CHAPTER - IV

Development - AGRICULTURE

Agriculture helps to meet the basic needs of human and their civilization by providing food, clothing, shelters, medicine and recreating. Hence, agriculture is the most important enterprise in the world. It is a productive unit where the free gifts of nature namely land, light air temperature and rain water etc are integrate into single primary unit indispensable for human beings. Agriculture is the art of raising plant life from the soil for the use of mankind. Agriculture provides a free fare and fresh environment, abundant food for driving out famine; favours friendship by eliminating fights. Satisfactory agriculture production brings peace, prosperity, harmony, health and wealth. Agriculture in the narrow sense means the cultivation of soil for the production of agriculture crops. But in a broad sense, agriculture covers not only the cultivation of agriculture crops but also allied actives such as maintenance of livestock on farms and poultry farming. Agriculture is a way of life, a tradition, which for centuries, has shaped the thought, the outlook, the culture and the economic life of people of India. Agriculture is the oldest profession of the people of India. It provides employment opportunities to more than 65 percent of the total work force. Agriculture

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1 Economic and Commercial Geography. A. Das Gupta, A Mukherjee and Co-private Ltd, Culcutta
provides food to billion of Indians and raw materials for many industries. India in general and Mandya in particular is a predominantly agriculture country. A vast majority of its population derived its livelihood from agriculture.

The region of Mandya district lies in the north eastern part of Mysore district. Before 1930, it was a dry land with little irrigational facilities. Srirangapatna was only the area with major portion of arable land under irrigation, irrigated by river channels.

The population of the district is divided into two distinct groups, viz, agriculture and non-agricultural. Agricultural population includes owner-cultivators, tenant cultivators, cultivating laborers and non cultivating owners. The non-agricultural population is composed of producers other than those engaged in farming practice like commerce, transport and other services. It is relevant for this chapter to take a note only the agriculture population. Figures available from census report reveal that in 1951, there was a total agriculture population of 6, 09,827. The figures supplied by the agricultural authorities indicate that about 85 percent of the total population in the district formed the agricultural population by 1960’s.
As per the Mysore Tenancy Agricultural Land Laws Committee Report (1958), the distribution of land-holdings according to size-groups owned in the district was as follows:

Number of land holders in various size-groups in the taluk of Mandya district

**TABLE 4:1**

<table>
<thead>
<tr>
<th>Size</th>
<th>Mandya</th>
<th>Maddur</th>
<th>Malvalli</th>
<th>Pandavapura</th>
<th>K.R.Pet</th>
<th>Srirangapatna</th>
<th>Nagamanagala</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 to 500 Acres</td>
<td>123</td>
<td>-</td>
<td>3</td>
<td>...........</td>
<td>........</td>
<td>3</td>
<td>...........</td>
<td>136</td>
</tr>
<tr>
<td>50 to 100 Acres</td>
<td>685</td>
<td>31</td>
<td>52</td>
<td>26</td>
<td>32</td>
<td>81</td>
<td>53</td>
<td>960</td>
</tr>
<tr>
<td>10 to 5 Acres</td>
<td>1525</td>
<td>5667</td>
<td>1639</td>
<td>125</td>
<td>3689</td>
<td>928</td>
<td>3068</td>
<td>17641</td>
</tr>
<tr>
<td>5 to 10 Acres</td>
<td>420</td>
<td>4101</td>
<td>3067</td>
<td>469</td>
<td>3910</td>
<td>2074</td>
<td>4375</td>
<td>18416</td>
</tr>
<tr>
<td>1 to 5 Acres</td>
<td>320</td>
<td>8328</td>
<td>6443</td>
<td>7250</td>
<td>5855</td>
<td>3593</td>
<td>7010</td>
<td>37809</td>
</tr>
<tr>
<td>Below 1 Acres</td>
<td>2</td>
<td>208</td>
<td>3044</td>
<td>1890</td>
<td>1436</td>
<td>1940</td>
<td>1850</td>
<td>10368</td>
</tr>
</tbody>
</table>

From the above table, it is clear that uneconomic units held by a majority of cultivators constitute a large portion of the holdings. In Srirangapatana taluk, there were 1,940 persons who owned land below one acre each. In Malvalli taluk, the problem of uneconomic holdings is very acute. There were 3,044 persons owning land below one acre. It is

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2 Mysore state Gazetteer, Mandya district p-89,1967, Bangalore
noteworthy that out of 136 land holders owning land from 100 to 500 acres in the district, as many as 123 were found in the Mandya taluk alone.

Information on the size of farms was a notable things in the account given by Buchanan. The size of farm was measured in terms of ploughs of land was considered a poor farmer and the professor of four or five was a big farmer. A farmer having six or seven ploughs was considered prodigiously wealthy. However, definite size of the plough of land was not defined due to the heterogeneous position of plots. Especially as a difference arose from the proportion of irrigated land and dry land which each farm contained. A farmer possessing five ploughs usually maintained ten servants and during the busy season he hired additional labours, mainly female.

The seasonal rainfall begins with the pre-monsoon showers from about the last week of March to middle of May. This period provides that district with two to four inches or 55 to 110 millimeters of rain. By about the middle of June the south west monsoon with high winds thus causing a lowering of the temperature. The south west monsoon season covers the period from June to August. This period gives a precipitation of 10 to 12 inches or 250 to 300 millimeters of rain. After the end of the south west monsoon, the wind stops with an appreciable rise in humidity. Then the
north east monsoon breaks in. The average fall in this period is from 15 to 25 inches or 375 to 625 millimeters. This season last upto the middle of November. These rains belonging to the north east monsoon are very essential to all crops grown in the maidan region with the end of the two monsoons, the weather turns dry and cold and growth of crops stops. The district average rainfall is 691.2 millimeters or 27.21 inches. An interesting fact of this region is provided by Francis Buchanan in the travel account of his extensive tour in this area in the year 1801 about irrigation and soil. The soil was of three types; first Black soil containing a large proportion of clay; second, a very red soil again with a good proportion of clay; and finally browned coloured land with much of sand. The soils of Mandya district are derived from granites and geneses interpresed with occasional patches of schist in Srirangapatna, Mandya and Pandavapura taluks. The soils range from red sandy loans to red clay loans, shallow in ridges and in higher elevations and comparatively deep in valley portions. The soils in Mandya, Malvalli, Maddur and Nagamangala taluks are shallow gravelly with a preponderance of quartz pebbles iron concretions and coarser fractions. They usually underlain with a murram zone containing powdered rock. The soils are highly leached and poor basis. The water holding capacity is low. The soil under

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3 Buchanan Francis: Journey from Madras, through the countries of Mysore, Canara and Malabar, vol I and III year 1801 London.
the old channel areas in Malavalli, Srirangapatna and Pandavapura taluk are rich in clay.

**TABLE: 4:2**

<table>
<thead>
<tr>
<th>Types of soils</th>
<th>Chief characteristics</th>
<th>Place of occurrence</th>
<th>Chief crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red clay loams</td>
<td>Shallow to medium, reddish to pale brown in colour clayey to clay loams in texture, well drain with gravelly sub soil. Good water holding capacity in the top soil. Lime concretions occasionally present.</td>
<td>Parts of Pandavapura, Srirangapatna, and Nagamangala taluks.</td>
<td>Irrigated&lt;br&gt;Paddy, Sugarcane and Coconuts and Plantains&lt;br&gt;Rain fed&lt;br&gt;Ragi, Castor, Jowar, Groundnuts and Pulses.</td>
</tr>
</tbody>
</table>
The above tables give particulars of the soil types in the district.

The Mandya district has old tank atchkats, nala and newly opened tanks atchkats, where the nature of the soils and red sandy loam soils to gravelly soils in the new nala atchkats, particularly in the vishweshvaraya canal areas. Red sandy loam to gravelly soil is mostly found. In the other dry land regions of the district, only red gravelly soils and in some places, sandy loam and red soils exist. So far as the soil conditions are concerned, it varies from clay red to gravelly. Here and there in the area there do exists patches of sandy soil.

