



Effect of DeviCool Plus Liquid® on heavy pig production for Parma Ham in Italian summer conditions

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Introduction

Global warming is causing more extreme weather phenomenon in temperate and Mediterranean climate zones. Genetic selection for increased leaner genotypes has produced pigs with a lower voluntary feed intake much more prone to suffering from summer heat stress. In typical Italian summer conditions, it is common to encounter severely reduced growth rates in heavy finishing pigs in the months of July and August. The annual “high” in market prices is usually found in September and October (1), so the producer loses up to 15kg of live weight per pig, when the prices are high. The objective of this study was to look at the effect of a feed additive, DeviCool Plus Liquid®, on the finishing pig performance.

Materials and Methods

Two typical Po Valley finishing barns were used for the study. The pens were partially slatted and a liquid feeding system was used (with the addition of water only). The study ran from 12 July until the 24 of September 2019. A total of 642 pigs were allocated to the control group and 563 to the treatment group. The pigs in the control group were fed a standard farm mixed finishing ration and the treatment group the same ration with the addition of 5kg/ton of DeviCool Plus Liquid®, containing agents known to help with vaso dilazione as well as calcium and potassium homeostasis, thus reducing heat production. All the pigs were from the same source farm, and had a genetic composition of Topigs Talent x PIC Camborough (PRRS positive). Sixty pigs from each of the two groups were randomly selected and individually tagged. The tagged pigs were weighed at the start of trial, after 56 days and at the end of the trial. Continuous temperature and relative humidity recording were carried out throughout the study. The total feed consumption was recorded for each group. After slaughter, gastric ulcer scoring was performed using the method described by Robertson (2)

Statistical analysis was performed using IBM SPSS version 25.0.

Results

The control pigs had a start weight of 99,6kg ± 13,5 kg and the treated pigs had a start weight of 93,1kg ± 11,5kg. There were no significant differences in the growth rate between the groups (853g/day vs 851 g/day). The treated pigs had a numerically improved feed conversion rate (FCR) of 3,245 vs 3,358, although this difference was not significant.

Over 5500 temperature recordings were made, with a minimum of 21,1°C and a maximum of 34,1°C. The average was 27,4°C with an average relative humidity of 74%. The treated pigs showed better gastric ulcer scores, with

significantly higher numbers of individuals with no lesions and lower numbers showing pre ulcer changes

Table 1

Gastric Ulcer Scores				
	score	Control	Treatment	Sig.
No lesions	0	7	23	<i>p</i> <0,05
Pre ulcer	1	91	67	<i>p</i> <0,05
Slight ulcers	2	10	12	NS
Severe ulcers	3	0	0	NS
Total		108	102	
average		1,03	0,89	

A 2x3 factorial analysis was performed using treatment and three groups based on start weight 70/90kg, 90/110kg and >110kg. The growth rate was calculated at the intermediate and final intervals. The pigs offered DeviCool Plus Liquid in the 70-90 kg start weight group, grew significantly better (*p*< 0,05) in the period to the intermediate weighing and tended to grow better over the full finishing period (*p*<0,08). The control group had total losses (mortality and second grade pigs) of 3,4%, while the treated group had total losses of 1,2%

Conclusions and Discussion

The effect of modern genetic to be more susceptible to HS and reduced daily feed intake has been demonstrated (3). The same study also showed the higher susceptibility to heat stress in heavier pigs. Heavier pigs showed reduced feed intake in HS conditions in another study (4)

The overall economic damage of HS to the whole US livestock industry was estimated at \$2,4 billion and \$299 million to the pig sector (5).

The better gastric ulcer scores in the treated pigs can be attributed to the fact that satiated pigs will be less stressed. The feed additive DeviCool Plus Liquid® has shown to be effective in reducing total losses, improving FCR and increasing daily live weight gain amongst the smaller pigs and reducing gastric ulcers.

Acknowledgments

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References

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