

*Brief Communication*

PLASMA PROGESTERONE IN GILTS DURING THE PREPUBERAL PERIOD AND THE FIRST OESTROUS CYCLE

The progesterone concentration of peripheral plasma in pigs has previously been studied during the oestrous cycle and in early pregnancy (*Tillson & Erb 1967, Stabenfeldt et al. 1969*). The present study was undertaken to obtain some information on the concentration of plasma progesterone during the prepuberal period and during the first oestrous cycle in the pig.

Five gilts of the norsk landsvin breed (Norwegian landrace) were used for the investigation. Starting when the animals were approx. four months of age, blood samples were collected at intervals of three to seven days. The blood was taken from the anterior Vena cava into heparinized centrifugation tubes. The samples were assayed in duplicates using a rapid protein binding method described by *Johansson (1969)* with some modification introduced by *Fylling (1970)*.

The gilts were closely observed for signs of oestrus. The first oestrus occurred when they were approx. eight months of age. During the four months prior to the first oestrus, the plasma progesterone concentration ranged between 0.0 and 2.7 ng/ml with a mean value of  $0.90 \pm 0.35$  (s) ng/ml (Table 1). These levels did not differ from the plasma concentration found at the time of the first heat ( $0.9 \pm 0.3$  (s) ng/ml). During the ensuing luteal phase the pattern was similar to that previously found in cycling gilts (e.g. *Stabenfeldt et al.*).

The results indicate that the first ovulation leading to functional corpora lutea in the puberal sow is accompanied by behavioural oestrus.

In this respect the gilt seems to differ from the ewe in which the first ovulation at the beginning of the breeding season occurs without heat symptoms. The lack of behavioural oestrus at the first ovulation in the ewe is explained by the finding that progesterone preconditioning to a high degree potentiates the effect of oestrogens (*Robinson 1954*). In the ovariectomized sow pre-

Table 1. Progesterone in pigs (n = 5) prior to and during the first oestrous cycle.

	Progesterone, ng/ml plasma	
	range	m. $\pm$ s
Months prior to first oestrus		
4	0.0—2.2	1.2 $\pm$ 0.4
3	0.0—2.2	0.8 $\pm$ 0.3
2	0.0—2.7	0.7 $\pm$ 0.4
1	0.0—2.3	1.0 $\pm$ 0.3
At first oestrus	0.1—1.7	0.9 $\pm$ 0.3
Weeks after first oestrus		
1	0.1—17.6	5.2 $\pm$ 3.7
2	5.9—34.1	18.9 $\pm$ 10.5
3	1.1—18.0	7.4 $\pm$ 2.4
At second oestrus	1.0—2.8	1.9 $\pm$ 0.3

treatment with progesterone may not be essential for the action of exogenous oestrogens given to induce heat (*Signoret 1967*). This is compatible with the present findings in the puberal sow, and with the fact that functional corpora lutea seem not to be present in lactating sows before coming into heat a few days after weaning (*Palmer et al. 1965*).

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