Pregnancy length, cria birth weight, placental weight, and IgG concentration in Suri alpacas

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The objective of this study was to evaluate the associations between parity, season of breeding, pregnancy length, cria birth weight, placental weight, and IgG concentrations (mg/dl) in Suri alpacas. Breeding and neonatal care records from a large Suri farm were evaluated. Records of 34 maiden and 75 multiparous (2-10 pregnancies) females were included in the study. Cria and placental weights were measured following parturition. The IgG concentrations were measured between 24 and 36 hours following parturition.

Mean (± SD) pregnancy length was 345.9 ± 10.5 days (range 314-372), cria birth weight was 7.95 ± 1.18 kg (range 3.76-11.25), and mean placental weight was 0.97 ± 0.52 kg (range 0.45-4.13). A significant positive correlation was found between cria birth weight and placental weight (p=0.02). The mean IgG concentration was 1424.5 ± 842.7 mg/dl (range 149-3845). A significant positive correlation was found between cria birth weight and IgG concentrations (p=0.03), with heavier crias having a higher IgG concentration.

There was no significant difference between maiden and multiparous females for pregnancy length, cria birth weight, or placental weight. There was no significant effect of sex of the cria on weight at birth, placental weight, or IgG concentrations. Pregnancy length was significantly longer for male (348.06 ± 10.34 days) than for female crias (342.96 ± 10.05 days) (p=0.01). The mean IgG concentrations in crias born to maiden and multiparous females were 1190 ±723.7 mg/dl and 1524.6 ±874.02 mg/dl, respectively (p=0.06). The effect of dam parity on passive transfer of immunity may have been masked by other factors. IgG concentrations were classified into three categories of passive transfer: adequate (IgG > 1000 mg/dl), marginal (IgG 500-1000 mg/dl), and failure (IgG < 500 mg/dl). Records for 108 crias revealed 70 crias (64.8%) were classified as adequate passive transfer, 18 crias (16.7%) were classified as marginal passive transfer, and 20 crias (18.5%) were classified as failure of passive transfer. A significant effect of month of breeding on pregnancy rate (p<0.05) was observed with females bred during November-January period having longer gestations (351.92 ± 10.64 days) than those bred in May-July (344.49 ± 9.0 days). Females breed in November-January had a significantly heavier placenta (1.52 ± 1.17 kg) compared to the other groups (p=0.01). No significant effect of month of breeding was observed with respect to cria weight or IgG concentration.

Results of this study confirmed the effect of season on pregnancy length. Longer pregnancies do not result in increased cria birth weights. There does not appear to be an effect of pregnancy length on the incidence of failure of passive transfer. Further research is needed to determine mechanisms regulating pregnancy length, cria birth weight, and placental weight.

Keywords: Alpaca, IgG, failure of passive transfer, neonate, seasonality