY product was Flumast L (essential oil and vegetal extract-based natural gel) in 41 MRD cases.

The most widely used ALL drug was Ripromed (intrauterine ozone pearls), which had to be administered in 196 GAD cases. APD was represented by a sulphamidic treatment against coccidiosis, whereas VAC was administration of ScourGuard 3 (against Rotavirus, Coronavirus, Escherichia coli).

In table 1 the results, by group of diseases, were considered. The use of HOM was the most predominant type of remedy to treat ailments of GAD and MRD. PHY was preferable to ALL in the treatment of MRD. ALL was utilized more than the other medical treatments for OAD, but this category only represented 16.30% of all the diseases treated.

Contingency analysis: total ChiSq 792,696 P≤0.0001. Allopathy (ALL), antiparasitic drugs (APD), surgery (SUR), phytotherapy (PHY), homeopathy (HOM), vaccines (VAC). Diseases of genital apparatus (GAD), diseases of mammae and related pathologies (MRD), diseases of the other apparatuses (OAD).

Table 1 - *Types of medical treatments to treat different types of diseases.*

Rdf= 2369		ALL	APD	SUR	PHY	HOM	VAC.
GAD	n.	248	0	90	6	920	0
	% (line)	19.6	0.0	7.1	0.5	72.8	0.0
MRD	n.	43	0	0	85	544	0
	% (line)	6.4	0.0	0.0	12.7	81.0	0.0
OAD	n.	223	13	7	24	138	43
	% (line)	49.8	2.9	0.8	5.4	30.8	9.6

In table 2, we reported the success of the medical treatments used in terms of the respective classifications for recovered and healed, eliminated, dead and recidivist animals.

The amount of eliminated animals was justified by the fact that the farm under study, usually sells many productive and healthy animals to other organic farms. Regarding the number of recovered animals, both PHY and HOM treatments were shown to have a better outcome than ALL. Mortality was low, and within the norm of other dairy farms with similar characteristics (Bertani et al., 2005). The number of recidivists was similar for HOM and ALL, and lower for PHY.

Contingency analysis: total ChiSq 42.535 P≤0.0002. Allophaty (ALL), antiparasitic drugs (APD), surgery (SUR), phytotherapy (PHY), homeopathy (HOM), vaccines (VAC).

Table 3 illustrates the results obtained for medical treatments by type of disease. The percentage of eliminated animals was similar in the 3 categories analysed (average 3.4%).

The percentage of recovered animals was in general very high for all types of disease. The highest incidence of recidivist animals was observed in GAD, whilst the highest incidence of dead animals was observed for OAD.

Table 2 - *Success of the medical treatments used.*

Rdf =2364		ALL	APD	SUR	PHY	HOM	VAC
Eliminated	n.	19	0	3	5	52	1
	% (column)	3.7	0.0	3.1	4.4	3.3	2.3
Recovered	n.	393	13	55	81	1095	42
	% (column)	76.5	100.0	66.0	80.9	79.3	97.7
Dead	n.	7	0	1	3	4	0
	% (column)	1.4	0.0	1.0	2.6	0.3	0.0
Recidivist	n.	95	0	29	14	280	0
	% (column)	18.5	0.0	29.9	12.2	17.5	0.0

Table 3 - *Results obtained for medical treatments by type of disease.*

Rdf =2376		Eliminated	Recovered	Dead	Recidivist
GAD	n.	44	908	3	309
	% (line)	3.5	71.8	0.2	24.5
MRD	n.	20	575	3	74
	% (line)	3.0	85.6	0.45	11.0
OAD	n.	17	388	9	35
	% (line)	3.8	86.4	2.0	7.8

Contingency analysis: total ChiSq 32,025 P≤0,0001. Diseases of genital apparatus (GAD), diseases of mammae and related pathologies (MRD), diseases of the other apparatuses (OAD).

In table 4, the results, obtained from the analysis of the duration of treatments and their respective costs, were reported. The average duration of treatments was significantly lower for ALL (1.3 days) than HOM (3.0 days).

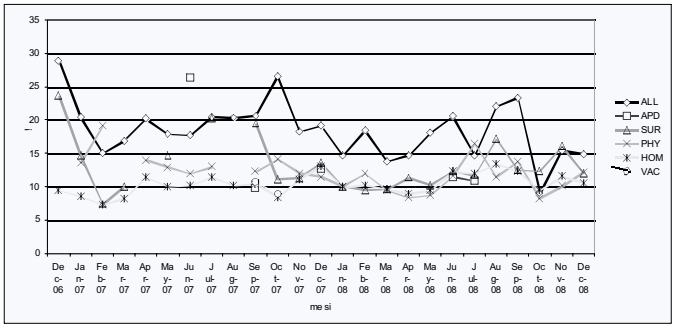
Not considering the veterinarian, the cost analysis showed that HOM (4.21 €) and PHY (5,67 €) were significantly cheaper than ALL (12.41 €): HOM was 1/3 in comparison with ALL costs. Moreover, if the veterinarian costs are taken into consideration and given that these are normally are considered very expensive by the farmers, HOM costs (10,03 €) were almost half the price of ALL costs (18.15 €).(VAC).

