Mastitis Control: Take Up the Gloves!

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ABSTRACT

This study shows the results of a communication campaign to increase the use of milkers gloves at Dutch dairy farms. Wearing milkers gloves is recommended as a proper method to reduce the risk of transmitting infections during milking. In 2004 only 16 percent of the Dutch dairy farmer used gloves during milking. Therefore, the Dutch Udder Health Centre (UGCN) initiated a campaign in cooperation with agricultural suppliers, which was executed from November 2007 until April 2008. At three moments a telephone survey was executed under randomly selected dairy farmers to monitor the effect of the campaign: before the start of the campaign, immediately after the campaign, and finally one year after the start. The results show that in this short period the use of gloves doubled, meaning that currently almost half of all the Dutch farmers use gloves regularly. Moreover, farmers' opinions about the use of gloves have changed positively. This campaign is an example of how management practices can be effectively communicated to farmers. As such, this study can contribute to an optimization of future campaigns to control and prevent diseases by changing farmers' management practices.

KEYWORDS: mastitis, control program, communication, extension.

INTRODUCTION

Mastitis is one of the main health issues in dairy production and remains a major challenge for the global dairy industry. Worldwide, programs to control mastitis are implemented using different strategies to reach and teach farmers. Often much energy is put in the technical optimization of such programs, whereas communication strategies are hardly tested on efficacy. This study evaluates the results of a communication campaign to increase the use of milkers gloves at Dutch dairy farms.

Wearing milkers gloves is associated with good udder health (Rodrigues et al., 2005) and effectively decreases the number of bacterial counts on hands during milking (OldeRiekerink et al., 2008). Wearing gloves during milking is recommended by veterinarians and extension specialists as a proper method to reduce the risk of transmitting infections during milking. In 2004 a baseline survey on farmers udder health management showed that 16% of the Dutch dairy farmer used gloves during milking (Jansen et al., 2004). Therefore, the UGCN initiated a campaign in cooperation with two main agricultural suppliers, with a research institute (Animal Sciences Group at Wageningen University), and with the Dutch Federation of Agricultural and Horticultural Organizations (LTO). The campaign was executed from November 2007 until April 2008. The campaign consisted of four main strategies: (1) launch of the campaign and a website during a national agricultural fair, (2) farmers received two humorous postcards during the campaign to remind them to wear gloves, (3) approximately 75% of the Dutch dairy farms were visited by the agricultural suppliers and were personally offered a free sample of milkers gloves, and (4) gloves could be ordered via the campaign website with 25% discount. The campaign was executed from November 2007 until April 2008

METHODS

At three moments in time a telephone survey was executed under randomly selected Dutch dairy farmers to monitor the effect of the campaign: t_0 pre-test before the start of the campaign in November 2007 (N=287), t_1 immediately after the campaign in April 2008 (N=300), and finally t_2 at one year after the start in December 2008 (N=327). The farmers were approached by telephone until approximately 300 farmers cooperated. Farmers were asked about the use of milking gloves, about their opinion on milking gloves and about their perception of the advantages of milking gloves. Farmers were asked open questions and the interviewer scored the answers in the given categories.

Preceding the analyses, all answer categories were recoded into dummy variables. Descriptive analyses were used to explore the data. One way ANOVA analyses were performed using Bonferroni contrasts testing whether

farmers' answers at t_0, t_1 and t_2 differed significantly. Missing data were excluded from the analyses. Although the assumption of homogeneity of variance was broken for most variables, the robust tests of equality of means using Welch and Brown-Forsythe statistics did not show deviant *P*-values. Therefore, ANOVA's F-statistics are reported. Data were analyzed using SPSS 15.0 for Windows (SPSS Inc., Chicago, Illinois, USA).

RESULTS

The results show that the use of gloves increased from 20.9% at the beginning of the campaign (t_0) to 36.7% immediately after the end of the campaign (t_1), see table 1. One year after the start of the campaign the use of gloves further increased to 42.0% (t_2). The percentage of farmers never using gloves decreased from 74.1% at t_0, to 41.7% at t_1, and to 32.2% at t_2. The results also show that more farmers have unsatisfactorily tried using gloves during the campaign (0.3% at t_0, to 8.3 % at t_1, and to 17.8% at t_2).

Table 1 The use of gloves during milking before (t_0), during (t_1), and after the campaign (t_2).

			% dairy farmers		
Question	Answer categories	*P* - value[1]	t_0 N=287	t_1 N=300	t_2 N=327
Wearing gloves during milking	No, and do not intent to	< 0.001	74.2^{a}	41.7^{b}	32.2^{c}
	No, but I want to try	0.013	1.7^{a}	6.0^{b}	2.8^{a}
	No, but I have tried	< 0.001	0.3^{a}	8.3^{b}	17.8^{c}
	Yes, sometimes	0.045	2.8^{a}	7.3^{b}	5.2^{ab}
	Yes, always	< 0.001	20.9^{a}	36.7^{b}	42.0^{b}

[1]*P*- values are based on One-Way ANOVA analyses between groups.
[a-c] Frequencies within a row with different superscript are statistically different (*P*<0.05).