Clay soils are generally rich and they are under good cultivation for a long period. These are found under all old irrigation channels of Srirangapatna Krishnaraja Pet and Maddur taluks and parts of Pandavapura and under old tanks atchkats. The red loam soils are deep, free and easy to work. They respond well to treatment and are found in the taluks of Maddur Malavalli Pandavapura and Krishnaraja Pet. The gravelly and stony soils are found usually under newly irrigated schemes not being under intensive cultivation under the previous crop farming and due to the geological formation, these lands are generally coarse, shallow and poor and there are found in parts of Mandya, Malavalli and Nagamangal. These soils have undergone test and the results are that

\footnote{Mysore state Gazetteer, Mandya district Bangalore 1967 p-119}
these soils are largely neutral in reaction throughout the district with a tendency to develop alkalinity under conditions of restricted drainage. Fifty percent of the soils are neutral and forty percent are alkaline being confined mostly to water logged areas. There are a few acidic soils also. The soluble salt content is generally low and only in about five percent of the cases, it reaches harmful concentrations and these are confined to badly drained areas. Organic matter is deficient in about 65 percent of soils. The available phosphorous is uniformly low only about three percent being barely sufficient in this regard. Forty Eight percent of the soils are poor in potash content also, the rest having sufficient and high quantities of the nutrient.

In 1930 a complete soil survey of the vishveshvaraya canal area was under taken with a view of determining the areas fit for growing sugarcane and other crops.

4:1 AGRICULTURAL SEASONS:

The agricultural season in the district are broadly classified into 1) Kar and 2) Hain seasons.

The Kar season corresponds to early mungar season beginning in the month of April or May. The Hain season begins from July. In addition to these there is another season called the Hingar season commencing in
September or October. In modern agricultural parlance the two prominent seasons are the mungar and the Hingar, Mungar being the Kharif season and the HIngar being the Rabi season.

The following table indicates the periods during which principal crops are sown and harvested:

**TABLE: 4:3**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Season</th>
<th>Sowing</th>
<th>Inter culturing</th>
<th>Harvesting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>Hain</td>
<td>June-July</td>
<td>Aug- Sep</td>
<td>Dec-Jan</td>
</tr>
<tr>
<td></td>
<td>Kar</td>
<td>Feb-March</td>
<td>April-May</td>
<td>June-July</td>
</tr>
<tr>
<td>Ragi</td>
<td>Hain</td>
<td>June-July</td>
<td>Aug-Sep</td>
<td>Dec-Jan</td>
</tr>
<tr>
<td></td>
<td>Kar</td>
<td>Feb-March</td>
<td>April-May</td>
<td>June-July</td>
</tr>
<tr>
<td>Jowar</td>
<td>Mungar</td>
<td>March-April</td>
<td>April-May</td>
<td>June-July</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>Sep-Oct</td>
<td>November</td>
<td>Dec-Jan</td>
</tr>
<tr>
<td>Sugarcane (Factory area)</td>
<td></td>
<td>Jan-Feb</td>
<td>April-May</td>
<td>June-July</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sep-Oct</td>
<td>Dec-Jan</td>
<td>Jan-Feb</td>
</tr>
</tbody>
</table>

Another important account of the development of agriculture in Mandya district is presented by C. Hayavadana Rao in the year 1928. The study stressed the importance of agriculture in Mysore district as Mandya was a part of Mysore district in the following words, “Mysore being primarily an agricultural country, its numerous irrigation works is a great
use to it. They not only enable the farmers to raise the valuable crops of sugarcane, coconuts, arecanut etc. but also supply for domestic purposes, without which villages cannot exist. The maintenance of their works is thus of paramount importance.  

4:2 CROPPING PATTERN:

In the perennial zone paddy and sugarcane crops are grown on a rotation basis. The other alternative is to grow annually two crops of paddy one of long duration and other of short duration and other of short duration, for the main and summer seasons respectively the third alternative is to grow a green manure crop followed by paddy cultivation, while the fourth alternative is to grow irrigated ragi followed by paddy. The last alternative is becoming popular. In some areas of the wet zone three crops of paddy are grown every year. The prevalent practice in the district is to grow a green manure crop followed by long duration varieties of paddy, such as Coimbatore selection viz., Ratnachudi, S.R. 26, D-Bangarakovi and the like. In the dry zone the main crop is rage. This is sown in the months of June and July and harvested during December. Jowar or Jola is another important food crop grown in the district.

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5 C. Hayavadan Rao- Mysore Gazetteer, vol V Economic, Govt.press Bangalore,1929 p-573
4:3 PADDY:

Kannada name Bhatta. Paddy is grown in all the taluks of the districts the acreage being large in Maddur Mandya Malavalli Krishnaraja Pet and Srirangapatna taluks.

The following statement gives the acreage under paddy in the seven taluks of the districts for the year 1964-65.

**TABLE: 4:4**

<table>
<thead>
<tr>
<th>Taluk</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandya</td>
<td>29,376</td>
</tr>
<tr>
<td>Maddur</td>
<td>26,020</td>
</tr>
<tr>
<td>Malavalli</td>
<td>25,9747</td>
</tr>
<tr>
<td>Pandavapura</td>
<td>15,064</td>
</tr>
<tr>
<td>Krishnaraja Pet</td>
<td>21,788</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>23,157</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>10,012</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,51,391</td>
</tr>
</tbody>
</table>

Sources: Mandya district Gazetteer 1967 p-121

Paddy has been a major crop in the Mandya district and consequently the important aspects of its cultivation have been fully investigated. The chemistry division of state Agricultural Department has
conducted investigations bearing on the aspects of the optimum soil conditions. For paddy growing and the question of the manorial requirements of paddy grown under different conditions. In fact along with the development of high yielding varieties the application of manures of the paddy crop as a direct means of enhancing the crop yields has been one of the more important lines of work. As a well known paddy is a crop which thrives in the warm humid climate of the topic under assured sources of irrigation. The crop is semi-aquatic in habit and is grown under plentiful supply of water for the major period of its growth. It is grown under a variety of the soil and climatic conditions and the major deciding factor is the availability of a continuous supply of water throughout the life period of the crop.

In the Irwin canal area ten thousand two hundred and ninety Pallas of improved seed paddy and 252 tons of mixed fertilizers and the 217 tons of ammonium sulphate were distributed. The raiyats of the Mandya district appreciated these facilities and undertook the cultivation on a large scale of two new varieties of paddy S749 and S718 which gave high yields and have began to replace the local variety.6

6 Mysore Administrative report 1943-44 p-85
Grow more food campaigns was launched as early as 1943\textsuperscript{7} under this scheme measures were taken to increase the existing area under cultivation by 2.583 acres and proposals for fresh project’s bringing a further extent of about 10,252 acres were under consideration special concessions in the shape of retaxation of the system of water supply under the Irwin canal was extended to facilitate the growth of paddy and other semi dry crops. An extent of 50,198 acres under the canal was under paddy cultivation.\textsuperscript{8} The Krishnarajasagar working committee met twice and considered several subjects relating to the Irwin canal scheme, particularly in respect of the paddy drive in connection with grow more food campaign the total acreage of paddy cultivation in the Mandya district under the several channels above and below Krishnarajasagara and Irwin can was 121,663 acres.\textsuperscript{9}

Before the advent of improved strains, many kinds of paddy were cultivated in the district especially in the Cauvery valley viz., Dodda-Bhatta Hotte kembatti Arsina Kembatti Sukadas, Elakki raja Konavalli Bili sanna Putta-Bhatta and Kari-Kallu with the exception of Dodda-Bhatta which takes seven months all the other kinds are harvested in five and a half months. Improved strains was introduced in channel district of

\textsuperscript{7} Mysore Administrative report 1942-43 p-117
\textsuperscript{8} Mysore Administrative report 1942-43 p-117
\textsuperscript{9} Mysore Administrative report 1942-43 p-117

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Mandya, nearly 90 percent of the paddy crop belongs either to Coimbatore Sanna Ratnachudi or farm Kaddi paddy under area of improved varieties was 1,13547.\(^{10}\)

The common method of growing paddy is to transplant seedlings from a seed bed. Especially, in the canal areas of the district the method is followed as a rule. The field is well ploughed soon after the previous harvest. Water is then let in and the green manure crop is trampled in. After this the field is again ploughed. The bunds are trimmed and the puddle is leveled. Into this puddle seedlings about 30 to 45 days old are transplanted in bunches containing on an average five to ten plants at intervals of about a span. Water is let in slowly till the yellow of the transplanted seedlings changes into green. The field is continuously irrigated till about ten days prior to the harvest when water is completely stopped.

