1. Crop Area and Production Estimates – Issues in collection compilation, and processing of data and remedies *

Introduction:

The state of has 29406 villages with 190.50 lakh hectares of land, out of which 130.62 lakh hectares land (69%) was Gross cultivated area during 2010-11. The net area sown during the year was 105.23 lakh hectares, thus cropping intensity in the state was 124 only. Out of the 130.62 lakh hectares Gross area cultivated only 42.79 lakh hectares of land (33%) was gross irrigated area. Out of the 105.23 lakh hectares of net area sown only 34.90 lakh hectares (33%) was net irrigated area and the thus irrigation intensity in the state was only 123. The contribution of agriculture sector to GSDP is 15.4% in the year 2010-11 in the state.

Crop area and production statistics includes (i) Crop Area Statistics (ii) Land use statistics (iii) Production statistics (iv) Horticulture statistics (v) Irrigation Statistics (vi) Crop forecasts and (vii) Agriculture census (viii) Rainfall Statistics

The Directorate of Economics and Statistics is considered as State Agricultural Statistical Authority (SASA) by government of India.

Economic Importance of Agriculture Statistics

1) To furnish Area & Production details of various crops.

2) To formulate policies for import and export for food and non-food agricultural crops, public distribution system, minimum support prices.

3) To calculate Gross Domestic Product, State income and per capita income and to find growth rate.

4) Yield rates obtained from Crop Cutting Experiments are used to find the extent of crop loss for National Agricultural Insurance Scheme.

5) To know the ups and downs in Agricultural Crops.

6) Agriculture Statistics are very important to prepare plans and policies for government and to undertake various educational studies.

7) To decide on the compensation to be given in case of land acquisition

Procedure of collection of Crop Area & Yield Statistics:

A. Crop area statistics:

The Karnataka state belongs to the category of temporarily settled states. The crop area statistics are originated by the Village Accountant on the basis of complete enumeration of the field. The Village Accountant

* Sri K.V.Subramanian, Joint Director, AGS Division Sri S.V.Hegde & Smt. H.N. Sathyavani Assistant Director, AGS Division
has to visit each and every sub survey number of the village in each crop season, i.e. Kharif (early Kharif, late Kharif) rabi and summer, and record information such as area under different crops, land use categories and its status in RTC (Record of Rights, Tenancy and Crop). Most of the geographical areas are cadastrally surveyed and detailed hissa maps and village maps are available with village accountant. The stipulated period for field inspection and writing of RTC by the Village Accountant is as follows.

1st July to 31st July – Early Kharif
1st September to 30th September – Late Kharif
1st January to 31st January – Rabi
1st April to 30th April – Summer

Then village accountant aggregates crop area village wise. The figures are further consolidated at taluk and district level by the Taluk and District Offices as depicted below as per notification issued by Revenue Department on 06.05.2005.

\[
\begin{align*}
\text{RTC} & \rightarrow \text{Village Abstract} \rightarrow \text{Taluk Consolidation (Réconciliation Committee)} \\
& \rightarrow \text{District Consolidation (Réconciliation Committee)} \rightarrow \text{State Consolidation} \\
& \rightarrow \text{Ministry of Agriculture and Co-operation, Government of India.}
\end{align*}
\]

Annual State Report is sent to Ministry of Agriculture, Government of India, which contains crop area statistics of each season with land use statistics and irrigation statistics. This report is known as Annual Season and Crop Statistics Report (ASCR). ASCR is the only authenticated and exhaustive document available on land use particulars in the state. In the ASCR of the year 2010-11, 161 crops are covered with 115 horticultural crops. Besides land use particulars, it provides very useful data relating to different sources of irrigation and the extent of area irrigated through various sources, seasonwise cropped area etc. Information regarding nine fold classification of land is available in ASCR. In addition to this, the area of crops under encroached Government land and forest is also compiled through reconciled procedures.
B. Yield Statistics:

Estimates of crop production are obtained by multiplying the area under crop and the yield rate. The estimates of yield rate are based on scientifically designed crop cutting experiments conducted under Crop Estimation Survey (CES).

(i) GOES: The DES is implementing GOES since 1945-46. Its objective is to work out the average yield per hectare of important food and non food crops. Yield rates are used to arrive at crop production.

The main responsibility of the Directorate of Economics and Statistics is to plan the crop cutting experiments, arrange for the training and supervision of field work, data analysis and working out the average yield estimates. Under Crop Insurance Scheme, the crops and unit of insurance are decided by the Government of Karnataka (Department of Agriculture and Horticulture). Based on Government Notification, experiments are planned by the Directorate of Economics and Statistics and communicated to all the District Statistical officers who in turn allocate experiments to the primary workers drawn from Revenue, Agriculture, Horticulture, Rural Development and Panchayat Raj (RDPR), Command Area Development Authority (CADA) and Watershed Development Departments. Officers of National Sample Survey Organisation also participate in the training programme and undertake supervision of crop cutting experiments in selected samples.

The Statistical design adopted is “Stratified Multistage Random Sampling” which is scientific and time tested design, with taluks as the strata, villages within a taluk as primary units, fields within the selected village as secondary units and experimental plots of specified size within the selected field as ultimate sampling units. The size of the experimental plot for all crops except cotton, castor, tur, tobacco and sunflower is 5m X 5m area, for the latter, it is 10m X 5m area.

(ii) Crop Estimation Survey on Fruits, Vegetables and Minor Crops: The scheme aims at estimation of area, production and yield of 7 fruits i.e., Mango, Grapes, Guava, Banana, Sapota, Pomegranate and Lemon, 4 Vegetables i.e, Tomato, Beans, Brinjal and Cabbage and one Minor crop i.e, Turmeric. The sampling design adopted for area enumeration is a stratified two stage random sampling with taluk as strata, villages within the selected taluks as primary units of sampling and orchards/sub survey number as the second stage sampling units. For yield estimation, the stratified three stage random sampling is adopted. The taluks in the districts formed strata. Villages within the taluk formed primary sampling units, orchards/sub survey numbers are the second stage sampling and the clusters of trees/plants within the selected orchards/randomly selected experimental plots are the ultimate sampling units.

Directorate of Economics and Statistics is estimating yield rates of 60 crops. Under Crop Estimation Survey (CES) yield rates of 28 crops are estimated. Under the scheme of Survey on Estimation of Fruits, Vegetables and Minor crops yield rates of 12 crops are estimated. Thus for 40 crops DES is able to obtain yield rates through statistically valid crop cutting experiments. However DES has to furnish production estimates of about 61 major crops of the State. For these remaining 21 crops which are not covered under Crop Estimation Surveys, DES used to use traditional methods to have yield rates earlier to 2007-08. Large variations were observed to that of package of practice in the yield information obtained through these traditional methods which affected the production estimates. Therefore, to overcome this
oral enquiry of farmers approach within the reach of DES is initiated from the year 2007-08 to obtain the yield rates by interviewing the farmers, on random basis with sufficient number of samples.

**Oral Enquiry Method:**

Under oral enquiry method, districts with largest area of the respective crop are selected. Out of each district 2 taluks atleast with a minimum area of 25 hectares are selected. In each taluk, 2 villages are randomly selected (in case of greater area taluks 4 villages are selected) and thus effort is made to make the samples more representative and from each village 10 farmers are randomly selected and information is elicited as per prescribed schedules so as to get yield rates of that crop.

Production of the crop for the district is obtained by multiplying the estimated average yield of the crop of the district \((Y)\) with the corresponding area under the crop after applying 5% bund correction to the area under CES crops.

\[ i.e., P = Y(A - 5\%A); \]

Where \(P\) = Production, \(A\) = Area under the crop in the district, \(Y\) = District average yield of the crop.

Production estimates for other crops is obtained by using the following formula where 1% bund correction is considered.

\[ P = Y(A - 1\%A); \]

**Growth over a Decade:**

**Comparison of Land use classification over the decade (2001-2011) in the State**

<table>
<thead>
<tr>
<th>Classification</th>
<th>1960-61</th>
<th>2000-01</th>
<th>2010-11</th>
<th>% Variation over 50 years</th>
<th>% Variation over the decade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Geographical Area</strong></td>
<td>187.80</td>
<td>190.50</td>
<td>190.50</td>
<td>1.4</td>
<td>0.0</td>
</tr>
<tr>
<td>1. Forest</td>
<td>27.09</td>
<td>30.68</td>
<td>30.72</td>
<td>13.4</td>
<td>0.1</td>
</tr>
<tr>
<td>2. Not available for cultivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Land put to non agriculture use</td>
<td>8.12</td>
<td>13.12</td>
<td>14.30</td>
<td>76.1</td>
<td>9.0</td>
</tr>
<tr>
<td>b. Barren and uncultivable land</td>
<td>9.22</td>
<td>7.94</td>
<td>7.87</td>
<td>-14.6</td>
<td>-0.9</td>
</tr>
<tr>
<td>3. Cultivable waste</td>
<td>6.56</td>
<td>4.27</td>
<td>4.14</td>
<td>-36.9</td>
<td>-3.0</td>
</tr>
<tr>
<td>4. Uncultivated land excluding fallow land</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Permanent Pastures and other grazing land</td>
<td>17.39</td>
<td>9.59</td>
<td>9.12</td>
<td>-47.6</td>
<td>-4.9</td>
</tr>
<tr>
<td>b. Miscellaneous tree crops, groves not included under net area sown</td>
<td>3.66</td>
<td>3.03</td>
<td>2.86</td>
<td>-21.9</td>
<td>-5.6</td>
</tr>
<tr>
<td>5. Fallow land</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Current fallow</td>
<td>8.35</td>
<td>13.67</td>
<td>12.00</td>
<td>43.7</td>
<td>-12.2</td>
</tr>
<tr>
<td>b. Other fallow</td>
<td>5.13</td>
<td>4.09</td>
<td>4.26</td>
<td>-17.0</td>
<td>4.2</td>
</tr>
</tbody>
</table>
### Comparison of Area, Production and Yield of Important crops in Karnataka over the triennium ending 2000-01 & 2010-11

<table>
<thead>
<tr>
<th>Crop</th>
<th>Average Area ending 2000-01</th>
<th>Average Area ending 2010-11</th>
<th>% Variation</th>
<th>Average Production ending 2000-01</th>
<th>Average Production ending 2010-11</th>
<th>% Variation</th>
<th>Average Yield ending 2000-01</th>
<th>Average Yield ending 2010-11</th>
<th>% Variation</th>
<th>% Variatio n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>14.53</td>
<td>15.13</td>
<td>4</td>
<td>37.40</td>
<td>40.68</td>
<td>9</td>
<td>2709.00</td>
<td>2828.67</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Jowar</td>
<td>18.85</td>
<td>13.31</td>
<td>-29</td>
<td>16.60</td>
<td>14.16</td>
<td>-15</td>
<td>926.67</td>
<td>1123.00</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Ragi</td>
<td>9.90</td>
<td>7.98</td>
<td>-19</td>
<td>16.57</td>
<td>13.39</td>
<td>-19</td>
<td>1757.00</td>
<td>1770.67</td>
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<td>1</td>
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<tr>
<td>Maize</td>
<td>5.96</td>
<td>11.98</td>
<td>101</td>
<td>18.03</td>
<td>34.42</td>
<td>91</td>
<td>3192.67</td>
<td>3009.33</td>
<td>-6</td>
<td>-6</td>
</tr>
<tr>
<td>Bajra</td>
<td>4.34</td>
<td>2.93</td>
<td>-32</td>
<td>2.92</td>
<td>2.15</td>
<td>-26</td>
<td>707.00</td>
<td>769.00</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Wheat</td>
<td>2.65</td>
<td>2.69</td>
<td>1</td>
<td>2.29</td>
<td>2.67</td>
<td>16</td>
<td>908.00</td>
<td>1047.00</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Minor Millets</td>
<td>0.76</td>
<td>0.28</td>
<td>-63</td>
<td>0.39</td>
<td>0.13</td>
<td>-66</td>
<td>545.33</td>
<td>509.00</td>
<td>-7</td>
<td>-7</td>
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<tr>
<td>Total Cereals</td>
<td>56.99</td>
<td>54.31</td>
<td>-5</td>
<td>94.21</td>
<td>107.60</td>
<td>14</td>
<td>1743.33</td>
<td>2085.41</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Tur</td>
<td>5.22</td>
<td>6.97</td>
<td>34</td>
<td>2.58</td>
<td>3.74</td>
<td>45</td>
<td>522.00</td>
<td>555.33</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Bengalgram</td>
<td>3.48</td>
<td>8.86</td>
<td>155</td>
<td>2.05</td>
<td>5.28</td>
<td>157</td>
<td>620.00</td>
<td>623.67</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Horsegram</td>
<td>3.25</td>
<td>2.22</td>
<td>-32</td>
<td>1.47</td>
<td>1.12</td>
<td>-24</td>
<td>505.33</td>
<td>530.33</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Blackgram</td>
<td>1.40</td>
<td>1.19</td>
<td>-15</td>
<td>0.46</td>
<td>0.30</td>
<td>-36</td>
<td>374.00</td>
<td>262.33</td>
<td>-30</td>
<td>-30</td>
</tr>
<tr>
<td>Greengram</td>
<td>3.90</td>
<td>3.52</td>
<td>-10</td>
<td>1.04</td>
<td>0.66</td>
<td>-37</td>
<td>337.00</td>
<td>191.00</td>
<td>-43</td>
<td>-43</td>
</tr>
<tr>
<td>Avare</td>
<td>0.84</td>
<td>0.79</td>
<td>-6</td>
<td>0.35</td>
<td>0.62</td>
<td>80</td>
<td>224.00</td>
<td>830.33</td>
<td>271</td>
<td>271</td>
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<tr>
<td>Other Pulses</td>
<td>1.20</td>
<td>0.10</td>
<td>-91</td>
<td>0.24</td>
<td>0.04</td>
<td>-83</td>
<td>286.67</td>
<td>368.00</td>
<td>28</td>
<td>28</td>
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<tr>
<td>Total Pulses</td>
<td>19.29</td>
<td>24.53</td>
<td>27</td>
<td>8.50</td>
<td>12.14</td>
<td>43</td>
<td>463.00</td>
<td>516.75</td>
<td>12</td>
<td>12</td>
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<tr>
<td>Total Foodgrains</td>
<td>76.29</td>
<td>78.84</td>
<td>3</td>
<td>102.72</td>
<td>119.74</td>
<td>17</td>
<td>1417.00</td>
<td>1595.84</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Sesamum</td>
<td>1.06</td>
<td>0.73</td>
<td>-31</td>
<td>0.46</td>
<td>0.37</td>
<td>-20</td>
<td>457.67</td>
<td>526.67</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Sunflower</td>
<td>6.02</td>
<td>7.35</td>
<td>22</td>
<td>2.32</td>
<td>3.06</td>
<td>32</td>
<td>423.33</td>
<td>474.00</td>
<td>12</td>
<td>12</td>
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<tr>
<td>Castor</td>
<td>0.28</td>
<td>0.19</td>
<td>-31</td>
<td>0.27</td>
<td>0.16</td>
<td>-43</td>
<td>1019.00</td>
<td>854.81</td>
<td>-16</td>
<td>-16</td>
</tr>
<tr>
<td>Nigerseed</td>
<td>0.43</td>
<td>0.25</td>
<td>-43</td>
<td>0.08</td>
<td>0.09</td>
<td>8</td>
<td>191.33</td>
<td>351.00</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Mustard</td>
<td>0.07</td>
<td>0.05</td>
<td>-30</td>
<td>0.02</td>
<td>0.02</td>
<td>20</td>
<td>271.33</td>
<td>365.00</td>
<td>35</td>
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<tr>
<td>Soyabean</td>
<td>0.64</td>
<td>1.62</td>
<td>152</td>
<td>0.65</td>
<td>1.07</td>
<td>66</td>
<td>1064.67</td>
<td>707.00</td>
<td>-34</td>
<td>-34</td>
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<tr>
<td>Safflower</td>
<td>0.97</td>
<td>0.65</td>
<td>-33</td>
<td>0.69</td>
<td>0.53</td>
<td>-23</td>
<td>745.00</td>
<td>845.67</td>
<td>14</td>
<td>14</td>
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<tr>
<td>Linseed</td>
<td>0.19</td>
<td>0.12</td>
<td>-36</td>
<td>0.06</td>
<td>0.04</td>
<td>-32</td>
<td>361.67</td>
<td>355.33</td>
<td>-2</td>
<td>-2</td>
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<tr>
<td>Total Oilseeds</td>
<td>21.04</td>
<td>19.34</td>
<td>-8</td>
<td>14.70</td>
<td>10.66</td>
<td>-27</td>
<td>738.00</td>
<td>597.73</td>
<td>-19</td>
<td>-19</td>
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</tbody>
</table>

### Commercial Crops:

<table>
<thead>
<tr>
<th>Crops</th>
<th>Average Area ending 2000-01</th>
<th>Average Area ending 2010-11</th>
<th>% Variation</th>
<th>Average Production ending 2000-01</th>
<th>Average Production ending 2010-11</th>
<th>% Variation</th>
<th>Average Yield ending 2000-01</th>
<th>Average Yield ending 2010-11</th>
<th>% Variation</th>
<th>% Variatio n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton*(prod.170 kg / lint)</td>
<td>5.78</td>
<td>4.71</td>
<td>-18</td>
<td>8.33</td>
<td>9.16</td>
<td>10</td>
<td>256.67</td>
<td>344.98</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>3.76</td>
<td>4.16</td>
<td>11</td>
<td>384.20</td>
<td>320.85</td>
<td>-16</td>
<td>107.33</td>
<td>96.93</td>
<td>-10</td>
<td>-10</td>
</tr>
<tr>
<td>Tobacco</td>
<td>0.77</td>
<td>1.17</td>
<td>53</td>
<td>0.52</td>
<td>0.93</td>
<td>79</td>
<td>714.00</td>
<td>824.67</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>6.Net area sown</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>102.28</td>
<td>104.10</td>
<td>105.23</td>
<td>2.9</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.Total cropped Area</td>
<td>105.88</td>
<td>122.84</td>
<td>130.62</td>
<td>23.4</td>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Cropping Intensity</td>
<td>104</td>
<td>118</td>
<td>124</td>
<td>19.9</td>
<td>5.2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Area in Lakh Hectares

Area in Lakh Hectares
Production in Lakh Tonns
Yield in Kgs/Hectare

The above table depicts the growth status of our Agriculture Sector where in area under food grains is increased by only 3%, and increase over yield rate is 13%.
### Yield of Total Food Grains: (Kgs/Hect.)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>2613</td>
<td>2744</td>
<td>2294</td>
</tr>
<tr>
<td>Karnataka</td>
<td>1548</td>
<td>1511</td>
<td>1377</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>2125</td>
<td>2225</td>
<td>2477</td>
</tr>
</tbody>
</table>

### Production of Total Food Grains: (Million tonns)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>19.30</td>
<td>20.42</td>
<td>15.30</td>
</tr>
<tr>
<td>Karnataka</td>
<td>12.19</td>
<td>11.28</td>
<td>10.96</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>6.58</td>
<td>7.10</td>
<td>7.51</td>
</tr>
</tbody>
</table>

### Yield of Pulses: (Kgs/Hect.)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>803</td>
<td>818</td>
<td>740</td>
</tr>
<tr>
<td>Karnataka</td>
<td>531</td>
<td>466</td>
<td>451</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>303</td>
<td>307</td>
<td>382</td>
</tr>
</tbody>
</table>

### Production of Pulses: (Million tonns)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>1.70</td>
<td>1.45</td>
<td>1.43</td>
</tr>
<tr>
<td>Karnataka</td>
<td>1.27</td>
<td>0.97</td>
<td>1.12</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>0.19</td>
<td>0.16</td>
<td>0.20</td>
</tr>
</tbody>
</table>

### Yield of Oil Seeds: (Kgs/Hect.)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>1276</td>
<td>842</td>
<td>724</td>
</tr>
<tr>
<td>Karnataka</td>
<td>681</td>
<td>556</td>
<td>502</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>1739</td>
<td>1782</td>
<td>1898</td>
</tr>
</tbody>
</table>

### Production of Oil Seeds: (Million tonns)

<table>
<thead>
<tr>
<th>State</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>3.39</td>
<td>2.19</td>
<td>1.50</td>
</tr>
<tr>
<td>Karnataka</td>
<td>1.55</td>
<td>1.21</td>
<td>1.01</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>1.15</td>
<td>1.04</td>
<td>0.94</td>
</tr>
</tbody>
</table>

**Crop Intensity:**

<table>
<thead>
<tr>
<th>State</th>
<th>2005-06</th>
<th>2006-07</th>
<th>2007-08</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pradesh</td>
<td>124.4</td>
<td>126.3</td>
<td>126.1</td>
</tr>
<tr>
<td>Karnataka</td>
<td>124.0</td>
<td>123.1</td>
<td>123.7</td>
</tr>
<tr>
<td>T. Nadu</td>
<td>115.0</td>
<td>114.0</td>
<td>114.9</td>
</tr>
</tbody>
</table>

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The yield rates & Production of food grains, pulses and oil seeds of State shown above along with Andhra Pradesh and Tamil Nadu clearly shows that there is much scope for Agriculture Sector to grow in our State.

