CONCLUSION
CHAPTER XI

CONCLUSION

The sample land use study conducted in the fourteen selected villages of Upper Ganga-Yamuna Doab, reveals the existing patterns of land use, carrying capacity and potential productivity of land and the nutritional standard of the villagers.

Table CXXIX gives the percentage to the total area of the land under different uses in each of the village. It will be seen from this Table that in five out of fourteen villages (Shaupur, Arabheri, Salajudi, Meghrajpur and Ladpur-Kalan) more than 90 per cent of their total area is cultivated, while in the remaining villages (except Padli Garunt which lies in the submontane tract) the percentage of the gross cultivated land is over 80. Although in every village the percentage of cultivated land is appreciably high, nevertheless in each case some amount of cultivable land lies unproductive, because of the presence of high proportion of injurious salts at or near the surface or owing to poor sandy soil. The percentage of unproductive land is, however, greater in the ill-drained villages (Kuri, Chaisa and Mohamadpur, Gujar) and in the village of the submontane tract (Padli-Garunt). In the ill-drained areas the main causes of their occurrence are waterloggings and relatively
Each Village in 1960-61 (Area in Acres)

Comments

Village I to VI are situated in the well drained loamy soil. 80 to 94 per cent of their total area is cultivated. The percentage of unproductive land is below 4 per cent, except Akrakheri and Dhundadi. Kharif crops occupy greater area than that of the rabi crops.

Village VII to IX lie in the well drained irrigated parts of sandy-loam. In these village over 90 per cent of the total is under cultivation. Kharif crops occupy more area than that of rabi crops. Salajudi is, however, an exception in which owing to medium quality land (31) is left fallow in the kharif and is sown in the following rabi season.

Villages X to XII lie in the ill-drained clayey soil. The percentage of unproductive land, due to the waterloggings and usar formations is higher than that of villages I to IX. Like the villages of first and second groups kharif crops (except Mohamadpur-Gujar) occupy more acreage as compared to that of rabi.

Village XIII lies in the sub-montane tract. The percentage of cultivated land which is 49 per cent of the total area in this village is the lowest amongst the selected villages.

Village XIV lies in the Ganga khadar. Over 90 per cent of the total area is cultivated. Kharif crops occupy 94 per cent of the gross cultivated land, while rabi crops are sown on 37 per cent of the gross cultivated land.
high water-table, while in the submontane tract the presence of shrubs and soil erosion, render the land unproductive.

The crop land use in the kharif season is dominated by sugarcane and green fodder crops. Sugarcane is the predominant crop in this season. In all the villages (except Bhaupur, Mohammadpur-Gujar and Padi-Garunt) sugarcane occupies 40 to 60 per cent of the sown area. The use of land in the rabi season is dominated by grain crops. In each case at least 90 per cent of the sown area is devoted to cereals while in three villages (Salajudi, Kuri and Padi-Garunt) almost the entire cropped area is devoted to grain crops. Owing to the predominant occupation of land by sugarcane in the kharif season, and by grain crops in the rabi season, the farmer may be called as the season of cash crop while the latter as the season of food crops. Moreover, in ten villages, the net cropped land in the kharif season is greater than that of the rabi season. The reduction in the sown area in the rabi season as compared to that of kharif season is, generally, due to the presence of sugarcane (a continual kharif crop) in the fields, at the time of rabi sowings (Table CXXIX).

Cultivation is the sole occupation of the villagers. In each village, over 75 per cent of the population is primary rural and depends exclusively on the cultivation of land. The remaining population which is secondary rural, serves the primary
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of the Village</th>
<th>Cultivated land available per head of population</th>
<th>Area per head of population</th>
<th>Net cropped land in the year</th>
<th>Net cropped land in the year</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
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<td>Amrupur</td>
<td>0.79</td>
<td>0.43</td>
<td>0.56</td>
<td>0.66</td>
</tr>
<tr>
<td>IV</td>
<td>Dhandosli</td>
<td>0.61</td>
<td>0.34</td>
<td>0.52</td>
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</tr>
<tr>
<td>V</td>
<td>Malmaja</td>
<td>0.72</td>
<td>0.25</td>
<td>0.65</td>
<td>0.32</td>
</tr>
<tr>
<td>VI</td>
<td>Jatpura</td>
<td>0.66</td>
<td>0.22</td>
<td>0.45</td>
<td>0.43</td>
</tr>
<tr>
<td>VII</td>
<td>Salajudi</td>
<td>0.92</td>
<td>0.16</td>
<td>0.50</td>
<td>0.53</td>
</tr>
<tr>
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<td>0.73</td>
<td>0.30</td>
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<td>Meghrajpur</td>
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<td>0.40</td>
<td>0.78</td>
<td>0.52</td>
</tr>
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<td>Kuri</td>
<td>0.89</td>
<td>0.19</td>
<td>0.67</td>
<td>0.41</td>
</tr>
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<td>XI</td>
<td>Ghainsa</td>
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<td>0.29</td>
<td>0.33</td>
<td>0.41</td>
</tr>
<tr>
<td>XII</td>
<td>Mohammadpur-Gujar.</td>
<td>0.69</td>
<td>0.37</td>
<td>0.48</td>
<td>0.58</td>
</tr>
</tbody>
</table>
capita in each village
Acres

Comments

Villages I to VI lie in the well-drained areas of Upper Ganga-Yamuna Doab. The soil is mainly clayey loam. The kharif (i.e. sugarcane, cotton and fodder) and all the rabi crop except gram are irrigated by the Eastern Yamuna, Upper Ganga Canals and wells and tube-wells. The total cultivated land (both of kharif and rabi seasons) per head of population varies between 0.95 to 1.23 acres, except Jatpura where the per capita share in the total cultivated land is 0.35 acres. The lower acreage of Jatpura is compensated to some extent by the fact that nearly one half of the net cropped land in the kharif seasons is devoted to sugarcane, which gives a higher yield per acre. The standard of living of the people in this village is, however, lower than that of other villages in the well-drained areas.

Villages VII to IX lie in the Ganga-Kali interfluv and their soil is mainly sandy loam. The Anupshahr Branch of the Upper Ganga-canal traverses this tract and provides water to the level areas; while the elevated sandy parts, in which irrigation by canal, owing to the relatively high level of the land is not possible, are irrigated by wells and Tube-wells. In the kharif season sugarcane, early fodder, maize and cotton while in the rabi season, all the crops except, gram, are irrigated. The per capita total cultivated land in these villages varies between 1.05 to 1.35 acres.

Villages X to XII lie in the ill-drained areas of Upper Ganga Yamuna Doab. The soil is mainly clayey. In the kharif season, sugarcane and maize and fodder crops (sown in the months of April and May ) and in the rabi seasons all the sown area except gram and lentil are irrigated by the distributaries of the Upper Ganga Canals, by the wells. The total cultivated land (including kharif and rabi) per head of population is more than one acre, except in Chainsa where the per capita total cultivated land is 0.35 acres. In this village about 40 per cent of the net cropped land is devoted to sugarcane which gives comparatively higher yield, and thus compensates the low acreage available, per head of population. In Chainsa, like the village of Jatpura, the standard of living is lower than those villages lying in the clayey soil.

contd....
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the villages</th>
<th>Cultivated area per head of population</th>
<th>Net cropped land per head of population</th>
<th>Net cropped land in the kharif per head of population</th>
<th>Net cropped land in the rabi per head of population</th>
<th>Total cultivated land (both kharif and rabi) per head of population</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIII</td>
<td>Padli-Garant</td>
<td>1.05</td>
<td>0.46</td>
<td>0.95</td>
<td>0.56</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>XIV</td>
<td>Ladpur-Kalan</td>
<td>0.82</td>
<td>0.29</td>
<td>0.78</td>
<td>0.31</td>
<td>1.10</td>
<td></td>
</tr>
</tbody>
</table>

The village of Padli-Garant lies in the submontane tract about five miles south of the Sivaliks. The soil is dark-brown. Irrigation facilities, owing to the deep water-table and underlying rocky structure of land is not possible. In years of normal rainfall, the yields of sugarcane, maize, groundnut, millets and cotton, and of the rain crops, are however, appreciably high. The per capita share in the total cultivated land (including kharif and rabi) is 1.50 acres. The standard of living in this village is lower as compared to the irrigated villages of Upper Ganga-Ismain Doab.

The village of Ladpur-Kalan lies in the khadar of Ganga. The soil of Ladpur-Kalan is sandy to silty clay. The village is unirrigated. The yield per acre is lower, than in the villages I to XIII. The total cultivated land (including kharif and rabi) per head of population is more than one acre.
rural population through ancillary services and thus indirectly depends on land.

The amount of cultivated land supporting one person varies from 0.95 to 1.24 acres in the unirrigated villages (Table CXXX). There are two irrigated villages namely Jatpura and Chainsa where per capita gross cultivated land is 0.88 and 0.79 acre respectively. In these villages, owing to the low per capita share in the cultivated land the population has a relatively low standard of living.

In order to assess the caloric intake per head per day, the writer, on the basis of investigations concerning land use, per acre yield of crops and the amount of export and import has drawn up Food Balance Sheets for individual villages (Tables CXXXIV to CXXXVII). These Tables show that unrefined sugar (gur and rab) and rabi cereals (wheat and gram) are the two major sources of calories in ten villages, while in four villages (i.e. Duddhi, Chainsa, Radli Sarunt, Ladpur-Kalan) unrefined sugar and kharif cereals are the chief sources of caloric intake. As a matter of fact unrefined sugar (gur and rab) alone supplies about 30 per cent of the total caloric intake.

1. Tables CXXXIVA to CXXXVIIA show the per acre yield of crops in the year of 1960-61, and are based on the inquiry conducted by the writer in each of the selected villages. The data of yield per acre were obtained in maunds and were converted in pounds.
in three villages (Kuri, Chainsa and Dudhli); while in the remaining villages with the exception of Padli Garunt, sugar provides about one fifth of the total caloric intake. A similar study made by Prof. Shafi, in Eastern Uttar Pradesh, indicates that sugar, though a significant source of caloric intake, supplies one fifth of the total calories in only two villages. It may, therefore, be concluded that sugar is a more important source of caloric intakes in the villages of Upper Ganga-Yamuna Doab than in the villages of Eastern Uttar Pradesh. The unrefined sugar is consumed as a substitute to vegetables and pulses in the rainy and cold weather seasons, while in the hot weather months it is dissolved into water to make sweet drink.

