

# Economic behaviour of dairy farmers

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## Introduction

An important assumption, made in neo-classical economics, is that a decision maker acts rational and he (or she) pursues a maximization of utility.

For entrepreneurs, often profit maximisation is the main utility accounted for. In animal health economics, the current models also assume that profit maximisation is the most important objective.

The objective of this study was to look at two aspects of non rational economic behaviour:

- **the endowment effect:** the disutility of giving up an object is greater than the utility associated with acquiring it.
- **the gain-loss disparity:** people are significantly more averse to losses than they are attracted to gains of the same magnitude (Kahneman et al., 1991)

## Materials and Methods

136 were visited (Huijps et al., 2008). During this visit, two questionnaires were filled in:

-Questionnaire 1: Farmers were questioned if they would start or stop (depending on the current situation) applying certain management measures when changes in costs or efficacy would occur for these measures. The following three measures were considered:

- Wearing milkers' gloves
- Milking cows in groups based on somatic cell count
- Prestripping

Farmers doing the measure at time of the study were asked about increasing costs and decreasing efficacy while farmers not doing the measure at time of the study were asked about decreasing costs and increasing efficacy.

-Questionnaire 2: Farmers were asked to indicate the amount of penalty or bonus (randomly assigned) they would accept before they change their management in order to stay below different thresholds.

Data of the first questionnaire (endowment effect) was analyzed using bivariate probit models. Data of the second questionnaire (gain-loss disparity) was analyzed using a Poisson regression model.

For milking cows in groups based on somatic cell count, the endowment effect is not found in this study. This can be caused by the fact that this management measure is difficult and annoying. Farmers may take every excuse (e.g., higher costs or lower efficacy) as a reason to stop.

### Gain-loss disparity

To motivate farmers to try to achieve a lower BTSCC threshold, a higher bonus than penalty is needed (Figure 1).