**4:4 MOLE BHATTA METHOD:**

The other mode, called the mole Bhatta method is also in vogue in some places in the district. But the local raiyats believe that the transplantation method yields a prolific crop and also allow time for raising a crop of Uddu or hesaru before the transplantation takes place.

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\(^{10}\) Mysore Administrative report 1948-49 pp-109-110
During the three months previous to sowing or transplantation as the case may be the land has to be ploughed from three to five times manuring being restored between the fourth and fifth times. Under the transplantation method the paddy field is ploughed in the month of April or earlier provided there are some summer shavers. In June water is let into the fields is again ploughed. Then the seedlings are planted. This method is known to give high yield the expenses of weeding are also less. The cultivators in the district have evolved their own method by which they sow ten seers of seed per acre. The outturn of paddy in the Cauvery channel tract is about is pallas per acre.

4:5 MOLE METHOD:

The sowing of sprouted seed in puddle land is called the mole method of cultivation and practiced under big tanks more especially in the case of the vaishakla or summer paddy that is the one which is sown about December and harvested about April. Under this method the paddy field is watered and the soil is thoroughly stirred up. The excess water is then drained off. Leaves and twigs are spread on the field uniformly and then trampled in. Sprouted seed is then sown by broadcast method. The seed sinks in the soft mind and then next clay. The field is drained thoroughly for two weeks thereafter water is let in carefully for a few hours daily and then drained off till the crop is well established. It is then
irrigated copiously. After a month harrowing is done both by the hand harrow and the bullock harrow this being repeated both cross-wise and diagonally hand-weeding follows and the crop requires no further attention except continued irrigation till harvest time. The sprouting of seed for two methods as well as for raising seedlings for transplantation is done by soaking the seed tied up in a bag for one full night. The bag is then taken out and the contents heaped in a cool place covered up with straw and leafs. This heap is kept moist for two days after which the sprouts begin to appear. The harvesting of paddy begins as soon as the field gets dried after draining off the water. Harvest generally begins when the grain is quite ripe. After the crop is harvested it is allowed to dry on the fields for a few days and then brought over to the threshing yard. The threshing is taken up immediately or after about ten days, if the sheaves are put up in the stack. The threshing is carried out by beating the earheads on an inclined plank or a bench or a stone and the grains get separated though in some cases, a small quantity may be left over in the straw. This is laid aside after the first threshing by beating is over, the straw is taken up for a freshthreshing to separate the grain that had been left over. This second threshing is done by means of trampling out the grain under the feet of cattle. The grain is than winnowed to remove or empty grains.
4:6 THE JAPANESE METHOD:

The Japanese method of paddy cultivation is a new method of intensive cultivation of paddy, which became popular in Mandya region. Adoption of this method of cultivation produced encouraging results in several parts of the country. Japanese improved method, which became popular during 1953 in Mysore state, was first introduced in Mandya district. As a result of sustained hard work with this method the yield of paddy per acre increased from one and a half times or even twice the normal average yield. Besides the higher yield there is yet another advantage under this method. That is there is a considerable saving of the seed paddy as a lesser seed rate per acre is sufficient. This system of cultivation not only minimizes the sowing seeds but also increase yields. As an adjust to this slit water selection of seed and raising nursery raised seed bed were extensively adopted. In this method the nursery plot required to raise seedlings per acre is only two guntas. The plot is well ploughed leveled and divided into beds of eight feet by four feet leaving a space of one foot between the beds. The length of the bed may vary from eight feet to 25 feet, depending on the length of the nursery plot. The beds are covered with a thin layer of wood ash. The paddy seed is sown very thin on the beds. After sowing the seed are covered well with earth or

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11 Karnataka state Gazetteer Mandya district p-231
12 Mysore Administrative Report 1956-57 p-128
manure. The beds are well irrigated. Care is particularly taken to see that the beds are fully wet during the first week of sowing. During the second and third weeks, water is let in. In the course of 25 days after sowing the seedlings became ready for planting. The transplanting is completed when the seedlings are 25 to 30 days old. The field for planting paddy under the Japanese method is well ploughed with the application of eight to ten cart-wads of green manure. At the time of transplantation four maunds of ammonium sulphate per acre are applied. After a month another two maunds of ammonium sulphate is given a top dressing. In Japanese method line planting is an important feature. This is in contrast with the old traditional method when the planting are done at random. This planting in line facilities easy interculturing. The spacing between rows is nine inches to ten inches. In order to step up rice production in the Mandya district region, the Japanese method was tried with a modest target of 75,000 acres in 1958-59.\textsuperscript{13} The achievement of this target exceeded anticipation and in that year, 79,509 acres brought under this new method. During 1959-60 a target of 80,000 acres was fixed and in that year a record acreage of 86,000 acres was achieved. In order to give sufficient impetus to cultivation provision was made for giving short term and mid term loam to agriculturists.\textsuperscript{14} The increased derived by the

\textsuperscript{13} Ibid,1956-57 p-128
\textsuperscript{14} Mysore state Gazetteer Mandya district , 1967,p-124
adoption of this new method was roughly five and half pallas per acre. The achievement of this good progress was due to intensive propaganda under taken by the agricultural department Nurseries were invariably raised and many cultivation came forward to take up this improved on the lines suggested by the department. The new method became quite popular all parts of the district and with the cultivation. With the new trend about sixty percent of the total paddy area in the district has been sown with improved varieties of paddy seeds such as Coimbatore sanna selection such as S-661, S699, S701, S784 and S1092. After the introduction of the package programme, the number of varieties has been reduced and S701 and S1092 became popular. Among the summer varieties S705, S317 China 245 and H.497 also became popular. The fertilizer way of growing paddy became more popular along with the rapidly advancing techniques in farming practices after the advent of the package programme in the district paddy experiment at the Irwin canal farm showed that an increasing application of nitrogen could bring in an appreciable yield. The application of one and a quarter maunds or 20 lbs, of nitrogen per acre increased the yield of paddy by 4-5 maunds per acre. Two and a half maunds of ammonium sulphate per acre increased the yield by 6.6 maunds.

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15 Karnataka state Gazetteer Mandya district p-231
16 Mysore Administrative report 1943-44 p-88
The following figures indicate the area transplanted under the Japanese method and Grow more food campaign in 1964-65.

TABLE: 4:5

<table>
<thead>
<tr>
<th>Taluks</th>
<th>Area Transplanted (in acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandya</td>
<td>20,950</td>
</tr>
<tr>
<td>Maddur</td>
<td>18,050</td>
</tr>
<tr>
<td>Malavalli</td>
<td>17,720</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>15,000</td>
</tr>
<tr>
<td>Pandavapura</td>
<td>9,000</td>
</tr>
<tr>
<td>Krishnaraja Pet</td>
<td>9,200</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>2,200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>92,120</strong></td>
</tr>
</tbody>
</table>

(Sources Mandya Gazetteer-124)

4:7 RAGI:

Another principal food crop grown mostly as a rain fed crop during the monsoon period (July to December). It is grown in all the taluks of the district comparatively more in Nagamangala Krishnaraja Pet Malavalli and Maddur taluks. Ragi is the staple food of the people in several parts of the state. It has many valuable features which distinguish it from other food grains. It is one of the hardiest crops suited for dry farming. It can grow under conditions of very low rainfall and can
withstand even severe drought. It is a grain of high nutritive value and is considered to give sustenance to people doing hard physical work. It can be grown as a dry crop and also under irrigation. The straw of this crop is considered as a valuable food for the working and milch animals. This crop is grown on loamy and sandy loam soils. It grown well generally on soils free from stones and gravel. The root system of this crop remarkably extensive though some what shallow and soils possessing proper texture and moisture holding capacity are required for its cultivation. Ragi is also raised on clayey soils. In fact ragi is the foremost crop in the district ranking first among the principal crops.

Mandya district has three district seasons for growing ragi, viz., Kar-Hain and Rabi. Kar and Hain are rain fed crops white Rabi is completely an irrigated one. Kar crop is sown in April and harvested in November-December. Preparation for the Rabi crop commences from February and it does not depend upon the south west or the north east monsoon like Kar and Hain since it is completely an irrigated crop. The ploughing for ragi crop proper begins with the first showers of rain and repeated ploughings are done or in the alternative, the Kunte is worked. The improved mould board ploughs are of great advantage and effect considerable saving in the number of ploughings required. Since transplanting involves more time and more labour than drilling use of
mould board ploughs has been again found to be of advantage. About fifty percent of manuring. The usual application of four to six cart-loads of farmyard manure or compost manure before sowing is practiced in all taluks of Mandya district. In addition to this one cwt of fertilizers mixture consisting ammonium sulphate and superphosphate is also applied. If this mixture is applied to the ragi fields before sowing better results are obtained. In case of irrigated ragi about 15 cart loads of farmyards manure or compost manure and two tons of green leaf manure per acre becoming necessary. The application of manures depends upon the soil fertility also.