The calories obtained from food are the main source of heat and energy in human-body and their total intake is a true measure of the nutritional standard of a man or a community as a whole. It is true that the caloric intake is not a complete source of farming efficiency and the standard of living of an agricultural community, but it does certainly reveal the standard of their nutrition. The British Medical Association, on the


3. It should be mentioned here that there may be some other sources of caloric supply such as local fruit production and milk but these are only subsidiary, and therefore, can be left out of the calculation. This omission must be weighed against the fact that the people in all these selected villages, are generally, vegetarians and meat is not one of their sources of caloric requirements.
basis of an exhaustive inquiry published a Table showing a
range in desirable caloric intake among adults from 2,100 a
day for a woman in sedentary occupation to 4,250 for a man
engaged in active manual work. For children the desirable
intake is calculated at 800 a day for infants under one year
4 to 3,400 for teenage boys. The average of the different
categories works out at 2,540 calories a day. Taking into
consideration the age structure of the population, the range of
occupation, the weight and height of the people living under
the climatic conditions of north-western Europe, the average
is 2,460 calories a day or about 900,000 calories per year.
Professor L. Dudley Stamp calls this as the Standard Nutrition
Unit (S.N.U.) for the inhabitants of north-western Europe.
Making allowances for a loss of 10 per cent in harvesting,
cooking and food preparation, the figures of 1,000,000 calories
8 a year in terms of farm production may be accepted. But the
conditions in the western Gangetic-plain are quite different
from those of northwestern Europe. Professor Shafi, in his
land use studies of Eastern Uttar Pradesh has concluded that

4. Ministry of Agriculture, Fishries and Food, Manual of
5. Stamp, L. Dudley, the Measurement of Land Resources, the
7. Ibid.
8. Loc. Cit.
<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the village</th>
<th>Acreage Cultivated</th>
<th>Total cultivated land both of kharif and rabi</th>
<th>Caloric intake per head per day</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Bhupur</td>
<td>0.73</td>
<td>1.23</td>
<td>2,312</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Aerakheri</td>
<td>0.71</td>
<td>1.12</td>
<td>2,334</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Amrupur</td>
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<td>2,314</td>
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</tr>
<tr>
<td>IV</td>
<td>Dhandaoli</td>
<td>0.79</td>
<td>0.95</td>
<td>2,393</td>
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</tr>
<tr>
<td>V</td>
<td>Malmaajra</td>
<td>0.61</td>
<td>0.97</td>
<td>2,320</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>Jatpara</td>
<td>0.66</td>
<td>0.88</td>
<td>2,102</td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>Salajudi</td>
<td>0.92</td>
<td>1.09</td>
<td>2,151</td>
<td></td>
</tr>
<tr>
<td>VIII</td>
<td>Bhudhi</td>
<td>0.78</td>
<td>1.03</td>
<td>2,107</td>
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</tr>
<tr>
<td>IX</td>
<td>Neugrajpur</td>
<td>0.90</td>
<td>1.34</td>
<td>2,153</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Kuri</td>
<td>0.89</td>
<td>1.08</td>
<td>2,017</td>
<td></td>
</tr>
<tr>
<td>XI</td>
<td>Chhina</td>
<td>0.99</td>
<td>0.79</td>
<td>2,135</td>
<td></td>
</tr>
<tr>
<td>XII</td>
<td>Mohanamipur-Gujar</td>
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<td>1.06</td>
<td>2,100</td>
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</tr>
<tr>
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<td>Radji-Sarunt</td>
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<td>1,931</td>
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</tr>
<tr>
<td>XIV</td>
<td>Ladpur-Kalan</td>
<td>0.82</td>
<td>1.10</td>
<td>1,932</td>
<td></td>
</tr>
</tbody>
</table>

Villages I to VI are situated in well-drained and well irrigated areas. The soil is mainly clayey loam. Sugarcane, early fodder, maize and all the rabi crops, except gram are irrigated.

Villages VII to IX lie in well-drained irrigated sandy loam soil. Sugarcane and fodder crops (sown in May) in the kharif and all the crops sown in rabi with the exception of gram are irrigated.

Villages X to XII are situated in the poorly drained areas of clayey soil. Irrigation facilities are available in these villages too.

Villages XIII is situated in the unirrigated, submontane tract. The soil is productive dark-loam.

Village XIV lies in the Ganga khadar. The soil is sandy to silty-clay, and unirrigated.
the net caloric intake in the villages of Eastern Uttar Pradesh ranges between 1,828 a day (667,667 a year) to 2,175 a day (794,419 a year), and it is postulated that an actual intake of 2,000 calories a day equivalent to a farm production of a little over 800,000 calories per annum is adequate.

Table CXXXI, gives comparative figures for the various villages in respect of the per capita gross cultivated land as well as the caloric intake per head per day. It will be seen from this Table that villages I to XII which are irrigated, fall in distinct categories. Villages I to VI (Bhaupur, Asrakheri, Amrupur, Dhandaoli, Malmajra and Jatpura) which are well-drained and where the soil is loamy, irrigated by canals and Tube-wells, the per head intake varies between 2,300 and 2,400. The writer during the course of his field work observed that the inhabitants of these villages enjoyed good health and seemed to have a fair standard of nutrition. The village of Jatpura, however, forms an exception, because in this village the per capita total cultivated land is only 0.38 acre as compared to about one acre in other villages of this group. As a result of this decrease the caloric intake in this village drops below 2,300. In


10. The prosperity of the villagers can be judged from a local convention that villagers who on their farms employ bullocks of a value of less than Rs 1000 (80), are considered of low status and they encounter difficulties in marriage engagement; the local adage says: Uttam khati madham ban - nakhat chakri bheek nandan. The meaning is: Agriculture is the noblest occupation while business is inferior to it; service is ignoble while begging is the worst.
villages VII to IX (Salajudi, Dudhli and Meghrajpur) which lie in the well drained irrigated sandy loam and where the per capita share in the cultivated land is between 1.03 and 1.50 acres, the caloric intake per head per day is between 2,100 and 2,200 (Table XXXI). In these villages although the people have generally good health, the standard of living is not as high as in the villages I to VI. In the villages X to XII (Kuri, Chaisma and Mohammadpur Gujar) which lie in the ill-drained, irrigated tract of clayey soil, the per capita cultivated land is 0.33 to 1.08 acres, and the per capita per day caloric intake varies between 2,000 and 2,100. The health and living standards of the people in these villages are relatively poor as compared to those of the villages of I to IX. The unirrigated villages which lie in the sub-montane tract (Padli-Garunt) and the Ganga khadar (Ladpur-Kalan), the per head total cultivated land is 1.50 and 1.10 acres respectively, and the per capita caloric intake 1931 and 1992 respectively. In the unirrigated villages, although the per capita total cultivated land is over one acre, both the health and standard of living are poor and the inhabitants of these villages seem to suffer from malnutrition.

11. The actual amount of caloric intake must be a little less than that which has been shown in the Food Balance Sheets, because a certain amount of food is lost in process of harvesting, in the milling of grain with varied extraction rates and in cooking or in the final preparation of food.

12. The local edage says: Aath pahar to kam karai pait bharni na kisan ka kheti main tota rahai roti, kapdaal, mal ka The meaning is: Although the cultivation works the whole day, he remains underfed. Agriculture in fact is a poor source of substance to the farmer.
Thus it can be concluded that in the villages of Upper Ganga Yamuna Doab where the caloric intake is above 2,200 the nutritional standard is fairly good; where it is between 2,000 and 2,200 the living standard is moderate; while in villages where it drops below 2,000 the living standard is poor and signs of malnutrition begin to appear.

Table CXXXI further reveals that the caloric intake in the villages of Upper Ganga Yamuna Doab ranges from 1,931 a day (695, 293 a year) to 2,393 a day (864,043 a year). It is true that these figures in no case reach the 900,000 calories per head per day, postulated as the standard Nutrition Unit for north-western Europe, there are, however, five villages (Bhaupur, Asrakheri, Amrupur, Dhandaoli and Malmajra) in which the net caloric intake per head is more than 800,000 a year. In the villages of Upper Ganga-Yamuna Doab the standard of nutrition is appreciably higher than that of the villages of Eastern Uttar Pradesh, in which the net caloric intake varies from 667, 667 a year to 795, 514 a year. It may be interesting to note that although agriculture is most efficient in all the four districts of Upper Ganga-Yamuna Doab, yet one acre of cultivated land in the well drained irrigated villages provides
### Summary: Total XXXIII Showing the Cultivable Land and Number of P.A.U. in Each Village (Area in Acres)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Village</th>
<th>Gross Cultivable Land</th>
<th>Waste land</th>
<th>Total Cultivable land</th>
<th>Total Number of P.A.U.</th>
<th>One acre of Cultivable land is equal to</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Bhuppur</td>
<td>310.75</td>
<td>3.25</td>
<td>442.25</td>
<td>523.96</td>
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<td>11.00</td>
<td>192.90</td>
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<td>Bhadwali</td>
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<td>96.54</td>
<td>615.39</td>
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<td>1143.07</td>
<td>1.09</td>
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<td>Dudali</td>
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<td>592.60</td>
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<td>123.46</td>
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<td>444.80</td>
<td>468.00</td>
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<td>Padli-Garant</td>
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<td>198.13</td>
<td>304.48</td>
<td>277.76</td>
<td>0.91</td>
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<td>Ladpur-Kalan</td>
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<td>1.30</td>
<td>353.40</td>
<td>306.73</td>
<td>0.87</td>
</tr>
</tbody>
</table>

**Comments**

- In villages I to VI, which lie in the well-drained area, irrigated loamy soil one acre of cultivable land is equal to 1.20 to 1.42 P.A.U., except the village of Bhadwali in which about one-sixth of the cultivable land is waste land. In Bhadwali, one acre of cultivable land is equal to 1.03 P.A.U.
- Villages VII to IX are situated in the sandy loam, irrigated soil one acre of cultivable land is equal to 1.09 to 1.22 P.A.U.
- Villages X to XII are situated in the ill-drained clayey soil. One acre of cultivable land values between 1.00 to 1.45 P.A.U.
- In Padli-Garant which lies in the submontane tract, one acre of cultivable land is yielding 0.91 P.A.U.
- In villages Ladpur-Kalan the productivity is least and one acre of cultivable land is yielding to 0.87.
barely one standard nutrition unit against 6 or 7 Standard Nutrition Units in Japan. The existing standard of living in the villages of Upper Ganga-Yamuna Doab, may be increased by effecting improvements in agriculture which is the sole occupation of the villagers. Extension in irrigation facilities, increased use of manures and fertilizers, distribution of improved seeds, better techniques and methods of cultivation, reclamation of waste land go along way in increasing the agricultural production.

An assessment of the productivity of each type of land in the selected villages (Table CXXXII) reveals that on the basis of the present technological developments the major portion of village is agriculturally well-developed. The under-developed lands are largely found in the villages of clayey soil and in such villages as lie in the submontane tract. Table CXXXII reveals the cultivable land and the total number of P.F.U.s in each of the villages. It will be seen from this Table that in the well-drained villages of loamy soils (Bhaupur, Asrakheri Amrupur, Dhandaoli Malmajra and Jatpura) one acre of cultivable land is equal to 1.20 to 1.38 P.F.U.s with the exception of Dhandaoli in which the proportion of poor quality land is relatively large, and one acre of sandy loam which is also drained and irrigated is equal to 1.10 to 1.21 P.F.U.s; while in the ill-drained irrigated villages one acre of cultivable land is producing less than 1 P.F.U. The reduction in the

number of P.P.U. in different villages is mainly due to the waste-land and medium quality land. In the waste land the present productivity is quite insignificant and negligible; while the productivity of medium quality land is well below the average farm land in all the villages.

It would be worthwhile, if a detailed survey at village level of the whole of Upper Ganga-Yamuna Doab is carried out to determine the P.P.U. of different types of land, it will not only help in assessing where first class agricultural land lies, but it will also save such land from being misused for non-agricultural purposes.

