# Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh

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# Foreword

Presently about seventy percent of the livestock in India are reared by the marginal and small farmers as well as landless agricultural labourers. Though, India has the best breed of buffaloes in the world yet, the productivity of buffaloes is much less as compared to that with some other Asian countries. This is merely due to the fact that the rearers of bovine animals are widely dispersed in the areas with poor infrastructure having limited access to the markets and services. Livestocks are closely linked to the social and cultural lives of millions particularly resource poor farmers for whom animal ownership ensures varying degree of sustainable farming and economic stability. Livestocks are also the living bank for many farmers and play a critical role in the process of agriculture intensification through manure, biofertilizer, fuel and draught power. The importance of livestocks as a source of income at the farm level vary across ecological zones and production system which in turn determines the species raised and the products and services generated. Therefore, a comprehensive assessment of the status of livestock development in eastern and backward regions of northern states of India was to be done for livestock development to fulfill the recommended dietary levels of livestock products stated by the I.C.M.R. In view of this the study entitled "Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh", was conducted by AERC, Prayagraj.

This study reveals that the area under fodder crops grown by the farmers was meagre in the area under study. During the Kharif season Paddy, Sugarcane, Bajra and Maize and in Rabi season Wheat and Berseem were the main crops and in Zaid season no crop was grown. It was evidently clear that in all the four categories of animals under this study, the value of female animals was comparatively higher than male animals. The value of milking buffaloes was much higher than other milking bovine animals. Pregnant heifers were fed larger quantity of feeds and fodders than that to non-pregnant heifers. The majority of sample households rearing animals were facing all sorts of constraints in production of fodders in the area under study in Uttar Pradesh.

This study has been conducted by Dr. Rajendra Singh, Ex. R.O., AERC, Allahabad who after discussion with state level officers and collection of required secondary information,

supervised sampling and field survey after testing the schedules. Checked the schedules during scrutiny and supervised posting of data, compilation and analysis and drafted the report and executive summary. Dr. H.C. Malviya assisted in the collection of secondary data, sampling, conducted field survey, posting of data and analysis. Sri R.S. Maurya and Mr. Gaurav Prajapati also conducted field survey, posting of data and analysis. Sri Ovesh Ahmad typed the report and correspondence letters. Our thanks are due to the Director, Animal Husbandry & Dairying, Uttar Pradesh who provided required secondary information and itinerary for the completion of this study. Our thanks are also due to all others who assisted and cooperated to complete this study.

Any comments or suggestions for improvement in the report of this study will be acknowledged thankfully.

Agro-Economic Research Centre
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Prof. & Hony. Director

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# Credit

| | |
|---|---|
| **Prof. G.C. Tripathi** | **Overall Supervision** |
| Dr. Rajendra Singh | Discussion with state level Officers, sampling and collection of secondary information, Supervision of field survey, posting of data on excel sheets, analysis and drafting of report and executive summary. |
| Dr. H. C. Malviya | Assistance in collection of secondary information, sampling and field Survey, posting of data and analysis. |
| Sri R. S. Maurya | Field Survey, Posting of data and analysis. |
| Mr. Gaurav Prajapati | Field Survey, Posting of data and analysis. |
| Sri Ovesh Ahmad | Typing of the Report |
| Sri S.D. Singh | Secretarial Services |
| Shri H.C. Upadhyay | Photocopying of the Report |
| Shri. Raju Kumar | Support Service |

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# Executive Summary

**Introduction**

In India where mixed farming system still prevails, livestocks reduce the risk through diversification of production and income sources and therefore, there is much greater ability to livestocks to represent liquid asset which can be realized at any time adding further stability to the production system. The importance of livestocks as a source of income at the farm level varies across ecological zones and production systems, which in turn determines the breeds reared and the products and services generated. Livestocks rearing in India is practiced largely by small and unorganized farmers who generally rear one or two buffaloes or cows on crop residues and by-products with the help of underemployed and unemployed family labourers particularly the women work-force. Livestock rearing has also assumed momentous dimensions in the context of decreasing operational land holding due to sub-division and fragmentation and ever increasing population, as the rural economy of our country is mainly characterized by subsistence agriculture and gross unemployment. Feed being the major item of cast constitutes about 60 percent of the total cost of the milk production. Thus, for maximizing feed availability and minimizing the cast of feed will certainly increase the margin of profits to livestocks rears in the state of Uttar Pradesh. There is high pressure of livestock population on the available feed and fodder due to acute shortage of land for feed and fodder production. Therefore, a comprehensive assessment of the status of livestock development in the backward regions of Uttar Pradesh was barely needed to be done. Keeping this in view, the study entitled, "Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh", was conducted with following main objectives:

**Objective of the study:**

1. To estimate the area, production and productivity of major green and dry fodder crops.
2. To study the growth pattern of major livestock production.
3. To assess feed and fodder availability, requirement, deficit/surplus to improve productivity.

**Methodology of Study:**

(Detailed procedures for estimation of demand and supply of feed and fodder are given in the report).

**Sampling Framework**

The proportionate sampling technique was applied to undertake sample livestock rearers from the distinct selected districts, one each from the western eastern and central agro-economic regions of the state of Uttar Pradesh. These districts were chosen based on the size of the population of buffalo, cattle and goats by ranking the individual districts. Therefore, districts having top three ranks were selected representing different regions of the state of Uttar Pradesh. Such districts were namely (1) Agra from western region, (2) Baharaich from eastern region and (3) Lakhimpur Khiri from central region. From these districts thus, selected, 120 cattle rearing farmers, 120 buffalo rearing farmers and 120 goat rearing farmers were chosen making a total of 360 sample farmers from the state. Villages were selected based on the density of animal population. Cattle rearing farmers include both cross bred and indigenous cows. Farmers rearing all kinds of animals were considered more than one sample farmers. The sampling design is given in Table.

**Table**

**Sampling Design**

| Sl. No. | State | Regions | Districts | Sample Farmers | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cattle Rearers | Buffalo Rearers | Goat/Sheep Rearers | Total |
| 1. | Uttar Pradesh | Western | Agra | 18 | 29 | 31 | 78 |
| | | Eastern | Baharaich | 46 | 47 | 46 | 139 |
| | | Central | Lakhimpur Khiri | 56 | 44 | 43 | 143 |
| 1 | 1 | 3 | 3 | 120 | 120 | 120 | 360 |

**Major Findings of the Study:**

The main findings of the present study are as follows:

- The population of crossbred female cattle in the state of Uttar Pradesh were dominant, wherein, the maximum were in milk.

- Obviously the majority of adult female buffaloes were in the milk and the number of female buffaloes under the age of one to three years as well as up to one year were considerable in the whole state of U.P.

- The population of both female as well as male goats under the age of one year were maximum in the state of U.P. The numbers of female goats in milk were also considerable in the state of U.P.

- Regarding the growth pattern of livestock, the growth in population of exotic cows was tremendous by 3 times more till the 20th census in the state U.P.

-  Among the buffaloes the number of female buffaloes had increased considerably in the state as a whole.

-  As regards the availability of green fodder, there was a deficit of total green fodder as - 681.50 lakh metric tonnes till 19th census in the state of U.P.

- The educational level among the sample respondents was deplorably poor as 41.70percent of them were illiterates in the present era of cyber age.

- Regarding gender of respondents, the majority i.e. 90.64 percent were males and only 9.31 percent were females among the total sample respondents.

-  Regarding average experiences in respective occupations of farmers, it was found that crop-grower had 27 years, livestock rearer had 17 years and a goat rearer had 11 years' experience generally in the area under study.

- The average income per household from different occupations was estimated as from agriculture Rs. 1,45,143, from dairying Rs. 1,03,149, from goat rearing Rs. 13,640 and from other occupations, it was Rs. 98,826 per household in the area under study.

- Regarding average family member engaged in different occupations it was found that in farming (growing crops). 1.44 members, in dairying 1.92 members and in goat rearing only 1.26 members were engaged in the area under the study generally.

- Accordingly among the total 247 sample households adopting as their primary occupation 134 had adopted agriculture, 22 had adopted animal husbandry and

- dairying, 62 had adopted agricultural labour, 22 had adopted non-farm labour, none had opted trade, 1 had opted private employment, 1 had opted other job.

- As their secondary occupation out of 247 households, 23 had opted agriculture, 122 opted animal husbandry and dairying, 56 opted agricultural labour, 27 non farm labor, none opted trade, 4 opted private employment and 5 opted other job in the area under study.

- The average land owned was estimated as 2.04 acres per farmer in the area under study.

- The area under fodder crops was estimated as 0.33 acre per farm among sample animal rears.

- Regarding sources of irrigation it was found that the maximum i.e. 153 sample farmers had used bore wells and 22 had used cannel as source of irrigations in the area under the study.

- The main kharif crops were paddy, sugarcane, bajra and maize and rabi crops were wheat and barseem in the under study.

- The return from paddy was Rs. 35,328/- per acre, from sugarcane rs. 1,54,507/- from bajra Rs. 16,386/- from maize Rs. 12,456, fodder Rs. 9,824 wheat Rs. 42,136 and berseem Rs. 5,709/- respectively.

- Age-group wise classification of buffaloes showed that up to 1 year there were 4, in 1 to 2 years there were 35 and in the age-group of above two years there were 198 buffaloes on an overall.

- The age wise classification of crossbred cattle indicated that up to 1 year the number was nil, in 1-2 years the number was 15 and in above 2 years group the number was 165 on an overall.

- The age-wise classification of indigenous cattles showed that up to 1 year the number was nil, in 1-2 years group the number was only 3and above 2 years group the number was 28 on an overall.

- The age wise of classification of goats showed that in up to 1 year group there were 53, in 1-2 years group there were 234 and in above 2 years group there were 242 on an overall.

- The value of milking buffaloes was comparatively much higher than the other milking bovine animals of other categories in the area under study.

- Among pregnant heifers the value of heifers of crossbred cattle was higher. But among the non pregnant heifers the value of buffalo heifers was higher.

- As the regards the feed and fodder, fed to buffaloes it was found that the milking buffaloes were fed comparatively larger quantity of feed and fodder than that to the dry buffaloes in the area under study.

- Thus milking animals and pregnant heifers were fed larger quantity of feeds and fodders than that to other animals in the area under study.

- The total requirement of green fodder during 2019 was higher for the milking buffaloes followed by cattles. But for adult males of cattles and buffaloes the requirement of green fodder was lower. For goats it was considerable.

- The requirement of dry fodder for buffaloes in milk, young stock of buffalo and cattle in milk was found to be higher. But for goats and adult male cattles and buffaloes it was lower in the state U.P.

- The total requirement of concentrates was found to be higher for the milking buffaloes. But for goats it was found to be lowest in the state U.P.

- Crop residues were received maximum from wheat and paddy crops and the minimum from other cereals and small millets. From other fodder crops also it was received considerably.

- Regarding availability of grains it was received maximum from paddy and wheat and the minimum from small millets and other cereals   in state as a whole.

- Grazing land, feed preservation and storage as well as legumes grown as hedge were the major sources of livestock feed in the area under the study in U.P.

-  Maximum of cattle sheds mentioned by sample households were kaccha cattle sheds and the average value of such cattle sheds was slightly higher than that of puccha cattle sheds  in the state of U.P.

- As regards labour and other charges it was found that buffaloes and crossbred cattles both males as well as females had required comparatively more human labour than other live stocks in the area under study in U.P.

- About returns from livestock rearing the return from milk by buffaloes was Rs.10,92,469 against the minimum i.e. Rs. 1,86,115 from goats.

- The return from dung was higher in case of buffaloes against the minimum in case of goats in the area under study.

- Almost all the sample livestock rearers had expressed their views that due to the lack of land they could not put required area of land under fodder seed as well as crop production in the state of U.P.

- Also all the livestock rearers had complained about unsuitability of land for fodder cultivation, high cost of cultivation/ production, low prices and returns and quality seed in the markets.

- Also majority of sample livestock rearers had complained about lack of grazing land, livestock extension services, awareness of govt. programmers and training facilities in the state of U.P.

- 100 percent of sample livestock rearers had reported that they had not adopted any post harvest techniques of fodder preservation etc. in the state of U.P.

- Almost all the sample livestock rearers had reported that stored/ preserved fodders were found much inferior than to have fresh fodders in the area under the study.

- Also majority of sample live stock rearers had told fodder production to be much expensive and more labourious and acute shortage of post harvest management of fodders.

- Regarding benefits from the government almost all the sample livestock rearers had told not to get any benefit from government for livestock rearing in the area under study in the state U.P.

- Majority of livestock rearers had suggested the concerned state and union government to supply adequate and proper fodder   seeds for sustainable and vulnerable market facilities for the improvement of fodder related crops in the state of U.P. They also suggested for providing effective extension services and training facilities.

**Policy Suggestions**

Based on the main findings of this study the following suggestions are being prescribed for policy implications:-

1. For improving the quality of milk the tremendous growth of exotic cattle population in the state of U.P. should be checked and shifted to increase the population of improved breeds of buffaloes as well as indigenous cattles.

2. The huge deficit of total green fodders in the state of U.P. must be fulfilled through more intensification in fodder cultivation throughout the year in all the seasons.

3. Educational level of livestock rearers must be upgraded as this occupation has been opted by the poorers where in about 42% are still illiterates in the present cyber age.

4. Female members of livestock rearing households must be encouraged for opting this occupation independently throughout the state of U.P. like the women dairy cooperatives of Gujrat state for increasing females share and gainful employment.

5. Since dairying has emerged as second higher income providing occupation among majority of landless and marginal farmers, there must be any sound policy by government so that it may be opted as their primary occupation.

6. Due to small holdings the farmers must be encouraged to shift to animal husbandry and dairying from crops raising.

7. The farmers rearing animals must be facilitated and be provided subsidy to grow more fodder crops for improving quality of milk.

8. Source of irrigation must be increased with improved avenues in the area under study in U.P.

9. During Rabi season more fodder crops must be grown and during Zaid season too suitable varieties of fodders must be grown in the state of U.P.

10. The numbers of improved breeds of buffaloes must be increased curtailing the number of crossbred cattles.

11. The number of goats up to age of 1 year must be increased as it was less.

12. For improving the quality of milk the pregnant heifers, milking cattles and buffaloes must be cared properly during feeding, watering etc. in winter and summer seasons in the state of U.P.

13. For increasing the milk yields of buffaloes as well as indigenous cattles in the state of U.P. the quantity of green fodders, concentrates etc. and supplements must be increased undoubtedly.

14. For higher returns remunerative prices of both mahishvanshiya as well as govanshiya animals must be paid to the respective livestock rearees based on the fat percentage in their milk produced in the state of U.P.

15. Suitable post harvest techniques must be provided to needy livestock rearers particularly to those who consider preserved/stored fodders and feeds inferior than fresh fodders and feeds in the area under study.

16. Government must provide incentives/ benefits to potential livestock rearers for sustainable and vulnerable processing and marketing facilities in the state of U.P.

# Chapter-I

## Introduction

**I.1.: Background of the Study**

Livestocks are closely linked to the social and cultural lives of millions particularly resource poor farmers for whom animal ownership ensures varying degree of sustainable farming and economic stability. Livestocks are also the living bank for many farmers and play a critical role in the process of agriculture intensification through manure, biofertilizer, fuel and draught power. Presently about seventy percent of the livestocks in India are reared by the marginal and small farmers as well as landless agricultural labourers. Through, India has the best breed of buffaloes in the world yet, the productivity of buffaloes is much less as compared to that with some other Asian countries. This is merely due to the fact that the rearers of bovine animals are widely dispersed in the areas with poor infrastructure having limited access to the markets and services.

Livestocks provide increased economic stability to farm households acting as a cash buffer, a capital reserve and as a hedge against inflation. In India where mixed farming system prevails, livestocks reduce the risk through diversification of production and income sources and therefore, there is a much greater ability to livestocks to represent liquid asset which can be realized at any time adding further stability to the production system. The importance of livestocks as a source of income at the farm level vary across ecological zones and production systems, which in turn determines the species raised and the products and services generated.

Livestocks rearing in India is practiced largely by small and unorganized farmers who rear one or two buffaloes or cows on crop residues and by-products with the help of underemployed and unemployed family labourers, especially the woman work force. Also livestock rearing has now become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. The role of livestock rearing has also assumed momentous dimensions in the context of decreasing operational land holding due to sub-division and fragmentation and ever increasing population, because

the rural economy of our country is mainly characterized by subsistence agriculture and gross unemployment.

We all know that farming is the single largest private sector economic activity in India. The growth potential in this key sector is immense in view of the changes taking place in food consumption and there is growing demand for high value processed products. Successes in such endeavours will require innovation and partnerships. Private agri-business provides first market for the farm sector and growth depends mainly on private initiatives. A significant portion of agri-business activity is the result of small and medium enterprises. Such enterprises are necessarily wide spread in location to capture opportunities that arises all along the farm to table supply chain. Key constraints that impede development of new agri-business projects are access to information and access to credit. The policy of agriculture diversification in tune with the emerging demand pattern for livestock products in accordance with diet diversification would facilitate livestock rearers significantly. The demand for livestock products gives an opportunity to increase incomes and employment and to reduce poverty in rural areas. If flexibility on the supply side is facilitated, production will adjust to the market forces and generate higher incomes in the rural areas and help to meet the target of doubling farmer's income.

Feed is a major item of cost which alone constitutes about 60 percent of the total cost of the milk production. To reduce the cost of quality livestock products, there was urgent need for assessment of feed and fodder availability. Thus, attempts for enhancing feed availability and minimizing the cost of feed will certainly increase the margin of profits to livestocks rearers in the state of U.P. There is high pressure of livestock population on available feed and fodder due to acute shortage of land for feed and fodder production. To fulfill the required production of livestock products and balance the growth in livestock population and the deficit in green fodder, dry fodder, crop residues and feed, the land area and productivity of fodder crops will have to be increased accordingly. Though, with the increase in the production of food grains, the crop residues and concentrates feed ingredients availability has also increased. However, the crop diversification in recent past years has, replaced the coarse cereals which has certainly affected the availability of crop residues and feed concentrates.

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Coarse cereals play a major role in livestock feed supply, particularly the coarse cereals such as maize, sorghum, barley and pearl millet which account nearly 44 percent of the total cereals. Production of these cereals has also stagnated these days. Therefore, there is urgent need to improve the productivity of these cereals to meet-out the requirement of animals feeds in the state and the country.

## I.2.: Details of Major Livestock Population in the State of Uttar Pradesh

### I.2.1: District-wise Exotic/Crossbred Cattle Population as per 20th Livestock Census, 2019 in Uttar Pradesh

The district-wise exotic/crossbred cattle population according to 20th livestock census during 2019 in the state of Uttar Pradesh worked-out in Table-I-2.1 indicates that the total population of crossbred cattle in the whole state of Uttar Pradesh in 2019 was enumerated as 61,22,628 of which the maximum i.e. 57,19,466 were female cattle and the remaining 4,03,162 were accounted as male cattle on an overall. Among the female cattle 22,66,937 were in milk and 6,84,344 were reported to be dry. 14,75,945 were reported to be under one year and 11,08,118 were under one to two and half years 1,14,073 were not even calved once and 66,049 were reported as other cattle in the state of Uttar Pradesh. Thus, the population of female crossbred cattle in the state of Uttar Pradesh were dominating and maximum of which the maximum were in milk. While among the male cattle the maximum i.e. 2,38,743 were under one and half years, 82,366 were used for agriculture only, 32,189 male cattle were used for bullock-cart and farm operation, 24,589 males were used for breeding only and 11,900 were used for other works. Thus, it was very well clarified that still a considerable number of male cattle are used for agriculture in the state of Uttar Pradesh.

The district-wise analysis of female cattle shows that the maximum number of female cattle i.e. 2,36,711 were reported in Muzzaffarnagar district against only 4,838 female cattle in Chitrakoot district of Uttar Pradesh and in other districts it was varying in between these numbers. The data are contained in Table-I-2.1.

