

SUMMARY

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The present study was carried out at Sheep Experimental Farm, Department of Animal Production, Faculty of Agriculture, Zagazig University (Benha Branch). Radioimmunological assays for plasma estrogen were performed in laboratories of the Endocrinology Research Unit, Atomic Energy Establishment.

It was aimed to detect plasma estrogen pattern in Ossimi sheep during different stages of estrus cycle, pregnancy period and 60 days postpartum period in ewes of different ages, parities and body weights.

The study was performed on 63 Ossimi ewes, which were subjected to normal husbandary system applied at the station.

Hormonal assay was carried out at different stages of estrous cycle, at 10th, 40th, 70th, 100th and 130th days of pregnancy period and at lambing day and at the 10th, 30th and 60th days after parturition in ewes of different ages, parities and body weight. In addition assay was performed at the same periods in ewes having different types of birth (Single or twins) and different sex of embryo (male or female).

RESULTS OBTAINED COULD BE SUMMARIZED AS FOLLOWS:**I- Plasma Estrogen Level At Different Stages Of Estrous Cycle:**

- 1- Except the ewe's body weight and the type of birth, which showed significant ($P < 0.01$) effect on plasma estrogen level during estrous cycle, other studied factors had no significant effect on this trait.
- 2- There was'nt any significant variation in plasma estrogen level due to estrous cycle stage. Which may indicate the absence of the feedback oscillation of hypothalamic- hypophyseal- ovarian system. This may be the main physiological reason explaining the 'relative' low productivity in Ossimi sheep.
- 3- No significant interaction effect was found between any of the factors studied and estrous cycle intervals.
- 4- Analysis of variance for the data of ewes having irregular estrous cycle, did not show any significant variation in plasma estrogen level due to the parity number, successive estrus phases and the interaction between them.

- 5- The first degree equation of regression was not found to be the form of the best fitting curve for predicting the level of estrogen during estrous cycle.
 - 6- The coefficients of correlation between plasma estrogen level and time intervals throughout the estrous cycle in ewes of 1st, 2nd, 3rd and 4th parities were, 0.075, 0.164, 0.109 and 0.022, respectively.
- II- Plasma Estrogen Level During 130 Days Of Pregnancy Period:
- 1- Any of the factors studied had significant effect on the level of plasma estrogen level during the pregnancy period. This indicates that estrogen levels in plasma of the pregnant ewes along the pregnancy period is a result of hormonal activity of either hypothalamus or pituitary gland rather than any other factor.
 - 2- Gradual and continuous rise in the level of plasma estrogen was observed in all experimental groups of ewes. Variation in plasma estrogen level during various intervals of pregnancy

period was found to be significant ($P < 0.01$) in all groups.

- 3- The interactions between each of the factors studied and intervals of pregnancy period were found to be of no significant effect on the level of plasma estrogen.
- 4- The linear regression equation was found to be the form of the best fitting curve for predicting the level of estrogen in any date during pregnancy.
- 5- The coefficients of correlation between plasma estrogen level and time intervals throughout the pregnancy period in ewes of null, first, second, third and fourth parities were, 0.783, 0.634, 0.692, 0.581 and 0.676, respectively.
- 6- Gestation period averaged 151.68 days which was not affected by any factor studied. On the other hand, average of birth weight of new born lambs was found to be 3.27 kg. Partial regression coefficient indicated that for one day increase in gestation length, there is an increase of 0.06 kg.

III- Plasma Estrogen Level Along 60 Days Of The Postpartum Period.

- 1- Any of the factors studied had significant effect on level of plasma estrogen level along 60 days of the postpartum period.
- 2- In all experimental groups of ewe's plasma estrogen level was relatively higher at lambing day, then gradually decreased towards the 60th day after lambing. Variations in this trait due to the postpartum intervals of estimation was found to be significant ($P < 0.01$).
- 3- The interaction between each of the studied factor and intervals of estimation was found to have insignificant effect on the level of plasma estrogen along the 60 days of postpartum period.
- 4- The linear regression equation was found to be the form of the best fitting curve for predicting the level of estrogen in any intervals during the postpartum period.

- 5- The coefficients of correlation between plasma estrogen level and time intervals throughout the postpartum period were -0.450, -0.504, -0.563, -0.418 in ewes of the 1st, 2nd, 3rd and 4th parities, respectively.