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INTRODUCTION

The economic profit in animal production is very small. So in a globalized and competitive market we can only focus to reduce costs to improve farmers benefits. Ketosis and Hypocalcemia are the most important metabolic diseases after calving. Various authors stated that mentioned diseases increase the incidence about Displaced Abomasum (DA), Retained Placenta (RP), Metritis (MT) and others diseases. Ketosis effects have been investigated for long (Duffield et al. 2009; Ospina et al. 2010; LeBlanc et al. 2010; McArt et al. 2012; Chapinal et al. 2012)

Hypocalcemia has been less investigated (Reinhardt et al. 2011; Suthar et al. 2013) but now many authors are working to improve more knowledge (Caixeta et. al. 2015-2017)

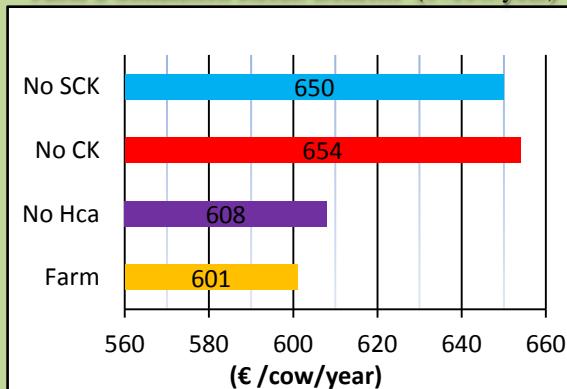
MATERIALS AND METHODS

This study is a review of the scientific bibliography published in the Journal of Dairy Science in order to obtain the incidences of diseases for simulate their effects. After reviewing the bibliography, a simulator program was used (<http://www.granjadevacas.es>). Different sceneries were tested with the program in order to evaluate their economic effect in a dairy farm. The scene is a farm of 500 dairy cows in the Spanish environment. Technical values, milk price and middle productions have been obtained from official institutions (CONAFE & EU Milk Market Observatory). The cost of milk production is 290 €/tone, today's real cost in most dairy farms in a Spanish context.

Table 1 Odds Ratio (OR) increased values

	RATE	DA	RP	MT	CK
SCK	30%	3,3	1,5	1,7	6
CK	10%	8	2	2	-
HCa	5%	3	3	2,5	3,5

Table 2 Simulation Result Benefits (€/cow/year)



RESULTS

- Cows with CK, SCK and HCa have more incidence to come down with other diseases, if compared to healthy animals
- Diseases incidences values obtained after reviewing the bibliography are shown in Table 1. CK and SCK Odds Ratios have higher reliability than HCa. Mastitis isn't included in the study because there are only few evidences about the relationship between CK, SCK and HCa
- The result of simulation is shown in Table 2. The first assay was farm control profits, the result is 601€/cow/year. The incidence of each disease was reduced at 0%, after simulating each one. The farm without CK was in the most profitable situation, obtaining 654 €/cow/year. SCK have similar results 650 €/cow/year. HCa outcome was 608 €/cow/year.

CONCLUSIONS

- Ketosis (CK) impact is of 530 €/cow
- Subclinical Ketosis (SCK) impact is of 164 €/cow
- Hypocalcemia (HCa) impact is of 140 €/cow
- Biggest part of the losses do not come out from milk production result, these diseases make an Iceberg effect.
- Hypocalcemia is undervalued and needs deeper studies and research to obtain more reliable results.
- Applying selective treatments gave better profits than applying massive treatments. Investments in Cow comfort to reduce the diseases is recommended because we can pay the investment with the savings