## Table-I-2.1
## District-wise Exotic Cattle Population in 20<sup>th</sup> Livestock Census, 2019 in Uttar Pradesh

| S. No. | Districts Name | Exotic | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male | | | | | | | Female | | | | | | | Total |
| | | Upto one & half year | Used for breeding only | Used for agriculture only | Agriculture & breeding | Bullock cart farm operation | others | Total male | Under one year | One to two & half years | In milk | Dry | Not calved once | Others | Total female | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1 | Agra | 1624 | 1078 | 812 | 92 | 110 | 235 | 3951 | 30884 | 18223 | 48613 | 8263 | 3231 | 1317 | 110531 | 114482 |
| 2 | Aligarh | 8731 | 416 | 2446 | 257 | 6232 | 198 | 18280 | 35707 | 18802 | 66334 | 17259 | 942 | 631 | 139675 | 157955 |
| 3 | Allahabad | 5372 | 597 | 1001 | 265 | 223 | 328 | 7786 | 43205 | 34669 | 66617 | 24289 | 3794 | 2381 | 174955 | 182741 |
| 4 | Ambedkar Nagar | 6318 | 1620 | 1798 | 551 | 151 | 639 | 11077 | 30823 | 33393 | 30167 | 18475 | 1588 | 3723 | 118169 | 129246 |
| 5 | Amethi | 2792 | 321 | 453 | 244 | 45 | 148 | 4005 | 14917 | 10009 | 17227 | 8129 | 1144 | 1133 | 52559 | 56564 |
| 6 | Amroha | 9455 | 189 | 3976 | 249 | 1410 | 157 | 15436 | 20990 | 17125 | 37788 | 10052 | 1299 | 527 | 87761 | 103197 |
| 7 | Auraiya | 298 | 44 | 89 | 31 | 15 | 2 | 479 | 7632 | 6216 | 10366 | 3666 | 696 | 289 | 28865 | 29344 |
| 8 | Azamgarh | 6785 | 254 | 377 | 110 | 57 | 248 | 7831 | 55767 | 47174 | 75078 | 27556 | 4644 | 2868 | 213087 | 220918 |
| 9 | Baghpat | 4471 | 122 | 2759 | 366 | 1304 | 117 | 9139 | 25801 | 14179 | 44787 | 9783 | 806 | 225 | 95581 | 104720 |
| 10 | Bahraich | 884 | 81 | 563 | 137 | 8 | 66 | 1739 | 5754 | 4461 | 6692 | 3570 | 459 | 189 | 21125 | 22864 |
| 11 | Ballia | 4634 | 150 | 112 | 54 | 20 | 297 | 5267 | 53982 | 50191 | 82991 | 19996 | 3195 | 1577 | 211932 | 217199 |
| 12 | Balrampur | 812 | 103 | 368 | 65 | 85 | 97 | 1530 | 4271 | 3551 | 5497 | 2020 | 575 | 232 | 16146 | 17676 |
| 13 | Banda | 622 | 443 | 127 | 7 | 18 | 43 | 1260 | 1533 | 1320 | 1056 | 310 | 72 | 85 | 4376 | 5636 |
| 14 | Barabanki | 2067 | 106 | 356 | 48 | 65 | 55 | 2697 | 13869 | 13292 | 20488 | 9767 | 998 | 387 | 58801 | 61498 |
| 15 | Bareilly | 2421 | 260 | 621 | 118 | 119 | 123 | 3662 | 8613 | 7315 | 15246 | 4325 | 643 | 695 | 36837 | 40499 |
| 16 | Basti | 2429 | 56 | 77 | 42 | 37 | 202 | 2843 | 15166 | 13896 | 20421 | 7439 | 950 | 623 | 58495 | 61338 |
| 17 | Bijnor | 11295 | 440 | 8099 | 450 | 2453 | 385 | 23122 | 47795 | 28682 | 72555 | 18623 | 5640 | 848 | 174143 | 197265 |
| 18 | Budaun | 5232 | 2706 | 3751 | 770 | 2386 | 428 | 15273 | 13132 | 9583 | 20017 | 7191 | 1520 | 906 | 52349 | 67622 |
| 19 | Bulandshahr | 7542 | 686 | 5465 | 1221 | 6689 | 261 | 21864 | 34542 | 24381 | 74757 | 12808 | 2856 | 1059 | 150403 | 172267 |
| 20 | Chandauli | 3309 | 99 | 72 | 27 | 9 | 44 | 3560 | 47447 | 32049 | 55563 | 16101 | 2600 | 3099 | 156859 | 160419 |
| 21 | Chitrakoot | 240 | 17 | 58 | 31 | 0 | 3 | 349 | 1053 | 922 | 1497 | 745 | 217 | 55 | 4489 | 4838 |
| 22 | Deoria | 4518 | 200 | 185 | 64 | 56 | 344 | 5370 | 52560 | 44432 | 64110 | 16404 | 3254 | 1766 | 182526 | 187896 |
| 23 | Etah | 1453 | 108 | 474 | 20 | 255 | 117 | 2427 | 12754 | 7644 | 20310 | 5570 | 1540 | 539 | 48397 | 50824 |
| 24 | Etawah | 1474 | 75 | 324 | 27 | 36 | 7 | 1943 | 10010 | 6434 | 18985 | 3526 | 820 | 439 | 40214 | 42157 |
| 25 | Faizabad | 2359 | 254 | 628 | 57 | 14 | 90 | 3402 | 12865 | 15697 | 13879 | 6445 | 1246 | 867 | 51003 | 54405 |

Contd..

| 26 | Farrukhabad | 1448 | 136 | 619 | 88 | 72 | 17 | 2380 | 9345 | 6431 | 16450 | 5340 | 1082 | 330 | 38979 | 41359 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Fatehpur | 1639 | 97 | 1057 | 192 | 69 | 87 | 3141 | 7615 | 4977 | 17260 | 4075 | 715 | 206 | 29848 | 32989 |
| 28 | Firozabad | 2380 | 81 | 247 | 108 | 15 | 297 | 3128 | 21749 | 17822 | 39262 | 8254 | 1529 | 955 | 89571 | 92699 |
| 29 | Gautam Buddha Nagar | 2326 | 326 | 899 | 133 | 686 | 123 | 4493 | 11127 | 6668 | 24696 | 3467 | 873 | 303 | 47134 | 51627 |
| 30 | Ghaziabad | 3149 | 396 | 1040 | 67 | 673 | 42 | 5367 | 17936 | 10868 | 38156 | 6601 | 935 | 417 | 74913 | 80280 |
| 31 | Ghazipur | 2867 | 72 | 58 | 35 | 21 | 177 | 3230 | 27154 | 27092 | 35473 | 16502 | 1559 | 728 | 108508 | 111738 |
| 32 | Gonad | 3287 | 343 | 718 | 174 | 88 | 135 | 4745 | 29782 | 20087 | 47346 | 15132 | 3258 | 1401 | 113006 | 117751 |
| 33 | Gorakhpur | 5080 | 277 | 319 | 112 | 64 | 634 | 6681 | 46343 | 40978 | 69373 | 25326 | 3002 | 2161 | 187183 | 193864 |
| 34 | Hamirpur | 220 | 10 | 15 | 27 | 5 | 1 | 278 | 1800 | 882 | 2287 | 441 | 140 | 16 | 5566 | 5844 |
| 35 | Hapur | 3969 | 68 | 2068 | 82 | 434 | 197 | 6818 | 14840 | 9391 | 30925 | 6621 | 666 | 190 | 62633 | 69451 |
| 36 | Hardoi | 2694 | 499 | 2299 | 303 | 1233 | 558 | 7586 | 10193 | 7831 | 16721 | 5654 | 980 | 754 | 42143 | 49729 |
| 37 | Hathras | 1185 | 148 | 272 | 135 | 479 | 139 | 2358 | 12358 | 7302 | 22338 | 3781 | 1030 | 712 | 47521 | 49879 |
| 38 | Jalaun | 788 | 12 | 21 | 6 | 12 | 10 | 849 | 6086 | 3269 | 7428 | 1389 | 948 | 200 | 19320 | 20169 |
| 39 | Jaunpur | 7757 | 343 | 345 | 166 | 104 | 305 | 9020 | 42815 | 35069 | 65555 | 30880 | 5415 | 4051 | 183785 | 192805 |
| 40 | Jhansi | 212 | 19 | 22 | 8 | 59 | 55 | 375 | 2482 | 1692 | 2820 | 1024 | 209 | 83 | 8310 | 8685 |
| 41 | Kannauj | 676 | 170 | 193 | 98 | 40 | 77 | 1254 | 9677 | 8009 | 15578 | 3240 | 413 | 548 | 37465 | 38719 |
| 42 | Kanpur Dehat | 2676 | 221 | 220 | 37 | 30 | 48 | 3232 | 12070 | 10141 | 20860 | 3662 | 545 | 370 | 47648 | 50880 |
| 43 | Kanpur Nagar | 1736 | 142 | 234 | 18 | 36 | 529 | 2695 | 13009 | 7744 | 23255 | 5519 | 660 | 319 | 50506 | 53201 |
| 44 | Kasganj | 851 | 59 | 1164 | 37 | 136 | 83 | 2330 | 3587 | 2309 | 5993 | 1907 | 470 | 157 | 14423 | 16753 |
| 45 | Kaushambi | 3736 | 758 | 304 | 58 | 46 | 25 | 4927 | 9429 | 6762 | 13033 | 3711 | 336 | 269 | 33540 | 38467 |
| 46 | Kheri | 5749 | 576 | 5622 | 398 | 391 | 139 | 12875 | 18664 | 16018 | 24887 | 12368 | 2005 | 1203 | 75145 | 88020 |
| 47 | Kushi Nagar | 4409 | 94 | 390 | 110 | 103 | 199 | 5305 | 32356 | 19559 | 35475 | 14865 | 1275 | 630 | 104160 | 109465 |
| 48 | Lalitpur | 63 | 17 | 11 | 8 | 2 | 2 | 103 | 2670 | 4592 | 2792 | 2351 | 406 | 196 | 13007 | 13110 |
| 49 | Lucknow | 2100 | 857 | 497 | 949 | 517 | 108 | 5028 | 13590 | 7771 | 22962 | 7503 | 1632 | 929 | 54387 | 59415 |
| 50 | Maharajganj | 1735 | 180 | 269 | 114 | 100 | 99 | 2497 | 10606 | 6580 | 13456 | 6489 | 893 | 318 | 38342 | 40839 |
| 51 | Mahoba | 125 | 3 | 31 | 5 | 3 | 2 | 169 | 555 | 307 | 759 | 241 | 14 | 20 | 1896 | 2065 |
| 52 | Manipur | 2402 | 233 | 645 | 98 | 99 | 137 | 3614 | 19355 | 14406 | 27165 | 6231 | 680 | 835 | 68672 | 72286 |
| 53 | Mathura | 1811 | 144 | 527 | 87 | 334 | 43 | 2546 | 14479 | 7839 | 19963 | 6652 | 2646 | 2007 | 50586 | 53532 |
| 54 | Mau | 2354 | 81 | 75 | 15 | 14 | 48 | 2587 | 15340 | 11151 | 18213 | 8105 | 1302 | 866 | 54977 | 57564 |
| 55 | Meerut | 7989 | 353 | 3149 | 437 | 775 | 191 | 12854 | 48208 | 26816 | 92352 | 12895 | 3858 | 1192 | 185321 | 198215 |
| 56 | Mirzapur | 4184 | 2264 | 2274 | 46 | 18 | 62 | 8848 | 46481 | 36391 | 73066 | 24309 | 3499 | 1360 | 185106 | 193954 |
| 57 | Moradabad | 7185 | 989 | 5162 | 616 | 309 | 101 | 14362 | 16017 | 11306 | 29635 | 7712 | 1123 | 302 | 66095 | 80457 |
| 58 | Muzaffarnagar | 10187 | 352 | 3374 | 299 | 912 | 337 | 15421 | 52516 | 42182 | 100212 | 21842 | 2720 | 1818 | 221290 | 236711 |
| 59 | Pilibhit | 2088 | 75 | 597 | 50 | 141 | 143 | 3054 | 8124 | 6849 | 11685 | 3791 | 718 | 441 | 31608 | 34702 |
| 60 | Pratapgarh | 3553 | 661 | 699 | 375 | 101 | 183 | 5572 | 31144 | 28401 | 38027 | 13366 | 4375 | 1911 | 117225 | 122797 |
| 61 | Rae Bareli | 3340 | 298 | 1092 | 50 | 73 | 104 | 4957 | 15342 | 12156 | 21602 | 10044 | 1675 | 1019 | 61838 | 66795 |

| No | District | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | Rampur | 1961 | 115 | 577 | 67 | 322 | 101 | 3143 | 9420 | 6956 | 14069 | 3398 | 916 | 867 | 35626 | 38769 |
| 63 | Saharanpur | 7345 | 161 | 2095 | 202 | 477 | 93 | 10373 | 43533 | 26460 | 66409 | 21041 | 1239 | 1072 | 159748 | 170121 |
| 64 | Sambhal | 3424 | 155 | 1019 | 199 | 259 | 36 | 5092 | 9164 | 5800 | 16240 | 3991 | 1316 | 197 | 36708 | 41800 |
| 65 | Sant Kabeer Nagar | 2533 | 658 | 1119 | 1080 | 54 | 89 | 5533 | 13053 | 11165 | 17008 | 6931 | 808 | 558 | 49523 | 55056 |
| 66 | Sant Ravidas Nagar | 893 | 66 | 100 | 33 | 6 | 13 | 1111 | 11952 | 9314 | 16440 | 7630 | 1553 | 750 | 47699 | 48810 |
| 67 | Shahjahanpur | 609 | 116 | 408 | 129 | 102 | 26 | 1390 | 3019 | 2643 | 5227 | 2433 | 838 | 350 | 14510 | 15900 |
| 68 | Shamli | 3849 | 50 | 918 | 63 | 368 | 47 | 5295 | 23309 | 13723 | 40509 | 12316 | 715 | 211 | 90784 | 96079 |
| 69 | Shravasti | 249 | 59 | 85 | 24 | 12 | 4 | 433 | 7307 | 1917 | 5215 | 1370 | 235 | 42 | 16086 | 16519 |
| 70 | Siddharth Nagar | 410 | 47 | 39 | 8 | 1 | 41 | 546 | 4187 | 3603 | 5394 | 878 | 613 | 178 | 14853 | 15399 |
| 71 | Sitapur | 1791 | 236 | 1423 | 163 | 129 | 154 | 3896 | 10541 | 7271 | 14378 | 4599 | 773 | 619 | 38181 | 42077 |
| 72 | Sonbhadra | 1559 | 99 | 611 | 32 | 4 | 18 | 2323 | 7384 | 5407 | 10415 | 3790 | 809 | 1063 | 28868 | 31191 |
| 73 | Sultanpur | 4096 | 298 | 548 | 100 | 113 | 311 | 5466 | 30095 | 22716 | 44990 | 17545 | 2296 | 1483 | 119125 | 124592 |
| 74 | Unnao | 1387 | 199 | 1383 | 148 | 45 | 241 | 3403 | 9462 | 6490 | 14710 | 4018 | 792 | 382 | 35854 | 39257 |
| 75 | Varanasi | 3550 | 556 | 519 | 323 | 304 | 455 | 5707 | 44562 | 33365 | 66558 | 20727 | 2853 | 2600 | 170965 | 176672 |
| | **Total** | **238743** | **24589** | **82366** | **13375** | **32189** | **11900** | **403162** | **1479945** | **1108118** | **2266937** | **684344** | **114073** | **66049** | **5719466** | **6122628** |

Source: Dte. of Animal Husbandry & Dairying Uttar Pradesh, Lucknow, U.P.

**I.2.2: District-wise Indigenous Cattle Population as per 20<sup>th</sup> Livestock Census, 2019 in Uttar Pradesh**

The district-wise Indigenous cattle population as per 20th livestock census during 2019 in Uttar Pradesh worked-out in Table-I-2.2 shows that the numbers of total indigenous cattle in the state of Uttar Pradesh were enumerated as 1,28,97,013 on an overall of which the maximum i.e. 1,12,29,207 were female indigenous cattle and 16,67,806 were male cattle. Among female cattle the maximum i.e. 39,37,367 were in milk, 28,02,047 were under one year 23,51,830 were in the age of one to two and half years, 16,51,807 were reported as dry, 2,81,619 were found as not calved once and 2,04,537 were reported as others in the whole state of Uttar Pradesh. Thus, among the indigenous female cattle too the maximum were in milk.

While among the total male indigenous cattle i.e. 16,67,806, the maximum i.e. 7,88,591 were used for agriculture only, 1,04,820 were used for the bullock cart and farm operation, 62,061 were used for breeding only, 6,13,504 were under the age of one to two and half years and 40,795 were reported as other indigenous male cattle in the whole state of Uttar Pradesh. Therefore, it is safely concluded that among the total male indigenous cattle the maximum were still used for agriculture only in these days of mechanized farming system in the state of Uttar Pradesh.

The district-wise distribution of total indigenous cattle shows that the maximum indigenous cattle i.e. 5,18,878 were accounted in Sonbhadra district against the minimum i.e. 28,952 only is Sant Kabir Nagar district. While the maximum female indigenous cattle i.e. 3,55,264 were reported in Sitapur district against the minimum i.e. 26,725 in the Sant Kabir Nagar district. The related data are given in Table-I-2.2.

## Table-I-2.2
## District-wise Indigenous Cattle Population in 20th Livestock Census, 2019 in Uttar Pradesh

| S. No. | Districts Name | Indigenous | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male | | | | | | | Female | | | | | | | Total |
| | | Upto one & half year | Used for breeding only | Used for agriculture only | Agriculture & breeding | Bullock cart farm operation | others | Total male | Under one year | One to two & half years | In milk | Dry | Not calved once | Others | Total female | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1 | Agra | 1470 | 359 | 753 | 125 | 123 | 61 | 2891 | 42901 | 38926 | 65913 | 10390 | 4478 | 2807 | 165415 | 168306 |
| 2 | Aligarh | 7436 | 379 | 5477 | 608 | 6166 | 329 | 20395 | 32251 | 23255 | 56224 | 16815 | 3648 | 755 | 132948 | 153343 |
| 3 | Allahabad | 11713 | 1730 | 8656 | 1041 | 1419 | 1103 | 25662 | 82643 | 78225 | 118598 | 48597 | 11772 | 12218 | 352053 | 377715 |
| 4 | Ambedkar Nagar | 4309 | 225 | 2470 | 87 | 106 | 507 | 7711 | 33181 | 32707 | 34803 | 18799 | 2463 | 3929 | 125882 | 133593 |
| 5 | Amethi | 13931 | 586 | 4899 | 618 | 960 | 681 | 21670 | 59379 | 55943 | 73482 | 37177 | 5469 | 5970 | 237420 | 259090 |
| 6 | Amroha | 8418 | 232 | 8335 | 234 | 2968 | 152 | 20339 | 21299 | 19964 | 39662 | 9583 | 2018 | 587 | 93113 | 113452 |
| 7 | Auraiya | 2276 | 174 | 941 | 90 | 103 | 155 | 3739 | 22309 | 16624 | 30066 | 9148 | 1441 | 503 | 80091 | 83830 |
| 8 | Azamgarh | 7492 | 361 | 2745 | 186 | 33 | 331 | 11148 | 6065 | 54699 | 74374 | 32377 | 2714 | 3613 | 228392 | 239540 |
| 9 | Baghpat | 925 | 104 | 940 | 149 | 507 | 21 | 2646 | 11172 | 6776 | 15986 | 3943 | 439 | 248 | 38564 | 41210 |
| 10 | Bahraich | 16375 | 2096 | 26119 | 2468 | 1748 | 1010 | 49816 | 68021 | 52942 | 83912 | 52808 | 7864 | 5038 | 270585 | 320401 |
| 11 | Ballia | 3703 | 196 | 436 | 58 | 103 | 315 | 4811 | 49646 | 54109 | 68295 | 27114 | 7852 | 5676 | 212892 | 217703 |
| 12 | Balrampur | 10424 | 1383 | 23288 | 2902 | 3933 | 1220 | 43150 | 34645 | 34077 | 38717 | 19786 | 5574 | 4121 | 136920 | 180070 |
| 13 | Banda | 22350 | 3014 | 52831 | 2378 | 4175 | 1147 | 85895 | 42998 | 28974 | 59562 | 25495 | 4418 | 2517 | 163964 | 249859 |
| 14 | Barabanki | 13211 | 1324 | 6438 | 645 | 712 | 542 | 22872 | 54352 | 52402 | 77247 | 50728 | 3755 | 1908 | 240392 | 263254 |
| 15 | Bareilly | 15813 | 724 | 9886 | 518 | 1911 | 573 | 29425 | 39149 | 34873 | 65113 | 20586 | 3061 | 2273 | 165055 | 194480 |
| 16 | Basti | 2389 | 111 | 832 | 59 | 273 | 264 | 3928 | 17584 | 16913 | 18369 | 6272 | 856 | 443 | 60437 | 64365 |
| 17 | Bijnor | 15734 | 921 | 21798 | 1343 | 5997 | 1698 | 47491 | 36458 | 23861 | 54042 | 15065 | 2560 | 1518 | 133534 | 181025 |
| 18 | Budaun | 17968 | 2940 | 23223 | 3455 | 2269 | 694 | 5099 | 40354 | 35372 | 61441 | 20157 | 2783 | 1962 | 162069 | 212166 |
| 19 | Bulandshahr | 5685 | 343 | 6380 | 638 | 5475 | 236 | 18757 | 26760 | 18644 | 51945 | 11189 | 3356 | 1403 | 13297 | 132054 |
| 20 | Chandauli | 2179 | 142 | 3466 | 33 | 14 | 94 | 5928 | 45339 | 39851 | 57139 | 24777 | 2808 | 2132 | 172046 | 177974 |
| 21 | Chitrakoot | 18223 | 2399 | 27161 | 2558 | 2226 | 300 | 52867 | 53185 | 37838 | 73728 | 38966 | 4023 | 2295 | 210035 | 262902 |
| 22 | Deoria | 2030 | 977 | 646 | 456 | 499 | 2344 | 6952 | 25166 | 24631 | 28835 | 8023 | 1381 | 4959 | 92995 | 99947 |
| 23 | Etah | 1503 | 65 | 1866 | 69 | 441 | 23 | 3967 | 9313 | 6876 | 14460 | 3993 | 524 | 227 | 35393 | 39360 |
| 24 | Etawah | 1497 | 83 | 603 | 73 | 54 | 31 | 2341 | 14308 | 11037 | 26184 | 5898 | 1538 | 1314 | 60279 | 62620 |
| 25 | Faizabad | 11318 | 628 | 8630 | 355 | 186 | 231 | 21348 | 49188 | 52685 | 57789 | 31877 | 4747 | 2487 | 198773 | 220121 |

Contd..

