INTRODUCTION
I. INTRODUCTION

Poultry production in the country has gained momentum during the last four decades. Consequently, it has taken the shape of full-fledged industry. At present, this industry has emerged as the most dynamic and fastest expanding segment in Animal Husbandry sector with an annual growth rate of 6 per cent in 1980s, 11 per cent in 1990s and 19 per cent in 1997-2002 in broiler chickens and 5 per cent in egg production. With an annual production of around 43.67 billion eggs and 1440 thousand metric tones of broiler meat, India ranks 4th and 5th respectively, in the world (Mandal et al., 2005). Poultry sector in India contributes 100 billion rupees to the Gross National Product (GNP). The annual per capita availability of 1 kg meat in India is lower than 10.8 kg meat recommended by National Committee on Human Nutrition (Evans, 2002). Hence, the industry has potential to grow at about 10 times in meat sector.

Broiler meat has a greater demand as compared to other meats, primarily because of the limitations and religious taboos in case of beef and pork. It also has the highest acceptability among all sections of consumers.

Allowing broiler chickens to an unlimited supply of feed will result in consuming excess of bird’s requirements, this excess energy is being converted into fat. In recent years, excess body fat deposition is of concern to both producers and consumers. The latter consideration is important because results of many human studies have related high dietary fat intake to the incidence of cardiovascular diseases. High body fat deposition in broiler chickens, apart from being inefficient in terms of energy metabolism and overall feed utilization
(Pasternak and Shalev, 1983), also represents economic loss to the producers. So, producing lean poultry meat to meet the demands of the consuming public is a major objective of the industry. This stimulated interest in reducing abdominal fat deposition in broilers.

In broiler industry, the growth rate of the broilers is considered as the most important economic trait. Unfortunately this growth rate is accompanied by increased body fat deposition, high mortality and increased incidence of metabolic disease and skeletal disorders. These conditions most commonly occur with broilers that consume ad libitum (Zubair and Leeson, 1996a). To overcome all these, broilers may be subjected to feed restriction during early phase of life and followed by normal feeding. During re-feeding this low requirement was maintained and if growth resumed at a normal or above normal rate, feed efficiency would be substantially improved, leading to an economic advantage. A significant reduction in mortality of feed restricted broilers was observed by Urdaneta Rincon and Leeson (2002). Similarly, Shariatmadari and Vaeztorshizi (2004) reported that the feed restricted male broilers not only had a significantly higher body weight, but also better feed efficiency ratio and lower abdominal fat weight than female broilers. Nirmala et al. (2005) observed that the feed restriction either in male, female or combined sex broilers during second and third week of age by 10, 20 and 30 per cent to that of ad libitum control feeding did not affect the final seventh week body weight, cumulative feed consumption and feed efficiency. The male broilers attained early compensatory growth compared to females.
Keeping this in view, the present study was undertaken with the following objectives.

➢ To determine the effects of variation in dietary protein energy ratio and the effect of duration of early feed restriction on the broiler performance in relation to compensatory growth, feed consumption, feed conversion ratio, skeletal deformities and livability.

➢ To study the impact of sex on early feed restriction.

➢ To evaluate the economic impact.