I. INTRODUCTION

There are about 8.1 and 4.1 million goats and sheep, respectively, in Indonesia (Juwarini and Petheram, 1983). Goats and sheep form an important component of the Indonesian farming system, especially among small and landless farmers (De Boer et al., 1982). They are kept for multiple purposes, such as quick cash income, a source of manure for fertilizer and a means of providing employment for families of farmer. Most small ruminants are managed under scavenging or minimum cost systems in the traditional way of husbandry systems. They convert the natural vegetation into products for human use, utilize crop residues and stubbles and help maintain soil fertility.

The pressure of increasing human population associated with a low rate of animal production results in a very low per capita meat consumption. Meat of goats and sheep is acceptable to most people with no religious restrictions, so the development of goat and sheep industries for the production of food is a very important objective. Moreover, protein rather than energy is more deficient in human diets in the tropics. The two species are considered similar because of their basic similarity in size, reproduction, nutrition and growth.
As the population of sheep in the world outnumber the goats and goats are concentrated in the tropics, there has been a situation of relative neglect of goats as far as research and development are concerned.

Goats and sheep are capable of high reproductive rates when maintained experimentally on continuously high levels of feeding (Obst et al., 1980a). In the village, the average number of lambs born per breeding ewe is only about half of their potential (Bell et al., 1983). Nutrition could well be one of the factors contributing to differences in the productivity of Indo-Burmese sheep and goats under experimental and village feeding (Obst et al., 1980a). In the village, the reproductive rate and efficiency of utilization of feed for reproduction and milk production are considerably lower for goats than for sheep in temperate environments that are still relatively well fed. Continuous high levels of feeding are wasteful, because they are expensive. Feeding systems based on a low level of feeding, supplemented or improved only at critical stages of the reproductive process, should allow more efficient use of available feed to improve productivity. The three main aims of this research are to compare the reproductive rates and efficiencies of utilization of feed for reproduction of goats and sheep maintained experimentally on continuously high levels of feeding and to determine the main factors contributing to productivity differences in the productivity of Indo-Burmese sheep and goats under experimental and village feeding.
The second aim is to define the minimum period of peri-mating and peri-partum supplementary feeding for maximum reproductive performance for sheep and goats maintained on low quality feed with and without supplementation during the peri-mating and peri-partum period. The third aim is to compare the reproductive performance between goat and sheep in the same nutritional treatment.

Hypotheses to be tested are:

1. Supplementary feeding from four weeks before parturition until parturition (the period of maximum foetal development) will increase birth weight and reduce neonatal mortality.

2. Supplementary feeding from four weeks before parturition until six weeks post-partum (including the period of maximum lactation, involution of the uterus and resumption of ovarian activity) will improve lamb growth and marginally improve post-partum rebreeding.

3. Supplementary feeding from four weeks before parturition until 12 weeks post-partum (including the main period of conception) will additionally improve lamb growth and post-partum rebreeding.

4. Without supplementation, goat will perform better than sheep because of their superior utilization of low quality feed.
5. With supplementation, goat and sheep will show approximately similar performance.