| 26 | Farrukhabad | 1852 | 257 | 3684 | 232 | 378 | 57 | 6460 | 17739 | 18189 | 23546 | 8115 | 1605 | 652 | 66846 | 73306 |
|----|-------------|------|-----|------|-----|-----|----|------|-------|-------|-------|------|------|-----|-------|-------|
| 27 | Fatehpur | 8373 | 412 | 22946 | 803 | 334 | 532 | 33400 | 23641 | 18621 | 3694 | 14023 | 2172 | 1063 | 96424 | 129824 |
| 28 | Firozabad | 1711 | 93 | 1052 | 37 | 52 | 154 | 3099 | 17336 | 11607 | 30622 | 6104 | 2196 | 650 | 68515 | 71614 |
| 29 | Gautam Buddha Nagar | 2514 | 115 | 641 | 125 | 751 | 98 | 4244 | 7899 | 4915 | 16982 | 4079 | 856 | 265 | 34996 | 39240 |
| 30 | Ghaziabad | 768 | 159 | 454 | 11 | 469 | 39 | 1900 | 4320 | 1893 | 9521 | 1937 | 147 | 202 | 18020 | 19920 |
| 31 | Ghazipur | 6047 | 203 | 689 | 166 | 84 | 213 | 7402 | 65874 | 68060 | 80565 | 42823 | 7017 | 2789 | 367132 | 274534 |
| 32 | Gonad | 20314 | 576 | 9122 | 335 | 913 | 446 | 21706 | 56824 | 48777 | 86180 | 37671 | 7308 | 2203 | 238963 | 260669 |
| 33 | Gorakhpur | 2840 | 135 | 428 | 158 | 157 | 423 | 4141 | 24593 | 21433 | 27108 | 13711 | 1797 | 784 | 89426 | 93567 |
| 34 | Hamirpur | 6679 | 397 | 9310 | 574 | 2232 | 252 | 19444 | 37410 | 15766 | 46878 | 12420 | 2644 | 745 | 115863 | 135307 |
| 35 | Hapur | 2174 | 71 | 1127 | 140 | 383 | 96 | 3991 | 6971 | 4795 | 13363 | 3212 | 259 | 73 | 28673 | 32664 |
| 36 | Hardoi | 19737 | 4101 | 43585 | 2559 | 4200 | 2075 | 76257 | 65217 | 56850 | 114568 | 44809 | 6819 | 5747 | 294010 | 370267 |
| 37 | Hathras | 2079 | 181 | 960 | 292 | 937 | 234 | 4683 | 17816 | 11523 | 30769 | 6898 | 1175 | 1704 | 69885 | 74568 |
| 38 | Jalaun | 6997 | 524 | 1283 | 141 | 161 | 151 | 9257 | 53214 | 26076 | 74256 | 15409 | 4216 | 1601 | 174772 | 184029 |
| 39 | Jaunpur | 15177 | 1208 | 2976 | 580 | 181 | 586 | 20708 | 74226 | 65136 | 100328 | 65906 | 7889 | 9942 | 323427 | 344135 |
| 40 | Jhansi | 7163 | 711 | 6903 | 937 | 3816 | 696 | 19486 | 57160 | 37273 | 69652 | 24826 | 7392 | 2315 | 198618 | 218104 |
| 41 | Kannauj | 4060 | 743 | 2380 | 426 | 464 | 498 | 8571 | 37701 | 47238 | 58874 | 31401 | 5327 | 6686 | 187227 | 195798 |
| 42 | Kanpur Dehat | 4594 | 343 | 1677 | 277 | 185 | 212 | 7288 | 32075 | 25038 | 53387 | 9985 | 1697 | 881 | 13063 | 130351 |
| 43 | Kanpur Nagar | 4366 | 211 | 2755 | 153 | 222 | 651 | 8358 | 27828 | 1935 | 51874 | 12974 | 1171 | 825 | 113707 | 122065 |
| 44 | Kasganj | 3163 | 419 | 8444 | 699 | 4448 | 168 | 17341 | 12251 | 9001 | 18582 | 4726 | 613 | 399 | 45572 | 62913 |
| 45 | Kaushambi | 5438 | 1695 | 6501 | 1545 | 282 | 2456 | 15706 | 32990 | 27630 | 41525 | 15206 | 2957 | 2014 | 122322 | 138028 |
| 46 | Kheri | 24715 | 2597 | 40184 | 1804 | 6101 | 1142 | 76543 | 68502 | 69346 | 97827 | 49744 | 11903 | 6723 | 304045 | 380588 |
| 47 | Kushi Nagar | 2034 | 99 | 1154 | 135 | 759 | 44 | 4225 | 15103 | 10838 | 16346 | 7916 | 669 | 662 | 51534 | 55759 |
| 48 | Lalitpur | 19118 | 2171 | 12492 | 864 | 288 | 296 | 3229 | 84537 | 65159 | 99061 | 59615 | 4606 | 3197 | 316175 | 351404 |
| 49 | Lucknow | 6062 | 1821 | 5981 | 530 | 1142 | 1246 | 16782 | 31864 | 23799 | 58441 | 18413 | 3665 | 1967 | 138149 | 154931 |
| 50 | Maharajganj | 976 | 120 | 1384 | 35 | 311 | 176 | 3002 | 6904 | 6147 | 7643 | 3773 | 569 | 225 | 25261 | 28263 |
| 51 | Mahoba | 7091 | 186 | 13630 | 840 | 1693 | 209 | 23649 | 30713 | 17132 | 42738 | 18085 | 2016 | 2571 | 113255 | 136904 |
| 52 | Manipur | 2944 | 671 | 1737 | 143 | 231 | 330 | 6056 | 17631 | 11789 | 20472 | 6443 | 2156 | 2806 | 61297 | 67353 |
| 53 | Mathura | 8463 | 847 | 2405 | 457 | 2415 | 877 | 15464 | 36589 | 19247 | 65876 | 17442 | 2741 | 3345 | 145240 | 160704 |
| 54 | Mau | 3235 | 145 | 303 | 22 | 57 | 90 | 3857 | 30761 | 25488 | 33586 | 18125 | 1652 | 2271 | 111883 | 115740 |
| 55 | Meerut | 2616 | 202 | 2248 | 158 | 344 | 68 | 5636 | 9508 | 6739 | 18998 | 3931 | 1227 | 331 | 40734 | 46370 |
| 56 | Mirzapur | 10771 | 2716 | 17885 | 1704 | 1051 | 1402 | 35529 | 66262 | 57465 | 96817 | 48283 | 7260 | 5618 | 281705 | 317234 |
| 57 | Moradabad | 7999 | 669 | 8232 | 783 | 2212 | 121 | 20016 | 18241 | 15336 | 31735 | 8405 | 2163 | 581 | 76461 | 96477 |
| 58 | Muzaffarnagar | 2982 | 156 | 4620 | 237 | 716 | 115 | 8826 | 9836 | 10879 | 19467 | 4621 | 578 | 306 | 45687 | 54513 |
| 59 | Pilibhit | 9710 | 288 | 6088 | 301 | 458 | 519 | 17364 | 25984 | 25281 | 38288 | 14615 | 2793 | 1260 | 108221 | 125585 |
| 60 | Pratapgarh | 13513 | 983 | 4975 | 915 | 459 | 626 | 21471 | 116226 | 100181 | 136428 | 64209 | 24630 | 18261 | 459935 | 481406 |

| 61 | Rae Bareli | 22804 | 1002 | 31038 | 1215 | 4094 | 627 | 60780 | 60894 | 47633 | 88751 | 53644 | 10380 | 2981 | 264283 | 325063 |
|----|------------|-------|------|-------|------|------|-----|-------|-------|-------|-------|-------|-------|------|--------|--------|
| 62 | Rampur | 3552 | 296 | 3025 | 744 | 953 | 448 | 9018 | 14056 | 12727 | 23378 | 5696 | 661 | 1791 | 58309 | 67327 |
| 63 | Saharanpur | 3857 | 114 | 3885 | 189 | 530 | 402 | 8977 | 26014 | 14305 | 34075 | 11676 | 661 | 675 | 87406 | 96383 |
| 64 | Sambhal | 11921 | 454 | 8569 | 743 | 7908 | 221 | 29816 | 2475 | 20960 | 41190 | 12689 | 2755 | 951 | 103297 | 133113 |
| 65 | Sant Kabeer Nagar | 1276 | 112 | 507 | 103 | 132 | 97 | 2227 | 6956 | 6569 | 9141 | 3569 | 298 | 192 | 26725 | 28952 |
| 66 | Sant Ravidas Nagar | 3996 | 232 | 858 | 83 | 21 | 97 | 5287 | 37276 | 38562 | 48908 | 24438 | 3543 | 5641 | 158368 | 163655 |
| 67 | Shahjahanpur | 11282 | 1316 | 15545 | 2725 | 1982 | 787 | 34037 | 50192 | 44875 | 72497 | 37683 | 3797 | 2162 | 211206 | 245243 |
| 68 | Shamli | 1030 | 10 | 944 | 16 | 157 | 17 | 2174 | 5343 | 3116 | 8318 | 2700 | 125 | 36 | 19638 | 21812 |
| 69 | Shravasti | 4890 | 2260 | 26801 | 879 | 625 | 1283 | 36738 | 26770 | 17914 | 42503 | 13454 | 3642 | 2502 | 106785 | 143523 |
| 70 | Siddharth Nagar | 2672 | 143 | 1049 | 89 | 48 | 246 | 4247 | 20991 | 23362 | 24123 | 5364 | 1660 | 1918 | 77418 | 81665 |
| 71 | Sitapur | 20095 | 1866 | 43925 | 2878 | 2708 | 1918 | 73390 | 91816 | 69114 | 121696 | 58336 | 6970 | 7332 | 355264 | 428654 |
| 72 | Sonbhadra | 42016 | 3720 | 110204 | 4701 | 811 | 1967 | 164419 | 83483 | 71994 | 109814 | 75838 | 8491 | 4839 | 354459 | 518878 |
| 73 | Sultanpur | 9801 | 1004 | 4703 | 439 | 348 | 554 | 16849 | 52096 | 52366 | 71747 | 31780 | 4172 | 6104 | 218265 | 235114 |
| 74 | Unnao | 16058 | 2000 | 38446 | 2760 | 3099 | 1831 | 64194 | 54202 | 45776 | 80503 | 31711 | 5814 | 1718 | 220734 | 284928 |
| 75 | Varanasi | 1607 | 261 | 425 | 152 | 117 | 151 | 2714 | 33040 | 29671 | 45630 | 13811 | 3193 | 2118 | 127463 | 130177 |
| | **Total** | **613504** | **62061** | **788591** | **58035** | **104820** | **40795** | **1667806** | **2802047** | **2351830** | **3937367** | **1651807** | **281619** | **204537** | **11229207** | **12897013** |

Source: Dte. of Animal Husbandry & Dairying Uttar Pradesh, Lucknow, U.P.

**I.2.3: District-wise Buffalo Population as per 20<sup>th</sup> Livestock Census, 2019 in Uttar Pradesh**

The district-wise buffalo population as per 20<sup>th</sup> livestock census, 2019 in the state of Uttar Pradesh worked-out in Table-I-2.3 indicates that the total numbers of buffaloes were enumerated 3,30,16,785 in the state of Uttar Pradesh of which 3,05,35,154 were females and remaining 24,81,631 were reported as males in the whole state of Uttar Pradesh. Among the female buffaloes the maximum i.e. 1,13,19,229 were in milk, 77,96,396 were under the age of up to one year, 70,07,141 were under the age of one to three years, 33,01,376 were reported as dry, 6,91,365 had not calved once and 4,19,648 were reported as other buffaloes in the state of Uttar Pradesh. Thus, it was obviously clear that maximum of the female buffaloes were in milk in the state of Uttar Pradesh. The number of female buffaloes under age of one to three years as well as upto one year was also considerable in the whole state of Uttar Pradesh.

While among the total male buffaloes i.e. 24,81,631 the maximum i.e. 16,83,992 were in the age group of up to two years, 3,65,380 were used for agriculture, 1,35,729 were used for breeding only 1,27,578 were used for bullock-cart and farm operation and 84,099 were reported as other male buffaloes in the state of Uttar Pradesh. Thus, the number of male buffaloes was used considerably in agriculture and bullock-cart form operation in the state of Uttar Pradesh as a whole.

The district-wise distribution of buffalo population in the state of Uttar Pradesh shows that the maximum population of buffaloes i.e. 11,07,170 was reported in Budaun district against the minimum i.e. 1,37,867 buffaloes in Mahoba district. While the population of female buffaloes was maximum i.e. 10,30,312 in Agra district against the minimum i.e. 1,29,811 female buffaloes in Mahoba district. In case of male buffaloes the maximum population i.e. 1,07,711 was reported in Bulandshahar district against the minimum i.e. 5,086 in Ballia district of Uttar Pradesh. The related data are given in Table-I-2.3.

## Table-I-2.3
## District-wise Buffalo Population 20<sup>th</sup> Livestock Census 2019 in Uttar Pradesh

| S. No. | Districts Name | District wise Buffalo Population in 2019 | | | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male | | | | | | | Female | | | | | | | |
| | | Upto one & half year | Used for breeding only | Used for agriculture only | Agriculture & breeding | Bullock cart farm operation | others | Total male | Under one year | One to two & half years | In milk | Dry | Not calved once | Others | Total female | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1 | Agra | 12929 | 7066 | 7086 | 3773 | 3096 | 2536 | 36486 | 265945 | 228052 | 415928 | 68756 | 34492 | 17139 | 1030312 | 1066798 |
| 2 | Aligarh | 65865 | 2233 | 6456 | 2011 | 8774 | 1585 | 86924 | 222824 | 175991 | 353282 | 82836 | 14278 | 6363 | 855574 | 942498 |
| 3 | Allahabad | 24698 | 2650 | 2475 | 784 | 2076 | 1624 | 34307 | 187655 | 183580 | 256514 | 102901 | 26685 | 25416 | 782751 | 817058 |
| 4 | Ambedkar Nagar | 13475 | 1411 | 1142 | 582 | 201 | 1245 | 18056 | 86481 | 101009 | 85163 | 41720 | 5226 | 5628 | 325227 | 343283 |
| 5 | Amethi | 16656 | 1150 | 641 | 888 | 558 | 2096 | 21989 | 79500 | 75652 | 114151 | 38160 | 5755 | 7457 | 320675 | 342664 |
| 6 | Amroha | 47273 | 773 | 18008 | 2283 | 6531 | 884 | 75752 | 106024 | 103005 | 176925 | 40957 | 7802 | 4082 | 438795 | 514547 |
| 7 | Auraiya | 14858 | 933 | 744 | 365 | 287 | 159 | 17346 | 98473 | 83145 | 130960 | 37533 | 7538 | 1903 | 359552 | 376898 |
| 8 | Azamgarh | 13737 | 528 | 303 | 167 | 76 | 343 | 15154 | 118297 | 120476 | 150245 | 58596 | 7956 | 6839 | 462409 | 477563 |
| 9 | Baghpat | 19393 | 466 | 8757 | 2971 | 3386 | 205 | 35178 | 78215 | 47625 | 125317 | 27144 | 2342 | 994 | 281637 | 316815 |
| 10 | Bahraich | 25171 | 2072 | 12655 | 2203 | 927 | 1050 | 44078 | 100681 | 84594 | 120066 | 56879 | 10981 | 6986 | 380187 | 424265 |
| 11 | Ballia | 4167 | 214 | 188 | 72 | 34 | 411 | 5086 | 58336 | 69702 | 83656 | 25372 | 5008 | 2626 | 244700 | 249786 |
| 12 | Balrampur | 9983 | 971 | 2988 | 1156 | 847 | 1468 | 17413 | 52392 | 57054 | 58609 | 27691 | 7438 | 5706 | 208890 | 226303 |
| 13 | Banda | 28492 | 3634 | 2851 | 1382 | 1130 | 1942 | 39431 | 100937 | 82558 | 136672 | 48330 | 10980 | 4860 | 384337 | 423768 |
| 14 | Barabanki | 29456 | 3115 | 933 | 261 | 1113 | 1506 | 36384 | 109608 | 122928 | 155034 | 72451 | 8800 | 3625 | 472446 | 508830 |
| 15 | Bareilly | 57433 | 3084 | 11710 | 2384 | 2947 | 2195 | 79753 | 149438 | 142566 | 240775 | 61144 | 16875 | 17058 | 627856 | 707609 |
| 16 | Basti | 15538 | 5188 | 4109 | 4043 | 4104 | 3313 | 36295 | 80878 | 108443 | 82772 | 26837 | 5607 | 2967 | 307504 | 343799 |
| 17 | Bijnor | 48598 | 2295 | 20263 | 2490 | 8470 | 3090 | 85206 | 148541 | 103572 | 214187 | 53917 | 12365 | 4617 | 537199 | 622405 |
| 18 | Budaun | 67959 | 9609 | 12237 | 5670 | 4450 | 3903 | 103828 | 241084 | 240369 | 364884 | 118953 | 21896 | 16156 | 1003342 | 1107170 |
| 19 | Bulandshahr | 57750 | 4540 | 19237 | 4234 | 20710 | 1240 | 107711 | 200946 | 178016 | 391538 | 65911 | 21237 | 6668 | 864316 | 972027 |
| 20 | Chandauli | 5516 | 217 | 108 | 62 | 30 | 73 | 6006 | 88330 | 78457 | 104443 | 35635 | 4633 | 5613 | 317111 | 323117 |
| 21 | Chitrakoot | 14979 | 1203 | 598 | 331 | 72 | 151 | 17334 | 64404 | 45209 | 84656 | 32754 | 4831 | 2509 | 234354 | 251688 |
| 22 | Deoria | 3547 | 521 | 144 | 265 | 144 | 1770 | 6391 | 52802 | 52721 | 58002 | 14079 | 2869 | 4030 | 184503 | 190894 |
| 23 | Etah | 16105 | 586 | 627 | 255 | 247 | 1189 | 19009 | 152542 | 124641 | 224091 | 53875 | 14219 | 5173 | 574541 | 593550 |
| 24 | Etawah | 20386 | 691 | 808 | 357 | 384 | 233 | 22859 | 86631 | 90294 | 145526 | 25419 | 6839 | 6251 | 360960 | 383819 |
| 25 | Faizabad | 15011 | 601 | 253 | 72 | 74 | 430 | 16441 | 82317 | 103653 | 96843 | 41854 | 4346 | 2707 | 331720 | 348161 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | Farrukhabad | 15595 | 1693 | 1801 | 328 | 646 | 160 | 20223 | 109760 | 102714 | 152783 | 42600 | 11585 | 4036 | 423478 | 443701 |
| 27 | Fatehpur | 42497 | 2178 | 3214 | 1245 | 749 | 2978 | 52961 | 149632 | 129937 | 224579 | 72285 | 13013 | 5096 | 594542 | 647503 |
| 28 | Firozabad | 18886 | 973 | 1352 | 474 | 79 | 918 | 22682 | 158208 | 150150 | 238713 | 54610 | 16495 | 4700 | 622876 | 645558 |
| 29 | Gautam Buddha Nagar | 18076 | 1498 | 2875 | 772 | 2124 | 1169 | 26514 | 54461 | 38457 | 120329 | 18089 | 5288 | 1844 | 238468 | 264982 |
| 30 | Ghaziabad | 12791 | 1257 | 5460 | 405 | 3437 | 242 | 23592 | 44447 | 24905 | 97529 | 20445 | 1767 | 1039 | 190128 | 213720 |
| 31 | Ghazipur | 8750 | 347 | 300 | 223 | 130 | 488 | 10193 | 120504 | 138331 | 146634 | 73412 | 11664 | 5227 | 495772 | 505965 |
| 32 | Gonad | 14059 | 927 | 674 | 161 | 44 | 546 | 16411 | 98661 | 101586 | 144352 | 59827 | 13265 | 4069 | 421760 | 438171 |
| 33 | Gorakhpur | 8726 | 616 | 292 | 159 | 103 | 2317 | 12213 | 60887 | 64126 | 77085 | 32433 | 3450 | 2996 | 240977 | 253190 |
| 34 | Hamirpur | 10599 | 653 | 605 | 46 | 74 | 605 | 12582 | 70102 | 39298 | 89715 | 21470 | 4291 | 1052 | 225928 | 238510 |
| 35 | Hapur | 23021 | 189 | 15549 | 1241 | 2737 | 812 | 43549 | 49641 | 36034 | 96904 | 17949 | 1845 | 864 | 203237 | 246786 |
| 36 | Hardoi | 44056 | 3953 | 8280 | 1775 | 2261 | 3435 | 63760 | 184337 | 169992 | 299664 | 84780 | 19738 | 12479 | 770990 | 834750 |
| 37 | Hathras | 11908 | 623 | 667 | 509 | 737 | 1254 | 15698 | 102697 | 77528 | 170467 | 34863 | 8718 | 7807 | 402080 | 417778 |
| 38 | Jalaun | 13935 | 844 | 529 | 274 | 67 | 145 | 15794 | 99408 | 65424 | 138411 | 27070 | 8606 | 2984 | 341903 | 357697 |
| 39 | Jaunpur | 21920 | 1477 | 807 | 461 | 250 | 584 | 25499 | 134170 | 120280 | 185962 | 93247 | 13989 | 11307 | 558955 | 584454 |
| 40 | Jhansi | 5619 | 976 | 431 | 129 | 134 | 250 | 7539 | 83735 | 52659 | 118627 | 32588 | 9188 | 2215 | 299012 | 306551 |
| 41 | Kannauj | 14724 | 3564 | 6166 | 2338 | 2304 | 3121 | 32217 | 97755 | 99366 | 135742 | 30766 | 24481 | 10627 | 398737 | 430954 |
| 42 | Kanpur Dehat | 29701 | 2931 | 1637 | 978 | 314 | 1185 | 36746 | 153997 | 133451 | 230786 | 37580 | 7038 | 3115 | 565967 | 602713 |
| 43 | Kanpur Nagar | 19660 | 1591 | 872 | 501 | 205 | 1260 | 24089 | 121672 | 95718 | 199045 | 44860 | 5260 | 3401 | 469956 | 494045 |
| 44 | Kasganj | 19118 | 1109 | 2040 | 563 | 684 | 1115 | 24629 | 129646 | 135893 | 181086 | 44660 | 7064 | 4731 | 503080 | 527709 |
| 45 | Kaushambi | 23257 | 3362 | 2778 | 1346 | 427 | 464 | 31634 | 96580 | 79354 | 113370 | 33814 | 5865 | 3786 | 332769 | 364403 |
| 46 | Kheri | 56027 | 4939 | 28697 | 5082 | 5196 | 2346 | 102287 | 172333 | 199097 | 223643 | 92142 | 30888 | 15968 | 734071 | 836358 |
| 47 | Kushi Nagar | 6233 | 251 | 194 | 96 | 146 | 332 | 7252 | 47329 | 38237 | 51847 | 22056 | 1463 | 2010 | 162942 | 170194 |
| 48 | Lalitpur | 17639 | 3216 | 1054 | 859 | 84 | 257 | 23109 | 73935 | 57860 | 87128 | 42633 | 4219 | 2859 | 268634 | 291743 |
| 49 | Lucknow | 15795 | 1860 | 949 | 333 | 161 | 469 | 19567 | 64076 | 52220 | 110348 | 30485 | 6773 | 3181 | 267083 | 286650 |
| 50 | Maharajganj | 6677 | 677 | 124 | 214 | 85 | 558 | 8335 | 46883 | 39019 | 55633 | 25913 | 3414 | 1433 | 172295 | 180630 |
| 51 | Mahoba | 6382 | 1179 | 252 | 39 | 103 | 101 | 8056 | 35784 | 23252 | 46806 | 18935 | 2350 | 2684 | 129811 | 137867 |
| 52 | Manipur | 28112 | 3824 | 4661 | 915 | 771 | 2013 | 40296 | 153688 | 121941 | 202822 | 50719 | 10533 | 12913 | 552616 | 592912 |
| 53 | Mathura | 28204 | 1844 | 1943 | 861 | 1527 | 1007 | 35386 | 147445 | 102710 | 232152 | 47113 | 8646 | 3104 | 541170 | 576556 |
| 54 | Mau | 5742 | 223 | 91 | 40 | 43 | 158 | 6297 | 50992 | 43736 | 58345 | 26355 | 3464 | 3522 | 186414 | 192711 |
| 55 | Meerut | 39479 | 1869 | 28963 | 2449 | 6896 | 1046 | 80702 | 106484 | 69084 | 216199 | 31145 | 8441 | 3649 | 435002 | 515704 |
| 56 | Mirzapur | 7795 | 2360 | 2224 | 362 | 91 | 137 | 12969 | 64139 | 57333 | 100273 | 42604 | 7009 | 3255 | 274613 | 287582 |
| 57 | Moradabad | 40328 | 2892 | 12884 | 2812 | 1902 | 777 | 61595 | 90209 | 72899 | 145068 | 29951 | 6971 | 2027 | 347125 | 408720 |
| 58 | Muzaffarnagar | 41097 | 1336 | 25755 | 2835 | 6931 | 1211 | 79165 | 95384 | 83082 | 164243 | 30235 | 4448 | 3190 | 380582 | 459747 |
| 59 | Pilibhit | 20592 | 465 | 4629 | 577 | 493 | 1445 | 28201 | 45879 | 54180 | 66759 | 19316 | 3827 | 2216 | 192177 | 220378 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | Pratapgarh | 19709 | 2318 | 1649 | 1311 | 841 | 983 | 26811 | 152789 | 144964 | 174572 | 62602 | 20150 | 14187 | 569164 | 596075 |
| 61 | Rae Bareli | 37298 | 1768 | 2189 | 777 | 1151 | 744 | 43945 | 100862 | 95001 | 141816 | 62936 | 13844 | 5288 | 419747 | 463692 |
| 62 | Rampur | 21569 | 1301 | 4408 | 1341 | 1490 | 2871 | 32980 | 76683 | 71978 | 131228 | 22757 | 5110 | 12844 | 320600 | 353580 |
| 63 | Saharanpur | 26329 | 604 | 10290 | 1287 | 2684 | 444 | 41638 | 122314 | 88673 | 170506 | 43781 | 2880 | 2181 | 430335 | 471973 |
| 64 | Sambhal | 51195 | 2278 | 4094 | 1525 | 1543 | 854 | 61489 | 161285 | 155147 | 246491 | 64968 | 16605 | 5008 | 649504 | 710993 |
| 65 | Sant Kabeer Nagar | 6032 | 1003 | 1335 | 1310 | 88 | 230 | 9998 | 31450 | 42363 | 39233 | 17702 | 2307 | 1648 | 134693 | 144691 |
| 66 | Sant Ravidas Nagar | 4355 | 415 | 261 | 133 | 45 | 123 | 5332 | 38381 | 37406 | 48264 | 19181 | 3512 | 4527 | 151271 | 156603 |
| 67 | Shahjahanpur | 29829 | 1864 | 7701 | 1071 | 646 | 939 | 42050 | 142051 | 134425 | 196607 | 73502 | 9970 | 6782 | 563337 | 605387 |
| 68 | Shamli | 18912 | 172 | 7244 | 961 | 3055 | 299 | 30643 | 63149 | 44526 | 88421 | 23428 | 2135 | 984 | 222643 | 253286 |
| 69 | Shravasti | 4848 | 710 | 4609 | 281 | 186 | 366 | 11000 | 41461 | 30909 | 62292 | 18122 | 7270 | 3325 | 163379 | 174379 |
| 70 | Siddharth Nagar | 5405 | 405 | 253 | 134 | 147 | 452 | 6796 | 47198 | 57959 | 52090 | 10563 | 3975 | 4371 | 176156 | 182952 |
| 71 | Sitapur | 34699 | 3206 | 7598 | 1836 | 1515 | 1859 | 50713 | 177941 | 137543 | 219124 | 75462 | 10652 | 11938 | 632660 | 683373 |
| 72 | Sonbhadra | 9082 | 1012 | 1349 | 241 | 48 | 137 | 11869 | 32227 | 28578 | 45317 | 24840 | 3684 | 2117 | 136763 | 148632 |
| 73 | Sultanpur | 12512 | 1274 | 581 | 398 | 360 | 959 | 16084 | 73158 | 78111 | 99994 | 37144 | 6529 | 7765 | 302701 | 318785 |
| 74 | Unnao | 52381 | 3405 | 7260 | 1616 | 1137 | 3176 | 68975 | 147060 | 133191 | 220914 | 68627 | 12800 | 4925 | 587517 | 656492 |
| 75 | Varanasi | 3807 | 529 | 489 | 168 | 39 | 117 | 5149 | 60245 | 53202 | 89086 | 29116 | 3888 | 2999 | 238536 | 243685 |
| | **Total** | **1683992** | **135729** | **365380** | **84853** | **127578** | **84099** | **2481631** | **7796395** | **7007141** | **11319229** | **33013769** | **691365** | **419648** | **30535154** | **33016785** |

