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Comparison and economic evaluation of two PCV2 vaccination programs used in France

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Objective

PCV2-related diseases (PCVD) have a major impact on the world swine production. Different vaccination programs exist and help to control the disease. The objective of this trial was to compare the efficacy and economic benefits of a new single dose PCV2 piglet vaccine (Ingelvac CircoFLEX[®], 1 ml), with the previously established piglet vaccination in the herd (Circovac[®], 0.5 ml).

Materials and methods

The trial was carried out in 700-sow farrow-to-finish unit in Brittany, France, with a weekly production rhythm and weaning at 21 days of age. The herd was positive for PCV2, PRRS, APP, *Mycoplasma hyopneumoniae* and *Lawsonia intracellularis*. Sow vaccination with Circovac[®] was introduced in mid 2006 and shortly before the start of the trial piglet vaccination with 0.5 ml Circovac[®] was established in addition to that.

A total of 1,198 pigs were randomly assigned at weaning to two treatment groups and individually ear-tagged: 599 piglets received intra-muscularly 0.5 ml of Circovac[®], 599 piglets were injected intra-muscularly with 1 ml of Ingelvac CircoFLEX[®]. Pigs of both groups were kept in separate pens, but in the same rooms. The farm staff was blinded to treatment. To determine the course of PCV2 infection 9 blood samples were taken per group at 4 time points and tested with PCR (3 pools of 3 samples each): weaning, nursery, mid and end of finishing. Pigs were weighed individually at weaning (~21 days of age) and on average 140 days later before first pigs were sent to slaughter (end weight). Pigs having an end weight of 25% below the average of all pigs on trial are defined as culls. Individual carcass data were collected at slaughter. Live weight at slaughter was calculated back from the carcass weight and was used together with the individual slaughter age to calculate the wean-to-finish

average daily gain (ADG w-f). Individual antibiotic treatments were recorded per group. Based on the individual performance and mortality data the economic benefit of vaccination was calculated as gross margin per pig (GM, in Euro €). The GM equals the revenue generated by each pig minus its piglet and feed costs. Price references¹: €1.20/kg pork price, €20/piglet and €200/ton feed. Weaning weights, end weights ADG w-f and GM were evaluated by T-test; individual treatments, culls and mortality by Chi-square (Statistica[®] V.8, Statsoft Inc., Tulsa, USA).

Results

The presence of PCV2 during the trial was confirmed through PCR positive samples mid and end of finishing. Results of both vaccination groups are summarized in table 1.

Table 1: Performance and gross margin of the 2 vaccinated groups. (a,b: different superscripts indicate statistical significant differences).

	Circovac [®]	CircoFLEX [®]	Differences	p-value
Weaning weight (kg)	5.55 ^a	5.49 ^a	-0.06	0.31
End weight (kg)	86.51 ^a	88.65 ^b	+2.14	0.006
ADG w-f (g/day)	598 ^a	612 ^b	+14	0.002
Mortality (%)	8.68 ^a	3.34 ^b	-5.34	0.0001
Culls (%)	7.85 ^a	3.28 ^b	-4.57	0.0058
GM (€/pig)	20.0 ^a	27.8 ^b	+7.8	<0.0001

Discussion and Conclusion

In a PCV2 vaccinated sow herd the pigs of the Ingelvac CircoFLEX[®] vaccinated group had a lower mortality, less culls, increased weight gain and less antibiotic treatments compared to the Circovac[®] vaccinated animals. These findings indicate a superior efficacy against the negative impact of PCV2 infection, which resulted in a significant gross economic benefit of +7.8 €/per pig.

References

(1) www.marche-porc-breton.com Accessed June, 03rd 2009.