So far as the reclamation of waste land is concerned it requires a comprehensive chemical analysis of the affected land, so that the injurious salts may be removed and deficient elements in the soil be restored. The main cause of waste formations in the area is waterlogging and the main cause of water logging is the gentle gradient and inadequate provisions to co-relate the irrigation system with the natural drainage. A detailed drainage survey of the entire area, is therefore, required for the excavation of drainage channels and the construction of reservoirs in the relatively low-lying areas. The surplus water in these reservoirs will be available for utilization at the time of deficient rainfall. Some of the important methods employed in the reclamation of waste land are described on pages 73-75. The development of the sandy undulations is possible by huge supplies of organic manures and provisions of irrigation by Tube-wells.
Investigations of crop land use reveal that in each village a substantial acreage of the arable land is left fallow in either of the seasons. Most of the medium quality land is left fallow to recuperate its fertility in the kharif season. In six out of the fourteen villages (Asrakheri, Dhandaoli, Jatpura, Kuri, Mohammadpur-Gujar and Chainsa) 20 to 30 per cent of the gross cultivated land is left fallow in the kharif season, while in no case it is below six per cent of the cultivated land. The village of Salajudi situated in the sandy loam soil, presents the most striking example in this respect. In this village 423 acres (or 45 per cent of the cultivated land) are left fallow in the kharif season. By adopting the practice of fallowing in the kharif season the cultivator exposes the land to the heavy rainfall in the months of July and August. The practice of raising some early maturing legumes and green manure crops from these lands is more useful as this practice would enrich the soil and protect it from erosion. The advantages of suitable leguminous crops have been described on pages 268 and 304. A very valuable short duration kharif legume selected by the Department of Agriculture of Uttar Pradesh is moong type I which is harvested within two months from the date of sowing. The first picking of ripe pods of this crop, which yields about half of the total output of the crop, can be obtained within 50 days from the date of sowing. This enables the cultivator

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To gather adequate seeds for the sowing of next season and also providing something for domestic consumption. If no more pickings are taken the rest of the crop can be used as green fodder or ploughed in the field as green-manure about three weeks before the sowing of rabi crop takes place. The cultivation of crops like dhaincha and groundnut (the leaves of which can be used without integrating the commercial value of the crop) will prove beneficial in increasing the yield of crops and in maintaining the fertility of the land.

In parts, where bad-drainage and poor texture of the soil are setbacks in the cultivation of groundnuts, creeping crops and dhaincha (as these crops grow suitably in the well drained soil) and the sun-hemp form good substitutes. In the cultivation of sun-hemp, it should however be remembered that its utility as green manure, for the following rabi crops depends to a large extent on the presence of adequate moisture in the soil which is needed to rot the leaves, stems and the roots of the plant in the soil. In the irrigated villages sun-hemp; while in the unirrigated and inadequately irrigated villages, pulses and groundnuts, are therefore appropriate leguminous crops to be sown in the fallow land.

Organic manures are used on a limited scale since, cattle dung, the indigenous source of organic manure, is generally, burnt for fuel. The practice of burning the cattle-dung is prevalent, since the villagers have no fire-wood. Regular
supply wood from the Siwalik Forests or by utilizing the inferior quality land for quick growing fire wood trees like Butea-groundosa may enable the villagers to use the cattle dung as manures.

A significant, unutilized source of manure in the plain of Upper Ganga-Yamuna Doab, is the by-product of sugar i.e. molasses. There are about two dozen Sugar Factories in the area. These factories produce good quantities of molasses which can be used as manure to increase the fertility of the soil. The experiments carried at the Government Agricultural Farm of Muzaffarnagar show that high yield of sugarcane is obtained when molasses are added in the field before the sowing of sugarcane. The utilization of molasses for sugarcane and cereal crops, however, needs detailed investigation. The application of manures at the proper time is a factor of great significance. The writer observed that farmyard manures are generally, supplied to the fields in the months of May and June. The high temperatures and the low relative humidity in these months reduce the moisture and organic contents of manure while the hot dust-raising winds 'loc' of the season blow away the valuable manure from the field. As the decomposition of the organic manure requires relatively moist conditions, the months of March and October seem to be suitable for the application of manures in the field.

Table CXXXIII shows the size of plots and their percentage to the total number of plots in each of the selected villages. The size of average land holding which ranges from 8 to 10.50 acres in these districts, is small. The village land is usually highly fragmented into microscopic holdings. In general the plots and the holdings on the good quality land are smaller than the medium quality land. It will be seen from Table CXXXIII that in villages I to VI which lie in the well-drained irrigated and loamy soil, the size of plots is very small and 50 to 91 per cent of their total number of plots are below one acre. Villages X to XII situated in the clayey soil, provide good example of microscopic size of plots. In these villages at least 84 per cent of their total number of plots are less than one acre in area. The size of plots in villages VII to IX which lie in the sandy-loam soil, is however relatively large. On the whole there are 8,108 plots in 5324 acres in the fourteen villages, out of which 5,997 plots (or 74 per cent of the total number of plots) are below one acre, 20 per cent between 1.01 and 2 acres and a little over 4 per cent between 2.01 and 3 acres; while only 89 plots (or less than one per cent) are more than three acres in area (Table CXXXIII).

There are many disadvantages associated with the sub-division and fragmentation of holdings. It involves encroachment on the soil otherwise available for cultivation, and leads to wastage of land in boundaries, hedges and pathways. In the intensely fragmented

## Summary Table CXXXIII showing the size of plots in each village, 1960-61

(Area in Acres)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Village</th>
<th>Total number of plots</th>
<th>Below 1.01 Acre</th>
<th>1.01 to 2 Acre</th>
<th>Above 2 Acre</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Bhaugur</td>
<td>490</td>
<td>432</td>
<td>82.20</td>
<td>6</td>
<td>1.60</td>
</tr>
<tr>
<td>II</td>
<td>Amrakheri</td>
<td>200</td>
<td>126</td>
<td>63.00</td>
<td>30</td>
<td>15.00</td>
</tr>
<tr>
<td>III</td>
<td>Amrapur</td>
<td>414</td>
<td>355</td>
<td>81.16</td>
<td>6</td>
<td>1.45</td>
</tr>
<tr>
<td>IV</td>
<td>Dhandoli</td>
<td>620</td>
<td>432</td>
<td>69.54</td>
<td>156</td>
<td>24.00</td>
</tr>
<tr>
<td>V</td>
<td>Malnajra</td>
<td>778</td>
<td>724</td>
<td>93.06</td>
<td>48</td>
<td>6.17</td>
</tr>
<tr>
<td>VI</td>
<td>Jatpura</td>
<td>400</td>
<td>202</td>
<td>51.50</td>
<td>145</td>
<td>36.25</td>
</tr>
<tr>
<td>VII</td>
<td>Salajudi</td>
<td>685</td>
<td>285</td>
<td>42.00</td>
<td>300</td>
<td>44.00</td>
</tr>
<tr>
<td>VIII</td>
<td>Dudali</td>
<td>600</td>
<td>425</td>
<td>71.00</td>
<td>133</td>
<td>22.00</td>
</tr>
<tr>
<td>IX</td>
<td>Meghrajpur</td>
<td>590</td>
<td>300</td>
<td>54.55</td>
<td>165</td>
<td>33.64</td>
</tr>
<tr>
<td>X</td>
<td>Kuri</td>
<td>400</td>
<td>331</td>
<td>82.75</td>
<td>53</td>
<td>13.25</td>
</tr>
<tr>
<td>XI</td>
<td>Chausa</td>
<td>1,134</td>
<td>950</td>
<td>84.00</td>
<td>160</td>
<td>14.00</td>
</tr>
<tr>
<td>XII</td>
<td>Mohanmandpur-Gujar</td>
<td>732</td>
<td>638</td>
<td>87.20</td>
<td>86</td>
<td>11.70</td>
</tr>
<tr>
<td>XIII</td>
<td>Fadi Garant</td>
<td>400</td>
<td>331</td>
<td>83.00</td>
<td>53</td>
<td>13.00</td>
</tr>
<tr>
<td>XIV</td>
<td>Ladpur Kalan</td>
<td>675</td>
<td>465</td>
<td>69.00</td>
<td>175</td>
<td>26.00</td>
</tr>
</tbody>
</table>

*The size of plots in villages X to XII is microscopic and not even a single field out of a total 2,506 in above 3 acres.*

- **Total:** 3,103 5,397 74.00 1,653 20.50 303 44.40 48 0.60 41 0.50

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The size of plots in Fadi Garant and Ladpur Kalan is appreciably small.
holdings much time and material of the cultivator and cattle power is lost in moving from one plot to another, particularly at the time of sowing, watering, weeding and harvesting. Further, the possibility of friction with neighbours is increased while the management of crops (like sugarcane, maize and gram) presents difficulties) consequently the efficiency of the cultivator and the total output is affected.

In the plain of Upper Ganga-Yamuna Doab in which rainfall is highly precarious the scattered holdings, however, provide several important advantages. The cultivators by having their holdings scattered in different types of lands, are able to take advantage of various types of soils under different weather conditions. When the cultivator has shares on all types of land, it enables him to grow various crops which he requires for his family and his cattle. Thus the cultivator has the benefit of getting something even under adverse weather conditions. Moreover, the scattered holdings enables the cultivator to grow rice on the lowlying fields and sugarcane, fodder and rabi cereals on the highlying fields and this method provides a more judicious division of working days than would have been possible on compact holdings. Although there are several important advantages which may accrue to the cultivator

18. The cultivator remains busy during the months of June, July and August in connection of rice and maize cultivation while the rabi cereals keep him busy in the months of August, September and October. Sugarcane cultivation occupies him in the months of November to May. Thus his time is well occupied throughout the year.
from scattered plots, nevertheless, the disadvantages are so numerous and striking that consolidation of holdings is of prime importance.

Consolidation of holdings has been initiated in parts of Upper Ganga-Yamuna Doab and it may be hoped that the evils of fragmentation of holdings will be successfully overcome.

In the villages of Upper Ganga-Yamuna Doab cultivation is mostly practised on a family basis with the help of indigenous implements which are well adapted to local conditions. They are, within the capacity of the draught oxen, comparatively less expensive, light and portable and easily repairable. The mechanisation of cultivation in the area is limited by the small size of holdings, the high demographic pressure on land, the illiteracy and poverty of the cultivators. The writer holds the view that cultivation of crops like sugarcane and wheat with the help of improved implements may be more useful than large scale farm mechanisation.

It, therefore, appears that a combination of improved practices of cultivation will significantly increase the per acre yield of the crops. More and better irrigation, manure and implements - none of these by itself will be more than slightly effective, but each will yield high returns if utilized along with the others.

The per acre yield of crops can be increased, if in the consolidated holdings, cultivation is practised on a co-operative basis. Where each cultivator retains his right in his own land but cultivation operations are carried on jointly, and the net income is
distributed among the cultivators in proportion to the land belonging to each, may go a long way for the development of waste and fallow land. The co-operative farming in which machinery can be used, provides the benefit of large scale farming.
FOOD BALANCE SHEETS OF THE
FOURTEEN SELECTED VILLAGE
NOTE ON THE COLUMNS OF THE FOOD BALANCE SHEETS
(Tables CXXXIV B to CXXXVII B)

The following note indicates briefly what each column of Food Balance Sheet represents.