In our country during 11\textsuperscript{th} Five Year Plan, as against the target of 5.4%, in agriculture sector, 5.5% progress is achieved.

During 9\textsuperscript{th} five year plan (1997-2001), average production of total food grains is 95.1 lakh tonnes, during 10\textsuperscript{th} five year plan (2002-2006), average is 89.16 lakh tonnes, registering a decline of 6.24%. During 11\textsuperscript{th} five year plan (2007-2011), (of 4 years) average production of total food grains is 119.9 lakh tonnes, registering an increase of 34.47%.

Similarly, during 9\textsuperscript{th} plan period average yield is 1345 kgs and during 10\textsuperscript{th} plan period it is 1277.6 kgs, showing a decline by 5%. During 11\textsuperscript{th} plan period, average yield is 1600 kgs, (of 4 years) registering an increase by 27.25%.

**Different Schemes implemented by DES on Estimating Area & Yield Statistics**

1. **Timely Reporting Scheme:** TRS is launched in the state during 1969-70, with the principal objective of reducing the time lag in making available the area statistics of 15 major crops in addition to providing the sample frame for selection of fields for crop cutting experiments, in the selected 20% of villages through sample survey.

   Seasonwise crops covered under this scheme are:


2. **Improvement of Crop Statistics:** The main objective of the scheme is to locate the deficiencies in the collection of primary data during the course of area enumeration and conduct of crop cutting experiments in the state through sample checks in order to bring improvement in the quality of primary data collected.

**Programme of work under the scheme is as follows:**

   a) Carrying out sample checks by inspecting field/sub survey numbers randomly selected on area enumeration in 300 villages in Kharif, Rabi and Summer seasons for correctness of the crops and area written in RTC.

   b) Check on page totaling of Record of Rights, Tenancy and Crops (RTC) done by the Village Accountants in the said 300 villages in each season.

   c) Conducting supervision on 900 crop cutting experiments on 13 selected crops in all the three seasons. These thirteen crops are Paddy, Jowar, Bajra, Ragi, Tur, Groundnut, Sugarcane, Cotton, Maize, Sunflower, Greengram, Wheat and Bengal Gram.
3. Crop Estimation Survey on Fruits, Vegetables and Minor Crops: The scheme aims at estimation of area, production and yield of 7 fruits i.e., Mango, Grapes, Guava, Banana, Sapota, Pomegranate and Lemon, 4 Vegetables i.e, Tomato, Beans, Brinjal and Cabbage and Minor Crop i.e, Turmeric.

4. General Crop Estimation Survey: GCES was intended for the specific objective of estimating the yield. After the introduction of crop insurance scheme, the dimensions of the programme have achieved a greater significance as the results of crop cutting experiments are being used to assess the extent of crop loss.

5. National Agricultural Insurance Scheme (Rashtreeya Krishi Bima Yojana) The crop insurance scheme, popularly known as Rashtriya Krishi Bima Yojana (RKBY) was implemented in Karnataka from kharif 2000. The main objective of this scheme is to provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crops as a result of natural calamities, pests and diseases. The special feature of this scheme lies in its wide range of implementation as it covers both loanee and non-loanee farmers.

6. Agriculture Census: The objective of the Agricultural Census is to know the structure and characteristics of agricultural holdings operated by cultivators. Besides, data on land use, sources of irrigation, cropping pattern and dispersal of operated area were also collected on sampling basis. As a follow up of agricultural census, the input survey is also conducted on sampling basis with the main objective of collecting data related to number of parcels with multiple cropping, land use pattern, use of chemical fertilizers, organic manures and pesticides, agricultural implements, livestock details, certified seeds used and agricultural credit availed by the cultivators.

Discrepancies Observed in the system of collection of Area & Yield Statistics in the State

There is deterioration in the reporting of area and yield statistics over the years. Discrepancies observed in last few years raise the question about the quality of the Agriculture Statistics.

i) Area Statistics of the District:

➢ In the Nine Fold Classification of land use, “land put to non-agricultural use” remains constant, since last 6 years, in few districts.

From 2005-06 to 2010-11 area under nonagricultural use reported in Annual Season Crop Report in case of following districts is same for the above 6 years. Bagalkote 28,832 hect, Bidar 22,006 hect, Chitradurga 51,243 hect, Gadag 10,481 hect, Mandya 60,906 hect, Raichur 20,563 hect.

➢ Net irrigated area is more than net area sown, which is unrealistic.

In 2010-11 Annual Season Crop Report in some cases net area irrigated shown is more than net cropped area for example in Belgaum district in Gokak Taluk net area irrigated is shown as 108553 hect where as net cropped area is shown as 90,567 hect.
Irrigated area is more than total area of the crop.

In Mandya District K.R.Pet Taluk area irrigated more than once is shown as 3334 hect while area sown more than once is 3010 hect.

In Shimoga District Sorab Taluk area irrigated more than once is shown as 3946 hect while area sown more than once is reported as 3846 hect. In Mysore District Hunasur Taluk total irrigated area is shown as 27 hect but the total area is only 20 hect. In Ramanagar District, Magadi Taluk irrigated area reported under Astar crop is 127 hect but the total area reported for that crop is nil.

Above examples clearly shows that village accountants are not giving importance for crop enumeration and RTC writing work.

Discrepancies observed in writing RTCs

1) Only Kharif Season entries are made in RTCs
2) Rainfed and irrigation details are not written
3) In most of the RTCs the entries for horticulture crops are not seen
4) Mixed crops are not properly recorded.
5) In almost all RTCs no entries are found in column 15 and 16 (for relay and plantation crop).
6) 9 fold classification are not properly given

Crop cutting experiments conducted but the area are not reported in case of following crops in ASCR 2010-11

<table>
<thead>
<tr>
<th>District</th>
<th>Crop</th>
<th>Taluk</th>
<th>Variety</th>
<th>Irrigation</th>
<th>Season</th>
<th>No of experiments conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dharwad</td>
<td>Jowar</td>
<td>Navalgund</td>
<td>HYV</td>
<td>Rainfed</td>
<td>Kharif</td>
<td>12</td>
</tr>
<tr>
<td>Belgaum</td>
<td>Maize</td>
<td>Belgaum</td>
<td>HYV</td>
<td>Rainfed</td>
<td>Kharif</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>Belgaum</td>
<td>Local</td>
<td>Rainfed</td>
<td>Rabi</td>
<td>8</td>
</tr>
<tr>
<td>Chitradurga</td>
<td>Bajra</td>
<td>Hiriyuru</td>
<td>HYV</td>
<td>Rainfed</td>
<td>Kharif</td>
<td>4</td>
</tr>
<tr>
<td>Gadag</td>
<td>Bajra</td>
<td>Ron</td>
<td>HYV</td>
<td>Rainfed</td>
<td>Kharif</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Cotton</td>
<td>Gadag</td>
<td>WDV</td>
<td>Irrigated</td>
<td>Kharif</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shirahatti</td>
<td>WDV</td>
<td>Irrigated</td>
<td>Kharif</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mudaragi</td>
<td>WDV</td>
<td>Irrigated</td>
<td>Kharif</td>
<td>4</td>
</tr>
</tbody>
</table>

Common errors observed in conducting Crop Cutting Experiments:

- Mixed Proportion of experimental crop are not given properly
- Without conducting Crop Cutting Experiments yields are given
- Dates of sowing and harvesting are not tallying with season and duration of crops
- Under crop cutting experiments, sometimes, very less yield rates are furnished for insurance claims.
- In some cases CCE reports are submitted without conducting crop cutting experiments.
Part A reconciliation area are not tallying with ASCR 2010-11 in following cases

<table>
<thead>
<tr>
<th>District</th>
<th>Crop</th>
<th>Table 3 (Irrigated area)</th>
<th>Table 4 (Irrigated + Un-Irrigated)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ASCR</td>
<td>RECON</td>
</tr>
<tr>
<td>Mandya</td>
<td>Paddy (Kharif)</td>
<td>60775</td>
<td>61175</td>
</tr>
<tr>
<td></td>
<td>Ragi (Kharif)</td>
<td>5041</td>
<td>4941</td>
</tr>
<tr>
<td>Bellary</td>
<td>Groundnut (Summer)</td>
<td>8357</td>
<td>6321</td>
</tr>
<tr>
<td>Ramanagar</td>
<td>Gram (Kharif)</td>
<td>-</td>
<td>52</td>
</tr>
<tr>
<td>Hasan</td>
<td>Groundnut (Rabi/Sum)</td>
<td>523</td>
<td>475</td>
</tr>
<tr>
<td>Chikkaballapur</td>
<td>Jowar (Kharif)</td>
<td>218</td>
<td>-</td>
</tr>
</tbody>
</table>

Discrepancies observed in TRS Scheme

In some cases area estimated through TRS scheme (by enumerating 20% of villages) are more than ASCR figures (100% of villages enumeration figures).

Large variations observed in case of following TRS estimations for 2010-11 as compared to same year reconciliation reports.

<table>
<thead>
<tr>
<th>District</th>
<th>Crop</th>
<th>As per TRS estimation</th>
<th>As per Reconciliation Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgaum</td>
<td>Cotton</td>
<td>126</td>
<td>37666</td>
</tr>
<tr>
<td>Bellary</td>
<td>Cotton</td>
<td>0</td>
<td>41426</td>
</tr>
<tr>
<td></td>
<td>Gram</td>
<td>44992</td>
<td>19251</td>
</tr>
<tr>
<td></td>
<td>Sugarcane</td>
<td>0</td>
<td>7184</td>
</tr>
<tr>
<td></td>
<td>Sunflower</td>
<td>14732</td>
<td>5575</td>
</tr>
<tr>
<td>Yadgiri</td>
<td>Paddy</td>
<td>2979</td>
<td>9510</td>
</tr>
</tbody>
</table>

Difference in DES & Agriculture Department, even after reconciliation are given below for the year 2011-12.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>District</th>
<th>JOWAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Des</td>
</tr>
<tr>
<td>Highest Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Bagalkot</td>
<td>6439</td>
</tr>
<tr>
<td>2</td>
<td>Belgaum</td>
<td>26501</td>
</tr>
<tr>
<td>Lowest Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Tumkur</td>
<td>195</td>
</tr>
<tr>
<td>2</td>
<td>Shimoga</td>
<td>149</td>
</tr>
<tr>
<td>3</td>
<td>Yadagiri</td>
<td>278</td>
</tr>
</tbody>
</table>
### RAGI

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shimoga</td>
<td>1003</td>
<td>261</td>
<td>73.98</td>
</tr>
<tr>
<td>2</td>
<td>Kodagu</td>
<td>229</td>
<td>90</td>
<td>60.70</td>
</tr>
<tr>
<td>3</td>
<td>Haveri</td>
<td>604</td>
<td>316</td>
<td>47.68</td>
</tr>
</tbody>
</table>

#### Highest Difference

- Shimoga: 73.98%
- Kodagu: 60.70%
- Haveri: 47.68%

#### Lowest Difference

- Tumkur: -18.48%
- Hassan: -14.21%

### MAIZE

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dharwad</td>
<td>40717</td>
<td>35595</td>
<td>12.58</td>
</tr>
<tr>
<td>2</td>
<td>Mandya</td>
<td>4498</td>
<td>4002</td>
<td>11.03</td>
</tr>
</tbody>
</table>

#### Highest Difference

- Dharwad: 12.58%
- Mandya: 11.03%

#### Lowest Difference

- Yadagiri: -1404.98%
- Bidar: -141.46%
- Shimoga: -46.08%
- Chickballapur: -16.92%
- Bangalore(R): -10.25%

### BAJRA

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Davangere</td>
<td>894</td>
<td>540</td>
<td>39.60</td>
</tr>
<tr>
<td>2</td>
<td>Yadagiri</td>
<td>17401</td>
<td>11959</td>
<td>31.27</td>
</tr>
</tbody>
</table>

#### Highest Difference

- Davangere: 39.60%
- Yadagiri: 31.27%
### Turkey Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>TUR</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Bidar</td>
<td>76010</td>
<td>66976</td>
<td>11.89</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Yadagiri</td>
<td>77524</td>
<td>69216</td>
<td>10.72</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bijapur</td>
<td>102093</td>
<td>92511</td>
<td>9.39</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Chickballapur</td>
<td>8165</td>
<td>7579</td>
<td>7.18</td>
<td></td>
</tr>
<tr>
<td>Lowest Difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Shimoga</td>
<td>444</td>
<td>1004</td>
<td>-126.13</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bangalore (U)</td>
<td>1013</td>
<td>1626</td>
<td>-60.51</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ramanagaram</td>
<td>3210</td>
<td>4328</td>
<td>-34.83</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bangalore (R)</td>
<td>1650</td>
<td>2095</td>
<td>-26.97</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Davangere</td>
<td>8352</td>
<td>10292</td>
<td>-23.23</td>
<td></td>
</tr>
</tbody>
</table>

### Horse Gram Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>HORSE-GRAM</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Davangere</td>
<td>724</td>
<td>8</td>
<td>98.90</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Chickballapur</td>
<td>1136</td>
<td>285</td>
<td>74.91</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bangalore (R)</td>
<td>838</td>
<td>242</td>
<td>71.12</td>
<td></td>
</tr>
<tr>
<td>Lowest Difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Yadagiri</td>
<td>63</td>
<td>476</td>
<td>-655.56</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Kolar</td>
<td>135</td>
<td>628</td>
<td>-365.19</td>
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</tr>
<tr>
<td>3</td>
<td>Bagalkot</td>
<td>730</td>
<td>1850</td>
<td>-153.42</td>
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</tr>
<tr>
<td>4</td>
<td>Chickmagalur</td>
<td>960</td>
<td>1900</td>
<td>-97.92</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Gadag</td>
<td>232</td>
<td>357</td>
<td>-53.88</td>
<td></td>
</tr>
</tbody>
</table>

### Black Gram Area

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>DISTRICT</th>
<th>BLACK-GRAM</th>
<th>Des</th>
<th>Agri</th>
<th>% Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Yadagiri</td>
<td>673</td>
<td>1015</td>
<td>-50.82</td>
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</tr>
<tr>
<td>2</td>
<td>Haveri</td>
<td>114</td>
<td>165</td>
<td>-44.74</td>
<td></td>
</tr>
<tr>
<td>Sl. No.</td>
<td>DISTRICT</td>
<td>GREEN-GRAM</td>
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<td>% Diff</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
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<td>---</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>30697</td>
<td>23316</td>
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<td>24.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42815</td>
<td>32850</td>
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<td>23.27</td>
</tr>
<tr>
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**Discrepancies under ICS:**
Discrepancies observed by Central & State agencies while conducting sample checks under ICS scheme for crop area enumeration and conduct of crop cutting experiments

**Discrepancies in recording of crops and crop area during 2008-2009**

<table>
<thead>
<tr>
<th>Year/Season/Agency</th>
<th>No. of Survey/ Sub-survey numbers</th>
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<tr>
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## Discrepancies in recording of crops and crop area during 2009-2010

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<th>Where crop area not tallied</th>
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## Discrepancies in recording of crops and crop area during 2010-11

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<th>No. of Survey/ Sub-survey numbers</th>
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## Supply of equipments for the conduct of crop cutting experiments During 2008-2009

<table>
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<th>No. &amp; (%) of experiments for which the primary workers were found not supplied with</th>
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<th>Balance</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
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### Supply of equipments for the conduct of crop cutting experiments During 2009-10

<table>
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<th>Balance No.</th>
<th>Weight No.</th>
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<tr>
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Supply of equipments for the conduct of crop cutting experiments 
During 2010-11

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<th>Year/ Season/ Agency</th>
<th>No. &amp; (%) of experiments for which the primary workers were found not supplied with</th>
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<th>Weight</th>
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<td>%</td>
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<td>%</td>
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Use of equipments for the conduct of crop cutting experiments 
During 2008-2009

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### Use of equipments for the conduct of crop cutting experiments

**During 2009-10**

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<th>Year/ Season / Agency</th>
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### Use of equipments for the conduct of crop cutting experiments

**During 2010-11**

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Variation of 1 Kg in a plot of 5x5 sq.mts will vary hectare yield by 4 quintals

**What do reports say?**

1) Accurate, timely and reliable agriculture statistics are not emanating because primary reporting agency i.e., Village Accountant with multiple functions and answerable only to the Revenue Department, is not recording the crop details on priority basis.
a) In the “Hand Book on Methods of Collection of Agricultural Statistics in India, Ministry of Agriculture”, Government of India and the Statistical Adviser, Institute of Agricultural Research Statistics, Indian Council of Agricultural Research, 1959, it is opined that “all though statistics of acreage are collected as part of the land records in the temporarily settled states, the data, at present, collected are not often reliable on account of defects of the primary reporting agencies. One of the chief causes of inaccuracy in the reporting of the primary reporting agencies is perhaps the large increase in the work of the patwari who has a heavy burden to bear. Being the only the Government official in the village, he has to undertake multifarious duties connected with various departmental and developmental schemes. As such, he has little time to devote to the proper compilation of agricultural statistics”.

b) The National Statistics Commission (2001), in its conclusions and recommendations pointed out that, “It is seen that a major reason for the poor quality of area statistics is the failure of the patwari agency to devote adequate time and attention to the girdwari. The fact that the patwari agency is over burdened with multifarious functions and has to cope with a large geographical jurisdiction, typically four to five villages and in some States extending over more than 10 villages (Bihar, Himachal Pradesh, Orissa and Uttarakhand) has long been acknowledged”.

c) Report of the Expert Committee on Agricultural Statistics, headed by Prof. Vaidyanathan (2011), observed that “the central problem is the deterioration of the system of maintaining village land use and crop records – the basic source of primary data. Village level revenue staffs are increasingly over burdened with multiple functions; maintenance of accurate and complete agricultural data is given a low priority. Supervision of crop related records is increasingly rare and far too perfunctory to ensure their completeness and accuracy”.

