

PREGNANCY DIAGNOSIS IN PIGS. II. METHOD OF ANDROGEN-OESTROGEN-DEPOT PREPARATION

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Due to the importance of fertility in the reproductive management of pig farms, it is necessary to count with accurate and precocious methods to diagnose pregnancy.

The object of this study is to determine the efficiency of the pregnancy diagnosis using a hormonal association of oestrogen and androgen. These oestrogenic hormones present a marked luteinizing effect, and this effect will be different if the female is pregnant or not. In the latter (without a functional corpus luteum), the hormones act upon hypothalamus and stimulate the secretion of luteinizing factors (positive feed back effect) so that estrus and ovulation occur (Godard, 1975) (Hodges and Hearn, 1978). In pregnant sows, on the contrary, the luteinizing effect is summed to that of the ovarian and/or placental hormones and inhibits the hypothalamic action on hypophysis, therefore there are no folliculizing secretions (negative feed back effect) and estrus does not occur (Godard, 1975). An association of oestradiol valerate (2 mg) and testosterone enanthate (5 mg) in an oil solution, was injected in the neck of females that hadn't presented heat 21 or 28 days post breeding and afterwards, heat was detected by daily observations and exposure to the male.

As the method is based on the detection of heat induced by a hormonal complex (H.C.); three periods of effectiveness were considered, according to the time between treatment and heat induction. Females were considered pregnant if they hadn't presented heat till 4, 7 or 10 days post injection and not pregnant only if the heat was induced during these days. The results were confronted with number of farrowings, abortions or heat manifestation after 10 days post treatment.

A Total Accuracy (T.A.) (%) was considered = number of correct diagnoses/number of total diagnoses, and Accuracy for Pregnancy (P.A.) (%) = number of correct pregnancy diagnoses/number of total pregnancy diagnoses. The Accuracy for Non Pregnancy was considered to be 100% because, if the induced heat occurs before 4, 7 or 10 days it is an unmistakable sign of non pregnancy. Females that presented heat later than these days were considered diagnoses erroneous for pregnancy.

A total of 188 diagnoses were made using the H.C. at 21 days on 21 gilts and 75 sows; and at 28 days on 24 gilts and 70 sows.

The T.A. obtained at 21 days was 93.6, 97.9 and 98.9% taking in account 4, 7 and 10 days of heat induction post treatment and at 28 days was 91.4, 91.5 and 93.6%. The P.A. obtained at 21 days was 93.3, 97.7 and 98.8% and at 28 days was 91.3, 91.3 and 93.3% considering 4, 7 and 10 days of heat induction post treatment, respectively.

These results are slightly higher than those obtained by Bosc et al (1977). As can be seen, for T.A. and for P.A. the efficiencies are greater, but not significant ($p > 0.05$) when the H.C. is applied 21 days post breeding. Also, the accuracy increases with a longer induction period (10 days), as the possibilities of heat occurring are greater. During 10 days post treatment, 90.9% of the dry females injected at 21 days post breeding presented heat, but only 40% did when the treatment was applied on day 28 post breeding.

On classifying the females according to the number of farrowings, the T.A. in gilts was 94.7% and 79.2% when the treatment was applied on day 21 and 28 post breeding, respectively. There was no variation between days 4, 7 or 10 of heat induction as no heat occurred between days 5 and 10 post treatment. The same occurred with the A.P. which was higher ($p > 0.05$) with an application on day 21.

In sows, the T.A. was 93.3, 95.7 and 100% ($p < 0.05$) and 95.7, 95.7 and 98.6% for treatments applied on days 21 and 28 respectively, considering 4, 7 and 10 days of heat induction post treatment. The A.P. under these same conditions was 92.9, 98.5 and 100% ($p < 0.05$) for treatments applied on day 21 and 95.7, 95.6 and 98.5% on day 28 post breeding. The T.A. as well as P.A. an higher when the H.C. is used in sows, independent of the day of application and the days after treatment in which heat occurs.

It can be concluded that the method seems to be most effective when it is applied 21 days post breeding and its accuracy increases considering more days after the treatment for heat to occur. This, however, delays the diagnosis, for which reason 7 days is considered to be a convenient time to permit a fairly accurate diagnosis. Finally, this method is more effective when applied to adult females.

Selected references:

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