Production:

The figures in this column show the total production of cereals and unrefined sugar (gur, shakkar and râb) in each of the selected villages in the year of 1960-61. These figures are obtained by multiplying the acreage under a crop with the amount of land per acre. The yield figures for each crop in each village are based on the inquiry of the author in that village.

Export and Imports:

Kharif pulses are the only cereals generally imported in most of the villages. The figures in the export column are deducted from production in arriving at the available supply. Sugarcane and unrefined sugar is exported to the sugar Factories and markets in each of the villages, while in some cases, wheat, rice and lentil is also exported.

Available Supply:

This is obtained by adding import or deducting exports if there are any.
Seeds:

The figure representing the quantities used for seedings purposes are based on the seeding rates common in the village.

Food (gross):

The figure in this column represents the gross quantities available to consumers and these are obtained after deducting the figures of seed from the available food supply.

Extraction Rate:

Extraction rates apply to cereals in converting grain to flour and of paddy to hand pounded rice. The extraction rate figures published by the FAO for India have been adopted for computation by the writer.

Food (net):

Figures in this column represents the quantities of food available for human consumption, i.e. after the application of extraction rates.

Per Head Consumption:

These columns give the per head consumption in Kilograms, grams and the total caloric value per head per day.

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1. FAO, 'Food Balance Sheet's 1955. The conversion rate of pound to kgm is $1 = 0.453$ kgm. This conversion rate is obtained from the The Economist Guide to Weight Measures, Statistical Department of Economist, London.

The net quantities of food are converted into kilograms and the figure thus obtained is divided by the total population of the village. This gives the per head consumption for the year. The yearly figure is divided by 365 to obtain the daily consumption. The caloric value of the daily supplies is obtained by applying the caloric conversion factors. The caloric conversion factors have been taken from Food Composition Tables for International Use by the FAO of the U.U., October, 1949.
TABLE CXXXIV A

Village BHAUFUR, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1640</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>1230</td>
</tr>
<tr>
<td>Maize</td>
<td>700</td>
</tr>
<tr>
<td>Pulse</td>
<td>411</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2750</td>
</tr>
<tr>
<td>Wheat gram</td>
<td>375</td>
</tr>
<tr>
<td>Wheat</td>
<td>615</td>
</tr>
<tr>
<td>Gram</td>
<td>620</td>
</tr>
<tr>
<td>Peas</td>
<td>810</td>
</tr>
<tr>
<td>Gram and Barley</td>
<td>800</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>available supply</th>
<th>Seed</th>
<th>Food (gross)</th>
<th>Extraction rate per cent</th>
<th>Food (inst.)</th>
<th>for head consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice Transplanted</td>
<td>193140</td>
<td>155040</td>
<td>--</td>
<td>42100</td>
<td>800</td>
<td>42900</td>
<td>66 2/3</td>
<td>20600</td>
<td>30,90</td>
</tr>
<tr>
<td>Rice Broadcast</td>
<td>36900</td>
<td>--</td>
<td>--</td>
<td>36900</td>
<td>300</td>
<td>36600</td>
<td>66 2/3</td>
<td>24400</td>
<td>27,4</td>
</tr>
<tr>
<td>Maize</td>
<td>721</td>
<td>--</td>
<td>--</td>
<td>721</td>
<td>21</td>
<td>700</td>
<td>89</td>
<td>623</td>
<td>4,66</td>
</tr>
<tr>
<td>Pulses</td>
<td>14114</td>
<td>--</td>
<td>3000</td>
<td>4414</td>
<td>4414</td>
<td>4000</td>
<td>95</td>
<td>3800</td>
<td>3,9</td>
</tr>
<tr>
<td>Sugar</td>
<td>159400</td>
<td>101550</td>
<td>--</td>
<td>57850</td>
<td>3500</td>
<td>54350</td>
<td></td>
<td>54350</td>
<td>48,5</td>
</tr>
<tr>
<td>Wheat gram</td>
<td>86170</td>
<td>--</td>
<td>--</td>
<td>86170</td>
<td>1200</td>
<td>84970</td>
<td>92</td>
<td>84684</td>
<td>8,2</td>
</tr>
<tr>
<td>Wheat</td>
<td>33960</td>
<td>--</td>
<td>--</td>
<td>33960</td>
<td>960</td>
<td>33000</td>
<td>90</td>
<td>29700</td>
<td>31,8</td>
</tr>
<tr>
<td>Gram</td>
<td>7335</td>
<td>--</td>
<td>--</td>
<td>7335</td>
<td>1533</td>
<td>6000</td>
<td>95</td>
<td>2700</td>
<td>6,</td>
</tr>
<tr>
<td>Peas</td>
<td>8800</td>
<td>--</td>
<td>--</td>
<td>8800</td>
<td>1000</td>
<td>7800</td>
<td>95</td>
<td>7210</td>
<td>7,6</td>
</tr>
<tr>
<td>Gram and Barley</td>
<td>1920</td>
<td>--</td>
<td>--</td>
<td>1920</td>
<td>120</td>
<td>1800</td>
<td>82</td>
<td>1476</td>
<td>16,5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2312</td>
</tr>
</tbody>
</table>

Comments:
- 45 per cent of the total calorie intake per head per day is provided by the kharif crops and 55 per cent by the rabi crops.
- Wheat and gram supply about half of the total calorie intake; while sugarcane supplies about one-sixth of the total calorie intake.
TABLE CXXXV A

Village ASRAKHEDI, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>600</td>
</tr>
<tr>
<td>Rice (unhusked)</td>
<td>1200</td>
</tr>
<tr>
<td>Small-millet</td>
<td>700</td>
</tr>
<tr>
<td>Pulses</td>
<td>650</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2600</td>
</tr>
<tr>
<td>Wheat</td>
<td>700</td>
</tr>
<tr>
<td>Gram</td>
<td>700</td>
</tr>
<tr>
<td>Peas</td>
<td>800</td>
</tr>
<tr>
<td>Lentil</td>
<td>700</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from one acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available supply</th>
<th>Seed</th>
<th>Food gross</th>
<th>Extraction rate per cent</th>
<th>Net (food)</th>
<th>Per capita consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>19,550</td>
<td>--</td>
<td>--</td>
<td>19,550</td>
<td>800</td>
<td>19,550</td>
<td>89</td>
<td>16,510</td>
<td>27.70 72.90 276.00</td>
</tr>
<tr>
<td>Rice unhusked</td>
<td>34,032</td>
<td>--</td>
<td>--</td>
<td>34,032</td>
<td>7232</td>
<td>26,800</td>
<td>86 2/5</td>
<td>17,867</td>
<td>30.00 82.00 292.00</td>
</tr>
<tr>
<td>Small Millet</td>
<td>3913</td>
<td>--</td>
<td>--</td>
<td>3913</td>
<td>50</td>
<td>39,655</td>
<td>90</td>
<td>34,770</td>
<td>5.9 16.00 54.00</td>
</tr>
<tr>
<td>Pulses</td>
<td>1417</td>
<td>--</td>
<td>--</td>
<td>1417</td>
<td>60</td>
<td>1,357</td>
<td>95</td>
<td>1,289</td>
<td>2.2 6.00 21.00</td>
</tr>
<tr>
<td>Sugar sucrose</td>
<td>1,255,320</td>
<td>14,396</td>
<td>--</td>
<td>1,255,640</td>
<td>14,300</td>
<td>24,364</td>
<td>--</td>
<td>22,464</td>
<td>40.80 112.00 393.00</td>
</tr>
<tr>
<td>Wheat</td>
<td>67809</td>
<td>12,328</td>
<td>--</td>
<td>55,571</td>
<td>5919</td>
<td>59,400</td>
<td>90</td>
<td>53,541</td>
<td>90.00 224.00 590.00</td>
</tr>
<tr>
<td>Grams</td>
<td>21,072</td>
<td>--</td>
<td>--</td>
<td>21,072</td>
<td>1800</td>
<td>19,272</td>
<td>95</td>
<td>18,508</td>
<td>30.8 84.4 291.00</td>
</tr>
<tr>
<td>Peas (khetim)</td>
<td>6500</td>
<td>--</td>
<td>--</td>
<td>6500</td>
<td>600</td>
<td>5500</td>
<td>95</td>
<td>5605</td>
<td>9.00 24.6 84.00</td>
</tr>
<tr>
<td>Pule (local)</td>
<td>2079</td>
<td>--</td>
<td>--</td>
<td>2079</td>
<td>80</td>
<td>1959</td>
<td>95</td>
<td>1900</td>
<td>3.2 8.0 30.00</td>
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<tr>
<td>TOTAL</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-- 2534.00</td>
</tr>
</tbody>
</table>

Comments: 56 per cent of the total calorific intake per head per day is obtained from the rural crops and 44 per cent from kharif crops. Wheat supplies more than one third of the total intake per head per day; while one fifth is obtained from the sugar. The remainder intake is received from other crops, among which rice, maize and gram are important.
**TABLE CXXXVI A**

**Village AMRUPUR, 1960-61**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1400</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>1250</td>
</tr>
<tr>
<td>Millet</td>
<td>500</td>
</tr>
<tr>
<td>Maize</td>
<td>700</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>3000</td>
</tr>
<tr>
<td>Wheat</td>
<td>900</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>900</td>
</tr>
<tr>
<td>Peas</td>
<td>750</td>
</tr>
<tr>
<td>Barley</td>
<td>720</td>
</tr>
<tr>
<td>Lentil</td>
<td>460</td>
</tr>
<tr>
<td>Gram</td>
<td>750</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Date</th>
<th>Order</th>
<th>Quantity</th>
<th>Rate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/01/2022</td>
<td>1</td>
<td>1000</td>
<td>£9.99</td>
<td>£9,990</td>
</tr>
<tr>
<td>01/02/2022</td>
<td>2</td>
<td>1000</td>
<td>£9.99</td>
<td>£9,990</td>
</tr>
<tr>
<td>01/03/2022</td>
<td>3</td>
<td>1000</td>
<td>£9.99</td>
<td>£9,990</td>
</tr>
<tr>
<td>01/04/2022</td>
<td>4</td>
<td>1000</td>
<td>£9.99</td>
<td>£9,990</td>
</tr>
<tr>
<td>01/05/2022</td>
<td>5</td>
<td>1000</td>
<td>£9.99</td>
<td>£9,990</td>
</tr>
</tbody>
</table>

**Total:** £49,950
TABLE CXXXVII A

Village DHANDAOLI, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lbs.</th>
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</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1230</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>1150</td>
</tr>
<tr>
<td>Maize</td>
<td>515</td>
</tr>
<tr>
<td>Millet</td>
<td>500</td>
</tr>
<tr>
<td>Pulse (urad)</td>
<td>510</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>3100</td>
</tr>
<tr>
<td>Wheat</td>
<td>630</td>
</tr>
<tr>
<td>Wheat and Gram</td>
<td>675</td>
</tr>
<tr>
<td>Barley and peas</td>
<td>800</td>
</tr>
<tr>
<td>Gram</td>
<td>700</td>
</tr>
<tr>
<td>Peas</td>
<td>675</td>
</tr>
<tr>
<td>Pulse (lentil)</td>
<td>416</td>
</tr>
<tr>
<td>Linseed</td>
<td>200</td>
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</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of Sugarcane.
# Table XXXVII B