In all the above three reports it has been said as follows:

“Being the only the Government Official in the village, he has to undertake multifarious duties connected with various departmental and developmental schemes. As such, he has little time to devote to the proper compilation of Agricultural Statistics”

Recommendations of National Statistical Commission:

The following recommendations in the report of National Statistical Commission August 2001 on Crop Area and Production Estimates

Crop Area Statistics:

1. As the data from a 20 percent sample is large enough to estimate crop area with a sufficient degree of precision at the all-India, State and district levels, crop area forecasts and final area estimates issued by the Ministry of Agriculture should be based on the results of the 20 percent Timely Reporting Scheme (TRS) villages in the temporarily settled States and Establishment of an Agency for Reporting Agricultural Statistics (EARAS) scheme villages in the permanently settled states. In the case of the North-Eastern States, Remote sensing methodology should be used for this purpose after testing its viability.
2. The patwari and the supervisors above him should be mandated to accord the highest priority to the work of the girdawari and the pawari be spared, if necessary, from other duties during the period of girdawari.

3. The patwari and the primary staff employed in Establishment of an Agency for Reporting Agricultural Statistics (EARAS) should be imparted systematic and periodic training and the fieldwork should be subjected to intensive supervision by the higher-level revenue officials as well as by the technical staff.

4. For proper and timely conduct of the girdawari, the concerned supervisory staff should be made accountable.

5. Timely Reporting Scheme (TRS) and Establishment of an Agency for Reporting Agricultural Statistics (EARAS) scheme should be regarded as programme of national importance and the Government of India at the highest level should prevail upon the State Government to give due priority to them, deploy adequate resources for the purpose and ensure proper conduct of field operations in time.

**Crop Production:**

6. In view of the importance of reliable estimates of crop production, the States should take all necessary measures to ensure that the crop cutting surveys under the General Crop Estimation Survey (GCES) are carried out strictly according to the prescribed programme.

7. Efforts should be made to reduce the diversity of agencies involved in the fieldwork of crop cutting experiments and use as far as possible agricultural and Statistical personnel for better control of field operations.

8. A statistical study be carried out to explore the feasibility of using the Improvement of Crop Statistics (ICS) data for working out a correction or adjustment factor to be applied to official statistics of crop area to generate alternative estimates of the same. Given the past experience of the Land Utilization Surveys of the NSS and the controversies they created, the Commission is of the view that the objective of redesigning of the ICS, at present, should be restricted to working out a correction factor.

9. The two series of experiments conducted under the National Agricultural Insurance Scheme (NAIS) and the General Crop Estimation Survey (GCES) should not be combined for deriving estimates of production as the objectives of the two series are different land their merger will affect the quality of general crop estimates.

10. Crop estimates below the level of district are required to meet several needs including those of the National Agricultural Insurance Scheme (NAIS). Special studies should be taken up by the National Statistical Office to develop appropriate "small area estimation " techniques for this purpose.
Crop Forecasts:

11. The Ministry of Agricultural and the National Crop Forecasting Centre (NCFC) should soon put in place an objective method of forecasting the production of crops.

12. The National crop Forecasting Centre (NCFC) should be adequately strengthened with professional statisticians and experts in other related fields.

13. The programme of Forecasting Agricultural output using Space, Agro-meteorology and Land based observations (FASAL) is experimenting the approach of Remote Sensing to estimate the area under principal crops should be actively pursued.

14. The State should be assisted by the centre in adopting the objective techniques to be developed by the National Crop Forecasting Centre (NCFC).

Production of Horticultural Crops:

15. The methodology adopted in the pilot scheme of “Crop Estimation Survey on Fruits and Vegetables” should be reviewed and an alternative methodology for estimating the production of horticultural crops should be developed taking into account information flowing from all sources including market arrivals, exports land growers associations. Special studies required to establish the feasibility of such a methodology should be taken up by a team comprising representatives from Indian Agricultural Statistics Research Institute (IASRI), Directorate of Economics and Statistics, Ministry of Agriculture (DESMOA), Field operations Division of National Sample Survey Organization (NSSO/FOD) and from one or two major States growing horticultural crops. The alternative methodology should be tried out on a pilot basis before actually implementing it on a large scale.

16. A suitable methodology for estimating the production of crops such as mushroom, herbs and floriculture needs to be developed and this should be entrusted to expert team comprising representatives from Indian Agricultural Statistics Research Institute (IASRI), Directorate of Economics and Statistics, Ministry of Agriculture (DESMOA), Field operations Division of National Sample Survey Organization (NSSO/FOD) and from one or two major States growing these crops.

Land Use:

17. The nine-fold classification of land use should be slightly enlarges to cover two or three more categories such as social forestry, marshy and water logged land, and land under still waters, which are of common interest to the centre and States, and which can easily be identified by the patwari through visual observation.

18. State Governments should ensure that computerization of land records is completed expeditiously.

Irrigation Statistics:
19. In view of wide variation between the irrigated area generated by the Ministry of Agriculture and the Ministry of Water Resources, the State Governments should make an attempt to explain and reduce the divergence, to the extent possible, through mutual consultation between the two agencies engaged in the data collection at the local level.

20. The State Directorates of Economics and Statistics (DESs) should be made the nodal agencies in respect of irrigation statistics and they should establish direct links with the State and Central Agencies concerned to secure speedy data flow.

21. Statistical monitoring the evaluation cells with trained statistical personal should be created in the field offices of the Central Water Commission (CWC) in order to generated a variety of statistics relating to water use.

22. The Central Statistical Organization (CSO) should designate a senior level officer to interact with the central and State irrigation authorities in order to promote an efficient system of water resources statistics and oversee its activities.

**Strengths Weakness Opportunity & Threats (SWOT) ANALYSIS of the Agricultural Statistical System of the State**

**Strengths:**

1. The Directorate of Economics and Statistics is the State Agricultural Statistics Authority (SASA).
2. Usage of well established methodology.
3. Nodal Agency for state statistical activities.
4. Good demand for agricultural data from academicians and researchers, especially from researchers of Agriculture University, NGO’s and agriculture based entrepreneurs.
5. Only agency compiling seasonwise and cropwise area of all crops (land use statistics and irrigation statistics) area, production and productivity of 60 crops.
6. Reconciliation of area statistics, seasonwise/cropwise at Taluk/District level by Agriculture, Horticulture, Irrigation and Revenue departments.
7. Yield rates of crops under crop insurance are in great demand by farmers and insurance company.
8. Computation of GSDP estimates on the basis of Area and production estimates.
9. The results of crop cutting experiments are considered to decide on crops for minimum support price.
10. Correction factor used for adjustment of area under field ridges and bund.
11. Supervision by DES and line departments
12. Imparting regular/refresher training classes.
14. Four times crop enumeration in a year.
15. Presence of statistical personnel at different levels of hierarchy in line departments.
16. Inbuilt checks and balances in the form of Reconciliation and ICS.
17. Availability of skilled personnel.
18. Land use details are available since 1955.

Weaknesses:

1. Lack of knowledge of methodology and importance of area and production estimates in field staff and supervisory staff.
2. No Information Education and Communication (IEC) activity.
3. Absence of primary statistical personnel at the Gram Panchayat level.
4. Problems observed under ICS Scheme.
   a) Not writing of RTC in time
   b) Partial writing of RTC.
   c) Late submission of TRS abstracts.
   d) Crop and crop area reported by Village Account and Supervisor differ.
   e) Differences in reporting irrigation/seed variety.
5. Work load of Village Accountant.
   a) Inadequate time and attention to the writing up of RTC.
   b) Large geographical jurisdiction with 4 to 5 villages on an average.
   c) Due priority has not been assigned to the writing of RTC in working schedule.
   d) Vibrant horticultural statistics especially short duration crops are not recorded in RTC.
   e) Little time to spare for area enumeration is left because of miscellaneous work such as identification of BPL families, issue of ration cards, election drought etc., which is a never ending process.
6. Non existence of legislation to solicit cooperation from public.
7. Timeliness and accuracy, not maintained by Village Accountants
8. Lack of skill by primary and supervisory staff for area enumeration and crop cutting experiments.
9. Lack of well defined training for recording of RTC for mixed crops.
10. Methodology to estimate yield of Horticulture crops to be improved.
11. Lack of interest in owning the statistical information by the concerned departments.
12. Lack of horizontal and vertical co-ordination among the line departments.
13. Irrigation source wise, variety wise, crop wise enumeration details are not forthcoming from Bhoomi. Auto aggregation is not available on area.
15. Non availability of hissa maps (atlas).
16. Reconciliation, not done in its true spirit for Horticulture crops, unauthorized cultivation area.
17. Vacancy of statistical staff at primary and supervisory level.
19. Posts to be filled up at village level by line departments.
20. Unscientific methodology of collecting of area, yield and production statistics in line departments for estimates.
21. Lack in service training facility.
22. Usage of inaccurate CES equipment by primary workers.
23. Increase in work load of primary workers.
24. Due to insurance claim, primary worker has pressure to under estimate crop cutting experiments.

**Opportunities:**

1. The system of complete crop enumeration stood the test of time and proved to be cost effective and efficient in generating crop and land use statistics. To improve the crop statistics-
   a) Declaration of Crop enumeration period as a programme of high priority
   b) Sparing Village Accountant of all other duties during crop enumeration period.
   c) Enumeration of TRS sample villages to be done on priority.
2. Advance I.T. infrastructure to be made available.
3. Manpower skills for collection and analysis of data be improved through training.
4. Periodical sample surveys on various crops not covered under CES for estimate of area and yield.
5. IEC activities by outsourcing.
7. Necessity of Statistical act with the immunity from litigation.
8. Village level agricultural statistical information shall be published seasonwise, relating to land use irrigation and crops grown.
9. Creation of a statistical cell at Gram Panchayath level for various coordination activities.
10. Increase in supervision of area enumeration and crop cutting experiments to be mandatory up to the level of Additional Director of Agriculture, Horticulture, Revenue, RD&PR, Watershed, Irrigation and Directorate of Economics and Statistics departments. This should be reviewed at State level in KJP by Development Commissioner.
11. Methodologies to be devised for cross checking of data of market arrivals in markets.
12. A methodology to be devised to arrive at area and yield figures at appropriate level by using Improvement of Crop Statistics and Timely Reporting Scheme and results of H schedules of Agriculture Census.
**Threats:**

1. Village Accountant does not know the importance of proper writing of RTC.
2. Lack of knowledge about the importance of agricultural statistical data in all levels.
3. Negligence towards statistical work by line departments.
4. Lack of sufficient statistical personnel in Line departments
5. Least priority to filling up of vacant posts by Government.
6. External pressure affects the yield rates in crop insurance scheme.
7. Downsizing of staff under economic measures always affects statistical staff of line departments.
8. No budgetary support for special studies/surveys.
9. Low priority to statistical work by Revenue Department.

**ROAD MAP TO IMPROVE CROP AREA AND PRODUCTION STATISTICS**

**Goals and Strategies:**

**Goal: 1 Creating awareness among public.**

Creating awareness among farmers and public will increase the accuracy of the ground level information, by receiving crop sown and yield rate particulars given voluntarily to administration.

**Strategy: 1** This can be achieved by Information, Education and Communication (IEC) Activity. IEC involves workshops, seminars to farmers, canvassing activities related to agriculture statistics and its importance in Grama sabhas, through pamphlets and other publicity. NGOs may be involved to propagate the importance of agriculture statistics among the public by media, pamphlets, handbooks etc.

**Goal: 2 Increase the accuracy and reliability of statistics.**

More accurate and reliable agriculture statistics is very much necessary as this statistics gives the totality of the effect of implementation of the development schemes.

**Strategy: 1.** A government enactment for field inspection and writing of RTC in scheduled period. A government order to declare the writing of RTC as a programme of high priority and the Village Accountants and Revenue Inspectors be mandated to carry out the crop inspection according to the prescribed time schedule by sparing him from other duties during crop enumeration period through necessary amendment to Karnataka Land Records Act and Rules.

**Strategy: 2.** A methodology to be derived to augment results of ICS and TRS with that of final area and production estimates. A correction factor may be derived from the observation in area enumeration of ICS.
Strategy 3. Exploring the possibility of Arial Photography and Remote Sensing. The programme of forecasting of agricultural output using Space, Argometerology and land based observation (FASAL) which is experimenting the approach of remote sensing to estimate the area under principle crops is to be used for cross checking the accuracy.

Goal: 3 Increase of accountability.


Strategy 2. Lapse due to negligence in conducting of crop cutting experiments and non-writing of RTC are to be made punishable.

Strategy 3. Failure in supervision is to be made punishable.

Goal: 4 A scientific, simpler methodology to cover more crops for accurate estimates.

Strategy 1. A simplest methodology to include more fruits and vegetable crops under area and yield estimation survey on fruits and vegetables. The methodology adopted in the pilot scheme of crop estimation survey on fruits and vegetables should be reviewed and an alternative methodology for estimating production of horticulture crops like flowers, orchids etc. should be developed taking into account information flowing from all sources including market arrivals, exports and growers association.

Strategy 2. A systematic method of oral enquiry to estimate yield. Oral enquiry method may be launched on a pilot basis for one or two crops, to start with. In this method, farmers growing the crop under survey will be questioned directly regarding area, production and productivity in the village. This gives first-hand information.

Goal 5: Development of skill and capability of the staff.

Strategy 1. Intensive training to field staff and supervisory staff.

Strategy 2. An inbuilt model of training in all line departments in their in-service training.

Strategy 3. To have a continuous in-service training for capacity building, an institute for training is to be established for DES, which has to be an institute to guide and conduct surveys also.

Goal 6 Improve the credibility of the system.

Strategy 1. Follow up supervisions in ICS for corrective actions. Under ICS, follow up supervision should be undertaken in the defaulting villages in the succeeding year.

Strategy 2. Improve the credibility by co-ordinating among the line departments. Inter departmental committees starting from grass root levels to the apex level should be formed. The frequency of meetings of these committees should be increased. A committee has been formed to narrow down the differences in horticulture statistics with members from both the departments.

Strategy 3. Introduction of supervision by state level officers of the concerned departments. To have more credible and accurate statistics the supervision structure has to include state level officers up to the level of additional directors of Revenue, RDe&PR, Agriculture, Horticulture, Irrigation and Statistics departments.

Strategy 4. Monitoring of conduct of area enumeration and crop cutting experiments by concerned departments in Karnataka Development Programmes meeting. To improve the quality of area and production estimates and to make the primary worker aware of the seriousness of area enumeration and
crop cutting experiments, this may be added in KDP formats as separate points. These should be discussed threadbare in the KDP meetings and serious action should be taken against defaulters.

**Goal 7: Improve the timeliness.**

**Strategy 1.** Use of latest technology for onward transmission of information. Field personnel may be provided with mobiles and simputers for transparent and speedy dissemination of data.

**Strategy 2.** Computerisation of RTC. Bhoomi in coordination with NIC has to make the formats more comprehensive to include all types of crop area details.

**Strategy 3.** Timely publication of the periodicals. The five publications of schemes on area and production estimates are to be brought out with in cut off date.

**Goal 8: Development of better sustainable system to have reliable, credible and timely area and production statistics.**

**Strategy 1.** There is large number of vacant posts in taluk and below level of DES, Agriculture, Horticulture, Revenue and RD&PR departments. These posts are to be filled up at least in a phased manner with in three years to have better field work, supervision and monitoring. If all the posts are filled up, the percentage of supervision may be increased for accuracy.

**Strategy 2.** Committed staff only for collection of statistics will increase reliability, credibility and timeliness. Creation of a separate statistical cell at Gram panchayath level for doing agriculture statistics work, surveys, census and collection of basic statistics etc will increase the reliability, credibility and timeliness of statistical information.

**Type studies recommended on Crop Area & Production Statistics**

1. **Oral Enquiry method for horticulture crops:**
   
   In order to reduce the divergence of horticulture figures by DES and Horticulture department, oral enquiry method may be adopted to estimate area and production of horticulture crops, by interviewing the horticultural farmers, on random basis with sufficient number of samples.

2. **Study on the ICS villages of the preceding year.**
   
   A study may be conducted in defaulting ICS villages of preceding year to verify whether corrective measures are taken by the concerned officials/officers.

3. **Study on verification of agricultural Statistics figures by outsourcing:**
   
   A study may be entrusted to a non-governmental agency to cross check the figures of area enumeration and crop cutting experiments of the department on sample basis for one or two major crops in
two or three districts. Since it is an independent study from non-governmental agency, an impartial and comparative view on present system of area enumeration and production estimates may be obtained, with its merits and demerits is helpful in increasing the accuracy.

4. Study of bund/ridge correction:

A sample survey to arrive at percentage of bund correction/ridge correction to be applied in production estimates.