Source: Dte. of Animal Husbandry & Dairying Uttar Pradesh, Lucknow, U.P.

**I.2.4: District-wise Population of Goat during 2019 (20th Livestock Census) in Uttar Pradesh**

The district-wise population of goat during 2019 (20th livestock census) in Uttar Pradesh worked-out in Table-I-2.4 shows that the total population of goat in Uttar Pradesh was enumerated as 1,44,80,025 of which the maximum i.e. 1,19,51,214 were female goats and remaining 25,28,811 were male goats in the state of Uttar Pradesh as a whole. Among total female goats the maximum i.e. 45,17,709 were under one year age, 42,28,656 were in milk, 26,88,926 were reported as dry and 5,14,923 had not calved once in the whole state of Uttar Pradesh. While among the total male goats the maximum i.e. 14,27,408 were under the age of one year and the remaining 11,01,403 were reported as one year and above in whole state of Uttar Pradesh. Thus, it is safely concluded that the population of both female as well as male goats under the age of one year was maximum in the state of Uttar Pradesh. Also among the female goats the population of females in milk was considerable in the state as a whole.

The district-wise distribution of goats shows that the maximum i.e. 5,81,585 goats were reported in Baharaich district against the minimum i.e. 16,948 in the Bagpat district of Uttar Pradesh. The related data are given in table-I-2.4.

**Table-I-2.4**
**District-wise Population of Goat in 2019 (20th Livestock Census) in Uttar Pradesh**

| Sl. No. | Name of Districts | Male | | | Female | | | | | Grand total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Under one year | One year & above | Total male | Under one year | In milk | Dry | Not calved once | Total female | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | Agra | 9215 | 8212 | 17427 | 48316 | 55675 | 21371 | 5148 | 130510 | 147937 |
| 2 | Aligarh | 16184 | 17191 | 33375 | 30834 | 49589 | 19956 | 2753 | 103132 | 136507 |
| 3 | Allahabad | 23165 | 20580 | 43745 | 78633 | 75830 | 53256 | 9589 | 217308 | 261053 |
| 4 | Ambedkar Nagar | 10007 | 8140 | 18147 | 61685 | 41335 | 36906 | 6771 | 146696 | 164844 |
| 5 | Amethi | 20225 | 12587 | 32812 | 76586 | 50964 | 43786 | 10059 | 181395 | 214207 |
| 6 | Amroha | 8108 | 8309 | 16417 | 20123 | 24339 | 12523 | 2340 | 59325 | 75742 |
| 7 | Auraiya | 29226 | 17089 | 46315 | 79141 | 82829 | 43860 | 6271 | 212101 | 258416 |
| 8 | Azamgarh | 27535 | 21336 | 48871 | 104050 | 77880 | 59496 | 9356 | 250782 | 299653 |
| 9 | Baghpat | 1557 | 1854 | 3411 | 4902 | 5486 | 2936 | 213 | 13537 | 16948 |
| 10 | Bahraich | 52489 | 44830 | 97319 | 200043 | 146430 | 117526 | 20267 | 484266 | 581585 |
| 11 | Ballia | 14767 | 11233 | 26000 | 54963 | 43363 | 27650 | 5514 | 131490 | 157490 |
| 12 | Balrampur | 36815 | 34464 | 71279 | 83282 | 57150 | 48020 | 11059 | 199511 | 270790 |
| 13 | Banda | 31290 | 17956 | 49246 | 85994 | 89748 | 45119 | 11285 | 232146 | 281392 |
| 14 | Barabanki | 19957 | 15319 | 35276 | 70325 | 60673 | 56331 | 6601 | 193930 | 229206 |
| 15 | Bareilly | 16640 | 17284 | 33924 | 33016 | 39412 | 20692 | 3489 | 96609 | 130533 |
| 16 | Basti | 16388 | 13923 | 30311 | 57717 | 34366 | 26006 | 4097 | 122186 | 152497 |
| 17 | Bijnor | 10460 | 11002 | 21462 | 25182 | 26578 | 16111 | 2556 | 70427 | 91889 |
| 18 | Budaun | 23864 | 22576 | 46440 | 47679 | 51283 | 25679 | 5321 | 129962 | 176402 |
| 19 | Bulandshahr | 12827 | 13992 | 26819 | 33569 | 46241 | 17820 | 3526 | 101156 | 127975 |
| 20 | Chandauli | 7610 | 6483 | 14093 | 31921 | 26167 | 14808 | 2102 | 74998 | 89091 |
| 21 | Chitrakoot | 13161 | 7152 | 20313 | 51627 | 61494 | 38353 | 4186 | 155660 | 175973 |
| 22 | Deoria | 26788 | 21221 | 48009 | 102563 | 58135 | 3875 | 8681 | 207554 | 255563 |

28                                                                                       Contd..

| 23 | Etah | 13672 | 10046 | 23718 | 27561 | 30165 | 14876 | 2187 | 74789 | 98507 |
|----|------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| 24 | Etawah | 22754 | 14048 | 36802 | 66360 | 92909 | 37452 | 9906 | 206627 | 243429 |
| 25 | Faizabad | 13036 | 10744 | 23780 | 69602 | 47649 | 43580 | 4692 | 165523 | 189303 |
| 26 | Farrukhabad | 9488 | 9239 | 18727 | 33269 | 43711 | 20123 | 3528 | 100631 | 119358 |
| 27 | Fatehpur | 40776 | 33611 | 74387 | 124706 | 131920 | 90992 | 16162 | 363780 | 438167 |
| 28 | Firozabad | 1228 | 10139 | 27367 | 55377 | 69042 | 25386 | 5338 | 155143 | 182510 |
| 29 | Gautam Buddha Nagar | 2205 | 2114 | 4319 | 4298 | 6652 | 2469 | 376 | 13795 | 18114 |
| 30 | Ghaziabad | 1653 | 1665 | 3318 | 3994 | 7487 | 2245 | 353 | 14079 | 17397 |
| 31 | Ghazipur | 15318 | 11682 | 27000 | 4778 | 36376 | 35441 | 4785 | 124400 | 151400 |
| 32 | Gonad | 26991 | 20725 | 47716 | 91383 | 69656 | 67649 | 14217 | 242905 | 290621 |
| 33 | Gorakhpur | 18538 | 11640 | 30178 | 58756 | 39258 | 38657 | 6168 | 142839 | 173017 |
| 34 | Hamirpur | 25052 | 10048 | 35100 | 100236 | 110561 | 46029 | 7404 | 264230 | 299330 |
| 35 | Hapur | 3345 | 3275 | 6620 | 7775 | 10326 | 5522 | 447 | 24070 | 30690 |
| 36 | Hardoi | 44356 | 44540 | 888896 | 101016 | 108513 | 65709 | 14144 | 289382 | 378278 |
| 37 | Hathras | 5298 | 4987 | 10285 | 25868 | 31779 | 13440 | 2843 | 73930 | 84215 |
| 38 | Jalaun | 28275 | 15515 | 4379 | 102851 | 115523 | 48139\ | 12304 | 278817 | 32260 |
| 39 | Jaunpur | 25198 | 15052 | 40250 | 83041 | 69675 | 71653 | 11924 | 236293 | 276543 |
| 40 | Jhansi | 15126 | 12076 | 27202 | 85871 | 87688 | 45834 | 13801 | 233164 | 260396 |
| 41 | Kannauj | 13766 | 9733 | 23499 | 41453 | 51503 | 28790 | 6844 | 128590 | 152089 |
| 42 | Kanpur Dehat | 52286 | 33244 | 85530 | 128321 | 147652 | 47316 | 12028 | 335317 | 420847 |
| 43 | Kanpur Nagar | 24632 | 18530 | 43162 | 86090 | 106980 | 47704 | 8205 | 248979 | 292141 |
| 44 | Kasganj | 10210 | 10267 | 20477 | 23533 | 26403 | 12328 | 1809 | 64073 | 84550 |
| 45 | Kaushambi | 29664 | 20676 | 50337 | 93754 | 93727 | 63214 | 11739 | 262434 | 312771 |
| 46 | Kheri | 58997 | 48207 | 107204 | 132516 | 121175 | 98424 | 27172 | 379287 | 486491 |
| 47 | Kushi Nagar | 36747 | 19875 | 56622 | 119666 | 69143 | 47214\ | 5272 | 241295 | 297917 |
| 48 | Lalitpur | 13394 | 7559 | 20953 | 55243 | 58206 | 41731 | 4056 | 159236 | 180189 |
| 49 | Lucknow | 15492 | 15977 | 31469 | 41915 | 49302 | 29841 | 8192 | 129250 | 160719 |
| 50 | Maharajganj | 25950 | 15887 | 41837 | 89813 | 63712 | 49638 | 7829 | 210992 | 252829 |
| 51 | Mahoba | 13867 | 8483 | 22350 | 61300 | 68607 | 47911 | 5898 | 183716 | 206066 |
| 52 | Manipur | 30139 | 22302 | 52441 | 81113 | 87413 | 38205 | 7507 | 214238 | 266679 |
| 53 | Mathura | 4430 | 3966 | 8396 | 18397 | 24597 | 11080 | 2211 | 56285 | 64681 |
| 54 | Mau | 15983 | 13978 | 29961 | 62303 | 43336 | 31002 | 5360 | 142001 | 171962 |
| 55 | Meerut | 4529 | 4211 | 8740 | 11735 | 17123 | 5152 | 720 | 34730 | 43470 |
| 56 | Mirzapur | 11109 | 9979 | 21088 | 37673 | 36145 | 27729 | 4242 | 105789 | 126877 |
| 57 | Moradabad | 12107 | 11790 | 23897 | 26422 | 30345 | 14319 | 1949 | 73035 | 96932 |
| 58 | Muzaffarnagar | 3108 | 2596 | 5704 | 9217 | 9939 | 4409 | 524 | 24089 | 29793 |
| 59 | Pilibhit | 4952 | 3857 | 8809 | 14475 | 12500 | 9053 | 2053 | 38081 | 46890 |
| 60 | Pratapgarh | 22666 | 23572 | 46238 | 109549 | 96033 | 69927 | 18919 | 394428 | 340666 |
| 61 | Rae Bareli | 22091 | 14895 | 36986 | 85805 | 67912 | 70113 | 16522 | 240352 | 277338 |
| 62 | Rampur | 10915 | 9323 | 20238 | 22359 | 24013 | 11799 | 2421 | 60592 | 80830 |
| 63 | Saharanpur | 5249 | 3916 | 9165 | 21531 | 18879 | 10535 | 1572 | 52517 | 61682 |
| 64 | Sambhal | 13419 | 9243 | 22662 | 22080 | 24499 | 12558 | 2910 | 62047 | 84709 |
| 65 | Sant Kabeer Nagar | 19698 | 12281 | 31979 | 49029 | 30740 | 24814 | 6519 | 111102 | 143081 |
| 66 | Sant Ravidas Nagar | 4505 | 4178 | 8683 | 15830 | 10871 | 11256 | 1098 | 39055 | 47738 |
| 67 | Shahjahanpur | 11393 | 10871 | 22264 | 30946 | 30887 | 25704 | 3901 | 91438 | 113702 |
| 68 | Shamli | 2062 | 1831 | 3893 | 6109 | 7009 | 3750 | 798 | 17666 | 21559 |
| 69 | Shravasti | 10040 | 8314 | 18354 | 37174 | 30848 | 21246 | 3866 | 93134 | 111488 |
| 70 | Siddharth Nagar | 38558 | 26577 | 65135 | 109513 | 68931 | 30601 | 10346 | 219391 | 284526 |
| 71 | Sitapur | 41647 | 34745 | 76392 | 141797 | 132380 | 101004 | 16955 | 392136 | 468528 |
| 72 | Sonbhadra | 24745 | 19657 | 44402 | 73631 | 62569 | 48742 | 10739 | 195681 | 240083 |
| 73 | Sultanpur | 16580 | 21213 | 28893 | 59875 | 55707 | 43035 | 8190 | 166807 | 195700 |
| 74 | Unnao | 33049 | 23994 | 57043 | 87140 | 98525 | 65727 | 11964 | 263356 | 320399 |
| 75 | Varanasi | 12842 | 10700 | 23542 | 38489 | 38188 | 21479 | 2830 | 100986 | 124528 |
| | **Total** | 1427408 | 110140 | 2528811 | 4517709 | 4229656 | 2688926 | 514923 | 11951214 | 14480025 |

Source: Dte. of Animal Husbandry Uttar Pradesh, Lucknow, U.P.

**I.3: Growth Pattern of Major Livestock Population in the State**

Table-I-3.1 indicates the growth pattern of major livestock population in the state of Uttar Pradesh during the last five consecutive livestock censuses i.e. 16th to 20th in the time span of 1997 to 2019. The total population of bovines in the state of Uttar Pradesh had increased from 39,013 thousand in 16th livestock census to 52,037 thousand in 20th livestock census, wherein the population of total cattle had decreased from 20,016 thousand in 16th livestock census to 19,020 thousand in 20th livestock census. While the population of total exotic/crossbred cows had increased from 2,105 thousand in 16th census to 6,123 thousand in 20th livestock census. Thus, the growth in the population of exotic cows was tremendous by three times till the 20th census in the state as a whole. The population of total female exotic cows had increased from 1,176 thousand in 16th census to 6,123 thousand in 20th census. The population of exotic cows in milk had increased from 414 thousand in 16th census to 6,123 thousand in 20th census. The number of milch exotic cows increased from 638 thousand in 16th census 2,951 thousand in 20th census. While the number of total males in exotic cattles had decreased from 929 thousand in 16th census to 578 thousand in 20th census. Thus, the number of exotic cows in milk had increased considerably by more than 5 times in the state as a whole.

In case of total indigenous cows, the total number had decreased from 17,911 thousand in 16th census to 12,897 thousand in 20th census showing a significant decrease in the state as a whole wherein the total females increased from 8,298 thousand in 16th census to 11,229 thousand in 20th census. The number of indigenous cows in milk also increased from 2,797 thousand in 16th census to 3,937 thousand in 20th census. The number of milch indigenous cows had increased from 4,633 thousand in 16th census to 5,589 thousand in 20th census. But the number of total male indigenous cattle had decreased from 9,614 thousand in 16th census to 5,661 thousand in 20th census. Thus, among the indigenous cattle the number of female had increased but number of males had decreased considerably.

In case of buffaloes the total number had increased from 18,996 in 16th census to 33,017 in 20th census, wherein the number of total females increased from 14,109 thousand in 16th census to 33,017 thousand in 20th census. The number of buffaloes in milk increased from 5,532 thousand in 16th census to 11,315 thousand in 20th census. The number of milch buffaloes also increased from 8,429 thousand in 16th census to 14,620 thousand in 20th

livestock census. The number of male buffaloes also increased from 4,887 thousand in 16th census to 5,150 thousand in 20th census. Thus, the numbers of female buffaloes had increased considerably in state as a whole. The related data are contained in Table-I-3.1.

**Table-I-3.1**
**Livestock Census-wise Livestock Population (1997 to 2019) in Uttar Pradesh**

(Figures in 000)

| Major Livestock Population | Five consecutive livestock census (1997 to 2019) | | | | |
|---|---|---|---|---|---|
| | 16th 1997 | 17th 2003 | 18th 2007 | 19th 2012 | 20th 2019 |
| Total Bovines | 39013 | 41464 | 42695 | 50182 | 52037 |
| Total Cattle | 20016 | 18551 | 18883 | 19557 | 19020 |
| Total Exotic/ Crossbred Cows | 2105 | 1634 | 1945 | 3579 | 6123 |
| Total Female | 1176 | 1175 | 1421 | 2947 | 6123 |
| Under 1 year | 226 | 266 | 337 | 672 | 1480 |
| 1 to 2.5 year | 220 | 194 | 211 | 447 | 1108 |
| In milk | 414 | 493 | 6300 | 1215 | 2267 |
| Dry | 224 | 149 | 161 | 445 | 684 |
| Milch | 638 | 642 | 791 | 1660 | 2951 |
| Not even calved once | 69 | 47 | 52 | 136 | 3065 |
| Others | 24 | 25 | 29 | 32 | 66 |
| Total Males | 929 | 459 | 524 | 632 | 578 |
| Total Indigenous Cows | 17911 | 16917 | 16938 | 15978 | 12897 |
| Total Female | 8298 | 8678 | 9892 | 11702 | 11229 |
| Under 1 year | 1499 | 1693 | 2153 | 2763 | 2802 |
| 1 to 2.5 year | 1580 | 1512 | 1594 | 1698 | 2352 |
| In milk | 2797 | 3336 | 4011 | 4668 | 3937 |
| Dry | 1835 | 1565 | 1526 | 1927 | 1652 |
| Milch | 4633 | 4901 | 5537 | 6595 | 5589 |
| Not even calved once | 467 | 443 | 424 | 517 | 5871 |
| Others | 119 | 129 | 185 | 129 | 204 |
| Total Males | 9614 | 8239 | 7046 | 4276 | 5661 |
| Total Buffaloes | 18996 | 22914 | 23812 | 30625 | 33017 |
| Total Female | 14109 | 17751 | 18427 | 25711 | 33017 |
| Under 1 year | 2549 | 3739 | 4198 | 5719 | 7796 |
| 1 to 2.5 year | 2321 | 2817 | 2746 | 4559 | 7007 |
| In milk | 5532 | 7952 | 8385 | 10538 | 11319 |
| Dry | 2898 | 2426 | 2180 | 3412 | 3301 |
| Milch | 8429 | 10379 | 10565 | 13950 | 14620 |
| Not even calved once | 691 | 646 | 641 | 1154 | 15311 |
| Others | 119 | 170 | 278 | 329 | 4196 |
| Total Males | 4887 | 5163 | 5385 | 4915 | 5150 |

Source: 16th, 17th, 18th, 19th and 20th Livestock Census Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Govt. of India

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**I.4: Status of the Availability and Requirement of Feed and Fodder in the State of Uttar Pradesh**

The status of the availability and requirement of feed and fodder in the state of Uttar Pradesh during 19th livestock census, 2012 analyzed in Table-I-4.1. Shows that the requirement of green fodder per year during 19th livestock census, 2012 was estimated as 1587.44 lakh metric tonnes in the state as whole. While the availability of green fodder from all sources was estimated as 905.94 lakh metric tonnes during the same span of time. Thus, there was a deficit of total green fodder estimated as (-)681.50 lakh metric tonnes. Accordingly there were some districts where the availability of green fodders was in excess such as Muzaffernagar, Meerut, Saharanpur and Bijnore. While in some of the districts such as Agra, Allahabad, Fatehpur, Unnao, Hardoi and Baharaich etc. there was deficit of green fodders during the 19th livestock census, 2012. The data on availability and requirement of feed and fodder during the 20th livestock census, 2019 could not be available in Directorate of Animal Husbandry, hence it could not be included in the analysis. The Directorate regretted for the same and hence we become helpless. Moreover the draft report on the study has to be submitted by March, 2020. Therefore the required figures of 20th census, 2019 may be added by the coordinator of the study himself. The related data are given in Table-I-4.1.