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available supply</th>
<th>Seed (gross)</th>
<th>&amp; Food Extraction rate per cent</th>
<th>Food (net)</th>
<th>Per head Consumption</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>250:10</td>
<td>--</td>
<td>--</td>
<td>250:10</td>
<td>1650</td>
<td>235:60</td>
<td>89</td>
<td>207:90</td>
<td>14.5  39.7</td>
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<tr>
<td>Rice broadcast</td>
<td>6900</td>
<td>--</td>
<td>--</td>
<td>6900</td>
<td>125</td>
<td>6775</td>
<td>66 3/5</td>
<td>4514</td>
<td>8.15 8.63</td>
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<tr>
<td>Rice transplanted</td>
<td>22140</td>
<td>--</td>
<td>--</td>
<td>22140</td>
<td>280</td>
<td>21860</td>
<td>66 3/5</td>
<td>14574</td>
<td>10.14 27.8</td>
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<td>4760</td>
<td>--</td>
<td>--</td>
<td>4760</td>
<td>350</td>
<td>4410</td>
<td>95</td>
<td>4190</td>
<td>8.92 8</td>
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<tr>
<td>Pulses</td>
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<td>--</td>
<td>--</td>
<td>1870</td>
<td>85</td>
<td>1785</td>
<td>95</td>
<td>1669</td>
<td>3.18  3.23</td>
</tr>
<tr>
<td>Sugar (Gur)</td>
<td>318370</td>
<td>2122</td>
<td>43</td>
<td>106127</td>
<td>23375</td>
<td>82752</td>
<td>--</td>
<td>37615</td>
<td>57.8 150.3</td>
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<tr>
<td>Lentil</td>
<td>99157</td>
<td>--</td>
<td>--</td>
<td>99157</td>
<td>7800</td>
<td>91397</td>
<td>90</td>
<td>82222</td>
<td>37.22 151.3</td>
</tr>
<tr>
<td>Gram</td>
<td>89496</td>
<td>--</td>
<td>--</td>
<td>89496</td>
<td>5600</td>
<td>83896</td>
<td>92</td>
<td>77194</td>
<td>53.7 147.0</td>
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<tr>
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<td>--</td>
<td>--</td>
<td>62426</td>
<td>19326</td>
<td>43100</td>
<td>95</td>
<td>40945</td>
<td>28.5 78.0</td>
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<td>--</td>
<td>--</td>
<td>34675</td>
<td>17338</td>
<td>17337</td>
<td>95</td>
<td>16470</td>
<td>11.50 31.5</td>
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<tr>
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<td>6448</td>
<td>--</td>
<td>--</td>
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<td>5048</td>
<td>95</td>
<td>5631</td>
<td>3.93 10.8</td>
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<tr>
<td>Seas and Gram</td>
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<td>--</td>
<td>--</td>
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<td>600</td>
<td>5000</td>
<td>95</td>
<td>4750</td>
<td>3.33 9.16</td>
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</table>

**TOTAL** -- -- -- -- -- -- -- -- -- -- -- 2393
TABLE CXXXVIII A

Village MALAMAJRA, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
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</thead>
<tbody>
<tr>
<td>Maize</td>
<td>1000</td>
</tr>
<tr>
<td>Rice (unhusked)</td>
<td>1600</td>
</tr>
<tr>
<td>Millet</td>
<td>800</td>
</tr>
<tr>
<td>Bulrush-millet</td>
<td>600</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>3600</td>
</tr>
<tr>
<td>Wheat</td>
<td>1000</td>
</tr>
<tr>
<td>Gram</td>
<td>1000</td>
</tr>
<tr>
<td>Peas</td>
<td>900</td>
</tr>
<tr>
<td>Wheat and Gram</td>
<td>900</td>
</tr>
<tr>
<td>Barley and Peas</td>
<td>1150</td>
</tr>
<tr>
<td>Barley</td>
<td>700</td>
</tr>
<tr>
<td>Lentil</td>
<td>600</td>
</tr>
</tbody>
</table>

1. The yield is that of Sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available Supply</th>
<th>Seed</th>
<th>Food (gross)</th>
<th>Extraction rate per cent</th>
<th>Food (Net)</th>
<th>per head consumption</th>
<th>Kg. per year</th>
<th>Gm. per day</th>
<th>Calories per day</th>
<th>Comments</th>
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</thead>
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<tr>
<td>Maize</td>
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<td>--</td>
<td>--</td>
<td>23810</td>
<td>960</td>
<td>22850</td>
<td>83</td>
<td>20377</td>
<td>15.90</td>
<td>43.6</td>
<td>158</td>
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<td></td>
</tr>
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<td>--</td>
<td>--</td>
<td>14800</td>
<td>170</td>
<td>14630</td>
<td>66 2/3</td>
<td>9753</td>
<td>7.6</td>
<td>20.8</td>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>16000</td>
<td>--</td>
<td>--</td>
<td>16000</td>
<td>3000</td>
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<td>95</td>
<td>12350</td>
<td>9.7</td>
<td>26.6</td>
<td>88</td>
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</tr>
<tr>
<td>Barley &amp; Millet</td>
<td>1069</td>
<td>--</td>
<td>--</td>
<td>1069</td>
<td>8</td>
<td>1060</td>
<td>90</td>
<td>954</td>
<td>0.75</td>
<td>2.10</td>
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<tr>
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<td>521156</td>
<td>--</td>
<td>87200</td>
<td>7000</td>
<td>80200</td>
<td>--</td>
<td>80200</td>
<td>62.40</td>
<td>183.0</td>
<td>652</td>
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<tr>
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<td>--</td>
<td>--</td>
<td>22900</td>
<td>2290</td>
<td>2290</td>
<td>--</td>
<td>2290</td>
<td>12.9</td>
<td>65.0</td>
<td>56</td>
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<td></td>
</tr>
<tr>
<td>Wheat</td>
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<td>--</td>
<td>--</td>
<td>154552</td>
<td>9900</td>
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<td>90</td>
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<td>23.2</td>
<td>333.40</td>
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<tr>
<td>Grams</td>
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<td>--</td>
<td>--</td>
<td>20784</td>
<td>1100</td>
<td>19680</td>
<td>95</td>
<td>18696</td>
<td>14.44</td>
<td>39.50</td>
<td>115</td>
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<tr>
<td>Fasas</td>
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<td>15105</td>
<td>95</td>
<td>14350</td>
<td>11.20</td>
<td>30.70</td>
<td>100</td>
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<tr>
<td>Wheat &amp; Grams</td>
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<td>--</td>
<td>--</td>
<td>17358</td>
<td>800</td>
<td>16558</td>
<td>92</td>
<td>15234</td>
<td>11.80</td>
<td>32.3</td>
<td>116</td>
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<td></td>
</tr>
<tr>
<td>Barley &amp; Fasas</td>
<td>13651</td>
<td>--</td>
<td>--</td>
<td>13651</td>
<td>720</td>
<td>12931</td>
<td>82</td>
<td>10603</td>
<td>8.00</td>
<td>22.0</td>
<td>78</td>
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<td>19886</td>
<td>180</td>
<td>1808</td>
<td>70</td>
<td>1266</td>
<td>0.99</td>
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</tr>
<tr>
<td>Lentil</td>
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<td>--</td>
<td>--</td>
<td>1014</td>
<td>64</td>
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<td>95</td>
<td>983</td>
<td>0.70</td>
<td>1.92</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2550</td>
<td></td>
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</tbody>
</table>
## TABLE CXXXIX A

**Village JATPURA, 1960-61**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>800</td>
</tr>
<tr>
<td>Rice</td>
<td>800</td>
</tr>
<tr>
<td>Millet</td>
<td>600</td>
</tr>
<tr>
<td>Millet pulses</td>
<td>500</td>
</tr>
<tr>
<td>Small millet</td>
<td>500</td>
</tr>
<tr>
<td>Millet and Maize</td>
<td>550</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2800</td>
</tr>
<tr>
<td>Wheat</td>
<td>850</td>
</tr>
<tr>
<td>Peas and Barley</td>
<td>1000</td>
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<tr>
<td>Wheat and gram</td>
<td>900</td>
</tr>
<tr>
<td>Peas</td>
<td>900</td>
</tr>
<tr>
<td>Barley and gram</td>
<td>900</td>
</tr>
<tr>
<td>Barley</td>
<td>800</td>
</tr>
<tr>
<td>Barley and Wheat</td>
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</tr>
<tr>
<td>Gram</td>
<td>650</td>
</tr>
<tr>
<td>Lentil</td>
<td>500</td>
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</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available supply</th>
<th>Seed (gross)</th>
<th>Food rate per cent</th>
<th>Food (net)</th>
<th>Per head consumption</th>
</tr>
</thead>
<tbody>
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<td>95</td>
<td>19350</td>
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<td>1200</td>
<td>95</td>
<td>15297</td>
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<td>---</td>
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<td>60</td>
<td>95</td>
<td>841</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Comments: 26 per cent of the total calorie intake per head per day is provided by the rain crops and 48 per cent by the kharif crops. Wheat supplies more calories than all the remaining crops. Sugarcane supplies 23 per cent of the total calorie intake. The remaining intake is obtained from the peas, gram, barley and pulses.
<table>
<thead>
<tr>
<th>Crops</th>
<th>Yields per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1600</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>1450</td>
</tr>
<tr>
<td>Bulrush-millet</td>
<td>600</td>
</tr>
<tr>
<td>Pulses</td>
<td>650</td>
</tr>
<tr>
<td>Small-millet</td>
<td>700</td>
</tr>
<tr>
<td>Millet and Small-millet</td>
<td>450</td>
</tr>
<tr>
<td>Millet</td>
<td>500</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2650</td>
</tr>
<tr>
<td>Cotton</td>
<td>300</td>
</tr>
<tr>
<td>Wheat</td>
<td>850</td>
</tr>
<tr>
<td>Barley</td>
<td>800</td>
</tr>
<tr>
<td>Peas</td>
<td>750</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>725</td>
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<tr>
<td>Gram</td>
<td>700</td>
</tr>
<tr>
<td>Wheat and barley</td>
<td>750</td>
</tr>
<tr>
<td>Lentil</td>
<td>600</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from one acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available Supply</th>
<th>Seed</th>
<th>Food (Gross)</th>
<th>Extraction rate percent</th>
<th>Food (Net)</th>
<th>Per head consumption Kg per year</th>
<th>Kg per day</th>
<th>Calories per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted</td>
<td>93008</td>
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<td>900</td>
<td>45604</td>
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<td>50403</td>
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<td>750</td>
<td>44925</td>
<td>66-2/3</td>
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<td>13.14</td>
<td>36.0</td>
<td>130</td>
</tr>
<tr>
<td>Bulrush millet</td>
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<td></td>
<td></td>
<td>29850</td>
<td>1500</td>
<td>28350</td>
<td>95</td>
<td>26935</td>
<td>11.8</td>
<td>32.3</td>
<td>111</td>
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<td>Avises</td>
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<td>200</td>
<td>9800</td>
<td>95</td>
<td>9810</td>
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<td>11.45</td>
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<tr>
<td>Small millet</td>
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<td></td>
<td>1225</td>
<td>60</td>
<td>1165</td>
<td>90</td>
<td>1049</td>
<td>0.46</td>
<td>1.26</td>
<td>4</td>
</tr>
<tr>
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<td>300</td>
<td>6300</td>
<td>5670</td>
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<tr>
<td>(Sugar(Qu)</td>
<td>648747</td>
<td>536497</td>
<td></td>
<td>216376</td>
<td>1225</td>
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<td>-</td>
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<td>45.8</td>
<td>120.0</td>
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<td></td>
<td>50144</td>
<td>3700</td>
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<td>14.20</td>
<td>39.0</td>
<td>143</td>
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<tr>
<td>Peas</td>
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<td>1860</td>
<td>23076</td>
<td>75</td>
<td>20769</td>
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<tr>
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<td></td>
<td></td>
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<td>2000</td>
<td>26957</td>
<td>92</td>
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<td>10.9</td>
<td>29.86</td>
<td>106</td>
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<td>80</td>
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<td></td>
<td></td>
<td>15500</td>
<td>300</td>
<td>23550</td>
<td>95</td>
<td>21373</td>
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<td>25.5</td>
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<tr>
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<td>25341</td>
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</tbody>
</table>

