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17 $\alpha$ -ETHYL-19-NORTESTOSTERONE AND 6 METHYL-17-ACETOXY- $\Delta^6$ -PROGESTERONE  
IN GROWING-FINISHING SWINE RATIONS

K. W. Seerley

Previous research at this station showed that 17 $\alpha$ -ethyl-19-nortestosterone (Nilevar) significantly increased growth of female rats, but did not increase the growth of uncastrated male rats. When this hormone-like compound was fed to swine, two treatment levels increased the rate of gain of female growing-finishing pigs. Rate of gain of castrated male pigs was not improved by low levels of the compound and higher levels depressed growth.

SD10363 (6 methyl-17-acetoxy- $\Delta^6$ -progesterone) is a hormone-like compound which has possibilities as a good additive for growth stimulation in swine. The purpose of this experiment was to evaluate these compounds in swine rations.

Experimental Procedure

Ninty weanling purebred and crossbred pigs were allotted into 18 pens. The allotment of the pigs was on the basis of litter, age, and weight of the pigs. There were 9 experimental treatments, each treatment was replicated. Treatments were as follows:

Lot 1 and 1A	Grower-finisher
Lot 2 and 2A	Grower-finisher + .5 mg./lb. Nilevar
Lot 3 and 3A	Grower-finisher + 1.0 mg./lb. Nilevar
Lot 4 and 4A	Grower-finisher + 1.5 mg./lb. Nilevar
Lot 5 and 5A	Grower-finisher + .25 mg./lb. SC 10363
Lot 6 and 6A	Grower-finisher + .5 mg./lb. SC 10363
Lot 7 and 7A	Finisher-finisher
Lot 8 and 8A	Finisher-finisher + 0.5 mg./lb. Nilevar
Lot 9 and 9A	Finisher-finisher + 1.0 mg./lb. Nilevar

All pigs were fed and watered ad libitum. The pigs were weighed periodically throughout the experiment. Rations used in the experiment are shown in table 1.

Results

A summary of the results is shown in table 2. Carcass data are shown in table 3. Nilevar depressed the rate of gain of barrows and gilts when fed in either the standard grower-finisher rations or the finisher ration throughout the experiment. The decrease in rate of gain was greater for animals on the two higher levels of hormone. The barrows consistently gained faster than the gilts on all treatments, but the barrows and gilts responded the same to the treatment. This was not the same as in a previous trial (A. H. Mimeo Series 62-1), where the gilts gained faster than barrows when given Nilevar at a low level.

Table 1. Composition of Rations

	Grower	Finisher
Shelled corn	819	895
Soybean meal	125	63
Tankage	40	25
Dicalcium phosphate	5	5
Limestone	5	5
T. M. salt, high zinc	5	5
Trace mineral (CCC)	.5	--
B vitamin, Merck 92	.5	.5
Vitamin B <sub>12</sub> , Merck 20	.25	.25
Vitamin A and D, Quadrex 10	.2	.15
Aurofac 10	1.0	.5
Hygromix 8	.75	*

\* Hygromix 8 was fed to lots 7, 8 and 9 (also A) up to 100 pounds.

Table 2. Nilevar and SC 10363 Experiment, Winter 1961

Crude Protein in Ration, %		16-12	16-12	16-12	16-12	16-12	16-12	12-12	12-12	12-12
Nilevar, mg./lb.		--	0.5	1.0	1.5	--	--	--	0.5	1.0
SC 10363, mg./lb.		--	--	--	--	0.25	0.5	--	--	--
Lot number		1	2	3	4	5	6	7	8	9
No. pigs per lot	B	5	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5	5
Av. init. wt., lb.	B	44.8	45.4	44.8	46.2	43.0	45.2	45.2	45.4	45.0
	G	41.6	41.6	42.4	41.6	41.6	41.6	41.6	41.8	41.8
Av. final wt., lb.*	B	201.8	202.6	198.2	196.0	204.2	208.0	206.8	195.8	192.6
	G	207.0	205.6	189.0	203.6	201.4	205.4	202.4	194.4	186.4
Av. days on exp.	B	93.8	97.2	105.6	99.4	97.2	89.2	103.0	111.2	108.0
	G	100.6	103.8	103.8	111.0	105.3	98.8	111.8	116.2	114.4
Av. da. gain, lb.	B	1.80	1.62	1.45	1.51	1.66	1.82	1.57	1.35	1.37
	G	1.64	1.58	1.41	1.46	1.51	1.66	1.44	1.31	1.26
	Av.	1.72	1.60	1.43	1.48	1.58	1.74	1.50	1.33	1.31
Av. daily feed, lb.	B	5.60	5.10	5.08	5.10	5.46	5.30	4.91	4.98	5.00
	G	4.98	5.42	5.17	4.78	4.95	5.49	4.53	4.26	4.28
	Av.	5.29	5.27	5.12	4.93	5.20	5.40	4.71	4.61	4.63
Feed/lb. gain, lb.	B	3.12	3.15	3.49	3.38	3.29	2.90	3.13	3.68	3.66
	G	3.03	3.43	3.66	3.27	3.28	3.31	3.14	3.24	3.39
	Av.	3.07	3.30	3.58	3.33	3.29	3.11	3.14	3.46	3.52