Inter cultivation is an important factor for controlling weeds removing extra seedlings and loosening of soils. In order to achieve good results in this regard the Kunte is extensively used. The slit harrow and the blade are also used. Generally three or four inter cultivations are done on the ragi field. October is considered apt for inter cultivation of ragi and the crop is fully in earheads in about a fortnight thereafter. The earheads mature and become ready for harvest in about 40 days and the actual harvest begins from the middle of November and continues up to the middle of December, depending upon the variety and the month when the crop is sown. The crop is usually takes about five and a half months to mature. Harvest is done by means of ordinary sickles and the plants are
cut close of the ground so as not to waste any of the straw which is considered very temporarily or carted straightaway to be sacked on the threshing floors. The threshing of ragi is done in three ways that is by beating out the grains with sticks by treading out the grains under the feet of oxen and lastly by working a stone roller over the sheaves.

There are many local varieties of ragi grown in the area important ones being hullubile, Madayanagiri, gudubile, giddaragi, hasarakambi doddaragi karigidda jenumudde majjige jade sangha and rudrajade of late new varieties are being propogated like H.22, Co.2 and K.1. About five percent of the total ragi area in the district is stated to be under the improved varieties and remaining under the local varieties. The local varieties are being gradually replaced by improved varieties like H.22\textsuperscript{17} and K.1. The performance of Arunce and other new ragi varieties were experimented and these became popular among the cultivations. The area under improved varieties was 171,232.\textsuperscript{18}

New strains of ragi is cultivated under irrigation mostly during the summer under canal and tank atchkats. It is grown as a second crop in rotation with the main season crops like sugarcane, paddy, chilli and other vegetable crops.

\textsuperscript{17} Mysore Administrative report 1948-49 p-100
\textsuperscript{18} Mysore Administrative report 1948-49 p-100
Ragi variety development programme has been taken up in the three stages in this centre. In the first stage during the period from 1931 to 1951, collection and selection of local varieties was done. During that time the average yield of ragi was 7.5 quintals per hectare under rain fed and 15 quintals per hectare under irrigated conditions. In the second stage of ragi development during 1951-1964 hybridisation of local varieties was taken up. As a result the yields levels of both rain fed and irrigated ragi were increased to 22 and 37 quintals per hectare respectively. The third stage is very important and has covered activities right from the establishment of Agricultural University.\(^{19}\)

In the Irwin canal area the irrigated ragi scheme which was started in 1942-43, met with better success during the year. As a result of an intensive propaganda an area of 15,500 acres was sown in summer with irrigated ragi\(^{20}\) and 1,217 pallas of seed ragi several types of late and early ragis were under test R.0862 which is popular among the raiyats in the Kar area was multiplied on the Irwin canal farm for further distribution. R.0324 was popular in the irrigated tracts of Malavalli. The use of improved seed ragi and manure distributed to raiyats during the year 1943-44 resulted in an increased production of 85,000 Pallas of

\(^{19}\) Karnataka state Gazetteer Mandya district pp-242-243
\(^{20}\) Mysore Administrative Report p-85,1943-44
ragi. These strains were found to be immensely suitable for cultivation in many of the irrigated tracts. On account of their improved features like early and uniform maturity seasonal adaptability and high vigour they have become popular in the vishveshvaraya canal area for summer cultivation in rotation with sugarcane and monsoon paddy.

4:8 JOWAR:

Kannada name jola. Jowar is one of the popular dry land food grains grown in all the taluks of the district Jowar grows well in tracts of low rainfall and it can withstand considerable drought. It has comparatively a quick growth. It also yields large quantities of fodder. Jowar is a crop suited mostly to plains though on the Mysore plateau it grows at an elevation of about 3,000 feet. Being an important millet it occupies a considerable acreage in some of the taluks of the district. It is grown both in Kharif and Rabi seasons in the district. The Kharif crop is sown between April and November and harvested in the month of August and September. The Rabi crop is sown between February and March. The cultivation of Jowar is almost similar to the ragi. The cultivators have of late started drill sowing instead of broadcasting sowing instead of broadcast sowing in order to get better results. Dibbling is also in vogue but it has not gained much popularity. Coming to the use of split

21 Ibid, 1943-44, pp-87,88
application of fertilizers about ten cart loads of farmyard manure or compost manure together with a mixture of fertilizers consisting of ammonium sulphate and superphosphate per acre are applied. After six weeks from the date of sowing one cwt of this fertilizer mixture is applied again in order to get better results. The split application of fertilizers is found to increase the yield considerably. In the Irwin canal area, 460 Pallas of seed jola, 252 tons of mixed fertilizer and 217 tons of ammonium sulphate were distributed to the raiyats.22

The cultivators have learnt through propaganda and experience the need for the selection of good seeds which are free from attack of pests and diseases. Before sowing the seeds are treated with recommended fungicides against the attack of disease. The treating of the seed with dry sulphur dust 325 men quantity is an absolute assurance against smut disease. Inter cultivation are done two to three times with slit hoes to eradicate weeds in the plots and for better crop growth a considerable extent of the Jowar growing area formerly concerned itself with evolving better varieties and also improving cultural practices. There was experiment done in research centres in respect of Jowar cultivation indicate that trials were conducted on one acre plots each of which was divided into four parts with strong and well protected bunds all round to

22 Ibid, p-85, 1943-44
check erosion and outflow of rain water. An extent of 14,657 acres was cultivated with irrigated ragi and jola in the year 1949-44\textsuperscript{23} in 1948-49 jola under improved varieties was 1860. By 1960 the total area under this crop was 38,674 acres in the district. The usual Jowar varieties grown in the Mandya area are the mungar jola and bilijola. A larger area is sown with bilijola varieties.

4:9 GROUNDNUTS:

Kannada name kadale kayi groundnut is an important oilseed grown in all the taluks of the district extending to an area of 14,791 acres in 1960 and among the taluks Malavalli and Maddur ranks high. Malavalli acreage of 5,810 and Maddur of about 4,580. It is very much evident that Malavalli and Maddur are the two leading taluks in the district for the cultivation of groundnut. The irrigated improved Spanish groundnut is largely grown in these taluks.

Besides the Spanish variety H.G.8 and T.M.V.2 varieties are also popular. It may be of interest to note that the department of agriculture in Mysore was the first in India to start intensive work on groundnut crop. Groundnut is cultivated both as a dry land and irrigated crop. This crop is sown in the better class soils, the light red and ash coloured loamy soil

\textsuperscript{23} Ibid.,p-66,
being preferred. The sowing season commences usually in May June and July and the crop is ready for harvest during September October and November. The harvest time is usually coincides with the cessation of the rains for the year when the ground becomes hard. If the ground is very hard it is usual to plough the land in order to help the pickers to gather the pods more easily. The pods are dried well before they are sold or sent to the market for sale. Under irrigation a better yield is obtained by sowing early duration varieties.