**Total**                        |            |        |        |                  |      |              |                         |            |                               |            | 2151            |

**COMMENTS**
- 45 per cent of the total calorie intake per head per day is obtained from the kharif crops and 57 per cent from the rabi crops, wheat alone supplies more than one third of the total calorie intake while the remainder intake is obtained from the cereals among which barley, rice and millets are important. Sugar is the chief source of intake supply of the kharif crops. It provides nearly 1/5th of the total intake.
<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre of Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1250</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>900</td>
</tr>
<tr>
<td>Small Millet</td>
<td>450</td>
</tr>
<tr>
<td>Small millet and Pulses</td>
<td>425</td>
</tr>
<tr>
<td>Pulses</td>
<td>475</td>
</tr>
<tr>
<td>Millet</td>
<td>580</td>
</tr>
<tr>
<td>Millet and fodder</td>
<td>500</td>
</tr>
<tr>
<td>Small millet and fodder</td>
<td>420</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2850</td>
</tr>
<tr>
<td>Cotton</td>
<td>230</td>
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<tr>
<td>Peas</td>
<td>800</td>
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<tr>
<td>Wheat and gram</td>
<td>750</td>
</tr>
<tr>
<td>Wheat</td>
<td>700</td>
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<tr>
<td>Gram</td>
<td>700</td>
</tr>
<tr>
<td>Peas and Oat</td>
<td>500</td>
</tr>
<tr>
<td>Barley</td>
<td>820</td>
</tr>
<tr>
<td>Lentil</td>
<td>460</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from one acre of sugarcane.
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production</th>
<th>Export</th>
<th>Import</th>
<th>Available</th>
<th>Supply</th>
<th>Seed</th>
<th>Food</th>
<th>Gross</th>
<th>Extraction</th>
<th>(not)</th>
<th>Per head consumption</th>
<th>Total</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted</td>
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<td></td>
<td>61250</td>
<td>1000</td>
<td>80250</td>
<td>66-2/3</td>
<td>53500</td>
<td>149.00</td>
<td>324.00</td>
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<tr>
<td>Rice broadcast</td>
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<td>54000</td>
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<td>5250</td>
<td>66-2/3</td>
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<td>3.50</td>
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<td>920</td>
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<td>8.00</td>
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<td></td>
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<tr>
<td>Small millet and pulses</td>
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<td></td>
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<td>276</td>
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<td>4600</td>
<td>95</td>
<td>240</td>
<td>0.24</td>
<td>0.65</td>
<td>2.00</td>
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<tr>
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<td>700</td>
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<td>28.00</td>
<td>96.00</td>
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<tr>
<td>Millet and fodder</td>
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<td>245</td>
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<td>95</td>
<td>2750</td>
<td>2.70</td>
<td>7.30</td>
<td>24.00</td>
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<td></td>
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<tr>
<td>Pulihriah millet and fodder</td>
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<td></td>
<td></td>
<td>210</td>
<td>10</td>
<td>6773</td>
<td>95</td>
<td>190</td>
<td>0.19</td>
<td>0.59</td>
<td>2.00</td>
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<td></td>
</tr>
<tr>
<td>Sugar (gur)</td>
<td>557889</td>
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<td>77481</td>
<td>9750</td>
<td>3280</td>
<td>1</td>
<td>67731</td>
<td>66.6</td>
<td>19.20</td>
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<tr>
<td>Jowar</td>
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<td>24376</td>
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<td>20340</td>
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<td>82.0</td>
<td>283.00</td>
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</tr>
<tr>
<td>Wheat and gram</td>
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<td></td>
<td>21840</td>
<td>1500</td>
<td>17222</td>
<td>92</td>
<td>13713</td>
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<td>180.00</td>
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<tr>
<td>Wheat</td>
<td>18372</td>
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<td>18372</td>
<td>1650</td>
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<td>15500</td>
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<td>44.4</td>
<td>154.00</td>
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<tr>
<td>Gossa</td>
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<td></td>
<td>7691</td>
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<td>95</td>
<td>6903</td>
<td>6.8</td>
<td>18.6</td>
<td>64.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley and Peas</td>
<td>4400</td>
<td></td>
<td></td>
<td>4400</td>
<td>450</td>
<td>3644</td>
<td>95</td>
<td>3436</td>
<td>3.4</td>
<td>9.3</td>
<td>32.00</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>638</td>
<td>70</td>
<td>2130</td>
<td>2.1</td>
<td>5.7</td>
<td>20.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lentil</td>
<td>718</td>
<td></td>
<td></td>
<td>718</td>
<td>60</td>
<td>95</td>
<td></td>
<td>625</td>
<td>0.62</td>
<td>1.70</td>
<td>6.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total**: 2107.00

**Comments**: 65 per cent of the total caloric intake per head per day is obtained from the kharif crops and only 37 per cent from the rabi crops. Rice and peas are of great significance and provide about 1/3rd of the total caloric intake. In the absence of sufficient cereals 1/3 intake is obtained from the sugarcane (Jowar). The remainder intake is derived from other cereals among which wheat, grain, millets and pulses are important.
### Table CXXXII A

**Village MEGHRAJFUR, 1960-61**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>700</td>
</tr>
<tr>
<td>Millet</td>
<td>500</td>
</tr>
<tr>
<td>Bulrush millet</td>
<td>400</td>
</tr>
<tr>
<td>Millet and fodder</td>
<td>430</td>
</tr>
<tr>
<td>Millet and Bulrush millet</td>
<td>400</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>3100</td>
</tr>
<tr>
<td>Cotton</td>
<td>200</td>
</tr>
<tr>
<td>Wheat</td>
<td>800</td>
</tr>
<tr>
<td>Barley</td>
<td>800</td>
</tr>
<tr>
<td>Peas</td>
<td>750</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Year</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>1200</td>
<td>1500</td>
<td>950</td>
<td>860</td>
<td>710</td>
<td>740</td>
<td>770</td>
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<td>1000</td>
<td>1300</td>
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<td>1961</td>
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<td>1500</td>
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<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>1962</td>
<td>1400</td>
<td>1500</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
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</tr>
<tr>
<td>1963</td>
<td>1500</td>
<td>1500</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
</tbody>
</table>

**Notes:**
- The data represents the annual consumption of various commodities in the years 1960-63.
- The total consumption for each year is shown in the rightmost column.
- The commodities listed include: rice, wheat, sugar, tea, coffee, etc.
TABLE CXXXXIII A

Village KURI, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>800</td>
</tr>
<tr>
<td>Bulrush millet</td>
<td>550</td>
</tr>
<tr>
<td>Pulses</td>
<td>600</td>
</tr>
<tr>
<td>Sugar (<em>gur</em>)</td>
<td>2800</td>
</tr>
<tr>
<td>Cotton</td>
<td>250</td>
</tr>
<tr>
<td>Wheat</td>
<td>800</td>
</tr>
<tr>
<td>Peas</td>
<td>900</td>
</tr>
<tr>
<td>Peas and barley</td>
<td>850</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>675</td>
</tr>
<tr>
<td>Barley</td>
<td>500</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (*gur*) manufactured from an acre of sugarcane.
## Table: Production of Certain Crops During 2017

<table>
<thead>
<tr>
<th>Product</th>
<th>2017</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>190</td>
<td>47</td>
</tr>
<tr>
<td>Oats</td>
<td>935</td>
<td>47</td>
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<tr>
<td>Barley</td>
<td>655</td>
<td>47</td>
</tr>
<tr>
<td>Rye</td>
<td>495</td>
<td>47</td>
</tr>
<tr>
<td>Triticale</td>
<td>1473</td>
<td>61</td>
</tr>
<tr>
<td>Other Cereals</td>
<td>5520</td>
<td>209</td>
</tr>
<tr>
<td>Barley Plant</td>
<td>7270</td>
<td>275</td>
</tr>
<tr>
<td>Rice</td>
<td>219</td>
<td>8</td>
</tr>
<tr>
<td>Sorghum</td>
<td>298</td>
<td>11</td>
</tr>
<tr>
<td>Millet</td>
<td>528</td>
<td>20</td>
</tr>
<tr>
<td>Rice Bran</td>
<td>735</td>
<td>28</td>
</tr>
<tr>
<td>Soybeans</td>
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<td>141</td>
</tr>
<tr>
<td>Peanuts</td>
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<td>21</td>
</tr>
<tr>
<td>Sunflower Seeds</td>
<td>855</td>
<td>32</td>
</tr>
<tr>
<td>Tobacco</td>
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<td>43</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>928</td>
<td>35</td>
</tr>
<tr>
<td>Seafood</td>
<td>1397</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>16824</td>
<td>616</td>
</tr>
</tbody>
</table>

### Notes

- Data sourced from the Australian Bureau of Statistics.
- All figures in metric tons.
TABLE CXXXIV A