\* Feeding phase stopped before all lots of pigs averaged 200 pounds but all pigs were slaughtered at 200 pounds.



Table 3. Carcass Data

Lot number		1	2	3	4	5	6	7	8	9
Av. backfat, in.	B	1.57	1.50	1.52	1.53	1.41	1.57	1.44	1.38	1.43
	G	1.44	1.38	1.19	1.47	1.30	1.36	1.32	1.39	1.31
	Av.	1.50	1.44	1.36	1.50	1.36	1.48	1.38	1.39	1.37
Av. length, in.	B	29.5	29.2	29.2	29.3	29.6	28.8	29.6	29.8	29.8
	G	29.5	30.0	30.0	29.1	29.4	28.9	29.8	29.5	29.5
	Av.	29.5	29.6	29.6	29.2	29.5	28.8	29.8	29.7	29.7
Av. loin eye area, sq. in.	B	3.95	4.33	4.02	3.98	4.22	4.02	4.63	4.43	4.19
	G	4.83	4.39	4.63	4.44	4.67	4.62	4.25	5.03	4.29
	Av.	4.39	4.36	4.33	4.21	4.44	4.30	4.44	4.73	4.24
Av. % lean cuts, of live wt.	B	52.35	52.55	51.44	53.30	53.08	51.20	52.53	54.23	54.27
	G	54.50	54.39	55.53	53.62	54.78	54.51	54.31	55.21	54.08
	Av.	53.43	53.50	53.48	53.46	53.93	52.90	53.42	54.71	54.18

Barrows and gilts fed 0.5 mg. of SC 10363 per pound of ration gained the same as the control pigs. Barrows and gilts fed this hormone-like compound at a level of 0.25 mg. per pound of ration gained slower than the control pigs. It is interesting that a low level of SC 10363 resulted in slower gains in barrows and gilts than the control ration or a higher level of SC 10363. More studies will be necessary to clarify this observation.

Pigs fed the 12% crude protein ration during the growing and finishing phases gained slower than pigs given 16% crude protein during the growing phase and 12% crude protein in the ration during the finishing period. The low-protein-fed pigs gained poorly during the growing phase, because the protein content of the ration was not adequate to meet the pigs' requirement for protein.

Daily feed intake did not appear to be affected by the hormone treatments. Pigs fed the finisher ration throughout the experiment had less daily feed intake than pigs fed the standard grower and finisher rations. Apparently, the pigs did not try to compensate for the lower protein level by eating more feed.

Feed required per pound of gain was greater for the pigs on the Nilevar treatment. The hormone did not have a sparing effect on protein. Comparing the two protein treatments (at equal hormone levels ) the pigs fed the lower protein levels gained slower and required more feed per pound of gain than pigs fed higher protein during the growing phase. Also, the hormone-fed pigs on the low protein ration gained slower and required more feed than the control low-protein-fed pigs.

Barrows fed 0.5 mg. of SC 10363 per pound of ration had a feed efficiency of 2.90 pounds per pound of gain or 7% less than the control pigs, whereas the gilts required 9% more feed per unit of gain than the control gilts.

Although there was some variation in backfat, the hormones did not have any effect upon carcass length, loin eye area or per cent lean cuts.