INTRODUCTION
Agriculture (mainly crop and livestock production) is the mainstay of the Indian economy, employing approximately 85% of the total population. Livestock production accounts for approximately 25% of the total agricultural GDP and 4.22% of national GDP. In terms of Rupees, livestock sector contributed around 1,372 billion rupees to Indian national economy in the year 2005-2006 (National Accounts Statistics, 2007). India has a total of 185.2 million cattle and 97.9 million buffalo (Livestock census, 2003) which is largest in the world. Moreover, India has diverse animal genetic resources and its relatively large livestock population is well adapted to and distributed among diverse ecological conditions and management systems. The major farm animal genetic resources of the country include cattle and buffaloes.

In India, Uttar Pradesh has the maximum number of total livestock population, with a number of 58.5 million. In buffalo population, UP is the on the top of other states of India, with a number of 22.9 million; whereas in cattle population, it is second after West Bengal and Madhya Pradesh with a number of 18.5 million (National Accounts Statistics, 2007).

The demand for livestock products in Asian continents is likely to rise considerably as a result of rapidly growing human population, urbanization and income. This increase in demand for livestock products will have profound implications for food
security, poverty alleviation, and the environment.

In spite of the presence of largest animal genetic resources, the productivity (i.e., meat and milk) of livestock remains low in India, for various reasons, such as inadequate nutrition, poor genetic potential, inadequate animal health services, and other management-related problems. Consequently, crossbreeding of locally adapted cattle breeds with improved dairy cattle breeds has been adopted at various times by many developing countries in an effort to improve cattle productivity. However, the success of such crossbreeding programmes has varied depending on the several factors, including the simultaneous implementation of reasonable standards of animal nutrition, disease control, and husbandry and improved infrastructure status. The improvement of livestock production has been remarkable in many industrialized countries due to the integrated effect of rapid developments in several fields of the industry, such as breeding animals with superior genetic potential, increased feed production, improved animal health measures, and better husbandry methods (Bane and Hultnäs, 1977). In contrast, parallel improvements in livestock productivity have generally not occurred in developing countries probably due to lack of such integrated approaches. Thus, research could play a major role in improving our understanding, and discerning the opportunities and challenges a given sector is confronting, and subsequently creating sustainable options for overcoming the problems.

Regarding the total milk production in India, Uttar Pradesh is on the top producing 17.35 million tones of milk. The contribution of cattle milk is 4.45 million tones and of buffalo

Even though eastern part of Uttar Pradesh has largest population of livestock in India, the productivity is below than the national average, a problem contributed to living status, education, environmental factors, breeding and feeding practices. Crossbreeding of improved exotic dairy cattle breeds on a wide scale was introduced some decades back to upgrade the genetic potential of the indigenous zebu cattle, and subsequently to improve the dairy sector in UP. Since then, various efforts have been made to improve the dairy sector through artificial insemination or shared crossbred bull, particularly to the smallholder dairy farmers in urban and peri-urban areas and to those rural farmers located in close proximity to urban areas.

However, animal performance depends not only on genetic merits, but also on other factors, such as nutrition, management, health, and environment. Thus, to ensure their success, crossbreeding programmes need to be monitored regularly, by evaluating both the reproductive and lactation performance of the cattle and buffaloes under the prevailing management and environmental conditions. As well, knowledge about good feeding pattern and body requirements is most important consideration in a dairy industry. The farmers and livestock owners must be aware about proper management of their livestock. Adequate supply of feeds and fodders and breeding problems are important critical factors that affect performance of the animals.
Farm data-recording systems at the smallholder production level are either totally absent or incomplete, so it is usually difficult to get reliable data with which to evaluate the performance of smallholder livestock. Moreover, owing to problems associated with logistics, high research costs, and other inconveniences, longitudinal observational studies are usually difficult to implement at the smallholder level.

Consequently, in the past, most research attempts have focused on institutional herds, and there has been only very limited efforts to make cross-sectional observations to evaluate the performance of dairy livestock in India. Interestingly, most of these limited research efforts have confirmed that the crossbred cattle have performed significantly better than indigenous zebu cattle have for the major lactation and reproductive traits considered. Moreover, observations made in some tropical countries have indicated that various factors such as genotype, location (district), season of calving, suckling status, parity number, and body condition score, have considerable effects on the performance of smallholder dairy cattle (Obese et al., 1999; Msanga et al., 2000; Masama et al., 2003; Msanga and Bryant, 2003; Msangi et al., 2005).

Milk yield and reproductive efficiency play major roles in determining the profitability of a dairy herd (Britt, 1985; Arbel et al., 2001). Inadequate reproductive performance is one of the most costly problems facing dairy producers. The reproductive efficiency of a dairy herd can be measured in several ways, such as by measuring pregnancy rate, percentage of cows calving each year, average calving interval, average number of days dry, and number of live calves born each year. Although each of these
measures affects the profitability of the dairy business in a slightly different way, the calving interval affects both the total milk production of the dairy herd and the number of calves born.

Estimates of productive and reproductive performance of dairy animal population indicate the success rate of breeding policy adopted as well as feeding and managemental inputs rendered to the animals by the farmers. It also helps in policy formulation in dairy sector for the economic upliftment of the farmers.

The maximum number of dairy animals of Purvanchal region of Uttar Pradesh belongs to the rural smallholder (mixed crop-livestock) production system. This system predominantly exists in the highland agro-ecological zone, where the climate favours both crop cultivation and livestock rearing as complementary enterprises. In this system, all major types of farm animals except camels are found and farmers usually prefer to keep mixtures of farm animal species. The highlands are more densely populated and subjected to more overgrazing and natural resource degradation than are the lowlands. This system is characterized by land scarcity and the major livestock feed resources include grazing on marginal lands, crop aftermath, and crop residues. Moreover, dung is an important source of fuel in this system. The smallholder farmers in this system predominantly raise indigenous zebu cattle breeds and farming is subsistence in nature. However, some farmers located near urban centres and that having access to milk markets for selling surplus milk own crossbred cattle.

Sultanpur is an important district of Eastern Uttar Pradesh
with a livestock population of more than 12 lakhs (1997 data). The health of livestock of this district are being monitored through 45 Veterinary Hospitals, 78 Livestock service centers, 45 AI centers and 61 AI sub centers. There is almost a lack of knowledge about the reproductive performance and the nutritional status of these animals in the Sultanpur district. Thus, studies aiming at evaluating the performance of dairy cattle and buffalo in the Sultanpur district of UP, and of the factors influencing it, are vital. So the present investigation is proposed with following objectives—

1. To assess the nutritional availability of cattle and buffaloes in Sultanpur district.
2. To study the feeding practices of dairy animals in different land holding capacities.
3. To study the lactation performance of livestock of this region.
4. To describe the clinical features and serum biochemical profiles.
5. To investigate the reproductive performance of dairy animals in different land holding capacities.
6. To investigate the reproductive problems prevalent in the cattle and buffaloes of this region.

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