4:10 HORSEGRAM:

It is called hurali in Kannada is very important crop in the district occupying an area of 1, 03,703 acres in 1960 it is grown in all the seven taluks of the district. It is as a dry crop almost invariably and also under conditions of moderate rainfall. It is grown on a wide range of soils. Good deep red loams clayey soils stony and gravely upland soils can all be sown with this crop. It is kind of preparatory crop, two or three crops of this being taken before the land is put under ragi Jowar (jola) or other main crops. Most of the surplus land belonging to the cultivator which he cannot possibly prepare in time of ragi cultivation is put under horsegram. Horsegram is generally sown in rows and in plough furrows about nine inches apart. For broadcasting the field is divided into long narrow strips of about ten feet width by means of plough furrows. Seeds are sown
broadcast in these strips successively and the sowing is followed by ploughing to cover the seed. Where the crop is sown in rows the field is once intercultural. Horsegram is sown in many places with a mixed of niger which is sown in rows about three to six feet apart, simultaneously with horsegram. The crop is always sown thick a seed rate of 40lbs per acre being common. The crop is harvested by pulling out the plants. They are removed to the threshing floor stacked for a week allowed to dry and then threshed by trampling under the feet of oxen or with the stone threshing roller. A good crop of horsegram yields about 600lbs per acre. The produce requires a good deal of cleaning by means of winnowing and sifting in order to remove the seeds of the various weeds. Horsegram is the poor man’s food and is eaten boiled or fried. It is also given as food for horses.
4:11 SUGARCANE:

Sugarcane can be grown in the Mandya area only under the most assured sources of irrigation which bring water to the crop throughout the whole year; particularly during the first six months of its growth, sugarcane needs constant irrigation and attention.24 The Krishnarajasagara Dam planned and executed by the Dewan Sir M Vishweshwaraya serves as the main water source to undertake agricultural operations in the district and it is noted for major crops like paddy ragi sugarcare etc. The district is also known for the production of sugar and jaggary which together have given the synonym sugar district to Mandya. Sugarcane may be considered to be the most important money crop of the state.25 It has an assured market in the district from the two sugar factories, viz., and the Mysore sugar mills Mandya as early as 1934 and sahakara sakkare karkhane Pandavapura in 1956. As a result sugarcane cultivation has received as impetus in the district. It is grown in all the taluks of the district. The total area under this crop during 1960 was 31,695 acres Mandya 15,417 acres and Pandavapura 5,684.26 From the above statement it is seen that Mandya and Pandavapura taluks in which the two sugar factories are situated have the largest acreages of

26 Mysore state Gazetteer, Mandya district, p-129, 1967
sugarcane. The area under this crop is being stepped up to meet the demands of these two sugar factories in the area.

**4:12 SUGARCANE CULTIVATION IN THE IRWIN CANAL TRACT- (NOW VISHWESHWARAYA CANAL TRACT)**

In 1929, at a meeting of the economic conference Alfred Chatterton strongly suggested that the irrigated area should be used for the cultivation of sugarcane.

As most of you know there is a market in India for something like 8,000,000 tons of sugar which comes from Java the Mauritius and other sugar producing centers. There is no earthly reason why we should not grow more sugarcane and manufacture all these sugar here. In short time here will be a large extension of irrigation under the Krishnasagara reservoir. We start in that area with this one great advantage, viz., that there are no vested rights and it is therefore possible for government to lay down rules under which water shall used and the kinds of crops grown…….. take it that every effort will be made to grow as much sugarcane in this area as is possible it is one of the greatest opportunities that has ever offered itself to India to put sugarcane cultivation and the manufacture in sugar on a really sound footing.27

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27 Proceedings of the Mysore Economic Conference pp- 103 March 1929

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Compare to the northern India Mysore however, possessed distinct advantages like longer crushing seasons and higher yield per acre.\textsuperscript{28} This does not mean that the ryots took to cane cultivation easily. Sugar had been grown elsewhere in Mysore for a long time and the state had in fact been famous for the preparation of sugar candy of crystal like purity for the use of the court. Buchanan, as he tells in his “A Journey through Mysore Canara and Malabar” in the early nineteenth century came across a Banajiga family in Chanapatana who anxiously kept the process of making white sugar a profound secret.\textsuperscript{29}

In the previously dry area of Mandya where the sugarcane now was introduced along with irrigation the cultivation of cane was however, a novelty. The stubborn vokkaligas were not to be told what grow and not to grow but it was considered necessary to introduce a crop which could bear the high costs of the construction of the dam. Therefore the Agricultural Department established a farm where 200 acres of cane were cultivated, and the farmers in the surrounding areas were gradually persuaded to take up the new crop. Loams for the purchase of seeds implements fertilizers and drought cattle were giving freely and government purchased all the sugarcane at a fixed price.\textsuperscript{30} The

\textsuperscript{28} G.B. Baldwin, Industrial Growth in South India p-105
\textsuperscript{29} Balakrishna- Industrial Development of Mysore, p-86 Bangalore 1940
\textsuperscript{30} V.L D'Souza, Economic Development of the Mysore state p-105
development of sugarcane cultivation in the Irwin canal tract has achieved progress in the year 1933 itself. In government farms 546 acres were planted with sugarcane cash advance of Rs. 24521 were made and ploughs for cultivation valued Rs.10, 000 are fertilizers valued Rs.63, 013 were supplied to the raiyats. A scheme for an enquiry into the cost of the production of sugarcane was sanctioned by the imperial council of Agricultural research for a period of 3 and a half year at a total cost of Rs.16,020 and this work was selected in six villages.  

4:13 VARIETY OF CANE:

Even before the starting of the sugar factories sugarcane was being grown in about 5,000 to 8,000 acres in the composite district of Mysore. Two kinds of cane called Rasadali and Pattapatti were being grown in the area. While Rasadali was being grown from earlier times, Pattapatti was introduced into Mysore from Arcot at the time of Haider Ali by Mustafa Ali Khan who was the paymaster general at that time. Both this kinds of cane yield good Jaggery in those days when there was no large sugar factories the cultivations were extracting sugar from the Pattapatti varieties of cane. The Rasadali variety was usually planted during
summer months while the Pattapatti after the monsoon showers. The duration of the Rasadali type was one year and that of Pattapatti fourteen months.

4:14 SUGAR FARMING:

Sugarcane was a new crop to the farmers of Mandya its cultivation was not just a matter of changing from one crop to another. Apart from greater involvement it also involved for reaching adjustments in the organization and practice of agricultural production. For the cultivation of sugarcane the land is prepared well by ploughing. As ploughing is to be deep a mould broad plough is generally used. The field is then laid out into flat beds or ridges and furrows. Sugarcane is propagated vegetatively. The whole cane or the top portion of it is cut into pieces or setts, each containing three beds. The top of the cane is better used for planting as it contains less sucrose and the buds sprout quicker. In an experiment conducted by the agricultural personnel with different sets, it was found that the percentage of germination was 100 in the case of top setts 40 in the case of middle setts and 19 in the case of bottom setts.

32 Proceedings of the Mysore Economic Conference p-103 March 1929
The furrow system of planting the cane setts is found to be more convenient. In this method, water is let in furrows and like setts is premed into the soft soil, taking care to see that the buds are placed laterally. The setts are planted along or across the furrows or even diagonally in the furrows. In the trench method of planting, the trenches are 1 to 1 1/2 feet deep and 3 to 4 feet apart. In the factory areas around Mandya and Pandavapura, the planning is spread over a longer period so that the canes could be available for a longer crushing season; short, medium and long duration cane varieties are selected for planting so that a continuous supply of canes to the factories during the crushing season could be assured. Sugarcane responds was to the application of manure. Tank silt, red earth and sometimes even sand are applied to heavy soils at the rate of so cart loads per acre; cattle manure upto 50 cart loads is also ploughed in castor care or groundnut care is largely used by cultivates lands of average fertility are manured with ten tons of cattle manure, two cults of ammonium sulphate with castor care in the prepared stages, green manure crop is ploughed in. The yield of cane from 30 to 40 tons per acre. The water requirement of the crop depends upon the variety of the cane, the nature of the soil and the distribution of rainfall. Sugarcane requires 80 to 90 arc-inches of water inclusive of rainfall. Then cane requires less water than the thick cane. In the furrow system, the demand of water is less.
4:15 IMPROVED VARIETIES OF SUGARCANE:

From this research station, apart from the basic production technologies many cultural operations suitable for sugarcane cultivation in the southern parts of the state especially for Cauvery command area, are developed and recommended use of suitable varieties is important to not only increase the sugarcane and sugar yield, but also to fee the sugar factories throughout the year, to plant and harvest at different times of the year of these, the co-419 became popular throughout the district.\textsuperscript{34} This variety was grown in about 10,000 acres\textsuperscript{35} in 1948-49 and 16,000 to 18,000 acres in the 1960’s and the yield works out to 30-35 tons per acre.\textsuperscript{36} This variety has high sugar content and gives us average yield of 60-70 tons per acre from June- August planted crop. This variety is found suitable for both jiggery preparation and rationing. This has the ability to give satisfactory yields even in dry conditions. HM-320, another improved variety is also grown in Mandya Krishnaraja Pet and Maddur taluks.