As presented in figure 1, farmers' opinion about gloves changed during the campaign. The percentage of farmers that thought gloves were not useful decreased from 39.4% at t_0 to 18.3% at t_2 ($P < 0.001$). The number of farmers that think wearing gloves is very good increased from 23.6% at t_0 to 43.3% at t_2 ($P < 0.001$). The percentage of farmers who think that wearing gloves prevents mastitis also increased (0.7% at t_0 and 11.3% at t_2, $P < 0.001$), as did the percentage farmers who think that wearing gloves is better for your hands (6.0% at t_0 and 28.8% at t_2, $P < 0.001$). The percentage farmers who think wearing gloves is inconvenient did not change ($P < 0.862$).

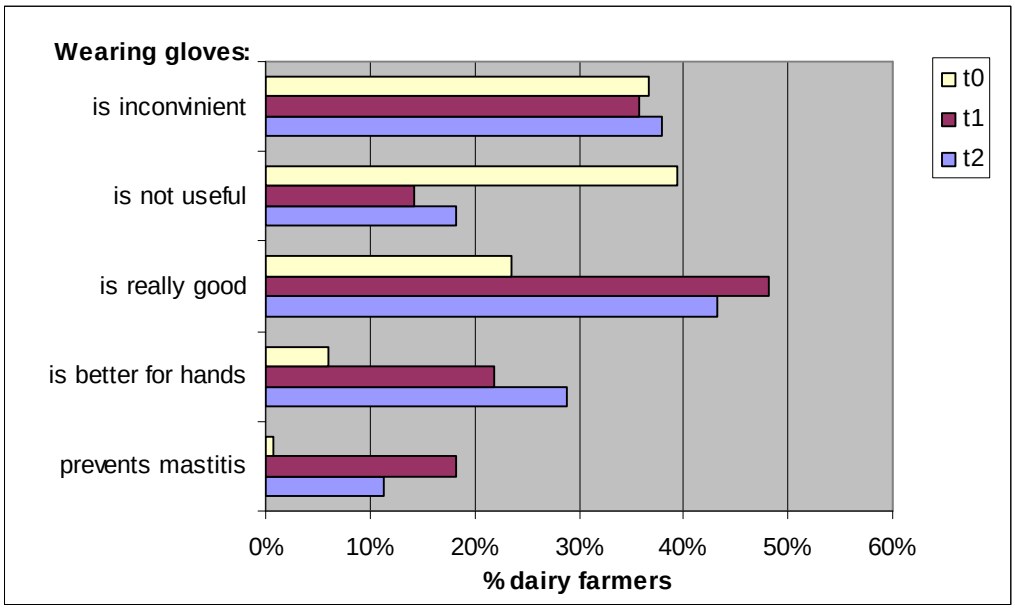

Figure 1 Farmers' opinion about milkers gloves before (t_0), during (t_1), and after the campaign (t_2).

DISCUSSION

The results of this study show that a relatively short campaign on a single management practice can be quite effective in changing farmers' behaviour. The campaigns main focus was to communicate that you have to wear gloves 'just because it's good', without giving specific arguments about why to use gloves. The results show that not only the use of gloves changed, but even though no arguments were given, also the opinion of farmers about the use of gloves. During the campaign more farmers became convinced that wearing gloves is good. Scientific literature on health communication campaigns shows that an aim of changing 20% of a populations' health behaviour is a very big challenge and will probably result in failure (Snyder et al., 2004). Moreover, campaigns without using rational argumentation to persuade farmers are generally considered to be temporary, susceptible to counter persuasion and unable to predict behaviour in the future (Petty and Wegener, 1999). Surprisingly, this was not the case for the milkers gloves campaign. Even though there is a stronger effect on attitudes immediately after the campaign, the use of milking gloves increased further after the end of the campaign. It can be discussed whether this increase is an effect of the campaign itself, and not an ongoing trend in Dutch dairy farming. However, in 2004, 16% of the Dutch dairy farmer used gloves during milking (Jansen et al., 2004), increasing with 1-2 % a year until the start of the campaign at the end of 2007. During the campaign the use of gloves almost doubled, continuously increasing after the campaign had ended. This seems to be a profound effect of the campaign itself and does not indicate a temporary effect on attitude and behaviour on wearing milkers gloves.

An explanation for the success of the campaign on milkers gloves might be the fact that this campaign focused on the adoption of a new behaviour, which in general results in greater effects compared to campaigns aiming at the cessation of a problem behaviour (Snyder et al., 2004). Moreover, when trying to explain the effect of the campaign, bigger campaign effects are found in campaigns with greater reach and exposure and where there is a secular trend in society that supports the campaign (Snyder et al., 2004). In our situation, the udder health program started in 2005 and their efforts to reach and motivate farmers could indeed have provided a general support for such peripheral campaigns. Other reasons for the success of the campaign might be the peripheral cues that are used, such as a visit from trained sales persons who offered free samples, and the power of using authorities such as UGCN, a university and the farmers association LTO as sender of the message.

CONCLUSION

The results indicate that a relatively short mass media campaign can have a sustained effect on farmers' attitude and behaviour. This campaign is an example of how a valid evaluation of a communication strategy can add value to the technical evaluation of animal health tools in optimizing control and prevention of animal diseases by changing farmers' behaviour.

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