



Influence of Lianol® Solapro on sow colostrum production

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Introduction

Sufficient sow colostrum production and colostrum intake by piglets are vital for the piglet immune status. Due to the increased prolificacy, the average weight of the piglets and their capacity to suckle and stimulate the sow colostrum production has decreased. This results in a diminished colostrum intake and poorer piglet immune status. Lianol® Solapro, a fermented potato protein added to the feed of sows, increases vigor and colostrum intake of piglets and sow colostrum production.

Materials and methods

Forty Belgian Landrace sows at CRA-W from three groups were divided into a feeding control group and a Lianol® Solapro group upon entering the farrowing unit (7 days prior to expected farrowing). Distribution was done manually as top feeding on the first diet (rate of 10 g/day) until 3 days post-farrowing and thereafter it was added to the 2nd diet at a rate of 0.1%. Farrowings, number of piglets born alive and stillborn and feed intakes were monitored.

To determine colostrum intake the interval between birth and first suckling was measured, piglets were weighed at birth and 24 hrs later. The total sow colostrum production is found by adding piglet colostrum intakes¹. The concentrations of IGF-I were determined in the sow plasma when entering the farrowing unit and at lactation day 4, in plasma of four 4-day old piglets of each litter but also in the colostrum whey (collected at parturition).

Centrifugation to 13,000 g gave the whey. Elisa Kit (Mediagnost®) was used after cryo-precipitation of proteins: acid-ethanol method². Data were processed by analysis of variance (GLM procedure, Minitab® 15.1.30.0). Included: effects of feeding treatment, of group and corresponding interaction.

Results

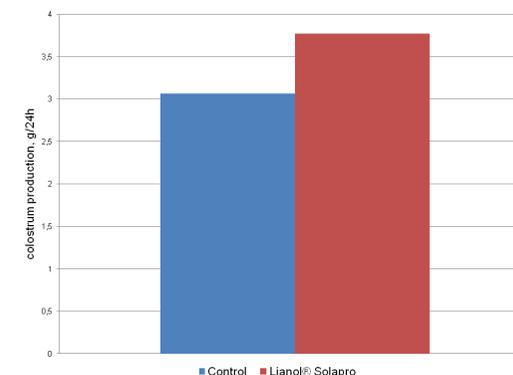
Litter size (total born, born alive, at 24 hrs) and the average weight of piglets per litter were similar. During the 1st 24 hrs, Lianol® piglets showed a higher weight gain (P<0.05) and had a higher colostrum intake (23%, P<0.05) than control piglets. Colostrum production was significantly higher in Lianol® sows (+20%, P<0.01). They showed a plasma IGF-I concentration which was significantly higher on day 4 of lactation (P<0.001). From entering farrowing to day 4 of lactation, Lianol® sows showed a significant improvement in plasma IGF-I concentration (P<0.001). IGF-I is known to stimulate lactogenesis³. IGF-I in colostrum was not influenced by treatment. However, Lianol® piglets had significantly higher plasma IGF-I until 4 days of age (P<0.001). Their daily weight gain was 22% higher during the first 4 days of life (P<0.05).

Table 1: Growth performance and colostrum intake of neo-natal piglets and IGF-I concentrations

	Control	Lianol® Solapro	s.e.	Effect
Number of litters	22	18		
Avg. litter size				
Total piglets born	12.0	12.1	0.5	
Piglets born alive	11.3	11.5	0.4	
Piglets at 24 h	11.0	10.9	0.4	
Piglet BW, g				
At birth	1,490	1,504	39	
At 24 h	1,556	1,629	42	
Time first suckling min	58	44	5	
Piglet ADG 24 h, g/d	63	114	10	T*
Colostrum intake, g/24 h	293	353	14	T*
Colostrum production, g/24 h	3,064	3,770	141	T**, G*
Sow plasma IGF-I, ng/ml				
Entering farrowing unit	35	38	2.6	
At 4 th lactation day	29	69	5.5	T***, G***
IGF-I concentration, ng/ml				
Colostrum whey	19	18	0.9	G***
Piglet plasma IGF-I, ng/ml				
At d 4	8	15	1.2	T***, G***
Piglet ADG 4 d, g/d	143	174	7	T*

No standardization of litter size, T=Treatment effect, G=Group effect, TxG=Treatment x Group interaction - * = P<0.05; ** = P<0.01, *** = P<0.001

Graph 1: Colostrum production



Conclusion

Lianol® Solapro added to the feed of sows increased piglet vigor as well as colostrum intake and colostrum production.

References

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3. Lee, C.Y. et al. (1993), Expression of components of the insulin-like growth factor system in pig mammary glands and serum during pregnancy and pseudopregnancy: Effects of oestrogen, J. Endocrinol., 137, 473-483.