**Table-I-4.1**
**District-wise Requirements/Availability/Deficit per year (as 19th cattle Census) in the state of Uttar Pradesh**

| Sl. No. | Name of the Districts | No. of Animals Buffalo/ Goat/Sheep | Green Fodder Requirement per year (Lakh Metri Tonnes) | Green Fodder availability from all sources (Lakh Metri Tonnes) | Green Fodder Exceed Deficit (Lakh Metri Tonnes) |
|---|---|---|---|---|---|
| 1 | Meerut | 894070 | 21.20 | 53.22 | 32.02 |
| 2 | Baghpat | 541739 | 12.80 | 35.01 | 22.21 |
| 3 | Bulandshahr | 1670524 | 39.50 | 42.33 | 2.83 |
| 4 | Gaziabad | 390665 | 9.20 | 13.47 | 4.27 |
| 5 | Hapur | 408843 | 9.50 | 19.93 | 10.43 |
| 6 | Gautam Buddha Nagar | 358394 | 8.50 | 8.67 | .17 |
| 7 | Muzaffarnagar | 816845 | 19.30 | 63.67 | 44.37 |
| 8 | Saharanpur | 1017224 | 24.10 | 54.27 | 30.17 |
| 9 | Shamli | 422864 | 10.00 | 25.92 | 15.92 |
| 10 | Moradabad | 927829 | 22.00 | 18.94 | -3.06 |
| 11 | Sambhal | 880452 | 20.80 | 11.21 | -9.59 |

Contd..

| 12 | Amroha | 883179 | 20.80 | 36.43 | 15.63 |
|----|--------|--------|-------|-------|-------|
| 13 | Rampur | 734768 | 17.40 | 10.67 | -6.73 |
| 14 | Bijnor | 1111803 | 26.30 | 56.72 | 30.42 |
| 15 | Agra | 1493595 | 35.40 | 12.28 | -23.12 |
| 16 | Firozabad | 853740 | 20.20 | 6.18 | -14.02 |
| 17 | Mathura | 1176051 | 27.90 | 21.20 | -6.70 |
| 18 | Mainpuri | 810238 | 19.20 | 3.24 | -15.96 |
| 19 | Aligarh | 1516861 | 35.70 | 16.86 | -18.84 |
| 20 | Hathras | 618905 | 14.50 | 5.74 | -8.76 |
| 21 | Etah | 1159326 | 27.50 | 6.69 | -20.81 |
| 22 | Kasganj | 1082475 | 25.50 | 4.81 | -20.69 |
| 23 | Bareilly | 1101169 | 26.00 | 24.16 | -1.84 |
| 24 | Budaun | 1283494 | 30.20 | 9.06 | -21.14 |
| 25 | Shahjahanpur | 987218 | 23.42 | 15.33 | -8.09 |
| 26 | Pillibhit | 518713 | 12.30 | 19.07 | 6.77 |
| 27 | Etawah | 724799 | 17.19 | 2.64 | -14.55 |
| 28 | Auraiya | 629918 | 14.94 | 1.66 | -13.28 |
| 29 | Farrukhabad | 544192 | 12.90 | 5.50 | -7.40 |
| 30 | Kannauj | 720533 | 17.10 | 1.96 | -15.14 |
| 31 | Kanpur nager | 822598 | 19.50 | 6.51 | -12.99 |
| 32 | Kanpur dehat | 945408 | 22.42 | 4.12 | -18.30 |
| 33 | Allahabad | 1712398 | 40.62 | 3.92 | -36.70 |
| 34 | Kaushambi | 628973 | 14.92 | 1.43 | -13.49 |
| 35 | Fatehpur | 1436079 | 34.07 | 8.05 | -26.02 |
| 36 | Pratapgarh | 1016943 | 24.12 | 2.43 | -21.69 |
| 37 | Jhansi | 943157 | 22.37 | 1.61 | -20.76 |
| 38 | Jalaun | 778058 | 18.45 | 2.37 | -16.08 |
| 39 | Lalitpur | 882929 | 20.90 | 1.90 | -19.00 |
| 40 | Hamirpur | 777288 | 18.40 | 2.16 | -16.24 |
| 41 | Mahoba | 541244 | 12.84 | 1.02 | -11.82 |
| 42 | Banda | 918775 | 21.79 | 2.10 | -19.69 |
| 43 | Chitrakoot | 750130 | 17.79 | 1.82 | -15.97 |
| 44 | Lucknow | 739412 | 17.50 | 2.66 | -14.84 |
| 45 | Unnao | 1270727 | 30.00 | 4.42 | -25.58 |
| 46 | Rae Bareli | 975125 | 23.00 | 4.96 | -18.04 |
| 47 | Sitapur | 1392905 | 33.00 | 34.98 | 1.98 |
| 48 | Hardoi | 1500007 | 35.50 | 11.48 | -24.02 |
| 49 | Lakhimpur | 1687568 | 40.00 | 62.46 | 22.46 |
| 50 | Faizabad | 865776 | 20.50 | 8.36 | -12.14 |
| 51 | Barabanki | 1071557 | 25.40 | 6.15 | -19.25 |
| 52 | Ambedkar Nager | 672291 | 15.90 | 4.31 | -11.59 |
| 53 | Amethi | 891268 | 21.00 | 3.34 | -17.66 |
| 54 | Sultanpur | 867150 | 20.50 | 5.74 | -14.76 |
| 55 | Gonad | 1134874 | 26.90 | 17.34 | -9.56 |
| 56 | Balrampur | 621667 | 14.70 | 8.64 | -6.06 |
| 57 | Bahraich | 1424549 | 33.70 | 9.61 | -24.09 |
| 58 | Shravasti | 475960 | 11.20 | 2.12 | -9.08 |
| 59 | Basti | 669354 | 15.80 | 9.90 | -5.90 |

| 60 | Sant Kabeer Nager | 333418 | 7.90 | 1.50 | -6.40 |
|----|-------------------|--------|------|------|-------|
| 61 | Siddharth Nager | 673238 | 15.90 | 1.15 | -14.75 |
| 62 | Gorakhpur | 772005 | 18.30 | 2.10 | -16.20 |
| 63 | Maharajganj | 531662 | 12.40 | 4.50 | -7.90 |
| 64 | Deoria | 678083 | 16.00 | 2.06 | -13.94 |
| 65 | Kushi Nager | 765730 | 18.00 | 14.30 | -3.70 |
| 66 | Azamgarh | 1304228 | 30.80 | 6.30 | -24.50 |
| 67 | Mau | 517656 | 12.20 | 1.80 | -10.40 |
| 68 | Ballia | 685505 | 16.20 | 1.54 | -14.66 |
| 69 | Varansi | 713934 | 16.80 | 2.94 | -13.88 |
| 70 | Gajipur | 1224947 | 29.00 | 7.97 | -21.03 |
| 71 | Chandauli | 555760 | 13.00 | 2.39 | -10.61 |
| 72 | Jaunpur | 1246750 | 29.50 | 4.18 | -25.32 |
| 73 | Mirjapur | 933984 | 22.10 | 3.40 | -18.70 |
| 74 | Sonbhadra | 1023457 | 24.20 | 6.23 | -17.97 |
| 75 | Bhadhohi | 466716 | 11.00 | .83 | -10.17 |
|  | Tortal | 67121669 | 1587.44 | 905.94 | -681.50 |

## I.5.: Review of Literature

This section of chapter-I mainly deals with the findings of the research studies conducted in the past years on livestock/bovines economy as well as characteristics of livestock rearing in India and various other countries of the world. Also the findings on the constraints of livestock rearing as well as various factors contributing to bovines income have been recorded in support of the present study entitled "Assessment of Livestock Feed and Fodder in Uttar Pradesh", which are as follows in chronological order

**Amrik et al. (IPSO),** suggests that income and employment could be increased with the adoption of integrated crop and milk production in Punjab. Linear programming technique was used to develop the optimum and integrated crop and milk plans with the existing and improved level of farm technology. The adoption of improved technology had a much higher impact on increasing farm income. Similarly, the integrated crop and milk production showed much scope for generating employment on small categories of farms. The optimum plans developed required that both short and medium term credit should made available to the farmers for harvesting the benefit of improved crop and milk production.

**Naresh Dayal (1981)** points out that the main thrust of dairy development is to provide employment opportunities and to generate more income for the betterment and improvement of weaker sections in the society in particular and to improve the nutritional standard of human beings by providing milk to the women consumers in general. Dairy development

helps to stimulate development of the weaker sections. While studying the crucial role of dairy development in Indian economy, It would be worth while to study the actual impact of dairy development on the beneficiary groups. Viz. Marginal, small, medium, big farmers and landless labourers.

A study conducted by **Paruthi (1986)** for estimating the contribution of the livestock enterprise in agricultural economy of the Hariyana state reveals that their contribution to the gross income of small, medium, large and overall average farms was about 33,27,20 and 20 percent respectively.

**Bhogal. T,S. and J.S. Sharma (1987)** view that milk production requires less land to generate a given level of income as compared to crops which is labour intensive in nature. Owing to these characteristics of milk production, our Government is giving major emphasis on dairying in its rural development programmes to improve the economic conditions of rural poor who are small and marginal farmers and landless agricultural labourers. In order to achieve the desired success in the above mentioned area, it is essential to generate some basic information regarding the contribution of milch animals to the income and employment of rural poor. Since all these information vary from area to area, area based studies are needed on these economic aspects of milch animals. Keeping these facts in mind, the study was conducted for small and marginal farmers and landless agricultural labourers in Meerut district of Uttar Pradesh.

**Moran (1987)** has analysed the role of cattle and buffalo in the agriculture of South East Asia, in providing both milk and meat and also traction for ploughing and transport. The native breeds vary considerably in their characteristics, not only in their inherent qualities but also in their response to varying systems of management, some of them very primitive. Improvement is clearly possible by crossbreeding, but it appears that this is most likely to be achieved with existing native breeds than by introducing exotic ones.

**Bhanja (1989)** states that the most significant positive point in favour of animal husbandry programme is its employment potential for illiterate rural poor. Animal husbandry does not demand complex skill and is well suited to our landless rural agricultural labourers. The employment opportunity in crop cultivation being increasingly low due to modernization and pressure on land, the alternate source to provide employment in rural area is animal husbandry for which the base resource is already available with the people.

**Uma Shankari (1989)** points out that sheep and goat keeping is traditionally a common practice with the farmers. Goats and cattle graze in the hillocks where there is some grass for the sheep and cattle for most of the year in the croplands since. Cultivation being largely rain fed and in the wastelands and gardens.

**Pandey (1995)** states that the animal husbandry in India is closely interwoven with agriculture since ages and plays an important role in the rural economy. Besides having vast employment potential, this sector provides milk, egg, meat, wool, hides and skins, dung, bones, hooves and draught power and also stabilizes farm incomes.

**Ajit Kumar Singh (1997)** points out that animal husbandry is an important component of the rural economy in the zone next only to agriculture. In Uttar pradesh income from animal husbandry contributed about one-forth of agricultural income and one- sixth of total income of the state. The importance of animal husbandry is not likely to be any less in Madhya Pradesh as compared to Uttar Pradesh.

**Francis D.K. Anim (1997)** points out that the ownership of livestock (cattle, goats and sheep) is an important social factor in the rural areas of South Africa. Reference to the so called 'traditional attitude' of livestock owners abounds in state planning documents and attempts to limit stock ownership have always been intensely resisted by rural households. In particular, this refers to the use of livestock as a store of wealth and security rather than as a production resource to be sold. It is however not clear how strongly this attitude still applies in rural areas of South Africa.

**Shelander Kumar and Khem Chand (1999)** in their observed study that goat is unique among other ruminants by virtue of its small size, sustenance on low grade, high cellulose and top feed which is usually left unutilized by the other livestock species and for converting such roughages into high quality protein food (milk and meat). Forty per cent of rural population especially the economically and socially backward classes, maintain goats for assured income. Therefore, it provides security to the weaker section of rural population. The goat enterprise is primarily in the hands of weaker sections of rural population. This system of goat production is carried on by uneducated and poor, and there are very few regulated markets for livestock; hence major portion of profit is taken away by middlemen and marketers.

**Hemalatha and Reddy (2001)** in their study points out that unlike the agricultural activities which are strenuous in nature and riddled with uncertainties, dairy enterprise provides constant and assured income to the poor fanner. It provides gainful employment and thus prevents migration of rural youth to the cities. If maintained on sound scientific lines it can be an effective medium to generate regular employment for the millions of rural poor.

**Goplal Lai Jain (2001)** in his article he concludes that rearing of sheep, goats and pig is almost exclusively in the hands of weaker sections of the rural community having small or no land holdings. Several group of nomadic people are engaged in raising sheep. Introduction of exotic superior inheritance into the indigenous stock can bring about significant improvement in production even in the very first generation. But along with genetic improvement in stock, modem technology of husbandry concerning feeding, watering, housing, health cover etc. must also be ensured.

**Visweswara (2002)** in his study observes that the livestock though very important to the rural economy of India, is unfortunately a neglected sector. There can be no agriculture without livestock and the system is interdependent. There is a growing concern amongst the planners about the decline in livestock sector, which obviously is the result of negligent attitude. Livestock is the backbone of economic strength of poor and marginal farmers, who form the majority in the rural community. Maintaining livestock health is important in the national perspective as it contributes considerable revenue to the national exchequer.

**Mansur Mulla (2002)** makes an attempt to study the progress of cattle feed manufacturing units as the main strategy to promote animal husbandry development, more particularly through the generation of employment opportunities and income to sustain the levels of development of the people engaged in dairying activities and thereby, bring about a transition in the development and growth of feed market and infrastructural facilities.

**Amita Patel (2004)** in his study observes that the livestock rearing including dairying is not only a source of employment and income but it is also a storehouse of wealth, an asset that often helps to tide over unforeseen demands for liquid cash. Further, it also provides for the household fuel and farm traction power. Waste products such as dung and urine of cow have been used from time immemorial for their medicinal and sanitizing values. Income from dairying contributes nearly a third of the rural household's gross income, and in the case of

landless wage earning households, nearly a half. Dairying is an economic activity, which evens out cash flows to households, in contrast to income from crops, which comes only at the end of a season. Further dairying provides for an indirect income insurance against risks from crops, such as crop failure due to drought or pests.

**Ramachandra. T. (2004),** analyses the income and employment potential of dairy farming in different stages in Kanyakumari district of Tamil Nadu. Primary data were collected from 100 farms engaged in farming activity. Dairy farming is an activity with great potential and has offered considerable scope for employment and generation of income in Kanyakumari district. Dairy farming gives employment opportunities in the form of collecting dung, cleaning shed, watering and feeding animals, grazing and cutting grass, milking, sale of milk, processing of milk and marketing of milk and milk products to a large number of people in the villages of Kanyakumari district. Further it is found that the income is generated in the form of sale of milk and manure and sale of cattle. It may be concluded that dairy constitutes the major proportion of the cattle population, cattle rearing occupies a pivotal place among women folk of the rural areas. Thus, dairy fanning is the main source of employment an income generation in the study area.

**Nirmala. L. (2004)** in her study observes that the livestock industries have the ability to improve the income of the poor and can be used during crisis to improve, the economic status of women and consequently the poor family. The rural women constitute 71 percent of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in the case of small ruminants, the sharing of work with men is almost equal. Livestock products are high sources of proteins and micronutrients such as vitamin A and iron-which are essential in preventing malnutrition.

**Gangil and Y.P.S. Dabas (2005)** has carried out a study in Udham Singh Nagar district of Uttaranchal to ascertain the socio-economic profile of livestock farmers and assess the effect of the socio-economic factors on their level of knowledge and training needs in improved livestock practices. The study revealed that level of knowledge of livestock farmers was positively and significantly associated with age, education, land holding, herd size, milk production, milk consumption, milk sale, mass media exposure and extension worker's contact while non - significant association was observed between level of knowledge and size of family of respondents. Their training needs showed positive and significant relationship

with their herd size. The authors are of the opinion that these variables should be considered at the time of organizing training programmes for livestock farmers.

**Rupasi Tiwari and R.P. Singh (2005)** have observed that our extension approaches should emphasis on developing educational programmes fro farmers with regard to proper housing, feed and water management, disease prevention and control along with upgradation of nondescript cattle for increasing per animal productivity.

**Jayaweera et al. (2007)** have identified factors affecting the cost of milk production in Ratnapura district. The study concludes that the uppermost portion of the cost of production of milk is owed for labour service. The share of labour cost in total cost of milk production has been to be 44.1 percent and that of feed cost is 41.7 percent. They maintain that when the family labor cost is not included as an opportunity cost in the calculation, the profit per liter of milk rises. When family labour costs are included in the total cost of production. The cost of production of a liter of milk is estimated to be Rs. 25.50 and when family labour costs are excluded, the cost of production of a liter of milk reduce to Rs. 14.60, therefore, it is always recommended to use family members who can not get employment in any other business as labour suppliers to the dairy industry. The study furthure maintains that is the also0 possible to increase the profit margin by increasing the productivity of cows, by decreasing the price of animal feed stuffs and also by making available a better veterinary service for dairy farmers with effortless access as well as at an affordable cost. The study suggests reasonable and appropriate price of Rs. 30 for per liter of milk in the districts but it fails to explain the logic behind this rate and the mechanism through which this figure of Rs. 30 has been arrived at.

**Sarkar** and **Ghosh (2008)** have examined that the variable cost constitutes about 85% of total cost for all categories of cooperative and non- cooperative dairy farms. Out of the total variable cost for all categories of cooperative and non-cooperative dairy farms, feed cost is the major cost component (54%), in which concentrate feed has a share of 55%. Labour cost has the second highest share in the total variable  cost with a share of 285. Similarly, out of fixed cost component, which has a share of 14-15% in the gross cost., interest of capital has the major contribution for all types of farms. The study uses financial evaluation measures like net present value (NPV), benefit-cost ratio(BCR), average annual margin(AAM), and internal rate of return (IRR) to analysis the relative profitability of different categories of cooperative and non-cooperative farms.

**Bardhan** and **Sharma (2012)** reported that in the plains the member group incurs relatively higher net maintenance cost of Rs. 156.34 per SAU per day than the non-member group, which incurs Rs. 148.25 per SAU per day. on the other hand, in the hills, the average maintenance cost per SAU is higher for non-member group than that for member group. In the hills, for non member group, it is Rs. 147.04 per SAU per day and for member group, it is Rs. 141.79. the study also reveals that only when family labor charges are ignored dairying becomes more or less profitable. If cost of milk production is calculated without considering the imputed cost of family labor, the existing price is sufficient to cover the costs. However, if family labour charges are included in total cost. The price has to be increased substantially to cover this cost so as to substantially to cover those cost so as to subsequently ensure a positive net return from dairying for farmers.

**Pandian et al. (2013)** found the concentrates, green fodder and labor have significant influence on milk production in the study area, dry fodder and veterinary charges do not have significant influence on milk production in the study area. The study shows that concentrates, labor and veterinary charges are being under-utilised in the region. More of these, resources may further increase milk production in the area. On the other hand, green fodder and dry fodder are being over-utilised and there is need for rationalizing the use of these resources. They study calls for optimal utilization of labor in milk production system as it is relatively a scare resource in urban areas.

**Sharma et al. (2014)** concluded that resource-use efficiency of green fodder for all types of dairy animals is negative and significant. It indicates over utilisaion of green fodder. It maintain that this result might occur due to the fact that the data were collected in winter season when plenty of green fodder was available. The study finds that the concentrates are being under-utilized in case of local cows while they are being over-utilised in case of buffalos in favour of local cattle which will increase milk production without spending more on concentrates. The concentrates are optimally used in case of crossbreed cattle.

**Tanwar et al. (2015)** concluded that concentrate and green fodder are the major explanatory variables affecting milk production as well as returns from dairy farming across categories in member families. In the group of non-member families, concentrate in all categories and green fodder in landless and marginal household categories are the significant contributors to milk production. Dry fodder contributes significantly only in case of small families in

member class. The study concludes that concentrates in all categories of member and non-member households, green fodder in case of all categories of member families and landless and marginal categories in non-member households are being underutilized. The study maintain that in order to get higher return from buffalo milk production, the use of concentrate and green fodder by all categories of member and non-member households should be increased and dry fodder in most of the categories must be reduced as its use has been found excessive expect in small categories in member families.

**I.6.: Need of the Study**

Adequate emphasis on livestocks development is still most important not only in terms of products but also in terms of by-products and waste-products, the latter for integrated nutrients management for the health of the soils. However, the productivity of livestock products per unit of animal in India is still much lower than in many other countries. There is thus, a need for even more intensive efforts to improve productivity of animals as part of integrated farming system. India has comparative advantages in livestock development and it must exploit the opportunities now presented under the new world trade agreement for quantum heaps in the livestock development. This is urgent and necessary as a part of our efforts at accelerating economic activities as well as creating employment opportunities in rural areas of the country. For sustainable livestock development concerted efforts are required to ensure the sustainability of the advances animal production, productivity and livestock-products technologies. Special consideration must be given in the major issues such as (1) Large animal population in relation to the limited availability of feeds and fodders of good quality and the poor transfer of technology services are hampering the growth of livestock development, (2) Technologies developed so far to enrich crop residues and bagasee and to treat non conventional feed resources. Mainly agricultural by-products have still not reached the take-of-stage. The machinery for transfer of such technologies will have to be geared-up and (3) There is an immediate need to enhance livestock products procurement, processing stage and marketing facilities to eliminate non-acceptance of producers livestock products in flush season.

The western, southern and part of northern region of India have made significant progress in livestock development. But the eastern along with the part of northern region of the country

have lagged still far behind in livestock development. The production of livestock products can be boosted through increase in productivity and linking small livestock rearers to Self Help Groups (SHGs), Milk producer Groups (MPGs) and dairy cooperatives with forward linkages and livestock products processing units. Therefore, a comprehensive assessment of the status of livestock development in the regions of the eastern states and backward regions of northern states of India is barely needed to be done for the required livestock development to fulfill the recommended dietary levels of the livestock products as stated by I.C.M.R. keeping the above cited statements in view, the present study entitled "Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh", was conducted with the following objectives:

**I.7.: Objectives of the Study**

1. To estimate the area, production and productivity of major green and dry fodder crops.
2. To study the growth pattern of major livestock production.
3. To assess feed and fodder availability, requirement, deficit/surplus to improve productivity.