4:16 AGRICULTURAL DEVELOPMENT PROGRAMMES

As a result of the several agricultural development programmes implemented in the district under the successive Five Year Plans, the total

\footnotesize{\begin{itemize}
  \item \textsuperscript{34} Mysore Administrative Report, p-49, 1948-49
  \item \textsuperscript{35} Ibid, p-49, 1948-49
  \item \textsuperscript{36} Mysore state Gazetteer, Mandya district, p-131, 1967
\end{itemize}}
production of food and commercial crops in the district has increased considerably under the two five year plans. The total food production in the district which was 5, 61,228 tons at the end of the first five year plan (1956-57), increased to 11,10,368 tons at the end of the second five year plan (1960-61). Agricultural practices in the district, which hitherto were tradition-bounded, are being gradually replaced by scientific methods. The Agricultural Department, the community development programmes\textsuperscript{37} have been responsible for the agricultural development. There was a notion that agricultural pursuits was a risk, were more a gamble than a profitable occupation because of uncertain rainfall, lack of implementation and irrigation facilities. But this beliefs has been now dispelled to a considerable extent by new methods, which have conclusively proved that money invested in farming can be profitable with the execution of irrigation schemes, provision of electric pump sets, distribution of fertilizers and good seeds improved plant protection and the like, the land was yielding more.

4:17 IMPLEMENTS

The implements and other agricultural appliance in use in the Mandya district are numerous, various types and are of great interest, contrary to the belief that is often expressed by superficial observers that

\textsuperscript{37} Mysore Administrative Report, p-273, 1957-58
the plough is about the only implement of the Indian farmer. The improved agricultural implements are ploughs, Japanese rotary weeds; Japanese hand rakes, K.M. Ploughs, Mysore-pattern plough, kurika plough, Gurjar ploughs, Coopar ridges green manures tramples and blade harrows were popular and were supplied through the departmental agencies and co-operative society.³⁸

The plough is of course most important implement of tillage there is however, quite a variety of ploughs, which are in use and suited to different condition. They are all nevertheless made of are uniform type, that is to say, the working part which breaks the soil is a log of hard wood shaped so as to have a V shaped cross section and tapering from the heel to the point which is reinforced with a flat iron point; they are cell all single handled so that the ploughman holds and process the plough at this handle with his left hand, while the right hand is fur to drive is bullocks the beam is so fixed in the plough bottoms that the angle it makes the latter can be widered or narrowed by driving a small wooden pledge or chip below or above the joint by this means, the plough is adjusted to the size of the bullocks and depth of working while this is the general type, the variations arise firstly, from differences in the size of the plough and secondly, the difference in the shape of the plough bottom and

³⁸ Ibid, 1957-58, p-134,
consequent differences in the attachment of the beam and handle to the plough.

4:18 THE USE OF IMPROVED PLOUGH:

Reference has been made to the possibilities of improvement in the types of plough used; the chief improvement lives in the introduction of a furrow unlike the local ploughs which plough a V shaped furrow and unless the plough is run a number of times, many portions and the field remain unploughed. This latter fact renders it very uneconomical. It will be interesting to speculate how the Mandya raiyat, shrewd and ingenious in many respects, has failed to exhibit these qualities in the construction of the plough, his most important implement. Be that as it may, it has opened out a great scope of usefulness to the state department of agriculture which has very successfully popularized more than one type of the mouldboard plough. The favorite type among three ploughs is one which goes by the name of the “Kolar Mission” plough. Three other types of the mouldboard plough also deserve mention called Eureka, is a product of the Kolar Mission another called meston is made by messrs. The third is a comparatively heavy plough, called verity. The Kolar mission plough has been copied by a number of local blacksmiths in Mandya district, who also sell a fair number of there annually. It has been

realized by progressive farmers that the country plough has no proper
adjustment for varying the depth or width of the furrow. So in order to get
the best results, improved ploughs are being made use of by many. One
thousand and more ploughs of improved pattern won sold to the
agriculture department and to the Mysore sugar company\(^{40}\) which was
manufactured by the central industrial workshop. Even an improved type
bullock cart and an improved water lift were sold to the agriculture
department.\(^{41}\)

4:19 BASIC AGRICULTURAL SCHOOL:

Basic agriculture school of the district is located in Somanahalli
into an agricultural high school\(^{42}\) to train the students in agriculture by
giving practical training in dry, wet and garden cultivation along with
market gardening and poultry farming. This basic agriculture school
provided training for a period of one year with a view to trained students
for appointment of village workers.\(^{43}\) In the year 1957-58 the school with
students of 115 carried the entomology studies towards the discovery of
new noxious and beneficial insect and in solving the problems of pest-

\(^{40}\) Mysore Administrative Report, p-67, 1935-36
\(^{41}\) Ibid, p-11, 1935-36
\(^{42}\) Proceedings of Government of His Highness the Maharaja of Mysore, Order No: 9171-74-Agri
177.38-4 Dated Bangalore 21\(^{st}\) April 1939
\(^{43}\) Mysore Administrative Report, p-103, 1955-56
control. The parasite laboratory at Mandya serves as a centre for the large scale release of Trichogramme parasite.

It also serves as a demonstration a propaganda centre for sugarcane borer control in the V.C. tract. The students from this school were given training during the course of the year on plant pathology particularly on diseases of crop, plant and their control measures.\textsuperscript{44} Agriculture has been considered as a conventional family enterprise. Therefore it includes farm women and children. In agricultural production, farm women play a key role either directly or indirectly. It is estimated that, farm women carry out 60-70 percent of the farm work. In the agriculture school of Somanahalli, the modern and improved practices of agriculture are taught to farm women in a three-months training programme. Hostel and boarding facilities are provided to tranus and both theoretical and practical training are provided water from Somanahalli tank, Shimsha lift irrigation and the through bore wells of the school is utilized for seed production.

\textsuperscript{44} Ibid, p-131, 1957-58
This chapter becomes incomplete without a note on vishweshvaraiah canal farm. This is the largest of all farms, with a total extent of 660 acres of which 483 acres are available for cultivation. This farm started in 1930, is situated in the heart of the vishweshvaraiah canal system. This station had gradually become the main research station for the Red Soils of the entire state. This farm was started under the leadership of the Director of Agriculture Department of Mysore state, Mr. Lesli Coleman in the jurisdiction of Ganadulu Village.

The previous name of this farm was Government Ganadulu farm was also called as Irwin Nala for some time when it came under Krishnarajasagar reservoir irrigation units. In the honour of the architect of Krishnasagara Dam. This farm has been renamed as vishweshvaraiah canal farm. This centre has been developed as a multipurpose agriculture research this station is located on 12° north latitude and 76° west longitudes and in 695 meters above mean sea level. The centre maximum and minimum temperatures are 34 and 15 degree Celsius, respectively and the average rainfall is 765mm. in this research station, there are many department related to agriculture. A collection of all the improved strains

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45 Mysore Administrative Report, p-90,1953-45
from different provinces in India was made at Vishweshvaraiah canal farm prized for progressive farmers are intended to be awarded in each district as an incentive to them. Eight mid season and four early varieties were tested at agricultural station in a prefinal yield trial with co-419 as the standard cane. Agriculture Meteorology department was established at the research station. This department concentrated to study the relationship between crop growth and weather and to study the influence of wealth on yields diseases and pests the crop weather observation on sugarcane paddy ragi and cotton were being taken at the observation at this research station. And besides crop observation the temperature of air soil temperature at different depts, micro climatic observation in open fields and inside the crops at different height velocity of wind etc. were also noted regularly.

The farm continuously strives to solve the problems of farmer. The major crops of the station have achieved special progress in their crops. High yielding varieties of paddy sugarcane Maize and ragi which have contributed considerably to states food production have been released by this station and it shows the great efforts put in by the station towards the progress of agriculture due to huge demand for quality seeds from

46 Ibid, p-109,110, 1948-49
48 Ibid, p-213, 1955-56
farmers this station has taken up seed production of paddy ragi sugarcane pulses maize and coconut successfully. The centre conducts training programmes for officers belonging to different cadres of the state Agriculture department. The department of extension is carrying out the task of transferring the technologies and improved varieties to the farmers and persuading them to adopt the same. Collection of chilli varieties capsicum annun linn and types was being built up at this Agricultural research station. After the establishment of these agriculture varieties suitable region of the state was assigned to this centre by transferring paddy research from Naganahalli farm to Mandya farm. At the same period testing and recommending the imported Tai Chung Native 1 and 1R-S varieties to various regions of the state was done by this centre.

