Discussion

DISCUSSION

The present investigation was undertaken to study the nutritional status of cattle and buffaloes under mixed farming system of Jaunpur district in Varanasi division of Uttar Pradesh. Study in context of holistic view of entire forming system are discussed here under the major heading of household assets, crop production and bovine production.

House hold assets

Table 4.1 shows significant differences ($P<0.05$) were observed in size of land holding between categories of farmers. The maximum land holding was found in category V (20.27 acre) and minimum in category I (0 acre). The average number of human units per family was significantly higher in category V (11.50) and minimum in category I (7.05). The maximum family labours were noted in category I (6.12) and minimum in category V (2.5). Almost similar results were reported by **Anshu (1998)**.

However, the service income was significantly different in all categories except II and III. The maximum service income was noted in category V and minimum in category I.

Further, the data presented in Table 4.1 revealed that service income increased with the increase in size of land holding and substantially higher service income in category V may be due to fact that they have off farm jobs and

generally settled for higher income jobs, which could have been responsible for substantially higher service income in category V as compared to the category I-IV. This is in with the findings reported by agreement with **Ali (2000)**.

The significantly higher infrastructure was noted in category V compared to other categories (Table 4.1). An increase in infrastructure with the increase in size of land holding indicates that perhaps the increase in farm income due to increasing size of land holding was responsible for creation of more and perhaps better infrastructure as also reported by **Ali (2000)**.

The social status (SS) of the farmers was significantly higher in category V (Table 4.1). This might be due to higher infrastructure in category V, which facilitates purchasing power of the farmers, resulting to higher social status. Similar findings were also reported by **Ali (2000)**.

Bovine Population

The data recorded on buffalo population are shown in Table 4.2. The maximum number of milch buffaloes were found in category III (1.03) and minimum in category I (0.44). While category III had significant difference to category I and II, the category III, IV and V did not differ significantly between them.

Milch buffalo population increased with the increase in size of land holding, (except category IV & V). **Vaidyanathan (1978)** also reported similar results.

The population of milch cattle was significantly higher ($P<0.05$) in category V (1.50). However, deference between categories were noted in significantly.

The total cattle population was higher in category V (3.1) and lower in category I (1.34). The total cattle population was increasing with on increase in size of land holding, except category IV (Table 4.3). These observations are being supported by **Balishter and Singh (1980)** who reported the number of cattle increased faster with an increase in size of land holding. The milkmen often purchase the milk from farmers and can get opportunity to adulterate the milk and separate the cream and then sale the milk for more from Halwai in the market due to higher percentage of Khoa. This increases the demand of buffalo milk still more and hence farmers try to increase the number of the milking buffaloes.

The number of cattle population was higher compared with in buffalo population. Examination of Table 4.4 and 4.6 revealed that numbers of milch bovine as well as per cent of lactating animals was higher in category V, might be getting maximum availability of feed resources, viz., crop residues, green forage and concentrates with the increased size of land holding. These observations are being supported by **Ali (2000)**.

Examination of Table 4.7 revealed that percentage of literacy was higher in category V (65.10) compared to other categories. The percentage of literacy

increased faster with an increase in size of land holding. The maximum illiteracy per cent was noted in category I (69.88). The land holding size and literacy caused positive relationship, the literacy rate increased due to increased land holding size, service income and infrastructure. Such results reported by **Anshu (1998)**.

Data of Table 4.8 revealed that with the increasing land holding size, the percentage of artificial insemination in animals increased. Maximum percentage of artificial insemination was observed in category V (80%), minimum in category I (0%), landless farmers applied 100 per cent natural breeding. The artificial insemination per cent increased due to increase in the land holding size, literacy rate, service income **Dayanand (2001)** also reported similar results.

Crop production

Wheat and paddy respectively are the main Rabi and Kharif crops in Jaunpur district of U.P. Area under paddy crops was significantly higher in category V (9.73 acre) compared with the other categories. The per cent area under paddy crops was higher in category II (50.0%) and lower in category V (48.60). The area (acre) under paddy crop was maximum in category V and minimum in category II (Table 4.10). The maximum area under paddy crop was in category V, due to maximum land holding size. However, per cent area of paddy crop higher in category I due to more paddy required for human consumption. Similar observation were reported by **Gowali and Sinaha (1996)**.

Maximum area (acre) under maize crops was noted in category V and minimum in category II (Table 4.12). The category V was significantly higher compared with other categories. The area under maize crops was more in V category, compared to II category due to more land holding size in V category (Table 4.12). This finding is corroborated with these reported by **Anshu (1998)**. This may be due to paddy gives better return than maize which is second major crop of Kharif season (Table 4.10 or Table 4.12).

Area under wheat crops was significantly higher in category V (8.93 acre) compared to lowerest in category II (0.60 acre) (Table 4.9). The category V is also significantly different compared with all other categories. The per cent are under wheat crops was maximum in category II (52.63%) and minimum in category V (44.05%). The per cent area of wheat crop was higher in category II, because more amount of wheat required for home consumption. Maximum are (acre) under wheat crop in category V, due to maximum land holding size was found in category II.

