

Effects of including hybrid rye in diets for gestating and lactating sows

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The purpose of this feeding trial was to evaluate the effect on total born pigs per litter, farrowing rate, and litter weight gain when sows were fed a diet containing 60 per cent rye during gestation and 35 per cent rye during the lactation phase. The control diet based on barley and wheat. The study was conducted over a period of 24 months at two practical swine farms that used dry feeding with commercially produced compound feed.

Farm A had 950 sows that were fed via an electronic sow feeding system in the gestation barn. Farm B had 1,250 sows and used floor feeding. The sows were divided in two groups such that the age of sows was the same in each group. The control and treatment diet were provided according to body conditions during gestation and lactation, and sows were allowed to consume their respective diets on a semi ad libitum basis. The control and treatment diets were continually formulated for similar nutrient content for gestating and lactating sows, respectively. There were variations in the type of raw materials over time, but

Table 1. Overall production results from Farm A and B (non-weighted averages)

Farm	A		B	
	Control	Treatment	Control	Treatment
Number of bred sows	1,455	1,477	1,361	1,310
Number of farrowings	1,376	1,398	1,309	1,239
Parity, avg.	3.2	3.2	2.8	2.7
Farrowing assistance, %	5	7	25	29
Treatment for MMA, %	17	22	23	27
Farrowing rate, %	92	92	92	91
Total born pigs per litter	17.8	17.8	18.7	18.7
Live born pigs per litter	16.5	16.4	17.1	17.1
Stillborn pigs per litter	1.4	1.5	1.6	1.6
Back fat thickness at farrowing, mm.	17.1	16.6	15.1	16.1

the content of rye was unchanged, and the same grain and protein sources were used in the control and treatment diets. All provided diets were formulated according to Danish standards for nutrients in sow diets. Phytase were added to the single diets as well.

On Farm A, 1,455 and 1,477 control and treatment sows, respectively, were bred and 1,376 and 1,398 sows farrowed. On Farm B, 1,361 and 1,310 control and treatment sows, respectively, were bred, and 1,309 and 1,239 sows farrowed. However, only 232 control sows and 233

Table 2. Total born pigs per litter and farrowing rate for Farm A and B (LSmeans values)

Farm	A				B			
	Control	Treatment	P value	Difference	Control	Treatment	P value	Difference
Farrowing rate, %	92.2 [90.6;93.5]	91.8 [90.2;93.2]	0.70	0.4	92.5 [90.6;94.0]	91.9 [89.9;93.5]	0.63	0.6
Total born pigs per litter	17.89	17.89	0.95	0.01 [-0.26;0.28]	19.08	19.03	0.75	0.05 [-0.25;0.35]

treatment sows from Farm A and 195 control and 185 treatment sows from Farm B were followed through lactation. Results indicated that litter size and farrowing rate were not affected by feeding of rye (Table 1). Back fat thickness at farrowing was also not different (17.1 and 16.6 mm on Farm A and 15.1 and 16.1 mm on farm B for control sows and treatment sows, respectively).

There were no significant differences between the primary parameters “total born pigs per litter” or “farrowing rate” between the groups at Farm A and Farm B (Table 2).

Milk yield was not affected by treatment, there were no differences in litter weight gain or litter weaning weights between control, and treatment sows (Table 3).

During the study period, approximately the same number of sows were culled in the two groups; there was also no difference in the number of dead sows between control and treatment groups (Table 4).

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Table 3. Litter results from standardized litters in the farrowing barn at Farm A and B, respectively (non-weighted averages).

Farm	A		B	
	Control	Treatment	Control	Treatment
Number of sows	232	233	195	185
Parity, avg.	3.47	3.41	3.05	3.09
Number of lactation days	25.2	25.1	28.3	28.4
At farrowing				
Total born pigs per litter	18.2	18.3	19.6	20.1
Live born pigs per litter	16.6	16.8	17.9	18.4
Stillborn pigs per litter	1.6	1.5	1.7	1.7
Litter weight at farrowing, kg	24.2	22.6	24.8	24.7
Weight per pig at farrowing, kg	1.29	1.23	1.26	1.23
At litter standardization				
Litter size, number of pigs	14.2	14.2	14.1	14.1
Litter weight, kg	19.7	19.0	19.4	19.2
Weight per pig, kg	1.39	1.34	1.38	1.36
At weaning				
Litter size, number of pigs	12.5	12.6	12.5	12.2
Litter weight, kg	85.6	85.6	100.0	98.6
Weight per pig, kg	6.89	6.80	8.05	8.15
Litter weight gain, kg	65.9	66.7	80.6	79.4
Daily weight gain from standardization to weaning, kg/day	2.63	2.67	2.87	2.83

Table 4. Culling reasons for sows at Farm A and B (non-weighted averages)

Farm	A		B	
Group	Control	Treatment	Control	Treatment
Number of slaughtered	280	293	327	359
Number of dead	81	96	39	45
Dead, % of culled	22	25	11	11

Conclusion

Overall, the experiment resulted in the following conclusions about use of feed with 60 per cent rye in gestation and 35 per cent rye in lactation:

- Litter size and farrowing rate are not affected.
- Density of feed with large amounts of rye is higher; this requires attention to correct adjustment of feeders.
- The sows' milk yield is not affected. Litter weight gain and litter weaning weight were not different.
- Over a period of 24 months, the sows' durability – measured by culled sows – was not affected.

Diets were not analyzed for ergot, because all diets were delivered as complete feed.

However, producers who mix their own feed and use their own rye should evaluate occurrence of ergot, which can lead to decreased milk yield in sows. Ergot can also cause prolonged contractions of the uterus, which can lead to abortions or stillbirths.

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