Efforts by Directorate of Economics and Statistics under KSSSP:

1) Creation of awareness:

a. Training: Every Year, training is given to village accountants, on updation of RTC and on procedures of crop cutting experiments

b. Special Drive: Special Drive is taken up for season-wise complete area enumeration in TRS villages in a systematic manner from 2009-10 and supervised by the officers of the stake holder departments.

c. Creation of Awareness: State level training to trainers to create awareness for entry of crop details in pahani was conducted. These trainers, in turn have imparted training to the taluk level trainees at the district level, who in turn acted as resource personnel at the hobli level to create awareness to elected panchayath raj members. A Hand Book on enumeration of crop details and conduct of CCEs is prepared and distributed by the DES. This awareness campaign was conducted in 2011-12 and continued in 2012-13.

d. Updation of Bhoomi: 12th and 13th Columns of RTC which deal with season-wise, irrigated/unirrigated status wise, variety-wise, crop details and land use, have been neglected by the present system. Besides having correspondence with the Bhoomi, to update the crop details, irrigated details and 9 fold classification, in time, in Bhoomi software, the importance of these columns have been highlighted during the above mentioned workshops and trainings were imparted to all the tahasildars and Assistant Commissioners in 2011-12.

e. Using of Remote Sensing: As per the recommendation of Prof. Vaidyanathan Committee’s Report, GOI has taken up comparative study in 15 villages, out of which four villages are from Karnataka State. The conclusion is that “the pilot study in selected villages to explore the use of RS to track land use and cropping at the village level shows the limited capacity of LISS III for this purpose. Much more work is essential to understand its potentials and limitations before RS can be put to effective use”.

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2) **Correction factor:** A methodology is sought from IASRI to compare the results of ICS and TRS with that of final figures, by devising a correction factor. Expert Committee on Agricultural Statistics was set up by GOI and one of its terms of reference was to review TRS, EARAS and ICS schemes to arrive at a correction factor.

- The Committee in its reports stated that the desired convergence of various schemes like TRS, EARAS and ICS has not happened and the recommendations of various expert groups including the National Statistical Commission couldn’t make any visible impact on the present system.
- Instead it recommended the establishment of NCSC (National Crop Statistics Center) for producing reliable and timely data on land use, crop area and crop yield.

3) **Web Updation:** KSSSP is preparing the software for crop abstract updation through web with the help of NIC.

4) **Timely Publication:** Efforts are being made to bring out the publications on time

Further steps taken by the department are as follows:

1) Under KSSSP, a “Special Drive” has been initiated to involve horticulture staff both at area enumeration and supervision levels. Accordingly in TRS villages, village accountant, agriculture assistant, horticulture assistant and work inspector should conduct crop inspection before the village accountant enters the crop details in the RTC. Supervision should be done at the rate of 25% each, by the officers of Agriculture, Horticulture, Irrigation and Directorate of Economics and Statistics Departments.

2) A baseline survey for major horticulture crops in few taluks in order to identify the areas of permanent and semi-permanent crops and to find the actual departure in area statistics given by DES and Horticulture Department. This survey of conducting base line horticulture census in 11 Districts is initiated with a proposal of Rs. 6.15 crores (1.15 crores under 13th Fin. & 5 crores under State Budget)

3) Vacant Statistical Posts of DES in the field are provided by outsourcing from KSSDA.

4) Follow up supervision is being carried out by State Level in case of ICS State Sample villages covered under crop area enumeration sample check where more mistakes were found.

5) Counter check for the Special Drive supervision by the line departments is also being carried out by State Level officers of DES.

6) Proposal to GOI
To redress the problems arising out of the current dependence on functionary of Revenue Department at the village level for collecting and maintaining records of land use and conducted of crop cutting experiments, it was proposed to Ministry of Agriculture and Co-operation, GOI, to provide fund of Rs.58.82 crores to have personnel by outsourcing, who are accountable to DES.

***************
1a. Issues and solutions in Horticulture Statistics *

Introduction:

Horticulture is an important sub-sector of agriculture and is contributing in an increasing manner to the national and state economy. It is necessary to have accurate statistics with regard to both area and productivity for purpose of planning and also for assessing the Gross State Domestic Product (GSDP). However, there are considerable discrepancies in the figures relating to horticulture furnished by National Horticulture Board (NHB) and the Directorate of Economics & Statistics.

Horticulture Statistics are collected by Horticulture Department and Directorate of Economics and Statistics. The latter collects it as a part of Agriculture Statistics. Many discrepancies are found in the horticulture figures reported by these two agencies, each claiming the authenticity of figure.

Area and Yield

Methodology adopted by Horticulture Department

The department of Horticulture is publishing “Horticultural crops Statistics of Karnataka State at a glance” every year. The department determines the area covered under different horticulture crops on the basis of the seeds and horticulture plants distributed in Taluks and Districts. The production figures under different horticulture crops are obtained by considering the yield of the individual crop based on the package of practices recommended by the University of Agriculture Sciences, Bangalore and Dharwad under normal conditions.

Methodology adopted by Directorate of Economics & Statistics

The Directorate of Economics and Statistics collects the area information from the Record of Rights, Tenancy and Crops written by the village accountants for all the villages in all the seasons viz. Kharif, Rabi and summer.

The entire edifice of agriculture statistics in Directorate of Economics & Statistics stands on Record of Rights, Tenancy and Crops (RTC). At the Taluk Level, reconciliation meetings are chaired by the Tahasildar. The members of the Co-ordination Committee are Senior Assistant Director of Horticulture, Asst. Director of Agriculture and Asst. Executive Engineer of Water Resources Department. After getting approval at the taluk level, the same information is sent to the Dist. Statistical Office to get the approval at District Level Committee. These meetings take place for all the three seasons. In the Dist. Statistical Office all the taluk information is consolidated. This Report is approved in the District Level Reconciliation Committee meeting headed by the District Commissioner. The members are Joint Director of Agriculture, Deputy Director of Horticulture, Executive Engineer of Water Resources Department and Dist. Statistics Officer. Thus the data will flow from village to taluk, to district and district to state.

* Sri K.V.Subramaniam, Joint Director, AGS Division & Smt.Jyothi, ASO, Smt.Hemalatha, ASO, F&V Section, Directorate of Economic & Statistics
Crop Estimation Survey on Fruits, Vegetable & Minor Crops:

A Scheme to enumerate selected fruits, vegetables and minor crop is implemented in Directorate of Economics and Statistics under “Crop Estimation Survey on fruit, vegetable and minor crops”

The survey includes banana, grapes, mango, guava, pomogranate, sapota and lemon, under fruits, beans, tomato, brinjal and cabbage under vegetables and turmeric under minor crops.

It aims at estimating area, yield and production with an acceptable degree of precision. For area estimation, two stage random sampling design is adopted which is depicted below:

Taluks (strata)

Villages (1st stage units)

Orchards/sub survey numbers (2nd stage units)

For yield estimation three stage random sampling is followed.

Taluks (strata)

Village (1st stage units)

Orchards (2nd stage units)

Cluster of trees/Plants (3rd stage units)

Yield Estimation by DES:

Directorate of Economics and Statistics follows the time tested and scientifically proved crop cutting experiments under General Crop Estimation Survey (SCES) to arrive at yield rates of onion, potato, dry chillies and crops included in sample survey of fruits, vegetables and minor crops.

Under these crops yield rates and production of horticulture crops computed by Directorate of Economics and Statistics do not tally with that of Horticulture Department. It is paradoxical to note that the horticulture department does not take these yield rates inspite of the fact that the officers/officials have actively participated in the crop cutting experiments of these horticultural crops at Taluk level.

Oral Enquiry Method:

The horticulture crops included under oral enquiry method of yield estimation are Madaki, Nigarseed, Mustard, Peas, Kori, Mesta, Papaya, coconut, Arecanut, Ginger, Cardamam, Garlic, Pepper, Coriander, Cashewnut, Sweet Potato, Tapico, in the year 2009-10. The procedure of oral enquiry method is as follows:
Districts with largest area of the respective crop are selected. Out of each district 2 taluks at least with a minimum area of 25 hectares are selected. In each taluk, 2 villages are randomly selected (in case of greater area taluks 4 villages are selected) and thus effort is made to make the samples more representative and from each village 10 farmers are randomly selected and information is elicited as per prescribed schedules so as to get yield rates of that crop.

**Comparison:**

It may be observed that there is lot of variation in the two sets of figures arrived at by Directorate of Economics and Statistics and Horticulture Departments as given in annexure. As per Horticulture Department, the area and yield rates are higher side in respect of almost all crops than the estimates of Directorate Economics and Statistics (see Annexure).

<table>
<thead>
<tr>
<th>CROPS</th>
<th>2009-10 (Area in Hectares)</th>
<th>2010-11 (Area in Hectares)</th>
<th>% Variation over DES</th>
<th>% Variation over DES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DES</td>
<td>HORTICULTURE</td>
<td>DES</td>
<td>HORTICULTURE</td>
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<tr>
<td><strong>I. Vegetables</strong></td>
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<tr>
<td>1. Potato (CES)</td>
<td>37108</td>
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<td>2. Onion (CES)</td>
<td>191903</td>
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<td>3. Tomato (F&amp;V)</td>
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<td>48773</td>
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<td>4. Sweet Potato (F&amp;V)</td>
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<td>2554</td>
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<td>5. Beans (F&amp;V)</td>
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<td><strong>II Fruits</strong></td>
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<tr>
<td>1. Mango (F&amp;V)</td>
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<td>4. Guava (F&amp;V)</td>
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<td>7168</td>
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<td>4804</td>
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<td>5. Sapota (F&amp;V)</td>
<td>17707</td>
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<td>65.54</td>
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<td><strong>III Condiments and Spices</strong></td>
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<tr>
<td>1. Dry Chilies (CES)</td>
<td>138711</td>
<td>121501</td>
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<td>19706</td>
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<td>3. Cardamom (NON CES)</td>
<td>19182</td>
<td>19899</td>
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<td>19081</td>
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<td>4. Dry Ginger (NON CES)</td>
<td>44837</td>
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<td>46511</td>
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<td><strong>IV Garden/Plantation Crops</strong></td>
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<td>1. Cashewnut (Rawnut)</td>
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<td>487075</td>
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The above annexure provides comparison of area and yield of important Horticulture crops for the year 2009-10 and 2010-11 of DES with that of Horticulture Department.

It is observed that Horticulture Department area is more compared to DES in vegetables, Fruits, Condiments and spices, Garden/plantation crops during both the year, but for onion (-5.48%) among vegetables in 2009-10, Dry chillies (-12.41%) in 2009-10 and (-5.60%) in 2010-11 among condiments and spices. The percentage variation is high in Beans among vegetables, Sapota in fruits and Black pepper in Condiments and spices and coconut in Garden crops.
### CROPS

<table>
<thead>
<tr>
<th>DATES</th>
<th>DES</th>
<th>HORTICULTURE</th>
<th>% Variation over DES</th>
<th>DES</th>
<th>HORTICULTURE</th>
<th>% Variation over DES</th>
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<tr>
<td>2009-10 (Yield in kgs/Hectare)</td>
<td>2010-11 (Yield in kgs/Hectare)</td>
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<td><strong>I. VEGETABLES</strong></td>
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<td><strong>III. Condiments and Spices</strong></td>
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<td>3655</td>
<td>10010</td>
<td>173.87</td>
</tr>
<tr>
<td><strong>IV. Garden/Plantation Crops</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Cashewnut (Rawnut)</td>
<td>766</td>
<td>1480</td>
<td>93.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Coconut (No. of nuts)</td>
<td>7182</td>
<td>11100</td>
<td>54.55</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed that Yield of vegetables given by Horticulture Department are more in all the crops compared to DES in both the year i.e. 2009-10 and 2010-11. Except for Banana (-7.15%) in 2009-10 and Grapes (-41.21% and 57.10%) in both the years among fruits, drychillies (-5.53, 5.60) and black pepper (-4.00) among condiments and spices in 2009-10 and 2010-11.

**Interest of the Department:**

Horticulture Department is the participating department in reconciliation process at taluk and district level. It is observed every year that the Horticulture Department does not stick to the reconciled area, which they only have approved.

Following two situations shows us the interest by the Horticulture Department to minimise the discrepancies in area statistics.

1. For improving quality, reliability and timeliness of Agricultural Statistics and to reduce the time lag between the period of sowing and the availability of estimates of area sown, between completion of harvesting and availability of estimates of production in respect of important crops, the Directorate of Economics & Statistics, Ministry of Agriculture initiated TRS in 1969-70 in the land record states. The area of principal crops such as Paddy, Jowar, Bajra, Maize, Ragi, Wheat, Tur, Gram, Sugarcane, Cotton, Groundnut, Sesamum, Sunflower, Safflower and linseed are estimated under the scheme.

2. A special drive is taken up for complete crop area enumeration in TRS villages (20% of total village selected every year) in a systematic manner. This drive was taken up during 2009-10, is continued and completed during 2010-11 and 2011-12. Supervision work entrusted to the officers of Stake holder departments i.e., Revenue, Agriculture, Horticulture and Directorate of Economics.
and Statistics at the rate of 25% each. It is observed that the percentage of supervision properly done is 78% by Revenue, 95% by Directorate of Economics and Statistics, 91% by Agriculture and 61% by Horticulture during 2010-11. In 2011-12 it is observed that the percentage of supervision properly done is 89% by Revenue, 95% by Directorate of Economics and Statistics, 83% by Agriculture and 50% by Horticulture. This shows that the interest of the department in updating RTC is minimum.

**Problems:**

The agriculture statistics, generated in Directorate of Economics and Statistics, with many checks and balances at different levels i.e. village, taluk and district levels are more authentic, whereas for horticulture crops following are the constraints.

1. Fruit trees, besides being grown in regular orchards, are also extensively grown on canal banks, field bunds, roadsides, backyard of houses and even as stray trees.
2. Horticulture crops which are of short duration are likely to be left out during area enumeration.
3. The domain of horticultural statistics is rural and hence does not provide any scope of covering urban areas, nurseries and poly houses.
4. Intermediate growing of the horticulture crops between Kharif and Rabi & Rabi and summer are not reported by village accountant. Horticulture crops are grown with greater flexibility of sowing and harvesting.
5. The domain of horticulture crop is large covering fruits, vegetables, aromatic plants, medicinal and herbs, spices, nuts and flowers. The inadequate reporting of area in respect of these crops is due to their large number, their identification and flexibility of their cultivation.
6. The National Statistical Commission recommended that the scheme should be reviewed and an alternative methodology for estimating the production of horticultural crops should be developed taking into account information flowing from all source including market arrivals, exports and growers associations.
7. Horticulture crops are many times a mixed crop. At the time of writing of mixed crops area in RTC, its proportions are not properly calculated due to lack of knowledge of average plants that should be in an hectare.
8. A clear cut methodology to estimate area of horticulture crops was not given either by Revenue Department in the Government order of 1961 or Horticulture Department in case of relay crops/mixed crops.
9. The yield rates and production of Horticulture crops computed by DES do not tally with that of Horticulture Department. It is paradoxical to note that the horticulture department does not take the yield rates inspite of the fact that the officers/officials have actively participated in the crop cutting experiments of horticulture crops at Taluk Level.

**Solutions**

1. Village accountants in Revenue Department are not updating the Pahani records. Hence outsourcing staff may be recruited from DES for this purpose who should be accountable to DES.
2. Horticulture Department is participating in crop cutting experiments conducted by DES in Banana, Mango, Grapes, Guava, Sapota onion, pototao, Tomato, Beans, Drychillies, Cardamon, DryGinger and Dry chillies. Therefore they should consider yield of these crops in their publication.

3. To arrive at reality, a baseline survey or one time horticulture Census of crop area be conducted.

4. Intensive training to be given to village Accountants and statistical staff about writing of RTC.

5. ‘State Horticultural Statistics Authority’ to be created.

6. Horticulture Department should maintain farmerwise, villagewise horticulture statistics.

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2. Crop Area, Yield and Production Statistics*

AGRICULTURE IN INDIA

India is an agricultural country. About seventy percent of our population depends on agriculture. One-third of our National income comes from agriculture. Our economy is based on agriculture. The development of agriculture has much to do with the economic welfare of our country.

Our agriculture remained under developed for a long time. We did not produce enough food for our people. Our country had to buy food-grains from other countries, but the things are changing now. India is producing more food-grains than its needs. Some food-grains are being sent to other countries. Great improvements have been made in agriculture through our five year plans. Green Revolution has been brought about in the agricultural field. Now our country is self-sufficient in food-grains. It is now in a position to export surplus food-grains and some other agricultural products to other countries.

Now India ranks first in the world in the production of tea and groundnuts. It ranks second in the world in the production of rice, sugarcane, jute and oil seeds. Till recent past before independence our agriculture depended on rains. As a result our agriculture produce was very small. In case the monsoons were good, we got a good harvest and in case the monsoons were not good, the crops failed and there was famine in some parts of the country. After the independence our Government made plans for the development of its agriculture.

AGRICULTURE STATISTICS IN INDIA

Agricultural statistics in India have a long tradition. ArthaShastra of Kautilya makes a mention of their collection as a part of the administrative system. During the Moghul period also some basic agricultural statistics were collected to meet the needs of revenue administration. Ain-e-Akbari is most important document which throws great light on the manner in which statistics were collected during the moghul period. After the Moghul period British rule started in the country Ryotwari System was introduced during 18th Century by the East India Company to collect land revenue. The historical famine of 1860 emphasized the need for more statistical information. In 1866, the British Government Initiated collection of agricultural statistics mainly as a byproduct of revenue administration and these reflected the then primary interest of the Government in the collection of land revenue. Subsequently, the emphasis shifted to crop forecasts designed primarily to serve the British trade interests.

After the First World War significant improvements were made in the agricultural statistics of the country. The Royal Commission of Agriculture was appointed in 1926 by Government of India, to examine the conditions of agricultural and rural economy. The Commission recommended the constitution of the Imperial Council of Agricultural Research which was renamed after independence as the Indian Council of Agricultural Research (ICAR).

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During the Second World War, when the attention of the Government was focused on the critical food situation, the need for timely and reliable statistics of food production was keenly felt for implementation of food policy and administration of controls. The initiation of the crop-cutting experiments based on random sample surveys for estimation of yield rates of principal crops for replacing the traditional eye-appraisal method was the direct result.

With the ushering in of the planning era in 1951-52 greater attention was paid to the improvements in the collection of statistical data on a number of items and various schemes for improvement of agricultural statistics were implemented by the Central and State Governments as part of the successive five year plans.

Agriculture being a state subject and statistics falling in the concurrent list the Agricultural Statistics System is a decentralized one with the state governments (The State Agricultural Statistics Authorities, or SASAs, henceforth) playing a predominant role in collection and compilation of agricultural statistics and more particularly the crop statistics. The Directorate of Economics and Statistics (DES), Ministry of Agriculture at the Centre is the pivotal agency for coordination and compilation of agricultural statistics at all India level. Other principal agencies which collect data and conduct methodological studies on agricultural statistics are the National Sample Survey Organisation (NSSO), the Indian Agricultural Statistics Research Institute (IASRI), the State Directorate of Economics and Statistics (State DESs), etc.