Area (% and acre) under potato crops was significantly higher in category V (17.90% and 3.63 acre) and minimum in category I (12.28% and 0.14 acre). The maximum net return was noted in category V (Rs. 10210/acre) and minimum in category II (Rs. 8650/acre) (Table 4.13). The maximum net income and input output ratio was higher in category V due to maximum land holding size. Agreement with **Price (1982)**.

Sugarcane production is shown in Table 4.11. Data in Table 4.11 revealed that there were significant differences in input, yield and gross income within categories. The maximum input/yield and gross income was noted in category V. The maximum net income was noted in category IV (Rs. 10390) and minimum in category II (Rs. 9310/acre). The maximum input output ratio was noted in category III (1.40) and minimum in category V (1.21). The maximum area under sugarcane crop was in category V, due to maximum land holding size found in category V, similar results reported by **Price (1982)**.

The area under gram crops was significantly different within categories (Table 4.15). The maximum area was noted in category V (2.88 acre) and minimum in category II (11 acre). The maximum input gross income and net income was noted in category V and minimum in category II. The input, gross income and net income was significantly different with in categories. The maximum gram crop was grown in category V, due to maximum land holding size, this trend was also found in study carried out by **Ali (2000)**.

The area under mustard crop was 0.057, 0.22, 0.55 and 1.60 acre in category II, III, IV and V, respectively (Table 4.14). The area under mustard crop was significantly different within categories. The maximum area was noted in category V. category V is significantly higher compared within other categories. The maximum area under mustard crops in category V, due to maximum land holding found in category V. These observations are supported

by **Dillon and Hardker (1980).**

The area under berseem was significantly higher in category V (0.47 acre), compared with other categories (Table 4.16). The area under berseem differed significantly with in categories. The gross and net income was maximum in category IV compared to the other categories. The maximum area under berseem fodder in category V due to, maximum land holding, size and maximum bovine units found in category V. The maximum bovine units required more amount of green fodder for feeding. This trend was also found in study carried out by **Amir and Knipscher (1989).**

The sorghum production status is shown in Table 4.17. The maximum area under sorghum fodder was in category V (0.83 acre), and minimum in category II (0.11 acre). The category V is significantly higher compared to the other categories. The maximum area under V category was due to maximum land holding size and bovine units.

Higher bovine units forced the farmer to put higher area under berseem and sorghum in category V. Berseem and sorghum was grown significantly in more area in category V, compared to the other categories (Table 4.16 and 4.17). The data of Table 4.16 and 4.17 revealed that increased area under green fodder 0.04, 0.18, 0.42 and 0.47 in berseem, 0.11, 0.27, 0.54 and 0.83 in sorghum in category II to V was due to an increase in bovine population (Table 4.2, 4.3 and 4.4) and might be due to increase in size of land holding. **Anshu (1998)** also

reported significant increase in area under green fodder from 0.29 to 1.41 acres in sorghum with the increase in size of land holding.

Amounts of concentrates, green and dry fodders per day fed to different categories of cattle are given in Table 4.18. The Table indicated the maximum average vuantity of concentrate, green and dry fodders fed to pregnant cows was in category V (1.07, 20.65 and 6.37) and minimum in category I (0, 13.2 and 5.80 kg/day). The quantity of concentrate, green and dry fodder fed to milking cows was maximum in category V (2.30, 20.70, 6.30) and minimum in category I (0.12, 16.12, 5.91).

The data shows that the amount of concentrate, green and dry fodders fed to dry cattle, maximum in category V (0.58, 20, 5) and minimum in category I (0, 10.1, 3.12).

Amounts of concentrate, green and dry fodders fed to growing cattle were maximum in category V (0.45, 18.0, 6.12) and minimum in category I (0, 8.15, 2.21).

The quantities of concentrate, green and dry fodders fed to draft cattle were maximum in category V (0.92, 21.00, 6.54) and minimum in category I (0, 13.13, 2.05).

The data shows that the amount of concentrate, green and dry fodders, given to the cattle, increased with the increase in land holding size. This study

was in support to the results reported by **Dayanand (2001)** who concluded that the large farmers offered more fodder and concentrate to their cattle as compared to land less and marginal farmers.

Amount of ME and CP per day fed to different categories of cattle in different categories of farmers are given in Table 4.18(a). The Table indicates that the maximum quantity of ME and CP were fed to, pregnant, lactating, growing and draft cattle in category V, and minimum in category I.

The maximum ME and CP was available in category V due to maximum availability of concentrates, green and dry fodders in category V. This study agreed with the report by **Ali (2000)** who concluded that large farmers offered more fodder and concentrates to their cattle as compared to landless and marginal farmers.

The quantity of ME and CP was fed to dry cow maximum in category IV compared to the other categories. This study agreed with the work done by **Anshu (1998)**.