**I.8.: Methodology of Study**

Estimation of Demand and Supply of Feed and Fodder

**I.8.1.: Availability from Land use**

Respective land use* Green Fodder Production (tones/ha/year)

The total fodder availability from all the categories of classification was calculated by the following formula:

**Total Green fodder availability=** (A* 40.93) + (B* 1.50) + (C*5.00) + (D*1.00) + (E*1.00) + (F*1.00) + (G*1.00).

## Table-I-5.1

## Green fodder yields for land use classification

| Sl. No. | Land use category | Green fodder (tones/ha/year) |
|---|---|---|
| 1. | (A) Area under fodder crop | 40.93 |
| 2. | (B) Forest area and on assumption that only 50% area was accessible for grazing | 3.00 (1.50 if considered whole forest area ) |
| 3. | (C) Permanent pastures and other grazing lands | 5.00 |
| 4. | (D) Cultivable wastelands | 1.00 |
| 5. | (E) Current fallows | 1.00 |
| 6. | (F) Other fallows | 1.00 |
| 7. | (G) Misc. Tree Crops and Groves not Included in Net Area Sown | 1.00 |

*Source:* FAO (2012), Ramachandra et *al*, 2007


**Dry Fodder and Concentrates**


The dry fodder and concentrates feed to the livestock from the crop production data would be calculated by using the following formulation:

$\sum ij \ (QCij \ )^{mm} = Yij \ or \ ERij$

where,

$QCij$, = Quantity of crop residues (dry fodder) and concentrates obtained from crop i in district j


$Yij$,= Yield of crop i in district j


$HIij \ or \ ERij$=Estimated conversion factor (harvest indices or extraction rate) for crop i

**Table-I-5.2**

**Conversion factors in terms of harvest indices and extraction rates used in the calculation of feed resources such as crop residues, oil cakes, grains, brans and chunnies of various crops from crop production data in India.**

| Crop | Harvest indices (HI)* | | Extraction Rate(ER) | |
|---|---|---|---|---|
| | Crop residues | Oil Cakes | Grains | Brans and Chunnies |
| Paddy | 1.30 | | 0.02 | 0.08 |
| Wheat | 1.00 | | 0.02 | 0.08 |
| Sorghum | 2.50 | | 0.05 | |
| Bajra/Pearl millet | 2.50 | | 0.05 | |
| Barley | 1.30 | | 0.10 | |
| Maize | 2.50 | | 0.10 | |
| Ragi | 2.00 | | 0.05 | |
| Small Millets | 2.50 | | 0.10 | |
| Other cereals | 2.00 | | 0.10 | |
| Pulses | 1.70 | | | 0.03 |
| Ground nut | 2.00 | 0.70 | | |
| Oilseeds | | 0.70 | | |
| Sugarcane | 0.25 | | | |

Source: Harvest indices is the ratio of tones of utilized crop by-product to tones of primary crop harvested

## I.8.2.: Requirement of Feed and Fodder (Demand)

The following conversion factors were used for calculating the RLUs as given in Table-I-5.3

**Table-I-5.3**

**Conversion factors for calculating Ruminant Livestock Unit (RLUs)**

| Sl. No. | Species | Age (Years) | Conversion factor |
|---|---|---|---|
| A | Buffalo | >2.5 | 1.14 |
| | | 1.0-2.5 | 0.50 |
| | | < 1.0 | 0.17 |
| B | Cattle | >2.5 | 1.00 |
| | | 1.0-2.5 | 0.34 |
| | | <1.0 | 0.11 |
| C | Sheep/goat | >1.0 | 0.10 |
| | | <1.0 | 0.03 |

**Table-I-5.4**

**Quantities of feed fed to different species within household premises**

(kg/animal/day)

| Animal category | Feed types | | | Nutrients | | |
|---|---|---|---|---|---|---|
| | Green fodder* | Dry fodder | Concentrates | Dry matter (DM) | Total digestible nutrients (TDN) | Digestible crude protein (DCP) |
| Cattle | | | | | | |
| In-milk | 4.75 | 5.50 | 0.64 | 6.71 | 3.44 | 0.27 |
| Dry | 3.40 | 4.02 | 0.40 | 4.83 | 2.46 | 0.18 |
| Adult male | 4.06 | 6.03 | 0.33 | 6.74 | 3.36 | 0.21 |
| Young stock | 2.18 | 2.13 | 0.18 | 2.62 | 1.33 | 0.10 |
| Buffalo | | | | | | |
| In-milk | 5.96 | 6.34 | 1.05 | 8.14 | 4.25 | 0.37 |
| Dry | 5.44 | 4.95 | 0.52 | 6.28 | 3.21 | 0.25 |
| Adult male | 4.04 | 7.47 | 0.36 | 8.06 | 3.99 | 0.24 |
| Young stock | 2.29 | 2.22 | 0.19 | 2.74 | 1.39 | 0.10 |
| Goat | 1.04 | 0.20 | 0.06 | 0.49 | 0.27 | 0.03 |
| Sheep | 1.01 | 0.20 | 0.04 | 0.46 | 0.24 | 0.03 |
| Others | 2.35 | 6.72 | 0.49 | 7.08 | 3.54 | 0.22 |

*Source:* NATP project database

### I.8.3.: Surplus / deficit/ gap of feed and fodder

The percent gap between the requirement and availability has been computed as:

$$\text{Percent of gap} = \frac{\text{Requirement of fodder} - \text{availability of fodder}}{\text{Rquirement of fodder}} \times 100$$

### I.8.4: Sampling Framework

The proportionate sampling technique was applied to undertake sample livestock rearers from the distinct selected districts one each from the western eastern and central agro-economic regions of the state of Uttar Pradesh. These districts were chosen based on the size of the population of buffalo, cattle and goats by ranking the individual districts. Therefore, districts having top three ranks were selected representing different regions of the state of Uttar Pradesh. Such districts were namely (1) Agra from western region, (2) Baharaich from eastern region and (3) Lakhimpur Khiri from central region. From these districts thus,

selected, 120 cattle rearing farmers, 120 buffalo rearing farmers and 120 goat rearing farmers were chosen making a total of 360 sample farmers from the state. Villages were selected based on the density of animal population. Cattle rearing farmers include both cross bred and indigenous cows. Farmers rearing all kinds of animals were considered more than one sample farmers. The sampling design is given in Table-I-6

**Table-I-6**

**Sampling Design**

| Sl. No. | State | Regions | Districts | Sample Farmers | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cattle Rearers | Buffalo Rearers | Goat/Sheep Rearers | Total |
| 1. | Uttar Pradesh | Western | Agra | 18 | 29 | 31 | 78 |
| | | Eastern | Baharaich | 46 | 47 | 46 | 139 |
| | | Central | Lakhimpur Khiri | 56 | 44 | 43 | 143 |
| 1 | 1 | 3 | 3 | 120 | 120 | 120 | 360 |

# Chapter-II

## Socio-Economic Characteristics of Sample Households

**II.1.: General Characteristics of Sample Households**

General characteristics of sample households worked-out in Table-II-1 shows that in case of educational level, out of the total sample respondents i.e. 247 about 41.70 percent (103) were illiterates. Among the literates, 15.39 percent (38) were primary passed, 22.67 percent (56) were reported as higher primary (Middle) passed, 10.93 percent (27) were matriculates, no one was reported as pre university / higher secondary among the total sample respondents. 4.05 percent (10) were graduates, 0.81 percent (2) were post graduates and above and 4.45 percent (11) were reported as diploma holders. Thus, the educational level among the sample respondents was deplorably poor as 103 (41.70 percent) were illiterates in this cyber age.

As regards the castes, the general castes hold 19.43 percent, OBCs 61.54 percent, S.Cs. 18.22 percent and S.Ts. were only 0.81 percent. Thus, among the castes OBCs were the dominating castes on an overall in the area under the study. Regarding gender of respondents the majority i.e. 90.64 percent were males and only 9.31 percent were reported to be females among all respondents. Regarding average experience in the occupation of respective respondents, it was found that a farmers (crop grower) had an average experience of 27.10 years, a livestock rear had an average experience of 16.79 years, a goat rearer had an experience of 10.55 years generally in the area under study. The average family size among the sample households was estimated as 5.01. the average income per household from different occupations was estimated as from agriculture it was Rs. 1,45,143 from dairying it was Rs. 1,03,149 from goat rearing it was Rs. 13,640 and from the other occupation it was Rs. 98,826 in the area under study.

On the other hand the average number of family members engaged in different occupations were estimated as in farming (growing crops) 1.44 members, in the dairying 1.92 members and in goat rearing only 1.26 members were engaged generally in the area under study. Thus, dairying had emerged as employing the higher members occupation in the area under study. Accordingly among the total sample households of 247, as the primary occupation, 134 had opted agriculture, 22 had opted animal husbandry and dairying, 62 had opted agricultural labour, 27 had opted non-farm labour, none had opted trade, 1 had opted private employment and 1 had opted other job. While as secondary occupation out of the total 247 sample households, 23 had opted agriculture, 122 had opted animal husbandry and dairying, 56 had opted agricultural labour, 27 had opted non-farm labour, none had opted trade, 4 had opted private employment and 5 had opted other jobs. As regards the membership of social and cooperative organizations out of the 247 sample households, only 2 members from 2 sample households had been reported as members of cooperatives in the area under study. Thus, maximum of the smple households were found to be engaged either in agriculture or in allied agriculture in the area under study in the state of Uttar Pradesh. The concerned data are contained in Table-II-1.

**Table-II-1**

**General Characteristics of the sample Households**

| Sl.No | Particulars | Number / Percentage | |
|---|---|---|---|
| 1 | **Education level (%)** | | |
| | Illiterate | 103 | 41.70 |
| | Primary (1 to 4) | 38 | 15.39 |
| | Higher primary (5 to 9) | 56 | 22.67 |
| | Matriculation (10) | 27 | 10.93 |
| | Pre- university (10+2) | 0 | - |
| | Graduate | 10 | 4.05 |
| | Post Graduate & above | 2 | 0.81 |
| | Diploma holders | 11 | 4.45 |
| 2 | **Caste (%)** | | |
| | General | 19.43 | |
| | OBC | 61.54 | |
| | SC | 18.22 | |
| | ST | 0.81 | |
| 3 | **Gender (%)** | | |
| | Male | 90.69 | |
| | Female | 9.31 | |
| 4 | **Average Experience (Years)** | | |
| | Farming | 27.10 | |
| | Dairying | 16.79 | |
| | Sheep & Goat rearing | 10.55 | |

| 5 | Average family Size (No.) | 5.01 | |
|---|---|---|---|
| 6 | **Average Income (Rs)/farm** | | |
| | a) Agriculture | 1,45,143 | |
| | b) Dairy | 1,03,149 | |
| | c)Sheep &Goat farming | 13,640 | |
| | d)Other | 98,826 | |
| 7 | **Average No. of family members engaged** | | |
| | Farming | 1.44 | |
| | Dairying | 1.92 | |
| | Sheep & Goat rearing | 1.26 | |
| 8 | **Occupation** | **Primary** | **Secondary** |
| | Agriculture | 134 | 23 |
| | Animal Husbandry & dairy | 22 | 122 |
| | Agri Labour | 62 | 56 |
| | Non- Farm labour | 27 | 27 |
| | Trade | - | - |
| | Employee (private) | 1 | 4 |
| | Other (Specify) | 1 | 5 |
| 9 | **Member of Social & Cooperative Organization** | **Yes** | **No** |
| | | 2 | 245 |
| | Total | 247 | 237 |

# Chapter-III

## Estimation of Area, Production and Productivity of Feed and Fodder Crops Being Fed to Livestock by Sample Households

The present chapter mainly deals with the land use pattern and sources of irrigation cropping pattern by sample household, classification of animals reared by the sample households based on their age, average value of the animals based on their age in rupees average value of the milch, dry and heifer animals (Rs.) details of the feeds and fodders fed to major animals per day per animal category-wise, total feed and fodder requirement as per the NATP Standards in the state Uttar Pradesh, green fodder yield for land use classification during 2018 in the state of Uttar Pradesh, conversion factors in terms of harvest indices and extraction rates used in the calculation of feed resources such as crop residues, oil cakes, grains. brans, and chunnies of various crops from crop production of the state of Uttar Pradesh during 2018, major sources of livestock feed, details about cattle shed, details of labour and other maintenance charges and returns from livestock rearing which are discussed in the following paragraphs:

**III.: Estimation of area, production and productivity of feed and fodder crops being fed to livestock by sample households:**

**III.1.: Land use pattern and source of irrigation**

Table-III-1 shows the land use pattern and sources of irrigation used by sample households, wherein the land owned by a farmer was estimated as 2.04 acres and the total land was reported to be irrigated. While the area of the leased-in land per farmer was accounted as 1.55 acres and the area of leased-out land was found to be 1.00 acres per farmer. Accordingly the net operated area per farmer was accounted as 2.92 acres and the total operated area was irrigated. The area under fodder crops was estimated as 0.33 acre per farm. Thus, it was clarified that the area under fodder crops was meagre per farmer in the area under the study. The practices of leasing-in and leasing-out both were common in the area under study. Regarding sources of irrigation in the area under the study only canal and bore-wells were reported as main sources of irrigation wherein 22 sample farmers were using canal and 153 sample farmers were using bore-wells other irrigation resources were nil in the area. Data are given in Table-III-1

**Table-III-1**
**Land use Pattern and Sources of irrigation**

(Area in acres/farms or H.H.)

| Sl. No | Particulars | Irrigated | Un-irrigated | Total |
|---|---|---|---|---|
| 1 | Owned Land (Acres) | 2.04 | -- | 2.04 |
| 2 | Leased in Land (Acres) | 1.55 | -- | 1.55 |
| 3 | Leased out Land (Acres) | 1.00 | -- | 1.00 |
| 4 | Uncultivated land (Acres) | -- | -- | -- |
| 5 | Net operated area (Acres) | 2.92 | -- | 2.92 |
| 6 | Area under Fodder crop (Acres) | 0.33 | -- | 0.33 |
| 7 | Village Agro forestry (Acres) | -- | -- | -- |
| 8 | Village Grazing land (Acres) | -- | -- | -- |
| 9 | Other (specify) | -- | -- | -- |
| 10 | **Sources of irrigation used by farmers (In number)** | No. of farmers who used | | |
| | Canal | 22 | | |
| | Bore well | 153 | | |
| | Dug well | -- | | |
| | Tank | -- | | |
| | Other | -- | | |
| | Total | 175 | | |

Source: Field survey

## III.2.: Cropping pattern, Production, cost and return on the farms of sample households

The cropping pattern, production, cost and return on the farms of sample households analyzed in Table-III-2 shows that during kharif season paddy on 1.04 acre, sugarcane on 2.25 acres, bajra on 1.13 acres, maize on 0.94 acre and fodder on 0.35 acre were grown on average by a farmer / sample household and during rabi season wheat on 1.09 acre and berseem on 0.28 acre were grown by him in the reference year 2018-19. Thus, during the kharif season main crops were paddy, sugarcane, bajra and maize and in rabi season wheat and berseem were the main crops in the area under study. Accordingly the main product per acre was estimated as from paddy 17.04 qtls, sugarcane 464 qtls, bajra 4.89 qtls and maize 3.35 qtls respectively along with the by-product from paddy 30.14 qtls, sugarcane 107.23 qtls, bajra 25.84 qtls, maize 17.81 qtls and fodder 41.00 qtls respectively from kharif crops. in rabi season from wheat the main product was 16.5 qtls and by-product 26.19 qtls and berseem 14.39 qtls in 2018-19. The cost per acre were estimated as Rs. 17,102 for paddy, Rs. 44,234 sugarcane, rs. 3,640 bajra, Rs. 4,088 maize and Rs. 1802 for fodder in kharif and Rs. 1,449 for berseem in rabi season. The return from paddy was Rs. 25,328, sugarcane Rs.

1,54,507, bajra Rs. 16,686, Maize Rs. 12,456, fodder Rs. 9,824, wheat Rs. 42,136 and berseem Rs. 5,709 respectively. Thus, the return per acre was maximum from sugarcane, wheat and paddy on the farms of sample households during 2018-19. The related data are contained in Table-III-2.

**Table-III-2**
**Cropping Pattern on the farms of sample households**

(Area in Acre/farm or H.H.)
(Production in Qtl/Acre)
(Cost & return in Rs./Acre)

| Name of crop | Area (acre) | Production (Qtl/acre) | | Total cost | Total return |
|---|---|---|---|---|---|
| | H.H. or Farm | Main Product | By-product | (Rs.)/Acre | (Rs.)/Acre |
| **Kharif/Rainy** | | | | | |
| Paddy | 1.04 | 17.04 | 30.14 | 17102 | 35328 |
| Sugarcane | 2.25 | 464 | 107.23 | 44234 | 154507 |
| Bajra | 1.13 | 4.89 | 25.84 | 3640 | 16686 |
| Fodder | 0.35 | - | 41.00 | 1802 | 9824 |
| Maize | 0.94 | 3.35 | 17.81 | 4088 | 13456 |
| **Rabi/Winter** | | | | | |
| Wheat | 1.09 | 16.50 | 26.19 | 18930 | 42136 |
| Barseem | 0.28 | - | 14.39 | 1449 | 5709 |

Source: Field survey

**III.3.: Classification of animals reared by the sample households based on their age.**

Table-III-3 indicates that the number of buffaloes on age-group of upto 1 year was accounted as 4 on an overall. The number of crossbred cattles as well as indigenous cattles of the age upto 1 year were found to be nil among the sample rearers of animals in the area under study. While the number of goats of the age upto 1 year was reported to be 53 on an overall. While in the age-group of 1-3 years the number of buffaloes was 35, crossbred cattles was 15, indigenous cattles was only 3 and the number of goats was accounted as 234 on an overall. In the age-group of above 2 years the number of buffaloes was accounted as 198, crossbred cattles was 165, indigenous cattles was 28 and goats was 242 on an overall in the area a under study. Thus, the number of animals above 2 years of age was considerable in the area under study. The related data are given in Table-III-3.

**Table-III-3**

**Classification of Animals Reared by the sample households Based on their Age**

| Age groups | Buffalo | Crossbred Cattle | Indigenous cattle | Sheep | Goat |
|---|---|---|---|---|---|
| **<1 year** | 4 | 0 | 0 | - | 53 |
| **1-2 Year** | 35 | 15 | 3 | - | 234 |
| **> 2 Years** | 198 | 165 | 28 | - | 243 |

Source: Field survey

## III.4.: Average value of the animals based on their age (Rs.)

Table-III-4 indicates the average value of the animals based on their age in Rs. per animal, wherein, the value of a female buffalo above 2 years was estimated as highest i.e. Rs. 41,707 against the lowest i.e. Rs. 3,000 of a female buffalo upto 1 year. While, the value of a male buffalo varied from Rs. 2,000 for upto 1 year to Rs. 12,500 for above 2 years. In case of crossbred cattle, the value of female cattle above 2 years was estimated as Rs. 19,325 against Rs. 16,886 of a female cattle of 1-2 years. The value of male cattle varied from Rs. 7,813 of the male cattle of 1-2 years to Rs. 5,000 of a male cattle of above 2 years. While, in case of indigenous cattle the value of a female cattle of above 2 years was Rs. 23,852 against Rs. 16,000 of a female cattle of 1-2 years. Among male cattle it varied from Rs. 2,500 for a male of 1.2 yeatrs to Rs. 3,500 for a male cattle of above 2 years. In case of goat, the value of female goat of above 2 years was estimated as Rs. 4,701 against Rs. 2,727 of female goat of upto 1 year. While, among the male goats it varied from Rs. 3,537 for above 2 years to Rs. 2,553 for upto 1 year. Thus, it was evidently clarified that the value of females in all the four categories of animals was comparatively higher than males. The related data are given in Table-III-4.

**Table-III-4**
**Average Value of the animals based on their Age (Rs)**

(Value in Rs./Animal)

| Age group | Buffalo | | Crossbred Cattle | | Indigenous cattle | | Sheep | | Goat | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| **<1 year** | 2000 | 3000 | 0 | 0 | 0 | 0 | - | - | 2553 | 2727 |
| **1-2 Year** | 2750 | 15143 | 7813 | 16886 | 3500 | 16000 | - | - | 3300 | 3741 |
| **> 2 Years** | 12500 | 41707 | 5000 | 19325 | 3500 | 23852 | - | - | 3537 | 4071 |

Source: Field survey

**III.5.: Average value of the milch, dry and heifer animals among buffalo, crossbred animals based cattle, indigenous cattle and goat in Rs./animal.**

The average value of milch, dry and heifer animals among buffalo, crossbred cattle, indigenous cattle and goat in Rs. per animal analysed in table-III-5 shows that the value of a milking buffalo was Rs. 41,916, crossbred cattle was Rs. 29,975 indigenous cattle Rs. 24,842 and of a goat was Rs. 4,018 respectively. While the value of a dry buffalo was Rs. 22,240, dry crossbred cattle was Rs. 31,522, dry indigenous cattle was Rs. 30,000 and of a dry goat was Rs. 3,904. On the other hand the value of a pregnant heifer of buffalo was Rs. 44,194, pregnant heifer of a crossbred cattle was Rs. 47,141, pregnant heifer of an indigenous cattle was Rs. 21,846 and of a pregnant heifer of goat was Rs. 3,903. While the value of a non-pregnant buffalo heifer was Rs. 40,948, a non-pregnant crossbred cattle heifer was Rs. 33,115, a non-pregnant heifer of indigenous cattle was Rs. 25,864 and of a non-pregnant heifer of goat was Rs. 3,738 respectively. Thus, the value of milking buffalo was comparatively much higher than the other milking bovine animals. Among dry animals the value of crossbred cattle was comparatively higher. Among pregnant heifers the value of crossbred cattle was higher. But among the non-pregnant heifer the value of buffalo heifer was higher. The related data are given in Table-III-5.