The present system of agricultural statistics generates valuable statistics on a vast number of parameters. Some of the very important statistics are land-use statistics and area under principal crops through the Timely Reporting Scheme (TRS) and also on complete enumeration basis, yield and Production estimates through the General Crop Estimation Surveys (GCES), cost of production estimates, agricultural wages, irrigation statistics etc.

**Crop Area Statistics**

The information on crop area statistics is backbone of Agricultural statistical system. Reliable and timely information on crop area is of great importance to planners and policy makers for efficient and timely agricultural development and making important decisions with respect to procurement, storage, public distribution, export, import and other related issues.

Karnataka possesses an excellent tradition and infrastructure in generating comprehensive series of crop and land use statistics. Of late, the quality of area and crop statistics is deteriorating. Most parts of our State the Land records are not being updated properly. This is mainly due to lack of field knowledge, administrative apathy and inaction.

In Karnataka Area and Land use Statistics form a part of the Land records maintained by the Revenue authority. Statistics of Crop area are compiled with the help of the Village Accountant commonly known as Patwari Agent.
The crop area statistics collected by village accountant in the temporarily settled States are on the basis of complete enumeration called girdawari. The village accountant is to visit each and every field of the village in each crop season and record the information such as area under different crops / land use categories and its status in standard forms called Khasra register (Pahani).

The Directorate of Economics and Statistics is the State Agricultural Statistics Authority (SASA) and has been designated as the Nodal Agency for state statistical activities.

Karnataka State has a well-established methodology of collection of agricultural statistics with three time crop enumeration in a year. In addition there is successful effort in the computerization of all land records and Land use details in the Bhoomi software are available since 1955.

DES is collecting information on agricultural statistics in each season through Village Accountants compilation of hobli wise crop area statistics and land use particulars are being recorded at taluk level. Reconciliation of crop area statistics is being done at hobli/taluk level with the assistance of Departments of Revenue, Agriculture, Horticulture, and Irrigation regularly in each season.

Though, there is a well established system for collection of agricultural statistics in the State, still lot of gaps have been identified and listed below for further improvement:

**Revenue Department :**

The Village Accountant working at the village panchayat level is the custodian of all land records. It is the foremost duty of the VA to update land records regularly in each season every year. The seasonwise crop statistics has to be recorded in the RTCs by involving Agriculture, Horticulture and Irrigation Departments officials working at field level. But in practice this is not taking place regularly. Therefore, the statistics provided by the Departments of Agriculture, Horticulture, Irrigation and Sugarcane Inspectors does not tally with the RTC details. During reconciliation all the department should produce documentary evidence i.e. survey numberwise crop details for incorporating in the RTC.

**Gaps in Crop Area Statistics**

(a) The VAs may not write RTC’s for all the three seasons (Kharif, Rabi and Summer) and may not prepare Survey number-wise Crop Abstract in each season.

(b) The details of nine fold Land use classification are not being updated regularly. It is observed that the land put to non-agricultural use i.e., commercial buildings, roads, schools, civic amenities and house buildings etc., are remains constant for 3 to 4 years in some of the districts.

(c) The variety wise crop details i.e. HYV/HYB/Local in the irrigated and un-irrigated area details may not be recording properly.
(d) It is observed that there is a lack of proper coordination among the field agencies namely Agriculture/Horticulture/Irrigation/Sugarcane Inspector etc. in the updation of crop statistics and reconciliation in each season.

(e) The details of mixed crops grown in the field may not be recording uniformly throughout the State, due to lack of knowledge.

(f) The Irrigation Statistics may not be updating periodically by the VAs.

(g) The supervisors are not inspecting of RTCs regularly in each season.

(h) The checklist of RTC extracted from Bhoomi software was not provided in time to the VAs for updation of crop statistics.

(i) The present Bhoomi software should take care of collection of crop area statistics in each season.

(j) Short duration crops like flowers, mushrooms, vegetables and commercial crops may not get figured in the RTC.

(k) The coconut and fruit yielding trees like mango, sapota, jackfruit, banana, guava etc., which are grown in the urban limits/GP limits has been left out as there is no provision to write in RTCs.

(l) The review meetings at taluk level/district level by the TLCC and DLCC may not be taking place regularly in some of the districts.

(m) There is a lack of awareness among the farmers and local body official about the writing of RTC and its importance.

**Suggestion for improvement:**

(a) The VAs should write RTC in each season by visiting the fields along with Agriculture, Horticulture, Irrigation and Sugarcane department officials without fail.

(b) The changes that took place in the irrigation and land use statistics should be updated regularly by the VAs.

(c) While recording crop statistics in the RTC the VA should ascertain from the farmers about variety of crops that are grown in their fields at the time of field visit and incorporate the same in the RTC.

(d) The reconciliation committee should be strengthened properly at hobli level. The departments involved in the writing of RTC should understand the importance of crop statistics and work together harmoniously for the improvement of crop statistics. The effective training programme should be undertaken regularly.

(e) The guidelines prescribed for writing of mixed crops should be explained in detail in the training programmes regularly. The DES officers/Officials should undertake
inspection regularly, suitable suggestions may be given to the VAs for improvement of crop statistics.

(f) As and when the farmers go for drilling of borewells for irrigation purpose and the land brought under irrigation should be updated in the RTC regularly.

(g) The officers should undertake effective supervision in each season, the lapses noticed at the time of supervision should be brought to notice of VAs and strict instructions may be given to set right the lapses.

(h) The Thasildars should provide extract of RTC to VAs regularly for updation of crop statistics.

(i) The Bhoomi software should be utilised properly to record crop statistics in each season.

(j) Short duration crops like flowers, mushrooms, vegetables and commercial crops should be recorded in the RTC.

(k) Provision should be made to record the trees like coconut, mango, sapota, jackfruit, banana, guava etc, grown in the urban limits / GP limits in the RTC.

(l) The review meetings of TLCC and DLCC should take place regularly.

(m) Awareness among the farmers and local body official about the writing of RTC and its importance should be made.

(n) An effort may be made to use the latest technology evolved in the IT sector i.e. GPS, GPRS, Arial photography and remote sensing etc.to collect crop area information, the mini laptops provided to the VAs should be utilised properly for online submission of crop area statistics.

**System of data collection for crop yield estimation**

Estimates of crop production are obtained by multiplying the area under crop and the yield rate. The estimates of yield rate are based on scientifically designed crop cutting experiments conducted under General Crop Estimation Survey (GCES). The GCES covers around 28 crops (25 food and 3 non-food) in the State.

**GCES:** The DES is implementing GCES since 1945-46.

**Importance of GCES**

- Agriculture is the back bone of Indian economy.
- Timely and reliable statistics on crop production is of vital importance and the back drop of
  - 1) National and State Incomes
  - 2) Arriving at an accurate GSDP.
Over 95% of food grain production is estimated on the basis of yield rates obtained from the results of CCEs.

The objective of the survey

- To work out the average yield per hectare of important food and non-food crops. Yield rates are used for crop production, which is a vital input for the agricultural policy both at the state and national levels and also to estimate the Gross State Domestic Product of the agricultural sector.
- After the introduction of the National Agricultural Insurance Scheme (NAIS), the results of the crop cutting experiments are being used to assess the crop loss also.
- To collect useful ancillary information on crop management on the existing cultivation practices, attack of pests and diseases etc.,
- Crop production is used for the purposes of research, planning, policy formulation and implementation.

The programme of the work under the survey consists of conduct of crop cutting experiments variety-wise in irrigated and un-irrigated areas in each season in the selected plots of the villages.

Sampling Design

The Statistical sampling design adopted for the survey is Multistage Stratified Random Sampling, with taluks as strata, villages within a stratum as primary units of sampling, fields within each selected village as sampling units at second stage and experimental plot of specified size as the ultimate unit of sampling.

The process of CCE’s consists of

(a) Selection of Villages.
(b) Selection of Survey/Sub-Survey number.
(c) Selection of the field.
(d) Locating and Marking of experimental plot of specified size in a field selected on the principle of random sampling.
(e) Harvesting and threshing of produce and
(f) Recording the weight of the produce in the prescribed forms.

Around 1,00,000 CC experiments are conducted every year with the help of field staff drawn from Revenue, Agriculture, Horticulture, RD&PR, Watershed and CADA departments.
Supervision:

Supervision of field work is an essential part of a sample survey for ensuring quality of data collected at field level and thereby enhancing the reliability of estimates. The volume (35%) of supervision to be done at harvest sage by the staff of different department is:

(a) A minimum of 20% each of the experiments allotted to Revenue, Agriculture, Watershed, CADA, RDPR and Horticulture department is to be supervised by the respective Supervisory Officers.

(b) A minimum of 15% of the experiments crop-wise is to be supervised by the Statistical Department.

(c) About 900 experiments are entrusted to Central Agency (NSSO).

The Directorate of Economics and Statistics is responsible for planning and organizing the Crop Estimation Surveys as also processing, analyzing the data and publication of the results. The District Statistical Officer is responsible for organizing the Crop Estimation Survey work at district level.

Karnataka State is participating in the crop cutting experiments since 1944-45. The Directorate of Economics and Statistics is imparting training to the field and supervisory staff every year during kharif season. All the primary workers are well aware of the procedure to be followed in conducting CCEs. The supervision of CCEs is entrusted to the field departments according to their cadre strength. Sensitization of field departments was done through awareness programme conducted with the assistance of KSSSP. Video conference with Deputy Commissioners, Chief Executive Officers of ZP and Joint Directors of Agriculture was done under the chairmanship of ACS and Development Commissioner along with Economic Advisor to the CM, Principal Secretary Planning etc., to improve the quality of data of area statistics and crop cutting experiments. The department officers are participating in the workshops and video conferences conducted by the agricultural department. The analysis of CCEs agencywise, divisionwise, cropwise and lapses noticed in the previous year were brought to the notice of the senior officers who were present in the video conference and workshop. Power point presentations were prepared and sent to all DSOs to make use these ppts for imparting training at district/taluk level.

Karnataka State Strategic Statistical plan (KSSSP)

The State Government has set up a nodal agency called Karnataka Statistical System Development Agency (KSSDA) for the formulation and implementation of the KSSSP vide Government order dated 25.03.2009.
Objectives of Karnataka State Strategic Statistical plan

- Strengthening of statistical system in the State for effective Planning, Monitoring and Evaluation.
- Putting in place capable and adequate manpower.
- Capacity for complimentary research, training and support service.
- Hardware and software technology for data collection, collation, analysis, storage, dissemination and sharing.
- Coherent policy and minimum standards on statistics, storage, use, disclosure, sharing.
- Reliable, Credible, Timely and adequate Statistical support.
- Clarity on responsibility of line department and DES; Mutual support, synergies and clear accountability
- Bringing out of Reliable, Credible, Timely publications of the departments.

IT initiatives

The KSSDA has extended support by developing Web Based Modules for online collection of information on Crop Area Statistics and Crop Cutting Experiments data. Programme consultants have been recruited in the District Statistical Office to undertake training programme to the field functionaries about the usage of Web Based Modules, software and data entry at field level.

Hardware Assistance

The KSSDA has extended support by providing hardware items like Desktops, Projectors, Laptops and Printers/Scanners to the District Statistical Office and Desktops and Mini laptops to the Taluk Office for collection of data on Crop Area Statistics, CCEs, NSSO, Vital Statistics, Local Body Statistics, Consumer Price Index, Retail and Wholesale prices and State GSDP etc.,

Gaps in Yield Statistics and Crop Production

(a) Some of the Primary workers are not conducting CCE’s in a scientific manner as stipulated in the CCE’s manual and recording the yield results without conducting CCE’s.

(b) The primary workers may do mistakes while recording the Mixed crop proportion in the CCE’s forms. This will have direct impact on area under each crop and production analysis.

(c) The field staff may not use the weighing scales and measures and other equipments provided to them to record the harvest produce.
The green weight of the produce obtained while conducting CCE’s should be recorded in kilos and grams (up to 10 grams). But the primary workers may record weight in terms of grams up to 250 to 500 grams. This will cause reduction in yield results and production estimates at macro level.

Sometimes the farmers may harvest the crops without intimating the primary workers.

It is observed that the Revenue and RDPR department personnel are giving least priority for conducting of CCE’s because they are overburdened with work load of administrative and developmental activities, adhoc census, election work etc.,

The primary workers may not inform the date of harvest to the supervisors well in advance to undertake supervision. This will decrease the quality of data.

If the selected crop is multi-picking then all pickings information is to be recorded in the CCE’ form, but some of the primary workers are recording only two to three pickings information.

The review meetings at taluk level/district level by the TLCC and DLCC are not taking place regularly in all seasons.

For the row crops like Tur, Castor, Cotton, Tobacco and Sunflower the experimental size of the plot should be 10x5 meters, due to lack of knowledge and training there are possibilities that the primary workers may conduct the CCEs in 5x5metres only. This directly reduce average yield of the crop and production there on.

In order to get the benefit of the insurance scheme, it is possible that the farmers/local leaders and politicians will pressurise on primary workers to record low yield.

Suggestions for improvement:

(a) The primary workers should conduct the CCEs as per the guidelines stipulated in the training manual without fail.

(b) While recording the mixed crops details in form-2, the crops selected for CCEs and other crops should be apportioned as per RTC manual.

(c) The field staff should compulsory take weighing scales and other equtipments provided to them to record the harvest produce.

(d) The green weight of the produce obtained while conducting CCE’s should be recorded in kilos and grams up to 10 grams.

(e) Primary workers should have regular contacts with the farmers at the time of harvest.
(f) The Revenue and RDPR department personnel should be instructed to conduct the CCEs by giving utmost importance.

(g) Primary workers should intimate the date of harvest to the supervisors well in advance without fail.

(h) If the selected crop is multi-picking then all pickings information is to be recorded in the CCE’ form.

(i) The review meetings at taluk level/district level by the TLCC and DLCC are not taking place regularly in all seasons.

(j) The review meetings at taluk level/district level by the TLCC and DLCC should take place regularly in all seasons.

(k) For the row crops like Tur, Castor, Cotton, Tobacco and Sunflower the experimental size of the plot should be 10x5 meters.

(l) The local leaders and politicians should inform the objective of crop insurance scheme and is also not wise to pressurise on primary workers to record low yield.

(m) Bhoomi software should take care of crop updation in each season.

(n) Writing of RTC should be made mandatory for all the three seasons. Vigorous supervision should be carried out to bring accuracy in area and land use statistics.

(o) Intensive training and awareness programmes on importance of agricultural statistics and its collection to be carried out on regular intervals to the field functionaries, supervisors, local body members and farmers.

(p) Usage of modern IT technology like Remote Sensing, GPRS and Arial Photography etc., to facilitate asset mapping activity, online transmission of data and speedy dissemination of data.

(q) The DES should be strengthened by creating posts at hobli level to take up crop updation and crop cutting experiments effectively.

(r) To reduce the burden of work of VAs outsourcing of data collection at village level should be thought off.

(s) Reconciliation of agricultural statistics should be done effectively by involving the other field departments like Horticulture, Agriculture, Sericulture and Irrigation departments at gross root level.

(t) Agriculture Department should supply weighing scales and measures and other equipments to the field functionaries for recording of harvest produce properly.

(u) Disciplinary action against the defaulting staff should be initiated for having not conducted CCEs.
(v) The review meetings at taluk level/district level by the TLCC and DLCC should take place regularly in all the seasons.

(w) The primary workers should inform the date of harvest to the supervisors well in advance.

(x) Reduction in the number of experiments allotted to Revenue and RDPR Department officials as they are over burdened in their departmental work.

(y) Farmers should be educated about the importance of CCEs.

(z) Filling up of vacant post in Agriculture and Horticulture Departments.

(aa) CCEs contains two phases, Ist phase contains selection of Village/Survey number/sub survey numbers i.e. CES form-1. IInd phase contains harvest and recording experimental plot yields and other auxiliary information i.e. CEs-2.

As Village Accountants are the custodian of RTCs, they should be the work of filling the CEs form -1 only. Agriculture and Horticulture staff are the technical personnel they should conduct the experiment and submit the CEs-2 only. If the above exercises has been done quality of yield data will be improved very much and there by improvement in agriculture production.

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Agriculture production and farm incomes in India are frequently affected by natural disasters such as droughts, floods, cyclones, storms, landslides and earthquakes. Susceptibility of agriculture to these disasters is compounded by the outbreak of epidemics and man-made disasters such as fire, sale of spurious seeds, fertilizers and pesticides, price crashes etc. All these events severely affect farmers through loss in production and farm income, and they are beyond the control of the farmers. With the growing commercialization of agriculture, the magnitude of loss due to unfavorable eventualities is increasing. The question is how to protect farmers by minimizing such losses. For a section of farming community, the minimum support prices for certain crops provide a measure of income stability. But most of the crops and in most of the states MSP is not implemented. In recent times, mechanisms like contract farming and future’s trading have been established which are expected to provide some insurance against price fluctuations directly or indirectly. But, agricultural insurance is considered an important mechanism to effectively address the risk to output and income resulting from various natural and manmade events. Agricultural Insurance is a means of protecting the agriculturist against financial losses due to uncertainties that may arise agricultural losses arising from named or all unforeseen perils beyond their control (AIC, 2008). Unfortunately, agricultural insurance in the country has not made much headway even though the need to protect Indian farmers from agriculture variability has been a continuing concern of agriculture policy. According to the National Agriculture Policy 2000, “Despite technological and economic advancements, the condition of farmers continues to be unstable due to natural calamities and price fluctuations”. In some extreme cases, these unfavorable events become one of the factors leading to farmers” suicides which are now assuming serious proportions.

Agricultural insurance is one method by which farmers can stabilize farm income and investment and guard against disastrous effect of losses due to natural hazards or low market prices. Crop insurance not only stabilizes the farm income but also helps the farmers to initiate production activity after a bad agricultural year. It cushions the shock of crop losses by providing farmers with a minimum amount of protection. It spreads the crop losses over space and time and helps farmers make more investments in agriculture. It forms an important component of safety-net programmes. However, one need to keep in mind that crop insurance should be part of overall risk management strategy. Insurance comes towards the end of risk management process. Insurance is redistribution of cost of losses of few among many, and cannot prevent economic loss.

There are two major categories of agricultural insurance: single and multi-peril coverage. Single peril coverage offers protection from single hazard while multiple-peril provides protection from several hazards. In India, multi-peril crop insurance programme is being implemented, considering the overwhelming impact of nature on agricultural output and its disastrous consequences on the society, in general, and farmers, in particular

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BACKGROUND OF INSURANCE SCHEME:

From 1972-73 to 1978-79, crop insurance schemes for crops such as cotton, groundnut, potato etc, was implemented in selected places on “individual approach” basis. During the period from 1979 to 1984-85, a pilot crop insurance scheme was implemented for Food crops & Oilseeds on “Area approach” basis. Based on the experience of the pilot scheme a Comprehensive Crop Insurance Scheme (CCIS) was implemented from Kharif 1985 till Kharif 1999. The present crop insurance scheme is National Agricultural Insurance Scheme (NAIS) and Modified National Agricultural Insurance Scheme (MNAIS).

