

BRIEF COMMUNICATION

IMPROVEMENT OF CONCEPTION RATE AND
DIAGNOSIS OF PREGNANCY IN SOWS BY AN
ANDROGEN-OESTROGEN-DEPOT PREPARATION

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This paper records observations made on conception in sows treated with a long-acting androgen-oestrogen mixture. The observations were made as part of an experiment originally undertaken to examine the value of treatment with this agent for the diagnosis of pregnancy in pigs. It has previously been observed that administration of a similar mixture was followed by heat in cattle previously showing ovulation in the absence of heat. By the same treatment an ovulatory heat was induced in anoestrous, barren animals, but existing pregnancies were not disturbed (Jöchle, 1964). It seemed probable that the existence of pregnancy would be established if heat failed to occur following administration of the agent.

Two milligrammes oestradiol valerate and 5 mg testosterone enanthate were administered to sows 9 to 12 days following service. The experimental group comprised ninety-eight German Landrace sows (from two research farms of the Max-Planck-Institute) served at the first heat following weaning. A group of 619 sows at the same farms, mated over the experimental period, served as controls.

The matings of the treated animals were made by a total of sixteen boars (see Table 1). Only animals which farrowed were judged to have been pregnant. All non-pregnant sows showing heat were mated again immediately.

Treatment with the androgen-oestrogen mixture proved highly effective as an indicator of the existence of pregnancy: all treated non-pregnant sows showed heat, but no treated pregnant sow showed heat symptoms. Unexpected was the unusually high conception rate of the treated animals: 90·8% (89 out of 98 sows) farrowed compared with 78·2% (484 out of 619) control animals ($P = 0\cdot01$). This percentage varied from 15 to 25% between the two farms and the boars used for mating. To eliminate those influences, treated and untreated animals mated by the same boar have been compared. Table 1 summarizes the farrowing performance of sows mated to the individual boar. It is shown that there were considerable differences in fertility between boars. Altogether conception rate among treated sows is higher (90·8%) than that among untreated sows (81·9%) ($P = 0\cdot05$). In seven out of nine boars treatment apparently increased the number of sows mated successfully. There is no evidence

of differences due to treatment either in litter size (10·8 in controls and 10·7 in treated sows) or in numbers of stillbirths (respectively 4·0 and 3·9). Treated non-pregnant sows conceived immediately following one or two matings. There was no disturbing influence on subsequent fertility following this treatment. Of four animals which were treated twice, three became pregnant.

TABLE 1

INFLUENCE OF A DEPOT-ANDROGEN-OESTROGEN MIXTURE ON THE NUMBER OF NON-PREGNANT SOWS MATED WITH INDIVIDUAL BOARS

Boar identity	Untreated sows			Treated sows		
	Mated	Non-pregnant		Mated	Non-pregnant	
		No.	%		No.	%
1	39	6	15·4	14	0	0 +
2	33	5	15·1	11	2	18·2-
3	31	4	12·9	22	2	9·1+
4	20	4	20·0	9	1	11·1+
5	19	8	42·1	7	2	28·5+
6	11	1	9·1	4	0	0 +
7	11	1	9·1	9	1	11·1-
8	7	2	28·5	4	0	0 +
9	6	2	33·3	3	0	0 +
Other boars (10 to 16) (n = 7)	15	2	13·3	13	1	7·7+
Total	193	35	18·1	98	9	9·2

From the results demonstrated, no final decision is possible about the value of this agent for the diagnosis of pregnancy, because the number of non-pregnant animals surprisingly was too small and all non-pregnant control sows showed heat. Heat symptoms in treated, non-pregnant sows were not intensified. In treated animals the mean dioestrous period was 42 days (25, 28, 30, 33, 40, 41, 42, 66, 67 days). The dioestrous period for sixty control sows which failed to conceive by fertile boars was variable. In 46% of sows it was 21 ± 4 days; in 34% the range was 26 to 36 days and for 20% it was 42 ± 6 days.

At the moment it is impossible to explain the efficacy of this agent in relation to the improved conception rate as well as to the delayed onset of oestrus in non-pregnant animals. Presumably the agent improves corpus luteum function, inducing nidation following fertilization of the eggs. Unpublished slaughter experiments have demonstrated that in the anoestrous, barren sow the agent induces fertile heat within 48 to 72 hr, providing evidence that the agent acts at the hypothalamic-hypophysial level causing release of gonadotrophin.

REFERENCE

- JÖCHLE, W. (1964) Die Behandlung von Acyclic und Anyphrodisie beim Rind mit einem Depot-Androgen-Oestrogen-gemisch (Provetan). *Prakt. Tierarzt*, 45, No. 4.