Ragi variety development programme has been taken up in three stages in this centre. In the first stage during the period from 1931 to 1951 collection and selection of local varieties was done. During that time the average yield of ragi was 7.5 quintals per hectare under rain fed and 15 quintals per hectare under irrigated conditions. In the second stage of ragi development during 1951-1964, hybridization of local varieties was taken up. As a result the yields levels of both rain fed and irrigated ragi were increased to 22 and 37 quintals per hectare, respectively. The

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49 Mysore Administrative Report, p-111, 1957-58
third stage is very important and has covered activities right from the establishment of Agricultural University. During this stage local varieties of South Africa were utilize in hybridization programme which provided a new dimension to ragi development programme sugarcane variety development programme.

From this research station apart from the basic production technologies many cultural operation suitable for sugarcane cultivation in the southern parts of the state, especially for Cauvery command area are developed and recommended by keeping view the problems and difficulties of farmers use of suitable varieties was important not only to increase the sugarcane and sugar yield but also to feed the sugar factories throughout the year to plant and harvest at different times of the year. As a result of the research conducted in this direction the following varieties have been released co-419 variety has been recommended as a suitable variety for the southern parts of the state as a medium of long durational variety of 12 to 14 months. This variety has high sugar content and gives an average yield of 60-70 tons per acre from June – August planted crop this variety is found suitable for both jiggery preparation and rationing.

Improvement work on ragi was also conducted at the high agriculture research station all the three improved types of co-1,3 months
Nati and ragi 1 proved superior to H.1 and similarly work long staple American cotton was done at the station.

4:21 HORTICULTURE:

Maddur horticulture farm was established in the year 1942-43 which happens to be the oldest farm where the department of fruits crops is the major activity.

Even prior to the advent of scientific methods in the pursuit of Horticulture, several taluks in the district were known to be centres of banana and mango cultivations. Each while you learn scheme as applied to Horticulture is notable one. In this scheme boys of middle and high schools were employed to work in Govt. farms during their leisure hours with mutual benefit. The farms got the benefit of services of the boys who in turn got small emoluments as an encouragement to their acquiring knowledge and practical experience in Horticulture. This scheme was put into practice on experimental basis in Horticulture farm at Maddur made a great progress under this scheme.

Fruits like Guavas, Sapotas, Mangoes and Grapes are being grown in the charts at Krishnarajasagara, Gylicidia, one of the green manure

50 Mysore Administrative Report, p-106, 1955-56
51 Ibid, p-106, 1955-56
52 Mysore state Gazetteer, Mandya District, p-275, 1967
53 Mysore Administrative Report, p-207,208m 1954-55
producing plants is being grown extensively in the district and this has to a certain extent helped to supplement the manure requirements of the cultivators. The growth of both indigenous and exotic vegetable like brinjals, beans, cabbages, tomatoes, onions and potatoes is being encouraged. The cultivators got seeds in this connection through the department. Department had certain objectives and scheme for the development of fruit production in the district. Increasing the area under fruit crops, rejuvenation of old orchards control of nursery production establishment of progeny orchards. Cum nurseries and production of fruit plants provision of long and short term loams for the formation of the new orchards and carrying out effective propaganda with reference to manuring pruning and protection of fruit plants. As a result of this scheme the fruit cultivation increased greatly in the state during 1950 and even as a result of the intensive extension work of the department particularly sapota and guava gardens in Mandya district. Mandya Horticulture farm was established in 1956-57. The Mysore Horticulture department is maintaining two farms one at Maddur and another at Mandya. Various fruits are raised in these farms including grapes, apple, Pomogranates, Papayas, Oranges other varieties.

54 Mysore Administrative Report p-275, 1958-59
The produced is sold to the public these farms are situated close to the Bangalore-Mysore road. These departments have made major contribution in the economic expansion of Mandya district.

**TABLE: 4:6 LAND CULTIVATED UNDER DIFFERENT CROPS (ACRES)**

1923

<table>
<thead>
<tr>
<th>Taluk</th>
<th>Rice</th>
<th>Ragi</th>
<th>Jola</th>
<th>Horsegram</th>
<th>Sugarcane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Srirangapatna</td>
<td>17,895</td>
<td>15,422</td>
<td>5,952</td>
<td>10,879</td>
<td>1,522</td>
</tr>
<tr>
<td>Krishnarajapet</td>
<td>16,212</td>
<td>50,667</td>
<td>1,761</td>
<td>18,824</td>
<td>1,185</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>6,750</td>
<td>50,000</td>
<td>1,232</td>
<td>14,100</td>
<td>420</td>
</tr>
<tr>
<td>Mandya</td>
<td>13,424</td>
<td>70,904</td>
<td>5,085</td>
<td>19,550</td>
<td>503</td>
</tr>
<tr>
<td>Malavalli</td>
<td>5,715</td>
<td>53,817</td>
<td>18,624</td>
<td>18,537</td>
<td>565</td>
</tr>
</tbody>
</table>

Source: Mysore Gazetteer Vol. 5, 1928

The following figures indicate the improved state of agriculture in each taluka over the period. Specially the talukas of Srirangapatna and Krishnarajapet show that major part of the area in those talukas was under irrigation as compared to other talukas as the proportion of wet crops in these two talukas was higher when compared to other talukas. Again the large proportion of area under ragi indicates that it was the staple food of the region. It constitutes nearly 50 percent of the total cropped area in all the talukas except Srirangapatna. The area under sugarcane when compared to other crops was negligible in the talukas of Nagamangala, Mandya and Malavalli.
Considering the population of the towns in the Mandya region, higher concentration of population was found in Srirangapatna and Malavalli towns as is seen from Table: 4:7.

This table indicates in descending order, the total population of each town and it, to some extent, indicates the increased economic activities and importance of the places. In Table: 4:8 is given the agricultural stock in each taluka. The agricultural stock here contains the number of carts and ploughs.

Finally it may be pointed out that in the above narration the development of agriculture was illustrated at three points of time. In the first

**TABLE: 4:7 POPULATIONS IN IMPORTANT TOWNS OF MANDYA REGION**

<table>
<thead>
<tr>
<th>Town</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malavalli</td>
<td>7,400</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>7,217</td>
</tr>
<tr>
<td>Mandya</td>
<td>4,887</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>3,474</td>
</tr>
<tr>
<td>Krishnarajapet</td>
<td>3,226</td>
</tr>
<tr>
<td>Maddur</td>
<td>2,816</td>
</tr>
<tr>
<td>French Rocks (Pandavapura)</td>
<td>2,407</td>
</tr>
</tbody>
</table>

TABLE: 4:8 AGRICULTURAL STOCKS IN THE TALUKAS OF MANDYA REGION

<table>
<thead>
<tr>
<th>Taluka</th>
<th>Agricultural Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carts</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>2,722</td>
</tr>
<tr>
<td>Mandya</td>
<td>2,423</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>1,616</td>
</tr>
<tr>
<td>Krishnarajpet</td>
<td>3,960</td>
</tr>
<tr>
<td>Malavalli</td>
<td>5,570</td>
</tr>
</tbody>
</table>


Instance, in the year 1802, there was arable land without much cultivation except in Srirangapatna. Then in the year 1882 talukawise agricultural conditions were presented. The importance of tank irrigation was emphasized. In the final phase in the year 1923, improved conditions of traditional agriculture was narrated. The following section shows the changes brought about after the introduction of canal irrigation.

4:22 IRRIGATION AND AGRICULTURAL DEVELOPMENT:

It is already noted in the previous section that irrigation was given importance in the district. In the year 1917 construction work was taken up to build a reservoir, across Cauvery River and it was named as Krishnarajasagar. This work was taken up with the following objectives:\(^{55}\)

1) To provide proper supply of water for hot weather crops in areas which formerly received a precarious supply of water;

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2) To ensure a constant supply of water for the electric power installation of Sivasamudram and to increase the output of power and;

3) To increase irrigation by another 150,000 acres.

