

Effects of a short exposure period to deoxynivalenol (DON) contaminated wheat on health parameters and post weaning and fattening performances of pigs



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The contamination of feed with the *Fusarium* toxin deoxynivalenol (DON) decreases feed intake and daily gain of pigs but also affects their immune response. An experiment was conducted to evaluate the effects of a brief contamination of post-weaning feed with DON on performance and health condition during post-weaning and fattening periods.

Materials and methods

336 weanling pigs (8.0 kg and 28 d old) in a 40 d experiment.

From 12.9 kg (phase 2), three dietary treatments:

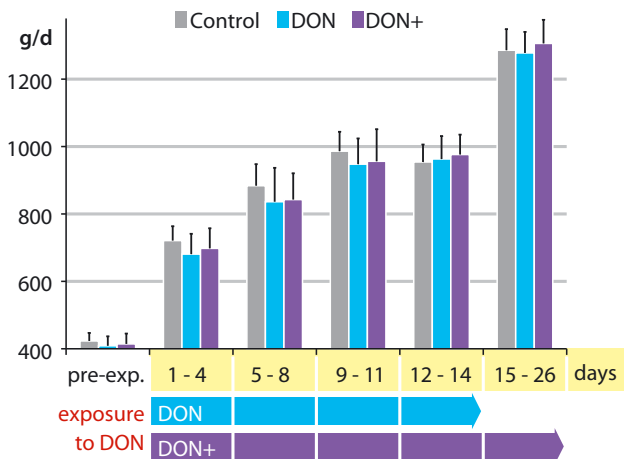
- Control: C diet
- DON: D diet for 14 days, then C diet
- DON+: D diet for 26 days

Phase 2 diets contained 70 % of control wheat (C), or 66 % of naturally DON contaminated wheat (D). D diet averaged 1500 µg DON per kg. Both diets were iso-energetic and iso- amino acids.

Piglets were housed in 4 weaner pens of 14 piglets each, per treatment and sex. Then, pigs were affected to two contrasting systems of fattening (fully vs partly slatted) and received basal growing-finishing diets.

Results

Effect of exposure time to DON on phase 2 piglet feed intake (mean ± SD)



In the experimental phase 2 period, feed intake was slightly but not significantly affected by DON/DON+ treatments. From weaning to day 40 after weaning, piglets had similar DFI (mean: 831 g/d), ADG (572 g/d) and FCR (1.45 kg/kg). There were no significant effects of diets on phase 2 losses and health conditions.

No negative residual effects of post-weaning DON exposure was observed during growing and finishing periods. Surprisingly, in the fully slatted facility, control pigs had lower daily gain than other pigs. No significant differences were found for the partly slatted housing system.

Effect of treatment on phase 2 piglet health

	Control	DON	DON+	Stat
number	112	112	112	
losses	0	1	0	
treated piglets, n	4	4	8	ns
vet treatments per pig, %	3.6	3.6	7.1	ns
• respiratory (cough)	2.7	3.6	7.1	ns
• lameness	0.9	0.0	0.0	ns

Veterinary and health treatments were similar among treatments during the fattening periods.

Effect of post-weaning treatment on fattening performance and health

	Control	DON	DON+	RMSE	P
Group A (fully slatted floor)					
number	49	51	50		
weight d 1, kg	32.7	33.3	33.2		ns
weight d 30, kg	64.3	65.8	64.2	2.7	0.06
live BW at slaughter, kg	119.5	120.2	120.0	5.4	ns
dressing, %	77.6	77.8	77.6	1.0	ns
lean meat, %	57.5	57.0	57.5	2.0	ns
gain d 1 to 30, g/d	1032	1081	1030	91	0.06
gain d 1 to harvest, g/d	1007a	1054b	1038b	74	<0.05
losses, n	3	2	0		
treated pigs, n	4	2	0		
vet treatments per pig, %	13.7	7.5	0.0		
• lameness	5.9	5.7	0.0		
• other	7.9	1.9	0.0		

	Control	DON	DON+	RMSE	P
Group B (partly slatted floor)					
number	43	41	36		
weight d 1, kg	29.4	29.3	29.2	1.7	ns
weight d 48, kg	70.8	71.3	72.2	5.0	ns
live BW at slaughter, kg	113.5	114.7	116.5	6.3	ns
dressing, %	78.4	78.2	78.5	1.4	ns
lean meat, %	60.8	60.0	60.2	2.3	ns
gain d 1 to 48, g/d	863	874	893	103	ns
gain d 1 to harvest, g/d	886	897	922	72	ns
removed, n	1	0	0		
treated pigs, n	5	7	2		
vet treatments per pig, %	14.0	17.1	5.6		
• poor condition	7.0	9.8	2.8		
• other	7.0	7.3	2.8		

Conclusion

It is concluded that, in good rearing conditions, a brief initial exposure of pigs with a medium level of DON might lead to similar health and growth parameters until market weight.