Amounts of concentrate, green and dry fodders per day fed to different categories of buffaloes are given in Table 4.19. The data shows that the maximum amount of concentrate, green and dry fodders were fed to pregnant buffaloes in category V (1.00, 20.05, 9.00) and minimum in category I (0.30, 15.12, 5.50).

Amount of concentrates, green and dry fodders fed to milking buffaloes were maximum in category V and minimum in category I.

The quantity of concentrates, green and dry fodders fed to dry buffaloes were maximum in category V (0.20, 18.13, 4.16) and minimum in category I (0.13, 15.12, 2.5).

Amounts of concentrates, green and dry fodder per day fed to growing buffaloes were maximum in category V (0.20, 15.51, 3.51) and minimum in category I (0.11, 13.15, 1.5).

The data shows that the amount of concentrate, green and dry fodders, given to the buffaloes were increased with the increase in land holding size. This study agreed with the reports made by **Patil *et al.* (1993)** who concluded that the larger farmers offered more fodder and concentrate to their buffaloes as compared to landless and marginal farmers.

Amount of ME and CP per day fed to different categories of buffalos are given in Table 4.19(a). The data shows that the maximum amount of ME and CP were fed to pregnant buffaloes in category V (23.72, 910), and minimum in category I (14.38, 526).

Amount of ME and CP were fed to lactating buffaloes, maximum in category V (27.17, 1194), and minimum in category I (18.98, 697). The ME deficit was in category II and CP deficit in category I, II, III, IV.

The quantity of ME and CP per day fed to dry buffaloes were maximum category V (17.33, 663) and minimum in category I (12.40, 502). The Table shows that the ME and CP had no deficit in any category.

The amount of ME and CP fed to growing buffaloes were maximum in category V (14.83, 570) and minimum in category I (10.22, 425). The Table indicates the ME and CP deficit in all categories. This study agreed with the work done by **Shahi (1995)** who concluded that the large farmers offered more ME and CP compared to the landless farmers.

The per cent labour distribution of crop production is shown in Table 4.20. Table indicates that higher proportion of men were in category V and minimum in category I. Incase of women, maximum per cent found in category I and minimum in category V. Similar results were observed in child distribution.

The maximum hired labour per cent for crop production was found in category V and minimum in category II. The data from Table 4.20 revealed that the number of hired labour increased in crop production with an increase in size of land holding in category II to V. Incase of family labour, the number of family labour decreased in crop production with an increase in size of land holding. **Sandra Laumark (1982)** also had similar opinion in his studies. **Singh (1993)** also reported that women labour forces computed 42% of the total labour in large farmers. Labour distribution for bovine production are shown in Table 4.21. Data from Table 4.21 revealed that the number of men, women and child

(family labour) was maximum found in category I, and minimum in category V.

Incase of hired labour, maximum were found in category V and minimum in category I and II. Hiring of hired labour started from category III.

The data in Table 4.21 also indicated percentage of hired labour increased with increase in size of land holding, however, family labour decrease with an increase the size of land holding. **Anshu (1998)** also had similar opinion.

Singh (1993) also reported that women labour force contributed 42% of the total labour force on large farms.

Milk production and utilization

The cattle, milk production was significantly higher in category V (5.79 lt/day), as compared to category I (0.85 lt/day). The trend was similar incase of buffalo milk under category V (9.5 lt/day) and category I (1.60 lt/day).

Milk production of buffalo were significantly higher in category V, compared to other categories. The milk produce cattle and buffaloes both increased with the increased in size of land holding in category I to V. This might be due to an increase in proportion of lactating animals (Table 4.2, 4.3 & 4.4).

The wet average and herd average were maximum in category V and minimum in category I in cattle. The trend was similar incase of buffaloes .

A similar increase in mean milk production was reported by **Kaur and**

Gill (1989).

The overall milk production and disposal are shown in Table 4.24. The maximum milk production was noted in category V and minimum in category I. Data from Table 4.24 indicated the maximum wet and herd average was found in category V and minimum in category I. The category V is overall significantly higher compared to the other categories. Similar results were also reported by **Singh and Krishna (1975).**

Table 4.24 revealed that the maximum milk was consumed and sold in category V and minimum in category I. due to maximum number of milking animals in category V. Similar results were also reported by **Kaur and Gill (1989).**

Daily milk yield of cow and buffalo were reported 3.0 and 4.0 lt/day by **Singh *et al.* (1975)** in Meerut division of U.P. **Grewal and Rangi (1980)** reported overage milk yield of 3.0 and 4.22 kg in cows and buffaloes. respectively. in Punjab. **Bahadur (1988)** reported daily milk yield of 3.6 kg in buffaloes in Hamirpur district of U.P.

Production constraints

1. Deficiency of important nutrients in the diets of ruminants. In the studies made subsequently, energy and protein were found lacking in most of the groups of farmers selected for study.

2. Animal disease control was also poor.

3. Lack of organized marketing facilities for milk and milk products.

4. Non-availability of good milch breeds and bulls.

5. Lack of overall awareness about. The better animal and crop production.