**Table-III-5**
**Average Value of the animals Milch, Dry and Heifer animals (Rs.)**

(Rs./Animal)

| Particulars | Buffalo | Crossbred Cattle | Indigenous cattle | Sheep | Goat |
|---|---|---|---|---|---|
| **Milching** | 41916 | 29975 | 24842 | - | 4018 |
| **Dry** | 22240 | 31522 | 30000 | - | 3904 |
| **Heifer Pregnant** | 44194 | 47141 | 21846 | - | 3903 |
| **Heifer non-pregnant** | 40984 | 33115 | 25864 | - | 3738 |

Source: Field survey

**III.6.: Details of feed and fodder fed to animals**

**III.6.1: Average feed and fodder fed to buffalo per day per animal**

Table-III-6.1 shows the average quantity and value of feed and fodder fed to buffalo per day per animal, wherein, to a milking buffalo green fodder 2.70 kgs (Rs. 9.73), dry fodder 6.85 kgs (Rs. 44.83), concentrates 1.47 kgs (Rs. 7.75) and supplements 1.58 kgs (Rs. 7.10) per day was fed and no grazing was reported. In case of a dry buffalo, 0.65 Kg. (Rs. 7.25) green

fodder, 4.33 kgs. (Rs. 39.05) dry fodder, 0.73 kg. (Rs. 20.37) concentrates and 0.044 kg. (Rs. 1.27) supplements per day was fed. Thus, milking buffaloes were fed comparatively larger quantity of feeds and fodders than the dry buffaloes in the area under study. While among the buffalo heifers, the pregnant heifer was fed 3.33 kgs. green fodder costing Rs. 11.63, 7.78 kgs. dry fodder of Rs. 43.49, 1.66 kgs. concentrates of Rs. 28.10 and 0.12 kg. supplement of Rs. 3.02. The non-pregnant heifed was fed 2.86 kgs. green fodder of Rs. 9.85, 6.05 dry fodder of Rs. 46.71, 1.21 kgs. concentrates of Rs. 23.40 and 0.09 kg. supplements of Rs. 2.35 per day and no grazing was there in the area. Thus, it was cristal clear that pregnant heifers were fed larger quantity of feeds and fodders than that to non-pregnant heifers. The related data are given in Table-III-6.1.

**Table-III-6.1**
**Average feed and Fodder Fed to Buffalo (per day per animal)**

| Particulars | Green fodder | | Dry fodder | | Concentrates | | Supplements | | Grazing |
|---|---|---|---|---|---|---|---|---|---|
| | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | (hrs/day) |
| Milching | 2.70 | 9.73 | 6.25 | 44.83 | 1.25 | 23.89 | 0.110 | 2.75 | - |
| Dry | 0.65 | 7.25 | 4.33 | 39.05 | 0.73 | 20.37 | 0.044 | 1.27 | - |
| Heifer Pregnant | 3.33 | 11.63 | 7.78 | 49.49 | 1.66 | 28.10 | 0.12 | 3.02 | - |
| Heifer non-pregnant | 2.86 | 9.85 | 6.55 | 46.71 | 1.21 | 23.40 | 0.09 | 2.35 | - |
| >1 year | - | - | - | - | - | - | - | - | - |
| 1-2 Year | - | - | - | - | - | - | - | - | - |

Source: Field survey

## III.6.2: Average feed and fodder fed to crossbred cattle per day per animal

The average feed and fodder fed to crossbred cattle per day per animal worked-out in Table-III-6.2 shows that on an average a milking crossbred cattle was fed 1.35 kgs. green fodder of Rs. 5.68, 4.82 kgs. dry fodder of Rs. 32.92, 0.80 kg. concentrates of Rs. 14.48 and 0.12 kg. supplements of Rs. 2.25 per day. While a dry crossbred cattle was fed 1.17 kgs. green fodder of Rs. 6.00, 5.91 kgs. dry fodder of Rs. 34.84, 0.82 kg. concentrate of Rs. 17.04 and 0.25 kg. supplements of Rs. 6.56 per day. Thus, the milking crossbred cattles were fed comparatively larger quantity of feeds and fodders than that of dry crossbred cattles. In case of heifers the pregnant heifer was fed 1.96 kgs. of green fodder of Rs. 9.15, 8.21 kgs. dry fodder of Rs. 53.62, 1.17 kg. concentrates of Rs. 22.60 and 0.32 kg. supplements of Rs. 6.78 per day. While, the non-pregnant heifer was fed 1.31 kg. green fodder of Rs. 5.35, 5.28 kgs. dry

fodder of Rs. 34.17, 0.86 kg. concentrates of Rs. 17.24 and 0.15 kg. supplements of Rs. 2.81 per day. Thus, pregnant heifers were fed comparatively larger quantity of feeds and fodders as compared to that to non-pregnant heifers. The concerned data are given in Table-III-6.2.

**Table-III-6.2**

**Average feed and Fodder Fed to Cross Breed Cattle (Kg. per day per animal)**

| Particulars | Green fodder | | Dry fodder | | Concentrates | | Supplements | | Grazing (hrs/day) |
|---|---|---|---|---|---|---|---|---|---|
| | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | |
| Milching | 1.35 | 5.68 | 4.82 | 32.92 | 0.80 | 14.48 | 0.12 | 2.25 | - |
| Dry | 1.17 | 6.00 | 5.91 | 34.84 | 0.82 | 17.04 | 0.25 | 5.56 | - |
| Heifer Pregnant | 1.96 | 9.15 | 8.21 | 53.62 | 1.17 | 22.60 | 0.32 | 6.78 | - |
| Heifer non-pregnant | 1.31 | 5.35 | 5.28 | 34.17 | 0.86 | 17.24 | 0.15 | 2.81 | - |
| >1 year | - | - | - | - | - | - | - | - | - |
| 1-2 Year | - | - | - | - | - | - | - | - | - |

Source: Field survey

### III.6.3: Average feed and fodder fed to indigenous cattle per day per animal

The average feed and fodder fed to the indigenous cattle per day per animal analysed in Table-III-6.3 shows that a milking indigenous cattle was fed 1.84 kgs. green fodder of Rs. 7.28, 1.50 kgs. dry fodder of Rs. 14.50, 1.47 kg. concentrates of Rs. 7.75 and 1.58 kgs. supplements of Rs. 7.10 per day and no grazing was reported in the area under study. The dry indigenous cattle was fed 1.20 kgs. of green fodder of Rs. 5.02, 5.48 kgs. dry fodder of Rs. 38.35, 0.67 kg. concentrates of Rs. 5.47 and 0.15 kg. supplements of Rs. 3.93 per day. Thus, milking indigenous cattle were fed comparatively larger quantity of feeds and fodders than the dry indigenous cattles in the area under study. Among indigenous heifers the pregnant heifer was fed 1.25 kg. green fodder of Rs. 6.37, 8.00 kgs dry fodder of Rs. 49.00, 0.99 kg. concentrates of Rs. 17.10 and 1.24 kg. supplements of Rs. 20.34 per day. While the non-pregnant heifer was fed 0.93 kg. green fodder of Rs. 2.75, 5.02 kgs. dry fodder of Rs. 35.67, 0.63kg. concentrates of Rs. 10.07 and 0.63kg. supplements of Rs. 10.75 perday. Thus, it wa evidently clear that milking animals and pregnant heifers were fed larger quantity of feeds and fodders as compared to that in case of other animals. The related data are given in Table-III-6.3.

**Table-III-6.3**
**Average feed and Fodder Fed to Indigenous Cattle (kg per day per animal)**

| Particulars | Green fodder | | Dry fodder | | Concentrates | | Supplements | | Grazing (hrs/day) |
|---|---|---|---|---|---|---|---|---|---|
| | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | |
| Milching | 1.84 | 7.28 | 7.50 | 44.50 | 1.47 | 7.75 | 1.58 | 7.10 | - |
| Dry | 1.20 | 5.02 | 5.48 | 38.35 | 0.67 | 5.47 | 0.15 | 3.93 | - |
| Heifer Pregnant | 1.25 | 6.32 | 8.00 | 49.00 | 0.99 | 17.10 | 1.24 | 20.34 | - |
| Heifer non-pregnant | 0.93 | 2.75 | 5.02 | 35.67 | 0.63 | 10.07 | 0.63 | 10.75 | - |
| >1 year | - | - | - | - | - | - | - | - | - |
| 1-2 Year | - | - | - | - | - | - | - | - | - |

Source: Field survey

## III.6.4: Average feed and fodder fed to goats per day per animal

The average feed and fodder fed to goats per day per animal worked-out in Table-III-6.4 shows that a male goat upto 1 year was fed 0.58 kg. green fodder of Rs. 1.80, 0.31 kg. dry fodder of Rs. Rs. 2.09, 0.13 kg. concentrates of Rs. 2.01 and 0.01 kg. supplements of Rs. 0.09 per day and the female goat was fed 1.04 kg. green fodder of Rs. 3.15, 0.46 kg dry fodder of Rs. 4.55, 0.46 concentrates of Rs. 2.49 and 0.003 kg. supplements of Rs. 0.008 per day. Thus, female goat was fed comparatively larger quantity of feed and fodder. While the male goat of 1-2 years was fed 0.71 kg. green fodder of Rs. 2.74, 0.29 kg. dry fodder of Rs. 1.75, 0.29 kg. of concentrates of Rs. 3.55 and 0.003 kg. supplements of Rs. 0.09 per day. The female goat of 1-2 years was fed 0.89 kg. green fodder of Rs. 3.05, 0.46 kg. dry fodder of Rs. 3.01, 0.18 kg. concentrates of Rs. 2.92 and 0.005 kg supplements of Rs. 0.14 per day. While the male goat of above 2 years was fed 1.05 kg. green fodder of Rs. 4.88, 0.44 kg. dry fodder of Rs. 2.74, 0.27 kg. concentrates of Rs. 4.65 and 0.008 kg. supplements of Rs. 0.25 per day. The female goat above 2 years was fed 1.09 kg. green fodder of Rs. 4.09, 0.38 kg. dry fodder of Rs. 2.42, 0.30 kg. concentrates of Rs. 4.24 and 0.007 kg. supplements of Rs. 0.23 per day. The related data are given in Table-III-6.4.

**Table-III-6.4**
**Average feed and Fodder requirement for Goats (per day per animal)**

| Particulars | Gender | Green fodder | | Dry fodder | | Concentrates | | Supplements | | Grazing (hrs/day) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | Quantity (Kg) | Value (Rs.) | |
| >1 year | Male | 0.58 | 1.80 | 0.31 | 2.09 | 0.13 | 2.01 | 0.01 | 0.09 | - |
| | Female | 1.04 | 3.15 | 0.46 | 4.55 | 0.16 | 2.49 | 0.003 | 0.008 | - |
| 1-2 Year | Male | 0.71 | 2.74 | 0.29 | 1.75 | 0.29 | 3.55 | 0.003 | 0.09 | - |
| | Female | 0.89 | 3.05 | 0.46 | 3.01 | 0.18 | 2.92 | 0.005 | 0.14 | - |
| < 2 Years | Male | 1.05 | 4.88 | 0.44 | 2.74 | 0.27 | 4.65 | 0.008 | 0.25 | - |
| | Female | 1.09 | 4.09 | 0.38 | 2.42 | 0.38 | 4.24 | 0.007 | 0.23 | - |

Source: Field survey

**III.7: Total feed and fodder requirement as per the NATP standards in the state of Uttar Pradesh in 2019.**

Total feed and fodder requirement as per the NATP standards in the state of Uttar Pradesh during 2019 analysed in Table-III-7 indicates that the total requirement of green fodder for cattle in milk was 2,94,70,444 kgs, dry 79,42,913 kgs, adult male 49,48,007 kgs and young stock 1,87,35,328 kg. In case of buffalo in milk it was 6,74,62,605 kgs., dry 1,79,59,485 kgs, adult male 32,22,462 kgs and for young stock 3,77,56,439 kgs. respectively. For goats it was 1,50,59,226 kgs. Thus, the total requirement of green fodder during 2019 was maximum for the milking buffaloes followed by cattle against the minimum for adult males of cattle and buffaloes. For goat it was considerable.

The total requirement of dry fodder for cattle in milk was 3,41,23,672 kgs, dry 93,91,327 kgs, adult male 73,48,888 kgs and young stock 1,83,05,618 kgs. For buffalo in milk it was 7,17,63,912 kgs, dry 1,63,41,811 kgs, adult male 59,58,363 kgs and for young stock it was 3,66,02,312 kgs. For goat it was 28,96,005 kgs. Thus, the total requirement of dry fodder was also maximum for milking buffalo, young stock of buffalo and milking cattle against the minimum for goats and adult males cattles and buffaloes in the state of Uttar Pradesh.

As regards the total requirements of concentrates for cattle in milk it was estimated as 39,70,755 kgs, dry 9,34,460 kgs, adult male 4,02,178 kgs, young stock 15,46,954. For buffalo in milk it was 1,18,85,190 kgs, dry 17,16,716 kgs, adult male 2,87,150 kgs and young stock 31,32,630 kgs. For goat it was 8,68,802 kgs. during 2019 in the state of Uttar Pradesh. Thus, the total requirement of concentrates was found to be maximum for milking buffaloes against the minimum for goats in the state of Uttar Pradesh. The related data are contained in Table-III-7.

**Table-III-7**
**Total Feed and Fodder Requirement as per the NATP Standards in the State of Uttar Pradesh in 2019**

| Animal Category | Number of Animals* | Green Fodder | | Dry Fodder (Kg) | | Concentrates (Kg) | |
|---|---|---|---|---|---|---|---|
| | | (Kg per animal) | Total (Kg) | (Kg per animal) | Total (Kg) | (Kg per animal) | Total (Kg) |
| In milk | 6204304 | 4.75 | 29470444 | 5.5 | 34123672 | 0.64 | 3970754.56 |
| Dry | 2336151 | 3.4 | 7942913.4 | 4.02 | 9391327.02 | 0.4 | 934460.4 |
| Adult male | 1218721 | 4.06 | 4948007.26 | 6.03 | 7348887.63 | 0.33 | 402177.93 |
| Young Stock | 8594187 | 2.18 | 18735327.66 | 2.13 | 18305618.31 | 0.18 | 1546953.66 |
| Buffalo | | | | | | | |
| In milk | 11319229 | 5.96 | 67462604.84 | 6.34 | 71763911.86 | 1.05 | 11885190.45 |
| Dry | 3301376 | 5.44 | 17959485.44 | 4.95 | 16341811.2 | 0.52 | 1716715.52 |
| Adult male | 797639 | 4.04 | 3222461.56 | 7.47 | 5958363.33 | 0.36 | 287150.04 |
| Young Stock | 16487528 | 2.29 | 37756439.12 | 2.22 | 36602312.16 | 0.19 | 3132630.32 |
| Goat | 14480025 | 1.04 | 15059226 | 0.2 | 2896005 | 0.06 | 868801.5 |
| Sheep | | 1.01 | | 0.2 | | 0.04 | |

Note:*Consider 20th Livestock Census data, 2019

## III.8: Green fodder yield according to land use classification during 2018 in the state of Uttar Pradesh.

The green fodder yield according to land use classification during 2018 in the state of Uttar Pradesh worked-out in Table-III-8 shows that the total area under fodder crops was estimated as 3,09,750 hectares in 2018 and the availability was 1,26,78,068 metric tonnes in the state of Uttar Pradesh. The forest area accessible for grazing was 8,29,076 ha and the availability of fodder was only 20.87 metric tonnes. The area under permanent pastures and other grazing lands was estimated as 65,198 ha and the availability of fodder was 3,25,960 metric tonnes. The area under cultivable wastelands was estimated as 4,05,316 ha. and the availability of fodder was 4,053.60 metric tonnes. While the area under current follows was 11,21,550 ha and the availability of fodder was 11,21,550 metric tonnes. The area under other follows was 5,09,192 ha and the availability of fodder was 5,09,192 metric tonnes. The area not included in Net Sown area and the area under miscellaneous and groves was estimated as 3,05,012 ha and the fodder availability from it was estimated as 3,05,012 metric tonnes in the state of Uttar Pradesh as a whole during 2018. Thus, the maximum availability of fodder was found from the fodder crops and the minimum from the forest area in the state of Uttar Pradesh. The concerned data are contained in Table-III-8.

**Table-III-8**
**Green fodder yields for land use classification**

| Sl.no | Land use category | Green fodder (tones/ha/year) | Total Area(ha) | Total Availability metric tonnes |
|-------|-------------------|------------------------------|----------------|----------------------------------|
| 1 | A)Area under fodder crop | 40.93 | 309750 | 12678068 |
| 2 | B)Forest area and on assumption that only 50% area was accessible for grazing | 3.00 (1.50 if considered whole forest area ) | 829076.5 | 24.87 |
| 3 | C)Permanent pastures and other grazing lands | 5.00 | 65198 | 325960 |
| 4 | D)Cultivable wastelands | 1.00 | 405316 | 405316 |
| 5 | E)Current fallows | 1.00 | 121550 | 1121650 |
| 6 | F)Other fallows | 1.00 | 509192 | 505192 |
| 7 | G)Misc. Tree Crops and Groves not Included in Net Area Sown | 1.00 | 305012 | 305012 |

*Source:* Statistical Abstract of U.P. 2018

**III.9: Conversion factors in terms of harvest indices and extraction rates used in the calculation of feed resources such as crop residues, oil cakes, grains, brans and chunnies of various crops from crop production data in State of Uttar Pradesh during 2018**

Table-II-9 indicates that the crop residues received from crop such as paddy was 77,89,220 kgs,wheat 98,84,913 kgs, sorghum 4,57,308 kgs , bajra 22,67,933 kgs, barley 8886 kgs, maize 20,16,200 kgs, small millets 7.5 kgs , other cereals 3.4 kgs and pulses 42,63,830 kgs, oilseeds 6,54,844 kgs, and from sugarcane it was 5,39,960 kgs during the year 2018 in the state of U.P. Thus, it was evidently clear that residues were received maximum from wheat and paddy crops and minimum from other cereals and small millets. From other fodder crops also it was received considerably. While the total grains received from the crops such as from paddy was 1,19,834 kgs, wheat 1,97,698 kgs , sorghum 9,146 kgs, bajra 45,359 kgs ,barley 684 kgs, maize 80,648 kgs, small millets 0.3 kgs, other cereals 0.17 kgs pulses 75,244 kgs during 2018in the state of U.P. Thus, from paddy and wheat the grains were received maximum and from small millets and other cereals it was received in minimum quantity in the state of U.P. About brans and chunnies, it was found that only 0.03 kgs of chunnies from pulses was reported during 2018 in the state of U.P. The related data are given in table-9

Table-III-9

**Conversion factors in terms of harvest indices and extraction rates used in the calculation of feed resources such as crop residues, oil cakes, grains, brans and chunnies of various crops from crop production data in State of Uttar Pradesh during 2018**

| Sl. no | Crops | Area in the State (ha) | Harvest indices (HI)* | | | | Extraction Rate(ER) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Crop residues* | Total (Kgs) | Oil Cakes* | Total (Kgs) | Grains* | Total (Kgs) | Brans and Chunnies* | Total (Kgs) |
| 1 | Paddy | 5991708 | 1.3 | 7789220.4 | - | 7789220 | 0.02 | 1199834.16 | - | 119834 |
| 2 | Wheat | 9884913 | 1 | 9884913 | - | 9884913 | 0.02 | 197698.26 | - | 197698 |
| 3 | Sorghum | 182923 | 2.5 | 457307.5 | - | 457308 | 0.05 | 9146.15 | - | 9146.15 |
| 4 | Bajra | 907173 | 2.5 | 2267932.5 | - | 2267933 | 0.05 | 45358.65 | - | 45359 |
| 5 | Barely | 6835 | 1.3 | 8885.5 | - | 8886 | 0.1 | 683.5 | - | 684 |
| 6 | Maize | 806480 | 2.5 | 2016200 | - | 2016200 | 0.1 | 80648 | - | 80648 |
| 7 | Ragi | - | 2 | 0 | - | - | 0.05 | 0 | - | 0 |
| 8 | Small Millets | 3 | 2.5 | 7.5 | - | 7.5 | 0.1 | 0.3 | - | 0.3 |
| 9 | Other Cereals | 1.7 | 2 | 3.4 | - | 3.4 | 0.1 | 0.17 | - | 0.17 |
| 10 | Pulse | 2508135 | 1.7 | 4263829.5 | | 4263830 | - | 0 | 0.03 | 75244.05 |
| 11 | Groundnut | 94013 | 2 | 188026 | 0.7 | 65809.1 | - | 0 | - | 0 |
| 12 | Oil Seeds | 992634 | - | 0 | 0.7 | 694843.8 | - | 0 | - | 0 |
| 13 | Sugarcane | 2159841 | 0.25 | 539960.25 | - | 539960 | - | 0 | - | 0 |

Note:*refer the Proposal

Source: Statistical Abstract of Uttar Pradesh, 2018

## III.10: Major Sources of livestock feed

Table-III-10 shows that out of total 247 sample households, 200 households had reported that grazing land was also the source of livestock feed, 16 household had told crop residues to be the source of livestock feed, 28 households had reported improved forage and pasture land as source of livestock feed, the maximum i.e. 142 household had reported the feed preservation and storage as major sources of livestock feed, 100 household told free legumes grown as hedge or any other else were source of livestock feed and 5 households had told the household left over as livestock feed in the area of study in U.P. Thus, grazing land, feed preservation and storage as well as legumes grown as hedge were the major sources of livestock feed in the area under study. The related information are given in table III-10.

**Table-III-10**
**Major Sources of Livestock Feed**

| Source of Livestock Feed | Number of households reported |
|---|---|
| Grazing land | 200 |
| Crop residues | 16 |
| Improved forage and pasture | 28 |
| Household left over | 05 |
| Tree legumes grown as hedge or any | 100 |
| Feed preservation and storage | 142 |

Source: Field survey

## III.11: Details about cattle shed

Table-III-11 shows that among the total sample livestock rearers only 1 pucca cattle shed was reported to be maintained and its average value was estimated as Rs. 20,000. The number of kachcha cattle shed maintained was reported to be 123 and the average value of the kachcha cattle shed was estimated as Rs. 20,787. While the number of mixed cattle sheds maintained by the sample livestock rearers was reported to be 31 and the average value of a mixed cattle shed was estimated as Rs. 14,970. Thus, maximum of the cattle shed maintained by sample households were kachcha cattle shed and the average value of such cattle sheds was comparatively slightly higher than that of pucca cattle sheds in the area under study in the state of Uttar Pradesh. In case of goat sheds by sample households 1 pucca goat shed was reported to be maintained and its average value was estimated as Rs. 18,000. The number of kachcha goat sheds was reported to be 16 and the average value of a kachcha goat shed was estimated as Rs. 13,456. While the number of mixed goat sheds was found to be 2 only and the average value of a mixed goat shed was estimated as Rs. 7,000. Thus, the number of kachcha goat sheds was comparatively higher in the area under the study. The related data are given in Table-III-11.