Table 4 - *Duration of medical treatments and costs.*

Rdf =2378		sig	ALL	APD	SUR	PHY	HOM	VAC.
Treatment duration	d	***	1.3b	2.9a	1.1b	1.1b	3.0a	1.0b
Costs, without vet costs	€	***	12.42a	10.04ab	7.17bc	5.67bcd	4.21d	4.35cd
Costs, including vet costs	€	***	18.15a	17.16ab	13.26bc	11.86cd	10.03e	9.36de

ANOVA Test: ***= P<0.001. Means within a line lacking a common capital letter differ P≤0.05. Allophaty (ALL), antiparasitic drugs (APD), surgery (SUR), phytotherapy (PHY), homeopathy (HOM), vaccines (VAC).

Figure 1 - *Total costs including veterinarian costs*.



ANOVA test: Rdf=2283, Total significance P≤0.0001. Allophaty (ALL), antiparasitic drugs (APD), surgery (SUR), phytotherapy (PHY), homeopathy (HOM), vaccines (VAC).

The graph reported in figure 1 was created using the means calculated by two way ANOVA.

The differences among the treatments costs during the 25 month data collection were evident. In particular, HOM and PHY costs showed a uniform trend with very low values in comparison with the other medical treatments. In contrast, ALL showed two peaks over 25 € (December 2006 and October 2007).

Conclusion

In the current literature it is extremely difficult to find comparable research findings on the efficiency as well as costs of homeopathy and phytotheraphy. Only in Cuban literature, can something similar be found (Cuesta Mazorra, 2010). However, it must be noted that the results obtained in the present study are only comparable with similar investigations carried out on farms in the Mediterranean area (Bertani et al., 2005).

Additionally, in evaluating the work as restricted to a specific farm, it shows that the integrative medical approach is advantageous in curing organic dairy cows.

Our results demonstrate that HOM and PHY can be used to treat, with a positive outcome, the majority of diseases, even if, sometimes, conventional (ALL, APD, SUR, VAC) medicines have to be used. An important advantage for organic farmers is that the animals cured with HOM and PHY don't have to respect withdrawal periods (Commission Regulation (EC) No 889/2008, Article 24). Hence, production, in this case the milk, can be utilized, when possible, also during HOM and PHY treatments.

The most relevant result is that the costs for HOM and PHY treatments are very low in comparison with conventional treatments, especially when taking veterinary costs into consideration.

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References

Bertani, M., Mezzera, S., Motelli, A. (2005): Osservazione retrospettiva e analisi dei dati raccolti in due allevamenti bovini situati nella zona del Parmigiano Reggiano trattati con la medicina omeopatica, www.lycopodium.it.

Cuesta Mazorra M. (2010): Homeopatía. Aplicaciones en situaciones de emergencias y/o desastres naturales. REDVET. Revista electrónica de Veterinaria 1695-7504. Volumen 11 Número 03B.

Lorenzini, G., Martini, A., Sabatini, L., Gallai, S., Squilloni, S., Tambini, P., Casini, M., Polidori, P. (2009): Efficiency and costs of the health management in an organic dairy farm where we use unconventional medicines. Proceedings ASPA, Italian Journal of Animal Science, 8, 622-624.

Kent, J.T., Ullman, D. (1979): Lectures on Homeopathic Philosophy. Reprint edition, North Atlantic Books, Berkeley, CA, USA, 244 pp.

Martini, A., Tambini, P., Miccinesi, M., Ambrosini, F., Giorgetti, A., Rondina, D., Bozzi, R., Sargentini, C., Moretti, M., (2000a): Utilisation unconventional medicines in a dairy farm of the Northern part of the Florence Province. Preliminary results. Proc. 13th IFOAM Scientific Conference, Basel, 28-31 August, 345.

Martini, A., Tambini, P., Miccinesi, M., Ambrosini, F., Giorgetti, A., Rondina, D., Bozzi, R., Sargentini C., Moretti, M. (2000b): Utilisation of homeopathy in dairy cattle. First results of an Italian trial. Proc. 3rd Workshop of the Network for Animal Health and Welfare in Organic Agriculture (NAHWOA), Clermont Ferrand, 21-24 October: 119-124.

Martini, A., Tambini, P., Miccinesi, M., Bozzi, R. (2001): Homeopathic medicine: research data from Italy. Proc. 5th Workshop of the Network for Animal Health and Welfare in Organic Agriculture (NAHWOA), Rødding (DK), 11-13 November: 32-40.

Pignattelli, P., Martini, A., (2007): Omeopatia. In: Pignatelli, P., Medicina veterinaria non convenzionale, Edagricole, pp. 13-53.

SAS (2002): User's Guide: Statistics, Version 8.2. SAS Institute. Inc., Cary, NC, USA.

Vaarst, M., Martini, A., Bennesgard, T.W., Hecktoen, L. (2004): Approaches to the treatment of diseased animals. In: Vaarst, M., Roderick, S., Lund, V., Lockeretz, W. (eds.), Animal Health and welfare in Organic Agriculture, CABI Publishing, pp. 279-307.