After the construction of the reservoir the importance of the Mandya region enhanced rapidly. Mandya was made a sub-division in 1928 in order to facilitate the land acquisition in connection with the Irwin Canal and for the resettlement of the farmers and the disposal of the question connected with the cultivation of the newly irrigated tracts. Maddur sub-division which was merged into Mandya taluka was bifurcated and it became a separate taluks from 1\textsuperscript{st} May 1931. The hoblies in Srirangapatna namely, Hirode, Melkote and Chinkurli were separated from Srirangapatna taluks and were brought together to form a new taluks called French Rocks in the year 1937. It was further named as Pandavapura taluks.\textsuperscript{56}

In the year 1937, a proposal to form a separate district of Mandya was put before the Mysore Representative Assembly in the August Session. However, the proposal was not accepted. Finally, the Government agreed to form a separate district in the year 1939 by joining

two revenue sub-division viz., French Rocks and Mandya containing seven talukas viz.,

Srirangapatna, French Rocks, Nagamangala, Krishnarajapet, Maddur, Malavalli and Mandya. French Rocks was given the name of Pandavapura and the anglicized form of Seringapatam was changed into Srirangapatnam.

This being the preliminary change in the administrative boundaries brought about by irrigation, other matters regarding the development of agriculture was pursued. There was an increase in the area under canal irrigation. In comparison with the importance of tank irrigation, Mrs. Epstein points out that “in contrast to the tank system, the modern river scheme irrigates many thousands of acres concentrated in the limited area. While tank irrigation increased agricultural output only slightly the great increase in agricultural output through river irrigation has resulted in the establishment of agricultural processing industries and thus introducing cumulative changes”\(^57\). There were important changes in agricultural practice after 1932.

Consequent of the assured irrigation provided by the construction of Visveswaraya canal, “the Government of Mysore recognized that the

prosperity of the region would depend in a large measure on the
profitable cultivation of a commercial crop like sugarcane and that this
would be possible only if the manufacture of sugar on modern lines was
initiated on a fairly large scale”58. It gives us the idea that sugarcane
cultivation was practiced to bring prosperity to the region. Hence
irrigation at one stroke brought out two changes. First, the area under
sugarcane cultivation was extended, and secondly a sugar factory was
established in the year 1934. The cultivation of sugarcane was
popularized by encouraging the farmers to supply sugarcane to the factor
on a contract basis known as “oppige”. Under this system the farmer
grows sugarcane on some part of his land that is to be supplied to the
factory. Meanwhile the factory agrees to levy cane at the statutory
minimum price fixed by the Government of India. In addition the
requirement of the seed, fertilizers by the farmers is provided by the
factory, in advance. Then again a cash advance of Rs.8/- is paid to the
farmer for each tonne of cane to meet the harvesting and supply expenses.

With the development of agro – industries in the State and by an
enlarged growth of sugarcane around Pandavapura one more sugar
factory was started in the year 1956 on cooperative lines. The cane was

supplied to the factory from the surrounding places of Pandavapura, Srirangapatna and Mandya talukas.\textsuperscript{59}

Apart from these changes the irrigation had its effects on the increase in the population and the increase in the area under different crops.

Population has grown rapidly due to the prosperity brought to the region by the introduction of irrigation. The following table shows the changes in the population of the district (Mandya) since 1901.

### TABLE: 4.9 POPULATION GROWTHS IN MANDYA DISTRICT SINCE 1901 TO 1961

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Variations</th>
<th>Percentage Decade Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>463,201</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>504,755</td>
<td>21,554</td>
<td>4.47</td>
</tr>
<tr>
<td>1921</td>
<td>542,996</td>
<td>38,241</td>
<td>7.59</td>
</tr>
<tr>
<td>1931</td>
<td>502,576</td>
<td>39,580</td>
<td>7.27</td>
</tr>
<tr>
<td>1941</td>
<td>635,558</td>
<td>53,012</td>
<td>9.09</td>
</tr>
<tr>
<td>1951</td>
<td>717,545</td>
<td>81,957</td>
<td>12.90</td>
</tr>
<tr>
<td>1961</td>
<td>899,210</td>
<td>1,81,665</td>
<td>25.49</td>
</tr>
<tr>
<td>1971</td>
<td>1,152,763</td>
<td>2,53,553</td>
<td>21.99</td>
</tr>
</tbody>
</table>


The difference in percentage decadal increase of population upto 1931 and after indicates the swift with which population has grown. Between 1901 to 1921 the increase in the population was partly due to internal growth and largely due to migration to the region from outside the district. As indicated in the Mysore State Gazetteer “Extension of cultivation and subsequent occupation of agricultural labourers on their village lands considerably diminished the supply of local labour and in consequence, labourers were attracted from surrounding districts which was also one of the causes for the rise in wages”\(^{60}\). During the decade ending 1931 there was an increase in population by 7.27 percent and further the population of the district increased by 9.09 percent by 1941. The steady increase is shown after 1941. This was partly due to Malaria.

\(^{60}\) Mysore State Gazetteer, ibid, p-258.
eradication programme and other public health measures and partly due to irrigation schemes and establishment of agricultural processing industries and other Small Scale Industries.  

Comparing the area under important crops cultivated in the year 1961 to that of 1923 we find an enormous increase in the area under some of the irrigated crops. Table 4:10 presents the area under important crops in the year 1961.

**TABLE: 4:10 AREA UNDER IMPORTANT CROPS IN THE TALUKAS OF MANDYA DISTRICT (1961)**

<table>
<thead>
<tr>
<th>Taluk</th>
<th>Rice</th>
<th>Ragi</th>
<th>Jowar</th>
<th>Sugarcane</th>
<th>Horsegram</th>
<th>Coconut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandya</td>
<td>32000</td>
<td>21230</td>
<td>4010</td>
<td>14830</td>
<td>14540</td>
<td>422</td>
</tr>
<tr>
<td>Maddur</td>
<td>25155</td>
<td>26560</td>
<td>4500</td>
<td>4630</td>
<td>9850</td>
<td>1650</td>
</tr>
<tr>
<td>Malavalli</td>
<td>25152</td>
<td>25431</td>
<td>10244</td>
<td>563</td>
<td>10800</td>
<td>432</td>
</tr>
<tr>
<td>Pandavapura</td>
<td>14700</td>
<td>21000</td>
<td>1500</td>
<td>5800</td>
<td>10200</td>
<td>324</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>23221</td>
<td>10894</td>
<td>5737</td>
<td>1678</td>
<td>7390</td>
<td>572</td>
</tr>
<tr>
<td>Krishnarajpet</td>
<td>19948</td>
<td>42620</td>
<td>787</td>
<td>2690</td>
<td>25331</td>
<td>1807</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>11703</td>
<td>44504</td>
<td>2229</td>
<td>1148</td>
<td>27825</td>
<td>5407</td>
</tr>
<tr>
<td>Mandya Dist.</td>
<td>151979</td>
<td>192239</td>
<td>29007</td>
<td>31339</td>
<td>105931</td>
<td>10614</td>
</tr>
</tbody>
</table>

Source: Bureau of Economics and Statistics.

The figure presented in the table when compared to the figure in Table 4:6 shows the magnitude of change in the area under all the crops except horsegram. Eventhough a strict comparison is not possible one can visualize the impact of irrigation on the area under different crops. To this was added to plantation crop namely coconut after the introduction of

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irrigation. The figures also indicate that the major portion of the area is under food grain crops.

Thus the advent of irrigation forms the turning point in Mandya’s recent history. Events are dated and referred to according to whether they happened ‘before’ and ‘after’ irrigation. Before irrigation villagers cultivated Ragi and Jowar, crops which need little work compared with paddy and sugarcane; before irrigation villagers ate mainly ragi and only very rarely rice; then they had more leisure but very little cash; men smoked neither beedis nor cigarettes but used snuff; they wore no more than a loin cloth and turban. Before irrigation there were no roads but only cart tracks; villagers ventured to Mandya only very rarely, only few as far as Mysore, the nearest city about 30 miles away. Irrigation brought cash crops to Mandya district. One can conclude from the foregoing that the irrigation played an important role in bringing agricultural prosperity to Mandya district. Mandya district was formed only after the introduction of canal irrigation. Land value increased sharply due to increased irrigational facilities. Sugarcane cultivation developed rapidly to make use of the increased irrigation facilities. This led to the establishment of two sugar factories; one in Mandya as early as 1934 and another at Pandavapura in 1956. Prosperity brought to Mandya region by irrigation led to the rapid growth of population and the increased demand
for food was met by growing more food crops. It was indicated by the higher proportion of land under rice and ragi. Further measures were taken to modernize agriculture and to raise agricultural productivity to meet the demand for food by the increased population and to supply materials for the agricultural processing industries in Mandya district.