# Impact of Feeding Micro-Aid<sup>®</sup> to Sows on Litter Performance

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## SUMMARY

The objectives of this experiment were to determine the impact of the plant extract, Micro-Aid<sup>®</sup>, on the levels of immunoglobulins in sow colostrum and piglet blood and subsequently on the impact on weight gain in piglets when included in the sow's diet at 125 ppm for either 5 or 30 days pre-farrowing.

The inclusion of Micro-Aid<sup>®</sup> in the sow's diet for 30 days pre-farrowing resulted in one additional piglet born alive per litter, with no effect on average birth weight or on piglet growth from birth until weaning.

## INTRODUCTION

Micro-Aid<sup>®</sup> is an all-natural product, produced from a plant extract which has been marketed primarily as a mediator of emissions from animal manures. However, it has also been shown to reduce intestinal ammonia production and to alter intestinal microbial populations.

There have also been field reports that the feeding of Micro-Aid<sup>®</sup> to sows increases the level of immunoglobulins in colostrum. Since field studies in Denmark have suggested that elevated immunoglobulin levels in colostrum enhance piglet growth this project was designed to determine the effect of Micro-Aid<sup>®</sup> on piglet growth.

## METHODOLOGY

Three dietary treatments were used: control (control), Micro-Aid<sup>®</sup> added at 125 ppm to the gestation diet and fed for 5 days prior to farrowing (MicroAid5) or Micro-Aid<sup>®</sup> added at 125 ppm to the gestation diet and fed for 30 days prior to anticipated farrowing date (MicroAid30). The diet, based on wheat, barley peas and soymeal, also contained vitamins, minerals, limestone, salt, dicalcium phosphate, choline chloride and canola oil and was not formulated specificially for this experiment. All diets were fed at 3.5 kg/sow/day, as per normal barn procedure, from day ~85 of gestation onward, irrespective of experimental treatment.

"The inclusion of 125 ppm of Micro-Aid" in the diet of gestating sows for 30 days pre-farrowing resulted in 1 additional pig per litter. Primarily due to a decrease in stillborns."

Cross-fostering was restricted to within treatment, but was allowed to occur across parity groups and had to be completed by 48 hours post-partum. Three average piglets from each litter were bled by venipuncture in the mid- to late-afternoon of the day following birth. Cross-fostered piglets were not used for blood collections.

## RESULTS

The sows receiving MicroAid<sup>®</sup> in their diet for 30 days prior to farrowing had an average of 12.4 live births per litter, which is greater (P = 0.05) than the 11.4 born alive in the control treatment (Table 1). A chi-square analysis comparing stillborns and born alive or total born dead, and correcting for the different litter numbers per treatment, confirmed that the numbers born dead differed between treatments. Total born dead (mummies and stillborns) as a percentage of the total born on the control treatment was 8.8%, while on the MicroAid5 and MicroAid30 it was 6.6 and 6.0%, respectively. Average bodyweight was unaffected by treatment (P > 0.05). Because of the greater number of piglets born on the MicroAid30 treatment, total litter bodyweight was increased on this treatment (P < 0.05). Treatment had no effect on the IgG concentration in the serum from the piglets on day 0 or in the colostrum (P > 0.05; table 2).

Table 1.	Performance response to the inclusion of Micro-Aid® in the diet of	bf
sows for	30 or 5 days pre-farrowing.	

Parameter	Control	MicroAid5	Micro- Aid30	SEM	Valueª					
# of litters	65	66	65							
Total pigs born alive <sup>b</sup>	745	751	811							
Stillborns <sup>b</sup>	65	40	44							
Mummies <sup>b</sup>	7	13	8							
Live pigs/litter, n										
Day 0	11.4	11.7	12.4	0.4	0.14					
Day 5	10.3	10.3	10.5	0.3	0.87					
Day 12	10.1	9.8	10.1	0.3	0.76					
Weaning <sup>c</sup>	10.1	9.7	9.9	0.3	0.76					
Average BW, kg										
Day 0	1.58	1.55	1.55	0.03	0.59					
Day 5	2.40	2.37	2.30	0.05	0.25					
Day 12	4.38	4.21	4.13	0.08	0.07					
Weaning <sup>c</sup>	7.01	6.81	6.73	0.12	0.22					
Total Litter Wt, kg	17.66	17.73	18.88	0.53	0.19					
Sow Wt Change <sup>d</sup> , kg	-4.93	-9.62	-6.36	1.92	0.21					

<sup>a</sup> Shown is the P value for treatment. Model contained the effect of treatment, replicate (n=2) and the treatment by replicate interaction. Litter and pig numbers shown are for the entire experiment and therefore could not be analyzed statistically. <sup>b</sup> Total born alive, compared to born dead, or total born alive vs stillborns, control vs Micro-aid, 5 and 30, significantly different (P < 0.01) by Chi-square analysis. <sup>c</sup> Day 19.

<sup>d</sup> Throughout lactation



## CONCLUSION

The inclusion of 125 ppm of Micro-Aid<sup>®</sup> in the diet of gestating sows for 30 days pre-farrowing resulted in 1 additional pig per litter. This result appears to be primarily due to a decrease in stillborns, rather than an effect via IgG concentrations delivered to the pigs prenatally. There was no effect of Micro-Aid<sup>®</sup> on average birth weight, nor growth of the piglets from birth to weaning.

## ACKNOWLEDGEMENTS

Strategic funding provided by Sask Pork, Alberta Pork, the Manitoba Pork Council and the Saskatchewan Agriculture Development Fund. The authors acknowledge generous support for this project from Distributors Processing Inc.

 Table 2.
 IgG concentration (mg/ml) in colostrum from sows fed Micro-Aid® for 5 or 30 days prefarrowing and serum from piglets born to these sows

Parameter	Control	MicroAid5	Micro- Aid30	SEM	Valueª
Piglet serum IgG <sup>a</sup>	35.8	35.9	34.2	1.05	0.45
Colostrum IgG <sup>b</sup>	745	751	811		

a Obtained from 3 piglets per litter on day 1 post-farrowing.

b Obtained from the sow before or during farrowing, prior to 3 piglets suckling.