Village CHAINSA, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice (unhusked)</td>
<td>1000</td>
</tr>
<tr>
<td>Maize</td>
<td>560</td>
</tr>
<tr>
<td>Millet</td>
<td>600</td>
</tr>
<tr>
<td>Millet and pulses</td>
<td>480</td>
</tr>
<tr>
<td>Pulses</td>
<td>460</td>
</tr>
<tr>
<td>Cotton</td>
<td>240</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>2300</td>
</tr>
<tr>
<td>Wheat</td>
<td>800</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>635</td>
</tr>
<tr>
<td>Barley</td>
<td>700</td>
</tr>
<tr>
<td>Gram</td>
<td>620</td>
</tr>
<tr>
<td>Peas</td>
<td>800</td>
</tr>
<tr>
<td>Lentil</td>
<td>500</td>
</tr>
<tr>
<td>Oat</td>
<td>570</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Fraction</th>
<th>100%</th>
<th>50%</th>
<th>25%</th>
<th>12.5%</th>
<th>6.25%</th>
<th>3.125%</th>
<th>1.5625%</th>
<th>1%</th>
<th>0.5%</th>
<th>0.25%</th>
<th>0.125%</th>
<th>0.0625%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00041</td>
<td>329</td>
<td>164</td>
<td>82</td>
<td>41</td>
<td>21</td>
<td>10.5</td>
<td>5.25</td>
<td>2.63</td>
<td>1.31</td>
<td>0.65</td>
<td>0.33</td>
<td>0.168</td>
</tr>
<tr>
<td>0.00021</td>
<td>164</td>
<td>82</td>
<td>41</td>
<td>21</td>
<td>10.5</td>
<td>5.25</td>
<td>2.63</td>
<td>1.31</td>
<td>0.65</td>
<td>0.33</td>
<td>0.168</td>
<td>0.084</td>
</tr>
<tr>
<td>0.0002</td>
<td>102</td>
<td>51</td>
<td>25.5</td>
<td>12.75</td>
<td>6.375</td>
<td>3.1875</td>
<td>1.59375</td>
<td>0.797</td>
<td>0.398</td>
<td>0.199</td>
<td>0.0995</td>
<td>0.04975</td>
</tr>
<tr>
<td>0.00017</td>
<td>76.5</td>
<td>38.25</td>
<td>19.125</td>
<td>9.5625</td>
<td>4.78125</td>
<td>2.390625</td>
<td>1.1953125</td>
<td>0.597625</td>
<td>0.2988125</td>
<td>0.14940625</td>
<td>0.074703125</td>
<td>0.0373515625</td>
</tr>
<tr>
<td>0.00015</td>
<td>62.25</td>
<td>31.125</td>
<td>15.5625</td>
<td>7.78125</td>
<td>3.890625</td>
<td>1.9453125</td>
<td>0.97265625</td>
<td>0.486328125</td>
<td>0.2431640625</td>
<td>0.12158203125</td>
<td>0.06079109375</td>
<td>0.030395546875</td>
</tr>
<tr>
<td>0.00013</td>
<td>49.375</td>
<td>24.6875</td>
<td>12.34375</td>
<td>6.171875</td>
<td>3.0859375</td>
<td>1.5428125</td>
<td>0.77140625</td>
<td>0.3857140625</td>
<td>0.192857140625</td>
<td>0.09642857140625</td>
<td>0.04821428571429</td>
<td>0.02410714285714</td>
</tr>
<tr>
<td>0.00011</td>
<td>39.4375</td>
<td>19.71875</td>
<td>9.859375</td>
<td>4.9296875</td>
<td>2.46484375</td>
<td>1.2324375</td>
<td>0.61621875</td>
<td>0.3081096875</td>
<td>0.154054875</td>
<td>0.0770274375</td>
<td>0.038513734375</td>
<td>0.01925686875</td>
</tr>
<tr>
<td>0.0001</td>
<td>32.34375</td>
<td>16.171875</td>
<td>8.0859375</td>
<td>4.04296875</td>
<td>2.021484375</td>
<td>1.01074375</td>
<td>0.505375</td>
<td>0.2526875</td>
<td>0.12634375</td>
<td>0.063171875</td>
<td>0.0315859375</td>
<td>0.01579296875</td>
</tr>
<tr>
<td>0.00009</td>
<td>27.859375</td>
<td>13.9296875</td>
<td>6.96484375</td>
<td>3.482421875</td>
<td>1.7412109375</td>
<td>0.870609375</td>
<td>0.4353046875</td>
<td>0.21765234375</td>
<td>0.1088261875</td>
<td>0.05441309375</td>
<td>0.027206546875</td>
<td>0.0136032734375</td>
</tr>
<tr>
<td>0.00008</td>
<td>24.84375</td>
<td>12.421875</td>
<td>6.2109375</td>
<td>3.10546875</td>
<td>1.552734375</td>
<td>0.77636875</td>
<td>0.388180625</td>
<td>0.194090625</td>
<td>0.0970453125</td>
<td>0.04852265625</td>
<td>0.024261328125</td>
<td>0.0121306640625</td>
</tr>
<tr>
<td>0.00007</td>
<td>21.5625</td>
<td>10.78125</td>
<td>5.390625</td>
<td>2.6953125</td>
<td>1.34765625</td>
<td>0.673828125</td>
<td>0.3369140625</td>
<td>0.1684578125</td>
<td>0.0842285714</td>
<td>0.0421142857</td>
<td>0.02105714285714</td>
<td>0.01052857142857</td>
</tr>
<tr>
<td>0.00006</td>
<td>18.875</td>
<td>9.4375</td>
<td>4.71875</td>
<td>2.359375</td>
<td>1.1796875</td>
<td>0.58984375</td>
<td>0.294921875</td>
<td>0.1474609375</td>
<td>0.0737307692</td>
<td>0.0368653846</td>
<td>0.01843269230769</td>
<td>0.00921634615384</td>
</tr>
<tr>
<td>0.00005</td>
<td>16.5625</td>
<td>8.28125</td>
<td>4.140625</td>
<td>2.0703125</td>
<td>1.03515625</td>
<td>0.517578125</td>
<td>0.2587890625</td>
<td>0.12939453125</td>
<td>0.0646972656</td>
<td>0.0323486329</td>
<td>0.01617431648898</td>
<td>0.008087158030303</td>
</tr>
<tr>
<td>0.00004</td>
<td>14.6875</td>
<td>7.34375</td>
<td>3.671875</td>
<td>1.8359375</td>
<td>0.91796875</td>
<td>0.45890625</td>
<td>0.229453125</td>
<td>0.1147265625</td>
<td>0.0573632812</td>
<td>0.0286816407</td>
<td>0.01434082035714</td>
<td>0.00717041017857</td>
</tr>
<tr>
<td>0.00003</td>
<td>13.125</td>
<td>6.5625</td>
<td>3.28125</td>
<td>1.640625</td>
<td>0.8203125</td>
<td>0.41015625</td>
<td>0.205078125</td>
<td>0.1025390625</td>
<td>0.0512695312</td>
<td>0.0256347656</td>
<td>0.01281738294118</td>
<td>0.00640869147059</td>
</tr>
<tr>
<td>0.00002</td>
<td>11.625</td>
<td>5.8125</td>
<td>2.90625</td>
<td>1.453125</td>
<td>0.7265625</td>
<td>0.3553125</td>
<td>0.1725390625</td>
<td>0.0862703125</td>
<td>0.0431351562</td>
<td>0.0215675781</td>
<td>0.01078378928571</td>
<td>0.005391894140625</td>
</tr>
<tr>
<td>0.00001</td>
<td>10.5</td>
<td>5.25</td>
<td>2.625</td>
<td>1.3125</td>
<td>0.65625</td>
<td>0.3278125</td>
<td>0.163828125</td>
<td>0.0819140625</td>
<td>0.0409571429</td>
<td>0.0204785714</td>
<td>0.01023928571429</td>
<td>0.005119143359375</td>
</tr>
</tbody>
</table>

**Remarks:**
- The table above lists the fractions and their decimal equivalents for various points in the range from 0.00001 to 0.0005. Each column represents a different fraction value, starting from 0.00001 at the top and increasing by a factor of 2 for each subsequent column. The table ends at 0.0005 on the right side. The values are used for specific calculations or measurements in a scientific or engineering context. Each fraction is rounded to the nearest decimal place for ease of calculation or display.
TABLE CXXXV A

Village MOHAMMADPUR-GUJAR, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>650</td>
</tr>
<tr>
<td>Millet</td>
<td>630</td>
</tr>
<tr>
<td>Millet and pulses</td>
<td>410</td>
</tr>
<tr>
<td>Bulrush millet and pulses</td>
<td>375</td>
</tr>
<tr>
<td>Bulrush millet</td>
<td>425</td>
</tr>
<tr>
<td>Rice (unhusked)</td>
<td>600</td>
</tr>
<tr>
<td>Pulses</td>
<td>430</td>
</tr>
<tr>
<td>Sugar (gur)</td>
<td>2300</td>
</tr>
<tr>
<td>Barley</td>
<td>900</td>
</tr>
<tr>
<td>Peas</td>
<td>900</td>
</tr>
<tr>
<td>Wheat</td>
<td>800</td>
</tr>
<tr>
<td>Peas and barley</td>
<td>600</td>
</tr>
<tr>
<td>Gram</td>
<td>600</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>700</td>
</tr>
<tr>
<td>Lentil</td>
<td>390</td>
</tr>
<tr>
<td>Wheat and barley</td>
<td>500</td>
</tr>
<tr>
<td>Rape seed</td>
<td>250</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
TABLE CXXXVI A

Village PADLI GARUNT, 1960-61

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miaze</td>
<td>700</td>
</tr>
<tr>
<td>Rice (unhusked)</td>
<td>750</td>
</tr>
<tr>
<td>Pulses and millet</td>
<td>500</td>
</tr>
<tr>
<td>Bulrush-millet</td>
<td>450</td>
</tr>
<tr>
<td>Sugarcane (gur)</td>
<td>1800</td>
</tr>
<tr>
<td>Pulses and groundnut</td>
<td>400</td>
</tr>
<tr>
<td>Wheat and gram</td>
<td>550</td>
</tr>
<tr>
<td>Barley</td>
<td>600</td>
</tr>
<tr>
<td>Gram</td>
<td>550</td>
</tr>
<tr>
<td>Wheat</td>
<td>500</td>
</tr>
</tbody>
</table>

1. The yield is that of unrefined sugar (gur) manufactured from an acre of sugarcane.
<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield per acre in lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice transplanted (unhusked)</td>
<td>1500</td>
</tr>
<tr>
<td>Rice broadcast (unhusked)</td>
<td>1300</td>
</tr>
<tr>
<td>Small millet</td>
<td>630</td>
</tr>
<tr>
<td>Bulrush millet</td>
<td>435</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>2700</td>
</tr>
<tr>
<td>Peas and barley</td>
<td>725</td>
</tr>
<tr>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>Lentil</td>
<td>610</td>
</tr>
<tr>
<td>Barley</td>
<td>700</td>
</tr>
<tr>
<td>Wheat and barley</td>
<td>685</td>
</tr>
<tr>
<td>Gram</td>
<td>625</td>
</tr>
<tr>
<td>Date</td>
<td>Value</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>1992-06-19</td>
<td>46.21</td>
</tr>
<tr>
<td>1992-06-20</td>
<td>66.96</td>
</tr>
<tr>
<td>1992-06-21</td>
<td>56.90</td>
</tr>
<tr>
<td>1992-06-22</td>
<td>46.90</td>
</tr>
<tr>
<td>1992-06-23</td>
<td>36.90</td>
</tr>
<tr>
<td>1992-06-24</td>
<td>26.90</td>
</tr>
<tr>
<td>1992-06-25</td>
<td>16.90</td>
</tr>
<tr>
<td>1992-06-26</td>
<td>6.90</td>
</tr>
<tr>
<td>1992-06-27</td>
<td>0.90</td>
</tr>
<tr>
<td>1992-06-28</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Note:** The table represents data for a specific period, with each row indicating a different date and corresponding values.
<table>
<thead>
<tr>
<th>Local names</th>
<th>English</th>
<th>Botanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abi</td>
<td>Irrigated land</td>
<td></td>
</tr>
<tr>
<td>Adu</td>
<td>Peach</td>
<td></td>
</tr>
<tr>
<td>Aghan</td>
<td>Hindi month corresponds to November-December.</td>
<td></td>
</tr>
<tr>
<td>Alu</td>
<td>Potatoe</td>
<td>Solanum Tuberosum</td>
</tr>
<tr>
<td>Am</td>
<td>Mango</td>
<td>Mangifera indica</td>
</tr>
<tr>
<td>Amaltaes</td>
<td>Guava</td>
<td>Cassia fistula</td>
</tr>
<tr>
<td>Anroad</td>
<td>Dust-storm</td>
<td>Psidium guajava</td>
</tr>
<tr>
<td>Andhi</td>
<td>Pigeon pea</td>
<td>Cajanus indicus</td>
</tr>
<tr>
<td>Arhar</td>
<td>Hindi month corresponds to June-July. In this month the kharif crops are sown.</td>
<td></td>
</tr>
<tr>
<td>Asarh</td>
<td>Asoj Hindi month corresponds to September-October.</td>
<td></td>
</tr>
<tr>
<td>Babul</td>
<td>Acacia</td>
<td>Acacia arabica</td>
</tr>
<tr>
<td>Badal</td>
<td>cloud</td>
<td></td>
</tr>
<tr>
<td>Bagh</td>
<td>Grove</td>
<td></td>
</tr>
</tbody>
</table>

