

CONCEPTION RATES, GESTATION LENGTH, LIVELWEIGHT CHANGES AND SERUM PROGESTERONE CONCENTRATIONS DURING THE BREEDING SEASON AND PREGNANCY OF FARMED FEMALE FALLOW DEER

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INTRODUCTION Farmed fallow deer (*Dama dama*) are known to exhibit up to 6 oestrous cycles over a 5 month breeding season (1) but there are no accounts of conception rates or serum progesterone (P) concentrations during gestation. Furthermore, gestation length has been sparsely documented.

METHODS During 1983 and 1984 139 mature fallow does were run in 9 single-sire mating groups (12-20 does/group). One group (14 does) was joined with a polled, vasectomised buck for the entire breeding season (April-Oct.) while the remaining groups were joined with polled, fertile bucks for the first 2 (1984) or 3 (1983) oestrous cycles. Bucks were fitted with ram mating harnesses and does were checked twice daily for crayon mating marks. Throughout fawning (Dec.-Jan.) new born fawns were ear-tagged, weighed and identified to their dams (2). Does in 1983 were weighed and blood sampled monthly from April to Nov. Does run with the vasectomised buck were also blood sampled daily from 5 April-26 June. Serum was analysed for concentrations of P by radioimmunoassay (1). The % of does fawning to 1st oestrus was calculated from (a) the no. observed mated at 1st oestrus, (b) minus the detected returns-to-service, (c) minus those failing to fawn within a 21 day oestrous cycle length of the modal gestation length (undetected returns-to-service) and (d) minus the no. of non-pregnant does. The % of does fawning to their 2nd/3rd oestrus was calculated from the no. observed mated at each oestrous periods plus does with apparent gestation lengths 21 or 42 days beyond the modal length.

RESULTS AND DISCUSSION The mean (\pm sd) gestation length was ($n=88$) 234.2 ± 2.7 days, this being 4-5 days longer than estimated by other workers (3). There was no evidence of fawn sex, birth weight, doe age or sire effects on gestation length ($P>0.1$; ANOVA).

Table 1. Fallow doe fawning rates to consecutive oestrous periods

	No of 1st oestrus matings	Fawning to 1st oestrus	Fawning to 2nd oestrus	Fawning to 3rd oestrus	Non-pregnant
1983	42	78.6%	14.3%	4.8%	2.3%
1984	56	85.7%	8.9%	-	5.4%
Total	98	82.7%		13.3%	4.0%

Fawning rates to 1st, 2nd and 3rd oestrus (Table 1), indicate a high (>80%) conception rate at the start of the breeding season (April/May). Most remaining does not observed mated by fertile bucks ($n=27$) conceived to 1st oestrus, as they fawned in early Dec.

Differences between 1983 and 1984 (Table 1) were not significant ($P>0.1$; χ^2 test). The pattern of conception dates was consistent with that of birth dates on commercial farms, with 80% born within a 20 day period in Dec. (2). Mean liveweight profiles of 55 pregnant and 14 non-pregnant does in 1983 (Figure 1) show rapid development of conceptus mass from Sept. (~120 days gestation) onwards. By Nov. pregnant does were 8-9 kg heavier than non-pregnant does ($P<0.001$; t-test).

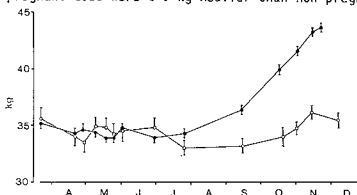


Figure 1. Mean (\pm sem) liveweight profiles for pregnant (●) and non-pregnant (○) does.

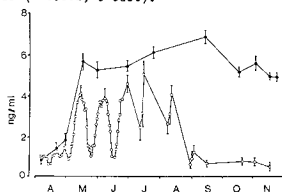


Figure 2. Mean (\pm sem) serum P levels for pregnant (●) and non-pregnant (○) does.

Profiles of mean serum P concentrations of the same does (Figure 2) show values increased for pregnant and non-pregnant does after 1st oestrus. While pregnant does maintained high concentrations (5-7 ng/ml) up to the cessation of sampling (immediately pre-fawning), non-pregnant does exhibited cyclical fluctuations of P secretion corresponding to synchronous oestrous cycles. These continued until does became anoestrous in Sept. (~120 days from 1st oestrus); thereafter, serum P values were low (<1.0 ng/ml). Analysis of blood P levels between Oct.-Nov. may be a useful indicator of reproductive status of fallow does.

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