INTRODUCTION

Pig is a polyovular farm animal and its prolificacy differs in different breeds. The female pig has an estrous cycle of 20-21 days with a short follicular phase of only 3 days and a long luteal phase. Biochemical changes taking place during different stages of life have been attributed to the changes in the activities of certain enzymes and biochemical constituents which have clinical importance in assessment of their growth, health, nutritional status, diagnosis and prognosis of metabolic disorders (Prasad and Kumar, 2002). The physiological status of any domestic animal is mainly determined by normal levels of certain Bio-chemicals in the blood (Govinda Rao, 1990) and quantitative measurements of blood components (Egan, 1974). The present work is aimed to understand the significance at a

A study was carried out to assess and compare selected biochemical parameters in blood plasma of 18 crossbred sows (Large white Yorkshire x Indigenous) during different phases of reproduction. There was significantly (P < 0.01) decreased level of total glucose was found in anoestrus pigs than in cyclic pigs, i.e., 83.5+2.22, 90.68+3.11 and 72.8+3.66 mg% during mid-oestrus, luteal and in anoestrus phases, respectively. The mean serum total proteins in crossbred pigs were observed to be 6.31+0.35, 6.05+0.17 and 6.04+0.17 g% during mid-oestrus, luteal and anoestrum phases respectively and the differences were non significant (P < 0.01). However a significant (P < 0.01) lower levels of total lipids and total cholesterols were recorded during anoestrus than during mid-oestrus and oestrus phases, respectively.

Keywords: Biochemical parameters, Crossbred pigs, Reproductive phases
particular stage of reproduction. The purpose of this study was to assess and compare selected biochemical parameters in blood plasma of sows.

MATERIALS AND METHODS
The present study was conducted on 18 crossbred (Large white Yorkshire x Indigenous) sows maintained at the AICRP on pig College of Veterinary Science, Tirupati. Blood samples were collected from 18 animals from ear vein puncture in sterilized glass tube during true anoestrum, mid-oestrus and luteal phase (day 15) and serum was separated and used for the study of total glucose, total proteins, total lipids and total cholesterol by utilizing the reagent kits, supplied by M/s. Span diagnostics, Bombay. The date was analyzed as per the methods of Snedecor and Conchran (1967).

RESULTS AND DISCUSSION
The variation in the level of bio-chemical constituents during different phases of reproduction in cross-bred pigs are presented in Table 1.

### Total Glucose
In the present investigation the mean serum total glucose levels in the cross-bred pigs were observed to be significantly (P < 0.01) at the lowest level during anoestrum and a significant increase was noticed during luteal phase. A non significant increase was noticed during oestrus phase (Table 1). The findings noticed in the study are in agreement with the reports of Singh and Dutt (1994) in ewes. The serum glucose levels during anoestrum might be due to the lack of influences of sex hormones. The finding is in agreement with that of Shaahi Kumar and Munilala Dubey (1984).

### Total Proteins
A non significant (P < 0.01) difference in the mean serum total protein levels of cross-bred pigs was observed during anoestrus, mid-oestrus and luteal phases. However an ascending increase in the protein level was noticed from anoestrus reaching higher levels during mid-oestrus phase (Table 1). The findings in thesis study are in comparison with the findings of Naidu and Rao

<table>
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<tr>
<th>Table 1: Serum Bio-chemical Profiles of Crossbred Sows</th>
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<tr>
<td><strong>Luteal Phase</strong></td>
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<tr>
<td>Total glucose (mg %)</td>
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<td>Total Proteins (g %)</td>
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<td>Total lipids (mg %)</td>
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<td>Total cholesterol (mg %)</td>
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Means bearing at least one common superscript do not differ significantly (P< 0.01).

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<th>ANOVA Table</th>
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<td><strong>df</strong></td>
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**Note:** ** – Highly significant (P < 0.01); NS – Not Significant.**

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(1982) Chetty and Rao (1986). The elevated levels of serum total proteins during oestrus phase was interpreted due to the direct stimulatory effect of oestrogens on the liver which is the main source of all plasma proteins except immunoglobulins Terézia filipejová (2009).

**Total Lipids**
The mean serum total lipids levels were observed to be at the lowest during anoestrus mid-oestrus and luteal phase. However a significant (P < 0.01) difference was noticed between anoestrums and other two phases (Table 1). The fluctuation in the serum total lipids levels might be due to effect of steroid hormones.

**Total Cholesterol**
The mean serum total cholesterol levels was observed to be significantly (P < 0.01) at the lowest level during anoestrum when compared to the levels noticed during mid-estrus. However a non-significant elevation in the serum cholesterol levels was observed during luteal phase when compared to anoestrum (Table 1). The results in this study are also comparable with the reports of Singh and Dutt (1974) and Vijaya Singh et al. (1994) in ewes and goats, respectively.

Estimation of the cholesterol may serve as a useful advent in the diagnosis of oestrus in the pigs especially in the animals who exhibit less intense heat symptoms (Deshpande and Pathak, 2010).

**CONCLUSION**
From the results of present study, the biochemical parameters were lower during anoestrous period compared to different phases of oestrus cycle.

**REFERENCES**