1. Most of the local terms used in the villages of Upper Ganga-Yamuna Doab are derived from the Hindi language; while some are derived from the Persian, Urdu and Punjabi languages. The equivalent botanical names have been taken from Church, A.H: Food Grains of India, London, 1886; Department of Land Records and Agriculture: Bulletin No. 30: Names of the Field and Market Garden Crops, Allahabad, 1913.

Duthie, J.P. and Fuller, J.B: Field and Garden Crop of the North-Western Provinces and Oudh, Roorkee, 1882.
Bajra
Bulrush Millet

Barish
rainfall

Balu
sandy

Bandh
An embankment

Bara
Manured land close to the rural dwellings.

Basmati
A variety of rice

Batai
Division of crop among the land owner and the cultivator.

Bazar
Market

Beri
A fruit tree

Bejhar
Mixed crops of wheat and barley or Peas and barley.

Bhadon
Hindi month corresponds to August-September.

Bhadwad
Land left fallow in the kharif to be devoted to wheat or barley in the following season.

Bhangar
Upland of the Doab.

Bhur
Sandy soil

Bhuda
Coarse sandy soil

Bhusa
Cheff
Bigha

A measure of land equal to 5/8 of an acre. Prior to the introduction of bigha, Ilahi-gaz or yard (introduced the Mughal emperor) was used for the measurement of land. The Ilahi-gaz contained 53 British inches and a bigha of land measured with this yard is exactly 5/8 of an acre. In the official measurement of land at the settlement of 1838 the sarib gaz equal to two feet 7-1/2 inches; one span or eight digits made of Kuri, and three links made one jaribi-gaz or yard, and eight yards made one gutta and twenty gutta made one jarib.

The subdivision of bigha are as follows:

| 20 nauwansi | = 1 kachwansi |
| 20 kachwansi | = 1 biswansi |
| 20 biswansi | = 1 biswa |
| 20 biswa | = 1 bigha |

The local bigha in greater part of Upper Ganga-Yamuna Doab is equivalent to 2,756.25 square yards or 0.5694 of an acre. 1.756 bighas made one acre (2).

Chadas

An indigenous method used in lifting water from the well for irrigation purposes.

Chahi

Land irrigated by wells.

Chana

Gram

Cicer arietinum

Chari

Big-millet

Sorghum vulgare

Chikkan

Clayey

Choil

Land which is cropped in both the seasons.


2. Ibid.
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dakkar</td>
<td>Stiff clay</td>
</tr>
<tr>
<td>Dal</td>
<td>Pulse</td>
</tr>
<tr>
<td>Daol</td>
<td>Low earthen embankments surrounding fields to hold water.</td>
</tr>
<tr>
<td>Desi</td>
<td>Indigenous</td>
</tr>
<tr>
<td>Dhak</td>
<td>A fuel tree</td>
</tr>
<tr>
<td>Dhaincha</td>
<td>Green manuring crop</td>
</tr>
<tr>
<td>Dhenkli</td>
<td>An indigenous method for raising water from ponds or wells for irrigation.</td>
</tr>
<tr>
<td>Doab</td>
<td>Land lying between two rivers.</td>
</tr>
<tr>
<td>Dofasli</td>
<td>Double cropped</td>
</tr>
<tr>
<td>Doomat</td>
<td>Loamy soil</td>
</tr>
<tr>
<td>Biaha</td>
<td>Sugarcane</td>
</tr>
<tr>
<td>Gahan</td>
<td>A wooden plank used to puddle the rice field</td>
</tr>
<tr>
<td>Gahdu</td>
<td>Rice broadcast</td>
</tr>
<tr>
<td>Gajar</td>
<td>Carrot</td>
</tr>
<tr>
<td>Gaon</td>
<td>Village</td>
</tr>
<tr>
<td>Ghose</td>
<td>Grass</td>
</tr>
<tr>
<td>Gehun</td>
<td>Wheat</td>
</tr>
<tr>
<td>Chi</td>
<td>Clarified butter</td>
</tr>
<tr>
<td>Gochan</td>
<td>Wheat mixed grass</td>
</tr>
<tr>
<td>Gohand</td>
<td>Manured field close to the rural dwellings.</td>
</tr>
<tr>
<td>Goira</td>
<td>Manured land close to the rural dwellings.</td>
</tr>
</tbody>
</table>
Oojai  Mixture of wheat and gram
Guar  A fodder crop  Cyamopsis proralioides
Gul  An earthen irrigation channel
Gur  A form of crude sugar
Hal  Indigenous plough
Henga  Harrow
Imli  A fruit tree  Tamarindus indica
Jamsun  A fruit tree  Eugenia jambolana
Jau  Barley  Hordeum vulgare
Jhil  Lake
Johad  Pond
Juar  Big-millet  Sorghum vulgare
Kankar  Calcareous nodules found in the soil
Kana  Noxious weed of water  Spontaneum
Kartik  Hindi month corresponds to October in which the sowing of rabi crops take place.
Khurpi  Small hand hoe
Kikar  A fuel tree  Acacia arabica
Kathal  Jack-tree  Artocarpus integrifolia
Kharif  Season of summer crops, i.e. mid-June to October
Kiara  Compartments of field made for irrigation.
Loc  Hot westerly winds
Mahua  A fruit tree  Bassia latifolia
Maida  Horrow  Zea mays
Maithi  A vegetable  Phaseolus radiatus
Maki  Maize  Pisum sativum
Mandi  Sugar-Market
Masur  Black-gram (a Kharif pulse)  Eryum lens
Matar  Lentil  Pisum sativum
Matiyar  Clayey loam
Maund  A measurement for weighing, equal to about 80 lbs.
Misan  Loam
Moth  One of the kharif pulses
Mundha  Ratoon sugarcane  Phaseolus mungo
Mung  Green gram  Arachis hypogee
Mungphali  Groundnut or Peanut
Maha  Irrigated by canals
Nali  Irrigation channel  Melia azederachita indica
Nim  Spinach  Spinacia oleracea
Palak  Spinach
Pandra  Land left fallow, to be devoted to sugarcane in the following season.
Fargana  Administrative sub-division of a Tahsil.
Paudh  Seedlings
Patela  Horrow  Ficus religiosa
Pipal  A fuel tree
Fokhar  |  Pond
Rural   |  Rice straw
Rab     |  Unrefined sugar
Rabi    |  Season of winter crops i.e. November to April.
Rajbaha |  Canal distributary
Raunsi  |  Loamy soil
Rahat   |  Persian wheel
Reh     |  Efflorescence of sodium salts on the soil.
Saini   |  A caste of people
Sanwa   |  Small-millet
Sani or Sun |  Sun-hemp
Ser son |  Mustard
Shajra  |  Base map of village
Siras   |  A fuel tree
Shisham |  Timber tree
Toria   |  Rape seed
Usar    |  Land which is impregnated with soda salts to such an extent as to make the land unfit for growing crops.

Panicum frumentaceum
Crotaria Juncea
Brassica campestris
Albizzia spiciosa
Salbergia sisso
Brassica-napus


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MAPS

Survey of India Maps:

1 inch to a mile = 53 F/8, 11, 12, 15, 16
1 inch to a mile = 53 G/1 to 16
1 inch to a mile = 53 H/1 to 16
1 inch to a mile = 53 J/4
1 inch to a mile = 53 K/1, 2, 3, 4
1 inch to a mile = 53 L/1, 2, 3, 4, 7, 8
1 inch to 4 mile = 53 F, G, H, J, K, L
Solani Aqueduct

About one furlong in the north of Roorkee town, in the district of Saharanpur, the Upper Ganga canal has been carried over the Solani-nadi with the help of an aqueduct, which enables the canal to enter in the uplying plain, stretches to south of Roorkee.

Side view of Solani Aqueduct.

The aqueduct comprises 15 arches with a span of 50 feet each. The bed of the Upper Ganga Canal is 24 feet above the bed of the river.

Indigenous plough (hal), are used for ploughing the fields, almost in the entire area under review.

Green Manuring

The green-manure crop Sani, sown in May is ploughed in the field to increase the fertility of the soil. Later on in the second week of July, the field will be devoted to transplanted rice.
Plate II

Sugarcane, three months after the date of sowing

Indigenous Cotton (kapas) crop.

Maize Crop

Transplantation of seedlings (initially sown in separate highly manured fields) is carried on in the flooded or thoroughly wet fields by manual labour and thus this method of rice cultivation requires more labour than that of broadcast method.

Cutting of harvested rice.
The harvested rice is beaten on the wheel of cart-track, to separate grains from straw. This work is generally done by the secondary rural population on the same plot.

Big millet (juar) is a nutrition green fodder to the cattle in the rainy season. A son of the cultivator is cutting green juar, for the consumption of livestock.

Rice straw locally called as pural which is devoted to the cattle in combination with green fodder (rijha) in the winter season is loaded in a cart-track, to bring it in the village.

The unhushed rice is screened and winnowed in the field, before it is stored or sent for sale.
Before the sowings of sugarcane, wheat and gram take place, the soil is intensively ploughed, harrowed and rolled many times to obtain fine tilth. A wooden plank and roller (locally called as henga, maída or suhaga and jad or lačkar respectively), are used to pulverize the soil of the field.

Maida, Suhaga or henga (Harrow) applied in the field after sowing the all cereals (except rice) to fill up the furrows.

Sowing of wheat and barley is made in each furrow, in the pulverized soil.

Sugarcane one month before the date of harvest attains an height from 10 to 15 feet. Along the boundary of the field (mained) the plants of dhaina — a leguminous crop — indicates that the cultivators are fully aware about the fuel and manurial value of the crop.
Sowing of Gram
Gram is mostly sown by the broadcast method