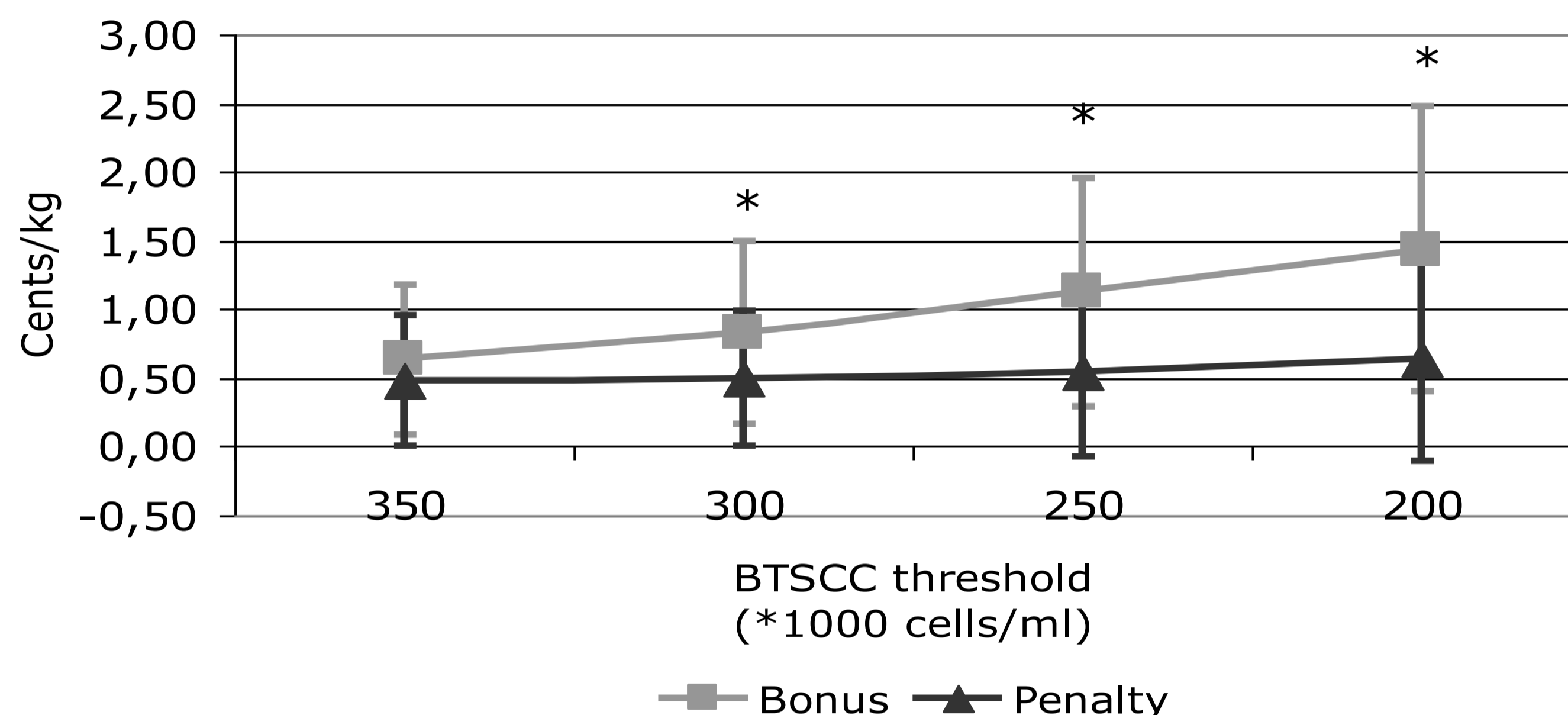


Figure 1. Levels for bonuses and penalties at different bulk tank somatic cell count levels (BTSCC) threshold levels (n=235). Significant differences ( $P \leq 0.05$ ) indicated with \*.

## Results and Discussion

### Endowment effect

Table 1 presents that the endowment effect is clearly visible (higher percentages of change for currently non users compared with current users) with respect to wearing milkers' gloves and efficacy changes in prestripping.

The effect increases with lower thresholds (with significant differences at thresholds 300,000 cells/ml; 250,000 cells/ml, and 200,000 cells/ml ( $p \leq 0.05$ )).

### Conclusion

Non rational economic behaviour (endowment effect and gain-loss disparity) was present in this study.

This study contributes to the understanding of the decision making process of farmers. This may improve personalized advices and, subsequently, the adoption rate and level of compliance.

### References

- Huijps, K., Lam, T.J.G.M., and Hogeveen, H., 2008. Valuation of different cost factors regarding mastitis management according to dairy farmers using Adaptive Conjoint Analysis. Submitted.
- Kahneman, D., Knetsch, J.L., and Thaler, R.H., 1991. The endowment effect, loss aversion and status quo bias. *Journal of Economic Perspectives* 5: 193 – 206.

### Acknowledgement

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Table 1. Percentage of farmers who indicated changing behaviour at different levels of change in costs and efficacy (significant differences ( $P \leq 0.05$ ) indicated with \*)

	Wearing milkers' gloves		Milking cows in groups		Prestripping	
	no	yes	no	yes	no	yes
Implemented at time of the study						
N	30	82	93	17	70	42
Costs						
10%	11%	3.3%	8.6%	11.8%	4.3%	7.1%
25%	2.4%	3.3%	20.4%	41.2%	10.0%	21.4%
Total	13.4%	6.6%	29%	53%	14.3%	28.5%
Coefficient	-1.11*		0.74		-0.57*	
Efficacy						
10%	47.6%	6.7%	23.7%	41.2%	24.3%	21.4%
25%	4.9%	6.7%	19.4%	29.4%	15.7%	9.5%
Total	52.5%	13.4%	43.1%	70.6%	40.0%	30.9%
Coefficient	-1.5*		0.54		-0.50*	