Evolution of Crop Insurance Program:
- First ever scheme on ‘Individual’ approach basis (1972-78)
- Pilot Crop Insurance Scheme – PCIS (1979-1984)
- Experimental Crop Insurance Scheme – ECIS (Rabi 1997-98)
- National Agriculture Insurance Scheme – NAIS (1999……)
- Farm Income Insurance Scheme – FIIS (Rabi 2003-04 season & Kharif 2004 season)
- Rainfall based insurance (Kharif 2004…)
- Weather based insurance products (Rabi 2005….)
- Satellite Imagery based insurance products (Rabi 2005…)

Progress and Performance of Agricultural Insurance:

The question of introducing an agriculture insurance scheme was examined soon after the Independence in 1947. Following an assurance given in this regard by the then Ministry of Food and Agriculture (MOFA) in the Central Legislature to introduce crop and cattle insurance, a special study was commissioned during 1947-48 to consider whether insurance should follow an „Individual approach’ or a „Homogenous area approach‟. The study favoured „homogenous area approach” even as various agro-climatically homogenous areas are treated as a single unit and the individual farmers in such cases pay the same rate of premium and receive the same benefits, irrespective of their individual fortunes. In 1965, the Government introduced a Crop Insurance Bill and circulated a model scheme of crop insurance on a compulsory basis to State governments for their views. The bill provided for the Central government to frame a reinsurance scheme to cover indemnity obligations of the States. However, none of the States favoured the scheme because of the financial obligations involved in it. On receiving the reactions of the State governments, the subject was referred to an Expert Committee headed by the then Chairman, Agricultural Price Commission, in July, 1970 for full examination of the economic, administrative, financial and actuarial implications of the subject.
CROP INSURANCE APPROACHES:

It is important to mention in the beginning that crop insurance is based on either Area approach or Individual approach. Area approach is based on „defined areas“ which could be a district, a taluk, a block/a mandal or any other smaller contiguous area. The indemnity limit originally was 80 per cent, which was changed to 60 per cent, 80 per cent and 90 per cent corresponding to high, medium & low risks areas. The actual average yield / hectare for the defined area is determined on the basis of Crop Cutting Experiments (CCEs). These CCEs are the same conducted as part of General Crop Estimation Survey (GCES) in various states. If the actual yield in CCEs of an insured crop for the defined area falls short of the specified guaranteed yield or threshold yield, all the insured farmers growing that crop in the area are entitled for claims. The claims are calculated using the formula: (Guaranteed Yield - Actual Yield) * Sum Insured of the farmer (Guaranteed Yield)

The claims are paid to the credit institutions in the case of loanee farmers and to the individuals who insured their crops in the other cases. The credit institution would adjust the amount against the crop loan and pay the residual amount, if any, to the farmer. Area yield insurance is practically an all-risk insurance. This is very important for 24 developing countries with a large number of small farms. However, there are delays in compensation payments. In the case of individual approach, assessment of loss is made separately for each insured farmer. It could be for each plot or for the farm as a whole (consisting of more than one plot at different locations). Individual farm-based insurance is suitable for high-value crops grown under standard practices. Liability is limited to cost of cultivation. This type of insurance provides for accurate and timely compensation. However, it involves high administrative costs. Weather index insurance has similar advantages to those of area yield insurance. This programme provides timely compensation made on the basis of weather index, which is usually accurate. All communities whose incomes are dependent on the weather can buy this insurance. A basic disadvantage could arise due to changing weather patterns and poor density of weather stations. Weather insurance helps ill-equipped economies deal with adverse weather conditions (65% of Indian agriculture is dependent on natural factors, especially rainfall. Drought is another major problem that farmers face). It is a solution to financial problems brought on by adverse weather conditions. This insurance covers a wide section of people and a variety of crops; its operational costs are low; transparent and objective calculation of weather index ; and quick settlement of claims.

Weather Based Crop Insurance / Rainfall Insurance:

During the year 2003-04 the private sector came out with some insurance products in agriculture based on weather parameters. The insurance losses due to vagaries of weather, i.e. excess or deficit rainfall, aberrations in sunshine, temperature and humidity, etc. could be covered on the basis of weather index. If the actual index of a specific weather event is less than the threshold, the claim becomes payable as a percentage of deviation of actual index. One such product, namely Rainfall Insurance was developed by ICICI-Lombard General
Insurance Company. This move was followed by IFFCO-Tokio General Insurance Company and by public sector Agricultural Insurance Company of India (AIC). Under the scheme, coverage for deviation in the rainfall index is extended and compensations for economic losses due to less or more than normal rainfall are paid. ICICI Lombard, World Bank and the Social Initiatives Group (SIG) of ICICI Bank collaborated in the design and pilot testing of India's first Index based Weather Insurance product in 2003-04. The pilot test covered 200 groundnut and castor farmers in the rain-fed district of Mahaboobnagar, Andhra Pradesh. The policy was linked to crop loans given to the farmers by BASIX Group, a NGO, and sold through its Krishna Bhima Samruddhi Area Bank. The weather insurance has also been experimented with 50 soya farmers in Madhya Pradesh through Pradan, a NGO, 600 acres of paddy crop in Aligarh through ICICI Bank's agribusiness group along with the crop loans, and on oranges in Jhalawar district of Rajasthan. Similarly, IFFCO-Tokio General Insurance (ITGI) also piloted rainfall insurance under the name- „Baarish Bima“ during 2004-05 in Andhra Pradesh, Karnataka and Gujarat. Agricultural Insurance Company of India (AIC) introduced rainfall insurance (Varsha Bima) during 2004 South-West Monsoon period. Varsha Bima provided for five different options suiting varied requirements of farming community. These are (1) seasonal rainfall insurance based on aggregate rainfall from June to September, (2) sowing failure insurance based on rainfall between 15th June and 15th August, (3) rainfall distribution insurance with the weight assigned to different weeks between June and September, (4) agronomic index constructed based on water requirement of crops at different pheno-phases and (5) catastrophic option, covering extremely adverse deviations of 50 per cent and above in rainfall during the season. Varsha Bima was piloted in 20 rain gauge areas spread over Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh in 2004-05.

Based on the experience of the pilot project, the scheme was fine-tuned and implemented as “Varsha Bima -2005” in about 130 districts across Andhra Pradesh, Chattisgarh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Tamil Nadu, Uttarakhand and Uttar Pradesh during Kharif 2005. On an average, 2 or 3 blocks /mandals / tehsils were covered under each India Meteorological Department (IMD) rain gauge stations. The scheme covered the major crops provided at least two coverage 36 options namely, Seasonal Rainfall Insurance or Rainfall Distribution Index and Sowing Failure Insurance. Varsha Bima-2005 covered 1.25 lakh farmers with a premium income of Rs.3.17 crore against a sum insured of Rs.55.86 crore. Claims amounting to Rs.19.96 lakh were paid for the season. Further, during kharif 2006, the scheme was implemented as Varsha Bima-2006 in and around 150 districts/ rain gauge station areas covering 16 states across the country. The Weather Based Crop Insurance Scheme (WBCIS) of AIC was implemented in the selected areas of Karnataka on a pilot basis. WBCIS is a unique weather based insurance product designed to provide insurance protection against losses in crop yield resulting from adverse weather incidences. It provides payout against adverse rainfall incidence (both deficit and excess) during kharif and adverse incidence in weather parameters like frost, heat,
relative humidity, un-seasonal rainfall etc., during *rabi*. It operates on the concept of area approach i.e., for the purpose of compensation, a reference unit area shall be linked to a reference weather station on the basis of which weather data and claims would be processed. This scheme is available to both loanees (compulsory) and non-loanees (voluntary). The NAIS is not available for the locations and crops selected for WBCIS pilot. It has the advantage to settle the claims with the shortest possible time. The AIC has implemented the pilot WBCIS in Karnataka during *kharif* 2007 season, covering eight rain-fed crops, insuring crops nearly 50,000 ha for a sum insured of Rs.50 crore. WBCIS is being implemented in 2007-08 on a larger scale in selected states of Bihar, Chattisgarh, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh for *rabi* 2007-08 season and will be continued even in 2008-09 as a pilot WBCIS (Union Budget 2008-09, GOI). Together these above mentioned companies have been able to sell weather insurance policies to about 5.39 lakh farmers across India from their inception in 2003-04 to date.

**INSURANCE :**

Insurance is a financial arrangement whereby losses suffered by a few are met from the funds accumulated through small contributions made by many who are exposed to similar risks.

**CROP INSURANCE :**

Crop Insurance is and insurance arrangement aiming at mitigating the financial losses suffered by the farmers due to damage and destruction of their crops as a result of various production risks.

**Objectives of National Agricultural Insurance Scheme (NAIS)**

- To provide insurance coverage to all crops and financial support to all farmers in the event of failure of any notified crop as a result of natural calamities, pests & diseases.
- To encourage farmers to adopt progressive farming practices, high value in-puts and higher technology in Agriculture.
- To help stabilize farm incomes, particularly in disaster years.

**Risks covered under the scheme:**
The scheme provides comprehensive risk insurance for yield losses due to

- Natural fire and Lightening, Storm, Hailstorm, Cytclone, Typhoon, Tempest, Hurricane, Tornado Flood, Inundation and Landslide.
- Drought, Dry spells.
- Pests / Diseases etc.

**Crops covered under the scheme:**

- Food crops (Cereals, Millets & Pulses) : Paddy, Wheat, Jowar, Bajra, Maize, Ragi, Greengram, Blackgram, Redgram, Horsegram.
- Oilseeds : Groundnut, Sunflower, Soya bean, Safflower, Castor, Sesamum.
Annual Commercial / Annual Horticultural Crops: Sugarcane, Cotton, Potato, Onion, Ginger, Turmeric, Banana, Pineapple, Jute, Tapioca, Chilli, Cumin, Coriander, etc.

The crops are selected for insurance if the past yield data for 10 years are available and the State Government agrees to conduct requisite number of Crop Cutting Experiments (CCEs) during the proposed season.

**Eligibility:**

All farmers growing insurable crops and availing Seasonal Agricultural Operations (SAO) loans from Banks / PACS are compulsorily covered under the scheme by the Banks/PACS, whereas the no-borrowing farmers growing insurable crops can also avail the benefit of the scheme by submitting prescribed proposal forms at the nearest Banks/PACS.

**Administration of the scheme:**

The scheme is being implemented by Agriculture Insurance Company of India Limited (AICL) on behalf of the Ministry of Agriculture through its Regional Offices located at 17 State capitals.

**Unit of Insurance:**

The scheme operates on the basis of Area Approach i.e. defined areas for each notified crop for widespread calamities and individual assessment is done on experimental basis of localised calamities, such as hailstorm, landslide, cyclone and flood in certain pre-notified areas. The size of unit area varies from State to State and crop to crop. Presently, the defined area is Block /Mandal /Taluka /Patwari halka /Nyayapanchayat/Gram Panchayat/Village, etc.

**Sum insured under NAIS:**

a) **For loanee farmers:**

**Compulsory coverage:** The amount of crop loan availed for the notified crop is the minimum amount of sum insured covered on compulsory basis.

**Optional Coverage:** If the loanee-farmer so wishes he may insured his crop for a higher sum insured i.e, upto the value of threshold yield (i.e., guaranteed yield) which is called normal coverage even go for additional coverage upto 150% value of average yield in the notified area. However, for additional coverage, the farmer has to pay premium at actuarial rate as notified by the State Government.

b) **For non-loanee farmers:** Coverage at normal rates of premium is available upto the value of threshold yield. Additional coverage upto 150% of the value of actual yield can be obtained by payment of premium at actuarial rates.

**The essential requirements of a farmer to become eligible for claim under the scheme:**

- The farmer should have availed a crop loan for the insured crop. In case of non-loanee farmer, he should have submitted a proposal for insurance with requisite premium.
➢ The proposal/cop insurance declaration with accurate and complete particulars should have been sent to AID by the bank along with requisite premium.

➢ The State Government conducts requisite number of crop cutting experiments for the insured crop in the insurance unit and submits the yield data to AIC within the prescribed date.

➢ The yield data so submitted by the State Government shows short fall as compared to the guaranteed yield.

**Advantage of NAIS:**

➢ Be a critical instrument of development in the field of crop production, providing financial support to the farmers in the event of crop failure.

➢ Encourage farmers to adopt progressive farming practices and higher technology in Agriculture.

➢ Help in maintaining flow of agricultural credit.

➢ Provides significant benefits not merely to the insured farmers, but to the entire community directly and indirectly through spillover and multiplier effects in terms of maintaining production and employment.

➢ Streamline loss assessment procedures and help in building up huge and accurate statistical base for crop production.

**Modified National Agricultural Scheme (MNAIS):**

MNAIS has been implemented on pilot basis during Rabi 2010-11 at Gram Panchayat (GP) level.

**Features:**

➢ Unit area of insurance reduced to villages/village panchayat level for major crops.

➢ Threshold yield based on average yield of the preceding 7 years excluding upto calamity year declared by concerned State/UT government/authority.

➢ Uniform seasonality disciplines both for loanee & non-loanee farmers.

➢ It is an improvement over NAIS and based on actuarial premium rates. This scheme is expected to generate more benefits to farmers through coverage of prevented sowing/planting risk and post-harvest losses, increases in minimum indemnity level from 60 to 70% more precise calculation of threshold yield. Payment of upfront premium subsidy by State and Central Governments will facilitate quick settlement of claims.
Coverage of MNAIS:

- Covers pre-sowing and post-harvest losses in addition to other features of NAIS.
- Covers wide spread calamities, localised risks and weather parameters.

Risk in Agricultural Production

Agriculture in India is subject to variety of risks arising from rainfall aberrations, temperature fluctuations, hailstorms, cyclones, floods, and climate change. These risks are exacerbated by price fluctuation, weak rural infrastructure, imperfect markets and lack of financial services including limited span and design of risk mitigation instruments such as credit and insurance. These factors not only endanger the farmer's livelihood and incomes but also undermine the viability of the agriculture sector and its potential to become a part of the solution to the problem of endemic poverty of the farmers and agricultural labour.

Management of risk in agriculture is one of the major concerns of the decision makers and policy planners, as risk in farm output is considered as the primary cause for low level of farm level investments and agrarian distress. Both, in turn, have implications for output growth. In order to develop mechanisms and strategies to mitigate risk in agriculture it is imperative to understand the sources and magnitude of fluctuations involved in agricultural output. The present section is an effort in this direction. The section examines extent of risk by estimating year to year fluctuations in national production of major crops and also analyse whether risk in the post reforms period declined or increased. The analysis is extended to district level as there are vast variations in agro climatic conditions across states and districts.

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3. Trends in number and area of Operational holdings during 1970-71 to 2010-11 and comments to strengthen conduct of Agricultural Census in Karnataka*

1. Introduction:

   Agricultural Census is quinquennial census conducted once in five years. Since its inception in 1970-71, nine Agricultural Census have been conducted, the latest being 2010-11 census. Agriculture Census forms part of a broader system of collection of Agricultural Statistics. It is a large scale statistical operation for the collection and derivation of quantitative information about the structure of agriculture in the State. An agricultural operational holding is the ultimate unit for taking decision for development of Agriculture at micro level. The operational holding is taken as the statistical unit of data collection for describing the structure of agriculture. Through Agriculture Census, it is endeavored to collect basic data on important aspects of agricultural economy for all the operational holdings in the State.

   Before start of the Agricultural Census, the previous year of the conducting of census, will be declared as ‘Land Records Year’ with the objective of updating all records (RTC) by the Revenue authorities, which is required to collect correct and authentic information on land holdings and area to be reflected in the census.

2. Objectives:

   The objective of Agricultural Census is to know the structure and characteristics of agricultural holdings operated by cultivators. Besides, data on land use, sources of irrigation, cropping pattern and dispersal of operated area were also collected on sampling basis. As a follow up of Agricultural Census, the Input Survey is also conducted, with the main objective of collecting data related to number of parcels, multiple cropping, land use pattern, use of chemical fertilizers, organic manures and pesticides, agricultural implements, live stock details, certified seeds used and agricultural credit availed by cultivators.

3. Importance:

   Periodically conducting of Agricultural Censuses is important, as these are the main source of information on basic characteristics of operational holdings such as land use and cropping patterns, irrigation status, and terms of leasing. This information is tabulated by different size classes and social groups including Scheduled castes/Scheduled Tribes that are needed for development planning, socio-economic policy formulation and establishment of State/national priorities. The census also provides the basis for the development of a comprehensive integrated national system of agricultural statistics and has links with various components of the national statistical system.

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4. Phase wise conduct of the Census and Coverage:

The whole project of Agriculture Census in the country is implemented in three distinct phases, which are statistically linked together but focus on different aspects of agricultural statistics. In Phase-I, a list of holdings with their area and social characteristics and gender of the holders is prepared. In Phase-II, detailed data on agricultural characteristics of holdings are collected from selected villages. In phase-III as follow up to agriculture census, Input survey is being conducted by collected data in three stages are followed in conduct of Agricultural Census, they are number and area of entire operational holdings collected through census method constitute the first stage, the details of land particulars and other agricultural characteristics collected on sampling basis (20% of sample) constitute the second stage and the conduct of input survey which is also taken up on sampling basis (7% of sample) constitute the third stage.

5. Size classes adopted in the Census:

The major size classes for compiling Agricultural Census reports are as follows:

**Marginal Holdings**: An operated holding with area less than a hectare.

**Small Holdings**: An operational holding with area one hectare and above, but below two hectares.

**Semi-medium Holdings**: An operational holding with area two hectares and above, but less than four hectare.

**Medium Holdings**: An operational holding with area 4 hectares and above, but less than 10 hectare.

**Large Holdings**: An peritoneal holdings with 10 hectares and above.

**TRENDS IN NUMBER AND AREA OF OPERATIONAL HOLDINGS DURING 1970-71 TO 2010-11 OF AGRICULTURAL CENSUSES**

I. Number of Operational Holdings:

1. It may be observed that the number and area of operational holdings which was 35.51 lakhs during 1970-71 census has increased to 78.32 lakhs showing a significant increase of 120.5% during 2010-11 Census. The maximum percentage increase was observed in the number of operational holdings by 17.4% between 1985-86 censuses and 1990-91 censuses. (Refer chart-1).