**Table-III-11**
**Details about cattle shed**

(In No. & average value Rs.)

| Particulars | Pucca | | Kachcha | | Mixed | |
|---|---|---|---|---|---|---|
| | Number | Average value (Rs) | Number | Average value (Rs) | Number | Average value (Rs) |
| **Cattle shed** | 1 | 20000 | 123 | 20787 | 31 | 14970 |
| **Sheep and Goat shed** | 1 | 18000 | 16 | 13456 | 2 | 7000 |

Source: Field survey

## III.12: Details of labour and other Maintenance Charges

Table-III-12 indicates that a male buffalo had required 0.38 hours labour per day, male indigenous cattle 0.20 hours labour per day, male crossbred cattle 0.35 hours labour per day and a male goat had required 0.15 hours human labour per day. While a female buffalo had required 0.38 hours human labour per day, a female indigenous cattle 0.20 hours labour per day, a female crossbred cattle 0.28 hours of labour per day and a female goat required 0.30 hours of human labour per day. Thus, it was evidently clear that buffalo as well crossbred cattle both male and female had required comparatively more human balour than other livestocks in the area of study in Uttar Pradesh. Accordingly the human labour cost per annum for a male buffalo was estimated as Rs. 27,050, indigenous male cattle Rs. 5,200, crossbred male cattle Rs. 19,700 and and the male goat required Rs. 23,140 per annum. While female buffalo required Rs. 20,300, female indigenous cattle Rs. 3,900, female crossbred cattle Rs. 14,950 and female goat required Rs. 18,800 per annum. The veterinary cost varied from Rs. 84,225 for buffalo to Rs. 14,150 for indigenous cattle and the maintenance cost varied from Rs. 86,130 for buffalo to Rs. 33,170 for goat and the other cost varied from Rs. 61,825 for buffalo to Rs. 11,200 for indigenous cattle per annum in the area under study. The related data are given in Table-III-12.

**Table-III-12**
**Details of Labour and other maintenance charges**

(labours hours per animal per day)

| Particulars | | Buffalo | Indigenous cattle | Crossbred Cattle | Sheep | Goat |
|---|---|---|---|---|---|---|
| Labor requirement | Male (hrs) | 0.38 | 0.20 | 0.35 | - | 0.15 |
| | Female (hrs) | 0.30 | 0.20 | 0.28 | - | 0.30 |
| Labor cost* (Rs/ year) | Male (Rs) | 27050 | 5200 | 19700 | - | 23140 |
| | Female (Rs) | 20300 | 3900 | 14950 | - | 1800 |
| Veterinary Cost (Rs/annum.) | | 84225 | 14150 | 50080 | - | 46980 |
| Maintenance cost (Equipments, electricity and water charges. (Rs./annum) | | 86130 | 8900 | 47465 | - | 33170 |
| Any other cost (Rs./annum) | | 61825 | 11200 | 3475 | - | 27795 |

Note: *Convert 8 hours per day as a wage rate
Source: Field Survey

### III.13: Returns from Livestock Rearing

Table-III-13 shows that maximum return of Rs. 36 per litre from 8 litres of milk per animal per day from buffaloes was received by a livestock rearer against the minimum return of Rs. 20 per litre from 0.35 litre of milk per animal per day from goats. In case of production of dung it was also estimated to be maximum i.e. 4.8 tonnes per annum from the buffalo against the minimum i.e. 0.80 ton per annum from the goats. While the sale value of dung was estimated to the maximum i.e. Rs. 500 per ton in case of goats against Rs. 400 per ton in case of buffalo, crossbred and indigenous cattle. The return from the sales of goat animals (3,308 kgs) was estimated as Rs. 11,33,025 and from other animals was estimated as Rs. 1,09,500 from 285 kgs of animals in the area under study in Uttar Pradesh.

**Table-III-13**
**Returns from livestock rearing**

(Milk yield in litres per animal per day)

| Particulars | | Crossbred cattle | Indigenous cattle | Buffalo | Sheep | Goat |
|---|---|---|---|---|---|---|
| Milk | Yield in litres | 10 | 3 | 8 | - | 0.35 |
| | Sales value (Rs./litres) | 22 | 26 | 36 | - | 20 |
| Dung | Tonnes per annum | 3.90 | 3.6 | 4.8 | - | 0.80 |
| | Sales value (Rs./ton) | 400 | 400 | 400 | - | 500 |
| Sales details of animal | Animal weight kgs | - | - | - | - | 3308 |
| | Number of animals | - | - | - | - | - |
| | Sales value (Rs.) | - | - | - | - | 1133025 |
| Any other by-product specify | kgs/animal | - | - | - | - | 285 |
| | Sales value (Rs.) | - | - | - | - | 109500 |

Note: - converted milk production according to lactation period

# Chapter-IV

## Constraints, Views and Suggestions Given by Sample Households for Fodder Cultivation

**IV.1.: Constraints faced by sample households for fodder cultivation**

Table-IV-1 indicates the various constraints faced by the sample households for fodder cultivation, wherein, all the 247 sample households had viewed that land was very less, therefore, they could not afford to put more land under the fodder seeds as well as crop production. 90 sample households had reported about no-availability of adequate irrigation water. 90 households had told about non-availability of labor. Also all the 247 households had expressed their views that land was not suitable for fodder production. All the 247 households had complained about the high cost of cultivation/production and low return from fodder production. Also all the 247 sample households had reported about low price prevailing in the market of fodders green fodders, high cost of fodder seed and no provision of quality seed by society on credit and non-availability of quality fodder seed in the market. 157 sample households had complained about the unavailability of grazing lands. 90 sample farmers had told about the lack of training facilities. Also all the 247 households had viewed about poor livestock extension services, lack of awareness about the government programmers about subsidy on seeds and it was more laborious. Also 157 sample households had complained about lack of awareness production and post harvest techniques. Thus, majority of sample households rearing animals were facing all sorts of constraints in production of fodders in the area under study in Uttar Pradesh. The concerned information are contained in table-IV-1

**Table-IV-1**
**Constraints faced by the sample households for Fodder cultivation**

| | Constraints | Number of households reported |
|---|---|---|
| 1 | Land is very less therefore cannot afford to put more land under fodder seed/crop production | 247 |
| 2 | Non availability of adequate irrigation water | 90 |
| 3 | Non Availability of labour | 90 |
| 4 | Land is not suitable for fodder production | 247 |
| 5 | High Cost of Cultivation/Production and Low return on fodder production | 247 |
| 6 | Low price prevails for green fodder in market | 247 |
| 7 | High cost of fodder seed | 247 |
| 8 | No provision of quality seed by society on credit& Non availability of quality fodder seed in market | 247 |
| 9 | Availability of Grazing lands | 157 |
| 10 | Lack oftraining facilities | 90 |
| 11 | Poor Livestock extension services | 247 |
| 12 | Lack of awareness about government programmes on subsidy on seeds | 247 |
| 13 | More Laborious | 247 |
| 14 | Lack of awareness on production and post harvest techniques | 157 |

Source: Field survey

## IV.2:- Total Number of Farmers Adopted Post Harvest Techniques:-

Table IV.2. shows the out of the total 247 sample farmers rearing the livestocks had told no i.e. 100 percent of the sample farmers had not adopted at all any post harvest technique of fodder preservation etc. The related data are contained in table IV.2.

**Table-IV-2**
**Total number of farmers adopted Post harvest Techniques**

| | Yes (%) | No (%) |
|---|---|---|
| Adopted Post harvest Techniques | -- | 247 (100%) |
| Number of households | -- | 247 (100%) |

Source: Field survey

**IV.3.:- Major Reasons for Not Adopting Post harvest Techniques**

The major reasons for not adopting post harvest techniques worked out in table IV.3 shows that all the 247 sample households rearing  livestock had reported that they had considered the post harvest technique inferior than to have fresh fodders. Also all the247 sample households had put the major reasons such as, highly expensive more laborious and lack of awareness of production and post harvest management of foddetrs. The related information are given in table IV.3

**Table-IV-3**
**Major reasons for not Adopting Post harvest Techniques**

| Particulars | Number of households reported |
|---|---|
| Considered inferior in comparison to fresh one | 247 |
| Highly expensive | 247 |
| Lack of awareness on production and post harvest management | 247 |
| More laborious | 247 |

Source: Field survey

**IV.4.:-Benefits getting from the government for livestock production:-**

Table IV.4 very clearly indicates that all the 247 sample households had reported not to get any benefit from the government for livestock production in the area under study in the state of U.P. The related information are contained in Table.IV-4

**Table-IV-4**
**Benefits getting from the government for livestock Production**

| Sl. no | List of Benefits | Number of households reported |
|---|---|---|
|  | No Benefit got by Govt. | 247 |

**IV.5.:- Major suggestions to improve production of Fodder related crops**

Table IV-5 shows that out of the total 247 sample households, 157 had suggested the concerned state as well as union government to supply adequate quantity of H.Y.V. seeds of fodder suitable for their area and to create sustainable and vulnerable market facilities to improve production of fodder and fodder   related crops in the area under study. 90 sample households had suggested for providing effective extension services as well as required training and training facilities to improve production of fodders and fodder related crops in their area of study. The concerned information and suggestions are contained in Table-IV.5

**Table-IV-5**

**Major Suggestions to improve production of Fodder related crops**

| Sl. no | List of Suggestions | Number of households reported |
|--------|---------------------|-------------------------------|
| 1 | HYB Seed and Market | 157 |
| 2 | Extensions, Services, Training | 90 |

# Chapter-V

## Major Findings and Policy Suggestions

**V.1.: Major Findings of the Study:**

The main findings of the present study are as follows:

- The population of crossbred female cattle in the state of Uttar Pradesh were dominant, wherein, the maximum were in milk.

- Also a considerable population of male cattle were still used for agricultural operations in the state Uttar Pradesh.

- Obviously the majority of adult female buffaloes were in the milk and the number of female buffaloes under the age of one to three years as well as up to one year were considerable in the whole state of U.P.

- Male buffaloes were also used considerably in agriculture as well as bullock cart farm operation in the state of Uttar Pradesh.

- The population of both female as well as male goats under the age of one year were maximum in the state of U.P. The numbers of female goats in milk were also considerable in the state of U.P.

- Regarding the growth pattern of livestock, the growth in population of exotic cows was tremendous by 3 times more till the 20th census in the state U.P.

- Among the population of indigenous cattle, the number of female cattle had increased but the number of male cattle had decreased considerably.

-  Among the buffaloes the number of female buffaloes had increased considerably in the state as a whole.

-  As regards the availability of green fodder, there was a deficit of total green fodder as - 681.50 lakh metric tonnes till 19th census in the state of U.P.

- The educational level among the sample respondents was deplorably poor as 41.70percent of them were illiterates in the present era of cyber age.

- Among the castes OBCs were the dominating castes on an over-all in the area under study in Uttar Pradesh.

- Regarding gender of respondents, the majority i.e. 90.64 percent were males and only 9.31 percent were females among the total sample respondents.

- Regarding average experiences in respective occupations of farmers, it was found that crop-grower had 27 years, livestock rearer had 17 years and a goat rearer had 11 years' experience generally in the area under study.

- The average family size among the sample households was estimated as 5.01.

- The average income per household from different occupations was estimated as from agriculture Rs. 1,45,143, from dairying Rs. 1,03,149, from goat rearing Rs. 13,640 and from other occupations, it was Rs. 98,826 per household in the area under study.

- Regarding average family member engaged in different occupations it was found that in farming (growing crops). 1.44 members, in dairying 1.92 members and in goat rearing only 1.26 members were engaged in the area under the study generally.

- Thus, dairying had emerged as the occupation employing higher members of the family in the area under study.

- Accordingly among the total 247 sample households adopting as their primary occupation 134 had adopted agriculture, 22 had adopted animal husbandry and dairying, 62 had adopted agricultural labour, 22 had adopted non-farm labour, none had opted trade, 1 had opted private employment, 1 had opted other job.

- As their secondary occupation out of 247 households, 23 had opted agriculture, 122 opted animal husbandry and dairying, 56 opted agricultural labour, 27 non farm labor, none opted trade, 4 opted private employment and 5 opted other job in the area under study.

- As the regards the memberships of organizations only 2 members of two households were found to be registered as members of co-operatives in whole area under the study.

- The maximum of the sample households were engaged either in agriculture or in allied agriculture in the area under study.

- The average land owned was estimated as 2.04 acres per farmer in the area under study.

- The net operated area was accounted as 2.92 acres peer farmer among the sample rearers of animals.

- The area under fodder crops was estimated as 0.33 acre per farm among sample animal rears.

- The area under agro-forestry and grazing land was reported to be nil in the sample villages undertaken in the study.

- Regarding sources of irrigation it was found that the maximum i.e. 153 sample farmers had used bore wells and 22 had used cannel as source of irrigations in the area under the study.

- The main kharif crops were paddy, sugarcane, bajra and maize and rabi crops were wheat and barseem in the under study.

- The yield per acre from paddy was 17.04 qtls, sugarcane 464 qtls, bajra 4.89 qtls, maize 3.35 qtls, wheat 16.50  qtls and berseem 14.39 qtls in the area under the study.

- The return from paddy was Rs. 35,328/- per acre, from sugarcane rs. 1,54,507/- from bajra Rs. 16,386/- from maize Rs. 12,456, fodder Rs. 9,824 wheat Rs. 42,136 and berseem Rs. 5,709/- respectively.

- Age-group wise classification of buffaloes showed that up to 1 year there were 4, in 1 to 2 years there were 35 and in the age-group of above two years there were 198 buffaloes on an overall.

- The age wise classification of crossbred cattle indicated that up to 1 year the number was nil, in 1-2 years the number was 15  and in above 2 years group the number was 165 on an overall.

- The age-wise classification of indigenous cattles showed that up to 1 year the number was nil, in 1-2 years group the number was only 3and above 2 years group the number was 28 on an overall.

- The age wise of classification of goats showed that in up to 1 year group there were 53, in 1-2 years group there were 234 and in above 2 years group there were 242 on an overall.

- The average value of female animals in all the four categories was found to be comparatively much higher than that of the higher values of male animals in the area under study.

- The value of milking buffaloes was comparatively much higher than the other milking bovine animals of other categories in the area under study.

- Among the dry animals the value of crossbred cattle was comparatively higher than the indigenous cattle and other animals in the area under study.

- Among pregnant heifers the value of heifers of crossbred cattle was higher. But among the non pregnant heifers the value of buffalo heifers was higher.

- As the regards the feed and fodder, fed to buffaloes it was found that the milking buffaloes were fed comparatively larger quantity of feed and fodder than that to the dry buffaloes in the area under study.

- It was cristal clear that pregnant buffalo heifers were fed larger quantity of feeds fodders than that to non-pregnant heifers in the area under study.

- The milking crossbred cattles were also fed comparatively larger quantity of feeds and fodders than that of dry crossbred cattles.

- The pregnant crossbred heifers were also fed larger quantity of feeds and fodders as compared to that to non-pregnant crossbred heifers.

- The milking indigenous cattles were also fed larger quantity of feeds and fodders than the dry indigenous cattles in the area of under study.

- Thus milking animals and pregnant heifers were fed larger quantity of feeds and fodders than that to other animals in the area under study.

- Female goats were also fed comparatively larger quantity of feeds and fodders in comparison of male goats in the area under study in U.P.

- The total requirement of green fodder during 2019 was higher for the milking buffaloes followed by cattles. But for adult males of cattles and buffaloes the requirement of green fodder was lower. For goats it was considerable.

- The requirement of dry fodder for buffaloes in milk, young stock of buffalo and cattle in milk was found to be higher. But for goats and adult male cattles and buffaloes it was lower in the state U.P.

- The total requirement of concentrates was found to be higher for the milking buffaloes. But for goats it was found to be lowest in the state U.P.

- As regards the availability of fodder the maximum was found from the fodder crops and the minimum was found from the forest area in the state of U.P.

- Crop residues were received maximum from wheat and paddy crops and the minimum from other cereals and small millets. From other fodder crops also it was received considerably.

- Regarding availability of grains it was received maximum from paddy and wheat and the minimum from small millets and other cereals in state as a whole.

- Grazing land, feed preservation and storage as well as legumes grown as hedge were the major sources of livestock feed in the area under the study in U.P.

- Maximum of cattle sheds mentioned by sample households were kaccha cattle sheds and the average value of such cattle sheds was slightly higher than that of puccha cattle sheds in the state of U.P.

- The number of kachcha goat sheds was comparatively higher in the area under the study in U.P..

- As regards labour and other charges it was found that buffaloes and crossbred cattles both males as well as females had required comparatively more human labour than other live stocks in the area under study in U.P.

- Accordingly the human labour cost per annum for male and female buffaloes was found to be comparatively higher than other livestocks in U.P.

- About returns from livestock rearing the return from milk by buffaloes was Rs.10,92,469 against the minimum i.e. Rs. 1,86,115 from goats.

- The return from dung was higher in case of buffaloes against the minimum in case of goats in the area under study.

- Almost all the sample livestock rearers had expressed their views that due to the lack of land they could not put required area of land under fodder seed as well as crop production in the state of U.P.

- Majority of livestock rearers had complained about non availability of irrigation water as well as labour in the area of under study.

- Also all the livestock rearers had complained about unsuitability of land for fodder cultivation, high cost of cultivation/ production, low prices and returns and quality seed in the markets.

- Also majority of sample livestock rearers had complained about lack of grazing land, livestock extension services, awareness of govt. programmers and training facilities in the state of U.P.

- Majority of sample livestock rearers were facing all sorts of constraints in the process of production of fodders in the area under study in U.P.

- 100 percent of sample livestock rearers had reported that they had not adopted any post harvest techniques of fodder preservation etc. in the state of U.P.

- Almost all the sample livestock rearers had reported that stored/ preserved fodders were found much inferior than to have fresh fodders in the area under the study.

- Also majority of sample live stock rearers had told fodder production to be much expensive and more labourious and acute shortage of post harvest management of fodders.

- Regarding benefits from the government almost all the sample livestock rearers had told not to get any benefit from government for livestock rearing in the area under study in the state U.P.

- Majority of livestock rearers had suggested the concerned state and union government to supply adequate and proper fodder   seeds for sustainable and vulnerable market facilities for the improvement of fodder related crops in the state of U.P. They also suggested for providing effective extension services and training facilities.

## V.2 :- Policy Suggestions

Based on the main findings of this study the following suggestions are being prescribed for policy implications:-

1. For improving the quality of milk the tremendous growth of exotic cattle population in the state of U.P. should be checked and shifted to increase the population of improved breeds of buffaloes as well as indigenous cattles.

2. The huge deficit of total green fodders in the state of U.P. must be fulfilled through more intensification in fodder cultivation throughout the year in all the seasons.

3. Educational level of livestock rearers must be upgraded as this occupation has been opted by the poorers where in about 42% are still illiterates in the present cyber age.

4. Female members of livestock rearing households must be encouraged for opting this occupation independently throughout the state of U.P. like the women dairy cooperatives of Gujrat state for increasing females share and gainful employment.

5. Since dairying has emerged as second higher income providing occupation among majority of landless and marginal farmers, there must be any sound policy by government so that it may be opted as their primary occupation.

6. Due to small holdings the farmers must be encouraged to shift to animal husbandry and dairying from crops raising.

7. The farmers rearing animals must be facilitated and be provided subsidy to grow more fodder crops for improving quality of milk.

8. Source of irrigation must be increased with improved avenues in the area under study in U.P.

9. During Rabi season more fodder crops must be grown and during Zaid season too suitable varieties of fodders must be grown in the state of U.P.

10. The numbers of improved breeds of buffaloes must be increased curtailing the number of crossbred cattles.

11. The number of crossbred cattles of up to 1 year age must be increased as their number was nil in the area under study.          .

12. The number of indigenous cattles up to 1 year age must also must be increased as it was less.

13. The number of goats up to age of 1 year must be increased as it was less.

14. For improving the quality of milk the pregnant heifers, milking cattles and buffaloes must be cared properly during feeding, watering etc. in winter and summer seasons in the state of U.P.

15. For increasing the milk yields of buffaloes as well as indigenous cattles in the state of U.P. the quantity of green fodders, concentrates etc. and supplements must be increased undoubtedly.

16. For higher returns remunerative prices of both mahishvanshiya as well as govanshiya animals must be paid to the respective livestock rearees based on the fat percentage in their milk produced in the state of U.P.

17. Suitable post harvest techniques must be provided to needy livestock rearers particularly to those who consider preserved/stored fodders and feeds inferior than fresh fodders and feeds in the area under study.

18. Government must provide incentives/ benefits to potential livestock rearers for sustainable and vulnerable processing and marketing facilities in the state of U.P.

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## Comments on the Draft Report received from
Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, Bangalore, Karnataka

### Comments on draft report

| | | |
|---|---|---|
| 1. | Title of report | Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh |
| 2. | Date of receipt of the Draft report | 17 June 2020 |
| 3. | Date of dispatch of the comments | 22 June 2020 |
| 4. | Comments on the Objectives of the study | : as we finalized during the workshop you have covered all the objectives that required for the study |
| 5. | Comments on the methodology | Methodology followed in the study was good enough to justify the objectives of the study |
| 6. | Comments on analysis, organization, presentation etc. | In First chapter you have covered entire scenario of livestock in Uttar Pradesh state. The overall analysis, chapter organization and presentation were very good and justified for the objectives that we had framed. Please do some changes as follows<br>In Table III-12 : change the labor requirement as hours per animal per day<br>In Table III-13 milk yield should be liters per animal per day, and sale value as Rs/ liter. And also change the dung quantity per animal per annum and value per ton |
| 7. | References: | The references are good enough |
| 8. | General remarks: | You have done excellent work that will very much helpful to write all India report |

9. Overall view on acceptability of report: The entire report you have done has covered all the things that we decided at the time of workshop, the report is accepted sir. Thank you sir for such a wonderful report.

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# Appendix -II

## Action-Taken on the Comments

Comment-wise Action Taken on Draft Report entitled "Assessment of Livestock Feed and Fodder in the State of Uttar Pradesh"

| Sl. No. | Issues of Comments | Action Taken |
|---|---|---|
| 1. | Title of report | Action not required. |
| 2. | Date of receipt of the Draft report | Action not required. |
| 3. | Date of dispatch of the comments | Action not required. |
| 4. | Date of action taken on comments | 25$^{th}$ June, 2020 |
| 5. | Date of dispatch of the final Report | 29$^{th}$ June, 2020 |
| 6. | Comments on the Objectives of the study | Action not required. |
| 7. | Comments on the methodology | Action not required. |
| 8. | Comments on analysis, organization, presentation etc. | Required changes in Table-III-12 & III-13 of the report have been incorporated as desired/commented. |
| 9. | References: | Action not required. |
| 10. | General remarks | Thanks a lot. |
| 11. | View on acceptability of Report | Many thanks in anticipation of lucid All India Report. |

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