![Chart-1](chart1.png)
2. In the marginal size class the number of operational holdings has increased from 10.81 lakhs in 1970-71 to 38.48 lakhs in 2010-11 census with a maximum increase of 255%. In case of small size class of holdings had increased from 8.40 lakhs in 1970-71 census to 21.38 lakhs in 2010-11 census with an increase of 154%. The semi-medium size class of holdings registered 60% increase from 7.88 lakhs holdings in 1970-71 census to 12.66 lakhs holdings in 2010-11 census. On the hand, under medium size class the number of holdings, which was 6.23 lakhs in 1970-71 census has come down to 5.11 lakhs during 2010-11 census, indicating about 18.13 short fall. Further a significant decrease in holdings was observed in case of large size class, by 70% i.e., from 2.19 lakhs holdings in 1970-71 census to 0.67 lakhs holdings in 2010-11 census. (Refer chart-2).

II. Area of Operational Holdings:
1. The area of operational holdings which was 113.68 hectares in 1970-71 census has increased to 121.61 lakh hectares with an increase of 7% Observing the previous censuses the area of operational holdings was dropped marginally by 0.01% between 1970-71 and 1976-77 census, has gradually increased in 1980-81, 1985-86 and 1990-91, but once again declined by around 1.7% in 1995-96 census as compared to the 1990-91 and in subsequent censuses 2000-01 and in 2005-06 it was gradually increased and in 2010-11 decreased by 6%. (Refer chart-3).
2. In respect of area of operational holdings under different size classes, the increase is as high as 237% in respect of marginal size class i.e., from 5.49 lakh hectares in 1970-71 census to 18.51 lakh hectares in 2010-11 census, followed by an increase of 147% among small size class i.e., from 12.21 lakh hectares in 1970-71 census to 30.20 lakh hectares in 2010-11 census. On contrary, in medium size class holdings, the area operated was reduced from 37.92 lakh hectares in 1970-71 census to 29.03 lakh hectares in 2010-11 census the decrease was by about 23% and in case of large size class holdings, the drastic reduction of around 72% i.e., 36.01 lakh hectares in 1970-71 census to 9.94 lakh hectares in 2010-11 census can be observed. \textbf{(Refer chart-4)}.
II. Average size of Operational Holdings:

3. It is observed that, a gradual decrease can be seen in average size of operational holdings from census to census. The average size of operational holdings which was 3.20 hectares in 1970-71 has reduced to 1.54 hectares in 2010-11 census the reduction of average size was by 1.66 hectares. (Refer chart-5)
4. With regard to average size of operational holdings under different size classes, it is seen that under marginal, small and semi–medium size classes, the average size of operational holdings remained almost the same during every census, while in respect of medium and large size class of holdings there is a gradual decrease in average size of operational holdings from census to census. (Refer chart-6).
IV. Findings of the Census:

(a) Decreasing trend in Large Size class holdings:

The analysis from 1970-71 to 2010-11 censuses reveals that continues decreasing trend has been observed in the large size of operational holdings (area 10 hectares and above). That is during 1970-71 census the number of operational holding were 2.19 lakhs, which has steeply decreased to 0.63 lakh holdings during 2010-11, resulted in decrease of 71%.

(b) Increasing trend in number of Marginal holdings:

On the hand there is an inverse trend with respect to the Marginal size of operational holdings (area operated less than a hectare). That is there is an increasing trend from 10.81 lakh operational holdings during 1970-71 to 38.48 lakh operational holdings during 2010-11, registered an increase of 255%.

(c) Decreasing trend in Area Operated among Large holdings:

The similar trend is observed in respect of area of operational holdings of large holders. That is during 1970-71 census the operated area was 36.01 lakhs, which was decreased to 9.93 lakh hectares during 2010-11 resulted in decrease of 72%.
(d) Increasing trend in Area Operated among Marginal holdings:

On the other hand, inverse trend can be seen with respect to the area of marginal size of operational holdings. That is there is an increasing trend from 5.49 lakh hectares during 1970-71 census to 18.50 lakh hectares 2010-11 census resulted in increase of 236%.

(e) Steep decrease in Average size

It can been seen that, the average size of operational holding has decreased from 3.20 hectares in 1970-71 to 1.54 hectares during 2010-11.

V. Impression:

Since inception of the census in 1970-71, in case of marginal, small and semi–medium operational holdings and area have been increasing, whereas large and medium operational holdings and area have been decreasing. These changing patterns in number and area of operational holdings are due to sub-division and fragmentation of agricultural land, acquisition of agricultural land for non-agricultural purposes and further due to urbanization of agricultural lands.

Comments to Strengthen Agriculture Census Scheme

1. Data collection:

(a) Updation of RTC for conduct of the census is primary requisities for collecting correct and authentic data:

i) Before commencement of Agricultural Census Year, the computerized printed RTC should be provided to the concerned village accountants/patwaris to enable them to update the RTC.

ii) Season wise & cropwise area operated & mutation registers should be updated in the RTC to get accurate & reliable data.

iii) Horticulture and floriculture crops grown in urban area, backyard, road side plantation, tankbund areas, Gomala and etc., are not enumerated in the earlier census. Since these cropped areas are not recorded in the RTC. It is suggested that, to include the above said areas to get complete data coverage on Horticulture and floriculture crops.

iv) Season wise and crop wise cultivated area are not updated in the computerized RTC immediately after completion of the season, it is updated after a year or more.

v) In case of computerized RTC, the unique code is assigned to the farmers within a village. If a farmer owns a land in different villages he will be treated as a separate holder, which may increase number of holders considerably and we will not able to get the correct classification of the size class in respect of holdings and total area. Whereas, as per the guidelines of current census, Taluk is taken up as a unit and the filled in L2 schedule for villages concerned and H for TRS villages will be transferred to the resident of the cultivator and pooled all the area coming under a operational holder within a taluk and size class is being classified according to the position of the total area of a holder in that taluk.
2. **Approach for strengthening quality and reliability of Agriculture Census data.**

Effective supervision during the time of updation of RTC and also during field work should be done to ensure the quality of data collection by assigning responsibilities to the concerned officers/officials of Revenue, Statistics, Agriculture, Horticulture and Irrigation departments.

3. It is suggested that the Patwari should arrange to computerize L-1 and L-2 filled in schedules with the help of Khasra register (RTC) to enable for re-tabulation of data and preparation of T-1 table.

4. It has been observed that, there was exorbitant delay in data processing work. Although the fieldwork completes as per time schedule. The centralized processing of agriculture census data took much time for validation and processing. For ex., during 2005-06 census we have experienced the processing of ‘H’ schedule took nearly three years and by the time the error free data table completed almost we have started the next agriculture census. The outdated data is questioned in various committees at state Government level. This requires modification in data processing, may be decentralized and entrusted to concern NIC at State Head Quarters. There by clarifications and other correction may be easily done and accessibility will be quicker at State level itself.

5. It is Suggested that certain information like residential status of operational holders, gender wise operational holders, social status, No. of wells, tube wells etc., are not available in the land record register (RTC) and these information may be collected through oral enquiry from households by the patwari.

6. For intensive supervision a Performa may be designed for verification of the supervisors.

7. To rationalize to get honorarium to the field staff, the existing payment of honorarium according to the number of villages can be replaced by the quantum of work carried out by Patwaris (as per the number operational holders in each village).

8. It has become necessary for modification of land revenue Laws/Act to write the RTC/Khasra register as per time schedule and actual information in the field should be collected and incorporated in the RTC, which should made as mandatory.

9. All vacant post of field worker that is Patwari should be filled up by the revenue authority before conduct of Agriculture Census work. Further, the Patwari normally will be pre occupied with multi various activities at grass root level. Strict instruction may be issued to follow the job chart stipulated to the Patwaries which should also include the conduct of agriculture census.

10. The common data entry software and validation checks should be prior tested and confirmed before commencement of census work. A pilot study need to be conducted and reviewed for finalizing the common data entry software and validation checks should be kept ready and supplied to state head quarters in advance, while conducting the census.

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4. ಶುಭ ಸಾಗು ನಡೆಯುವ ಸಮಯದಲ್ಲಿ ಅನುಭವ ಮಾಡಲು ಸಾಮರ್ಥ್ಯವಿರುವುದು ತಿನ್ನಲು ಸಾಮರ್ಥ್ಯ ಪಡೆಯಲು ಸಿದ್ಧಾಂತದಲ್ಲಿ ವಿವರಗಳು ಮಾಡಲು

ಕಾಣಿಸಿ:

ಭಾವಿಸಿದ್ದಿರುವ ಸ್ವಾಯತ್ತ ತಂಡದ ಆಧ್ಯಾತ್ಮಕ ಅನುಭವ ತಿನ್ನ ಸಾಧನವಾಗಿದ್ದು, ಸಮಯದಲ್ಲಿ ಅನುಭವ ಮಾಡುವ ಮೊದಲುತ್ತುದು. ಮಾಹಿತಿಯನ್ನು ತೆಗೆದಂತೆ ಅನುಭವ ಮಾಡುವ ಸಾಮರ್ಥ್ಯವು ಪಡೆಯಲು ಸಾಮರ್ಥ್ಯವಿರುವುದು.

ಆದಕ್ಕೆ ನಿರ್ಧರಿಸಿದ್ದಿರುವ ಸುಧೆ ಅನುಭವವನ್ನು ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. ಶಾಸ್ತ್ರವು ಅಧ್ಯಯನದಲ್ಲಿ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಅರ್ಹತೆ ನಿಜವಾಗಿ ಶಿಕ್ಷಣದ ಅಧಿಕಾರಾಧನೆಯನ್ನು ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. ಅರ್ಹತೆ ನಿಜವಾಗಿ ಶಿಕ್ಷಣದ ಅಧಿಕಾರಾಧನೆಯನ್ನು ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

A) ವಿದ್ಯಾರ್ಥಿಗಳ ಮುಂದೆ ಅಧ್ಯಯನ:

ಖಾನದ ಯುನ್ನು ಹಿತ್ತಿಸಿಕೆ 1966 ರೀತಿಯ ಸ್ವಾಯತ್ಕ್ಷಿಕೆ ಮಾದರಿಗಳಿಗೆ ನಿಜವಾಗಿ ಮಾಡಲಾಗುವ ಮೊದಲು ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಾಮರ್ಥ್ಯವಿರುವುದು. (Record of Rights Tenancy and crop) ಪ್ರಕಾರ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಶಾಸ್ತ್ರವು ಕೃತ ಮುಂದೆ ಅಧ್ಯಯನ ಕೃತ್ವಾದ್ಯವು ಕೃತ ಅಧ್ಯಯನದಲ್ಲಿ ಮಾಡಲಾಗುವ ತೊಡಗಿಸಿದರೆ ಅಧ್ಯಯನ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. RD/23/ELR/2004 ರಂದು 06.05.2005 ರಂದು ಮುಂದೆ ಅಧ್ಯಯನದ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಆದರೆ ನಿಜವಾಗಿ ಶಿಕ್ಷಣದ ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. ಶಿಕ್ಷಣದ ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. (ಮೂಲದ ಮೂಲದ ಮೂಲದ) ಮತ್ತು ಮೂಲದ (ಮೂಲದ ಮೂಲದ/ಸಹಾಯಿಸಿದರೆ) ಅನುಭವವಿರುವುದು. ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಆದರೆ ಶಿಕ್ಷಣದ ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು. ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಇದು ಶಿಕ್ಷಣದ ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

ಆದರೆ ನಿಜವಾಗಿ ಶಿಕ್ಷಣದ ಅಧ್ಯಯನದಲ್ಲಿ ಕೃತರೂಪದ ಮಾಡಲಾಗುವ ಸಹಾಯಿಸಿದರೆ ಅನುಭವವಿರುವುದು.

* ಈ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಸಹಾಯ ಮಾಡುವ ಸಾಮರ್ಥ್ಯವಿರುವುದು. 160
B) 1) ಅಭಿವೃದ್ಧಿ/ವೃದ್ಧಿಯ ಪ್ರಕಟಣೆ:

1) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರನು ಪ್ರತಿಯೊಂದು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯ ಕಂಡಿರುತ್ತದೆ.

2) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

3) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

4) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

5) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

6) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

7) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

8) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

9) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

10) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

11) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.

12) ವ್ಯಾಧಿಗೊಂಡ ವ್ಯಾಧೀಗಳಿರುವವರು ವ್ಯಾಧಿಯನ್ನು ವೈವಿಧ್ಯಗಳಿರುತ್ತದೆ.
(9) ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ:
1) ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಸಹಾಯ ಚಿಕಿತ್ಸೆ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಸಹಾಯ ಚಿಕಿತ್ಸೆ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪದೋನ್ನತ ಚಿಕಿತ್ಸೆ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.
2) ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ.
3) ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ.
4) ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ.

(10) ಹೆಸರುಭಾಷಣ:
1) KSSDA ನಗರ ಸಾಮಾನ್ಯ ಮಾಧ್ಯಮಾಸ್ತಿಕಗಣರು ಚಿಕಿತ್ಸಾ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.
2) ಸಹಾಯದ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.
3) ಸಹಾಯದ ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.
4) ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.
5) ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ. ಪ್ರಿಮಯರ ಸಹಾಯ ಒದಗಿಸುತ್ತದೆ.

ಮೇಲೆ ಎಂದರೆ—
ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ. ಅನುವಾದದ ಪರಿಸ್ಥಿತಿ ಅನುವಾದಗಣರು ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಿರ್ವಹಿಸಿದ್ದಾರೆ.

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5. Crop area and production statistics- issues in collection, compilation and processing of data and remedies-

1. Background/ History

Agricultural Statistics system is evolved over a period of time to reflect the complexities and ups and downs in the agrarian economy. In earlier days the “Shanbhoug” village level functionary of the Revenue Department used to collect and compile the village level crop area coverage figures. In the late 60s or early 70s this job was assigned to the Village Accountants of the Revenue Department and they were assigned to write the crop data in the RTC. This system is still continued.

However, the system has recently come under criticism on accounts of reliability, timely availability, coverage and failure to meet the emerging demand for correct statistics. One of the chief causes of inaccuracy in the reporting of the primary reporting agency is perhaps, the large increase in the work of Village Accountant who has a heavy burden to bear. Being the only Government Official at the village level, he has to undertake multifarious duties connected with various departmental and developmental schemes. As such he has little time to devote to the proper compilation of Agricultural Statistics. He is, besides, also employed as the primary enumerator for all kinds of ad hoc enquiries initiated by the government, ranging from the preparation of electoral rolls to the compilation of population census. The Village Accountant usually has no instructions as to the priority to be given to the different enquiries and hence goes on taking all of them in the same routine manner, resulting in slipshod work in respect of many of them including compilation of crop coverage data.

2. Present Status

In Agriculture Department crop area coverage figures are reported weekly from the Hobli level Raitha Samparka Kendra to the Taluk Assistant Director of Agriculture, who in turn reports the consolidated figures of his taluk to the office of the District Joint Director of Agriculture, who again in turn consolidated the data of all taluks and sends the district level data to the Statistical Cell in the Directorate of Agriculture. At Directorate of Agriculture, district-wise and crop-wise area coverage is compiled on weekly basis throughout the year for three distinct seasons viz. Kharif (April-September), Rabi (October-December) and summer (January-March). The State Level crop area coverage details are sent to various offices and crop development directorates of State and Central Government.

The data reported from Taluk Assistant Director is reconciled at the taluk level in the office of taluk Tahsildar with the revenue, horticulture, irrigation and statistics departments at the end of each season and same exercise is carried out at district level under the Chairmanship of District Deputy Commissioner. The reconciled data is used to compile the “Annual Season and Crop Report” of each taluk/district.

* Sri Gokul Prasad, ASO/DD, Agriculture Department.
Agriculture department only provides the tentative figures of area coverage during the three seasons but uses the data finalized by the Directorate of Economics & Statistics in the “Fully Revised Estimates of Area, Production and Productivity of Principal Crops” for all analysis and reporting purposes.

3. Gaps

Analysis of the recent data of total area coverage under agricultural crops (cereals, pulses, oilseeds, cotton, sugarcane and tobacco) from 2001-02 to 2009-10 indicates minimum variation ranging from 0.22% to 2.22%. The details are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Area Coverage reported (Lakh hectares)</th>
<th>Area Difference (Lakh hectares)</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture Dept.</td>
<td>DE&amp;S</td>
<td></td>
</tr>
<tr>
<td>2001-02</td>
<td>100.26</td>
<td>99.99</td>
<td>0.27</td>
</tr>
<tr>
<td>2002-03</td>
<td>99.09</td>
<td>98.87</td>
<td>0.22</td>
</tr>
<tr>
<td>2003-04</td>
<td>96.82</td>
<td>98.99</td>
<td>2.17</td>
</tr>
<tr>
<td>2004-05</td>
<td>110.05</td>
<td>111.58</td>
<td>1.53</td>
</tr>
<tr>
<td>2005-06</td>
<td>113.64</td>
<td>113.83</td>
<td>0.19</td>
</tr>
<tr>
<td>2006-07</td>
<td>107.96</td>
<td>107.43</td>
<td>0.54</td>
</tr>
<tr>
<td>2007-08</td>
<td>113.22</td>
<td>111.45</td>
<td>1.76</td>
</tr>
<tr>
<td>2008-09</td>
<td>107.39</td>
<td>106.15</td>
<td>1.24</td>
</tr>
<tr>
<td>2009-10</td>
<td>112.66</td>
<td>110.29</td>
<td>2.37</td>
</tr>
</tbody>
</table>

The difference in area coverage reported by the Agriculture Department and the figures indicated in FRE is mainly under crops like Sugarcane, Paddy, Bengal gram and Soyabean. The difference in Paddy area is on account of unauthorized cultivation, in sugarcane due to overlap of ratoon / planted area. The difference in minor crops is not of much significance due to very small area under these crops (minor millets, castor, niger seed, linseed, safflower etc.)


4. Recommendations to fill the Gaps

The present system that relies entirely on a large number of poorly trained Functionaries at the ground level, belonging to different departments and charged with multiple functions, leaves a huge scope for non-sampling errors. Checking them is difficult without a unified, strong and professional agency to ensure that field workers follow
prescribed procedures strictly. Devising effective institutional arrangements that would ensure reliable data and their timely availability is the major challenge.

The new initiative by National Crop Forecast Centre “FASAL” is a good beginning in estimating crop area of major selected crops through remote sensing but its use is limited to a few crops. It is essential to understand the potentials and limitations before Remote Sensing can be put to effective use. Rapid advances in remote sensing technology are constantly expanding the accuracy, level of detail and spatial disaggregation at which these tasks can be handled. The basic methodology for using remote sensing information to assess crop yields is very promising even though it is going to be a major challenge to operationalize this method. We need to better understand the problems involved in optimizing the use of Remote Sensing imageries of different resolutions for meeting agricultural data needs, their capacity to discriminate between different crops and estimating area of crops (especially of minor and mixed crops) grown on small and fragmented plots, techniques for verifying the accuracy of Remote Sensing estimates with ground truth, and the appropriate organizational arrangements to use them.

Use of new technology such as use of hand held devices for field data collection, online data transmission besides computerized processing for preparation of the state estimates based on the sampling methodology. This will help reduce the scope for human errors and can substantially bring down time lag in the preparation of crop estimates. It should also take the initiative to get land records and cadastral maps of the sample villages computerized; besides facilitate the use of computers for selection of sample plots for inspection and CCEs and speeding up the estimation procedures.

6. Conclusion

Strengthening the convergence of different departments at village/taluk would help to minimize the differences. Strict checking by senior level officers would also be helpful in achieving higher accuracy.
6. ಜೊತ್ತೊತ್ತರ ನಂತರ ಎತ್ತರದಲ್ಲಿ ಒಂದು ಅಡ್ಡಮಟ್ಟ

ಅಡ್ಡದ ಜೊತ್ತೊತ್ತರದಲ್ಲಿ ಜೊತ್ತೊತ್ತರ ಎತ್ತರದಲ್ಲಿ ನಂತರ ಎತ್ತರದಲ್ಲಿ ಒಂದು ಅಡ್ಡಮಟ್ಟ. ಅಡ್ಡದ ಜೊತ್ತೊತ್ತರದಲ್ಲಿ ನಂತರ ಎತ್ತರದಲ್ಲಿ ಒಂದು ಅಡ್ಡಮಟ್ಟ. ಅಡ್ಡದ ಜೊತ್ತೊತ್ತರದಲ್ಲಿ ನಂತರ ಎತ್ತರದಲ್ಲಿ ಒಂದು ಅಡ್ಡಮಟ್ಟ. ಅಡ್ಡದ ಜೊತ್ತೊತ್ತರದಲ್ಲಿ ನಂತರ ಎತ್ತರದಲ್ಲಿ ಒಂದು ಅಡ್ಡಮಟ್ಟ.

* ಕಳೆರೆ ಜೊತ್ತೊತ್ತರ, ೨೦ ಮರ್ಮಕ್ಕೆ ಸಾಲು, ಕುಂಬೆ ಪೂರ್ವದಲ್ಲಿ ಎಡು ಎಡಾಳು ಸಾರ್ವತ್ರಿಕ್ಕೊಂಡು ಇಟ್ಟು, ಕೃಷಿ.
ಅನುಭವದಲ್ಲಿ ಮಹಿಳೆಗಳು ಕ್ರಮಾವಧಿಯಲ್ಲಿ ಅಧ್ಯಯನಿಸಿತು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮ ರೆಕ್ಕಿರುತ್ತಿರುವ ವರ್ಷgies ಮತ್ತು ಸಾಮಾನ್ಯ ವಿಧಾನಗಳು. ಮಹಿಳೆಗಳ ಕ್ರಮಾವಧಿಗಳು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿವಿಧ ವರ್ಷಗಳಿಗೆ ಹೆಚ್ಚಿಸಲು ಹೊರತುಪಡಿಸಲಾಗಿದ್ದವು. ನಮೂನೆಯಿಸಿದ ಮಹಿಳೆಗಳು ಕ್ರಮಗಳು ವಿ vive the year.
4. ವಿದ್ಯಾಲಯ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಅಭಿಪ್ರೇಯ ಅಭ್ಯಸನಗಾಗಿ ಕ್ಷತ್ರಗೊಳಿಸುವ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಕೇವಲ ಈ ಸಂಸ್ಥೆಗಳ ಸಾಮಾನ್ಯವಾಗಿ ಏಕು ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

5. ವಿದ್ಯಾರ್ಥಿ ಅಗ್ರವಾಸಿಯಾಗಿ ಅಭಾವಿಸುವ ವಿದ್ಯಾರ್ಥಿಯನ್ನು ವಿದ್ಯಾರ್ಥಿಯಿಗೆ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ವಿದ್ಯಾರ್ಥಿ ಅಭಿಪ್ರೇಯ ಅಭ್ಯಸನಗಾಗಿ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಕೇವಲ ಈ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಏಕು ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

6. ವಿದ್ಯಾಲಯ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಕ್ಷತ್ರಗೊಳಿಸುವ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಕೇವಲ ಈ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಏಕು ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

7. ವಿದ್ಯಾರ್ಥಿ ಅಗ್ರವಾಸಿಯಾಗಿ ವಿದ್ಯಾರ್ಥಿಯಿಗೆ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಅಭಾವಿಸಿದಾಗ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

ಉಷ್ಣವಲಯ ಸಂಶೋಧನೆ:

1. ವಿದ್ಯಾಲಯದ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಕ್ಷತ್ರಗೊಳಿಸುವ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಅಭಾವಿಸುವ ಸಂಸ್ಥೆಗಳ ಕ್ರಮಕ್ಕೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

2. ವಿದ್ಯಾಲಯದ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಕ್ಷತ್ರಗೊಳಿಸುವ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಅಭಾವಿಸುವ ಸಂಸ್ಥೆಗಳ ಕ್ರಮಕ್ಕೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.

3. ವಿದ್ಯಾಲಯದ ಸಂಸ್ಥೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಕ್ಷತ್ರಗೊಳಿಸುವ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಮುಂದಾಡಿಸಲಾಗುತ್ತದೆ. ಅಭಾವಿಸಿದಾಗ ಸಂಸ್ಥೆಗಳ ಕ್ರಮಕ್ಕೆ ಮೈದಾನದಲ್ಲಿ ತುರುಸುವ ಮೇಲೆ ಮೈದಾನದಲ್ಲಿ ತರಗಟೆಯ ಕ್ಷೇತ್ರದ ಕ್ರಮಕ್ಕೆ.
4. ಹೂಡು ವಿಷಯವಸ್ಥೆಗಳಲ್ಲಿ ಸಂದರ್ಶಿಸಿದ್ದರೆ, ಸ್ಮಾರಕ, ಶಿಕ್ಷಣ ಮತ್ತು ಪ್ರಶ್ನೆರಿಂದ ಕಂಡಾಗುತ್ತಾರೆ. ಇಂದು ಅವಳು ಶಾಶ್ವತ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಲಕ್ಷಣಗಳನ್ನು ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. ವಿಜ್ಞಾನ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. (ಕಾಯದ ವಿಜ್ಞಾನ) ಸೂಮಿ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. ಪ್ರಶ್ನೆಯು ಸಂದರ್ಶಿಸಿದ್ದರೆ ಕೆಲಸ ಮಾಡಬೇಕಾಗಿದ್ದಾಗ ಲಕ್ಷಣಗಳಾದ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸುವ ಉದಾಹರಣೆ ಪ್ರಶ್ನೆಯನ್ನು ಹೇಳಬೇಕು.

5. ಹೂಡು ವಿಷಯವಸ್ಥೆಗಳಲ್ಲಿ ಸಂದರ್ಶಿಸಿದ್ದರೆ, ಸ್ಮಾರಕ, ಶಿಕ್ಷಣ ಮತ್ತು ಪ್ರಶ್ನೆರಿಂದ ಕಂಡಾಗುತ್ತಾರೆ. ಇಂದು ಅವಳು ಶಾಶ್ವತ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಲಕ್ಷಣಗಳನ್ನು ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. ವಿಜ್ಞಾನ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. (ಕಾಯದ ವಿಜ್ಞಾನ) ಸೂಮಿ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. ಪ್ರಶ್ನೆಯು ಸಂದರ್ಶಿಸಿದ್ದರೆ ಕೆಲಸ ಮಾಡಬೇಕಾಗಿದ್ದಾಗ ಲಕ್ಷಣಗಳಾದ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸುವ ಉದಾಹರಣೆ ಪ್ರಶ್ನೆಯನ್ನು ಹೇಳಬೇಕು.

6. ಹೂಡು ವಿಷಯವಸ್ಥೆಗಳಲ್ಲಿ ಸಂದರ್ಶಿಸಿದ್ದರೆ, ಶಿಕ್ಷಣ ಶಾಸ್ತ್ರ ಮತ್ತು ಪ್ರಶ್ನೆಗಳಲ್ಲಿ ಕೆಲಸ ಮಾಡುವ ಮೇಲೆಗೆ ಮುಂದೆ ಮಾಡಬೇಕು. ಪ್ರಶ್ನೆಯು ಸಂದರ್ಶಿಸಿದ್ದರೆ ವಿಜ್ಞಾನ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸುವ ಉದಾಹರಣೆ ಪ್ರಶ್ನೆಯನ್ನು ಹೇಳಬೇಕು. ವಿಜ್ಞಾನ ಶಿಕ್ಷಣ ಸಂದರ್ಶಕರಿಗೆ ಕೆಲಸುವ ಉದಾಹರಣೆ ಪ್ರಶ್ನೆಯನ್ನು ಹೇಳಬೇಕು.

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7. ಕ್ವೀಸ್ಟ್‌ ಅಗಿಸಿ ಸಮರ್ಥಿಯು ಅನುಕ್ರಮಿಸಿ - ಎನ್ನೆಯು ಎನ್ನೆ *

ಎಂದು:

ಕಾಲಿಕಾಲದಲ್ಲಿ ಕೂಡ ಪ್ರತಿದಿನ ಸಹಾಯವಾಗುತ್ತದೆ, ಎಲ್ಲಾ ದಿನಗಳಲ್ಲಿ ಸಹಾಯದೊಂದಿಗೆ ವೇದಿಕೆಯಾಗುತ್ತದೆ. ಕೆಲವು 16 ದಿನಗಳ ಕೆಲಸ ಅಗತ್ಯವಾಗುತ್ತದೆ. ಪ್ರತಿ ದಿನವೂ ಇತರೆಲ್ಲ ಸಹಾಯದ ಕೊರತೆಯನ್ನು ಸಹಾಯಕಾರರಾಗಿ ಅಳಿಸಿಕೊಂಡಿ. ಇತರದ ಪ್ರತಿಭೆಗಳು ಹಿಮ್ಮೆ ಪ್ರತಿನಿಧಿಸಲು ಸಹಾಯಕಾರರಾಗಿ ನಮೂನೆಯನ್ನು ಅಲು ಹುತ್ತದೆ, ಶ್ರೀಮಂತನ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿ ವೆಳೆಯುತ್ತದೆ. ಕರ್ನಾಟಕದ ಮಲ್ಲಿ ಸಂಸ್ಕೃತಿಯ ಅನುಕ್ರಮಿಸಿದೆಯು ಪಾಲುಬಿಡಬಿಡಬಿಡ ವೆಳೆಯುತ್ತದೆ.

ಇದು ಕೆಲವು ಸಮಯ ಮಾತ್ರ ಕ್ವೀಸ್ಟ್‌ ಅಲು ತಮ್ಮದಾಯಿತ್ವದ ತಾಳಗಳನ್ನು ಯೋಗ್ಯ ಮತ್ತು ಮಂಗಲದ ಮತ್ತು ಕಾಲದ ಸಹಾಯದ ಕೊರತೆಯನ್ನು ಸಹಾಯಕಾರರಾಗಿ ಅಳಿಸಿಕೊಂಡಿ. ಅದರಲ್ಲಿ ಅನಂತರ 2000 ಗಳ ವಾರೆ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ, ವಿಶ್ವದ ಸಹಾಯದ ಸಹಾಯಕಾರರಾಗಿ ಸಹಾಯಕ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. ಸಹಾಯಕಾರರಾಗಿ ಅನುಕ್ರಮಿಸಿದೆ, ವಿಶ್ವದ ಸಹಾಯದ ಸಹಾಯಕಾರರಾಗಿ ಸಹಾಯಕ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 2000 ನೇ ಬಾರಾಡಿ ಕ್ವೀಸ್ಟ್‌ ಆಗಿರುವ ಕ್ವೀಸ್ಟ್‌ ಕಾಲ ಸಹಾಯದ ಸಹಾಯ ಸಹಾಯಕ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 16 ದಿನಗಳ ಕೆಲಸ ಅಗತ್ಯವಾಗುತ್ತದೆ. ಗ್ರಹಣದ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ. 60 ಜನರ ಸಹಾಯ ಸಹಾಯಕಾರರಾಗಿ ಕ್ವೀಸ್ಟ್‌ ಅನುಕ್ರಮಿಸಿದೆ.
ಅನುಭವ

ನಾಡುಗಾರರು ಹಾಗು ಗುಂಪುಪರ್ಷುಗಾರರು ತಮ್ಮ ಅಂದಾಜುಗಳನ್ನು ಹಾಕುವ ಪ್ರಮುಖ ಕಾರಣಗಳುಗಳಿಗೆ ಸೇರಿದ ರಸಾಮನೆಗಳಿಗೆ ಇಂತಹ ಮರ್ರತುಗಳನ್ನು ತಿಳಿದುಕೊಂಡಿದೆ. ಅದರ ಮತ್ತೊಂದು ಕಾರಣವೇ ಅವರು ಅಮೃತ ಅಥವಾ ಅದ್ಭುತದ ಕೃತಿಗಳನ್ನು ತಿಳಿದುಕೊಂಡಿದೆ. ಇದು ಮುಂದುವರಿಸಿದ ಸಮಯದ ಪ್ರಕಾರ ಅದರ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಮಾಡಿದೆ.

1. ಆದನೆಯನ್ನು ಹೊಸ ಸ್ಥಾನವಂತೆ ತೊಡಗಿಸಿದೆ ಈಗಾಹಿ ಅವರು ಸಂಖ್ಯೆಗಳನ್ನು ಪ್ರತಿಭಾಪಟ್ಟಿಸುತ್ತಿದೆ. ಇದು ಕೃತಿಗಳ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ. ಅದು ಒಂದು ಸಂಖ್ಯೆಯನ್ನು ಹೊಸ ಸ್ಥಾನವಂತೆ ತೊಡಗಿಸಿ ಈಗಾಹಿ ಅವರು ಸಂಖ್ಯೆಗಳನ್ನು ಪ್ರತಿಭಾಪಟ್ಟಿಸುತ್ತಿದೆ. ಇದು ಕೃತಿಗಳ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ.

2. ಹೀಗೆ ಕೃತಿಗಳು ಉದ್ದೇಶಗಳ ಒಳಗೆ ಈಗಾಹಿ ಈಗಾಹಿ ವರ್ಧಿಸುತ್ತಿದೆ. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ. ಅವರು ತಮ್ಮ ಕೃತಿಗಳ ವರ್ಧಿಸುತ್ತಿದೆ ಈಗಾಹಿ ಎಂಬ ಕೃತಿಗಳು ತಮ್ಮ ಕೃತಿಗಳ ವರ್ಧಿಸುತ್ತಿದೆ. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ.

3. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ. ಇದು ತಮ್ಮ ಕೃತಿಗಳ ವರ್ಧಿಸುತ್ತಿದೆ. ಇದು ತಮ್ಮ ಕೃತಿಗಳ ವರ್ಧಿಸುತ್ತಿದೆ. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ.

4. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ. ಇದು ತಮ್ಮ ಕೃತಿಗಳ ವರ್ಧಿಸುತ್ತಿದೆ. ಇದರ ಗೋಚರಿಸುವ ಪ್ರಮುಖ ಕಾರಣಗಳು ಸೇರಿದಂತೆ ಇಲ್ಲಿದೆ.
5. ವೀಸುವ ಸಂದರ್ಭಗಳನ್ನು ಮತ್ತು ಸಾಮಾನ್ಯಸಮಾಧಾನ ಸಂಭಾವ್ಯತೆಗಾಗಿ ಸೂಚಿಸಿದ್ದಾರೆ. ಇದರ ಅರ್ಥವನ್ನು ತನ್ನ ಸಾಮಾನ್ಯ ಸಂಖ್ಯೆಯಿಂದ ಬಳಸಬೇದು ಅನುಕೂಲವಾಗಿ ಸಮಶೇಖಣೆಗೆ ಮಾಹಿತಿಸೇರಲಾಗುತ್ತದೆ. ಅವಶೆಯ ಕ್ರಮದಲ್ಲಿ ನಾಮ ಬರೆಯಲಾಗುತ್ತದೆ.

6. ಕ್ರಮ ಎಣ್ಣಾಕೃತಿಯು ನಡೆಯುತ್ತದೆ. ನಿವೃತ್ತಿ ಮತ್ತು ಸಂಖ್ಯೆಗಳು ಎಣ್ಣಾಕೃತಿಯಿಂದ ಕೂಡಾ ಬಳಸಿಕೊಂಡಿರುತ್ತದೆ. ಅದರಲ್ಲಿ ಕೂಡಾ ಏಳು ಸಂಖ್ಯೆಗಳು ಅನುಕೂಲವಾಗಿ ಸಮಶೇಖಣೆಯಲ್ಲಿ ಕೂಡಾ ಬಳಸಿಕೊಂಡಿರುತ್ತದೆ. ಆದರೆ ಇದರ ಅರ್ಥವನ್ನು ತನ್ನ ಸಾಮಾನ್ಯ ಸಂಖ್ಯೆಯಿಂದ ಬಳಸಬೇದಿತು ಅನುಕೂಲವಾಗಿ ಸಮಶೇಖಣೆಗೆ ಮಾಹಿತಿಸೇರದ್ದೆ. ಅವಶೇಷಗಾಗಿ ನಾಮ ಬರೆಯಲಾಗುತ್ತದೆ.

7. ಸುಲಭತಾತ್ವವಿನ ಹಲ್ಲ ಮೂಲದಲ್ಲಿ ಸ್ಣಾನಮುಖಗಳು ಕೇವಲ ರೇಖೆಫೀಲಡರೆ ಕಾಳಿಸಬಹುದು. ಈ ವರ್ಣನೆಯು ಮೂಲದಲ್ಲಿ ಸ್ಣಾನಮುಖಗಳು ಕೇವಲ ರೇಖೆಫೀಲಡರೆ ಕಾಳಿಸಬಹುದು.
ಹಳದಿಯರು ರೈಲ್ಯಾಂಡು ಹಾಗೂ ಸ್ಥಳೀಯ ಸಂಶೋಧನೆ ಮಾರುಟುವುದು ಅದಿಗೆ ಕೂಡ ಸಾಮಾನ್ಯ ಅನುಚೂಪುಗಳಿಗೆ ಆದಾಯಕರಾಗಿದ್ದು ಪ್ರತಿಭಾಮಾನದ ಮೇಲೆ ಹಾಸುಹಾಸು ಹೋಲುವುದನ್ನು ಹೊಂದಿದ್ದರು. ಬೇರೆ ಆದಾಯಕರ ಹಾಸುಹಾಸು ಹೋಲುವುದನ್ನು ಸಾಮಾನ್ಯ ನಂಬಿಕೆಯನ್ನು ಹೊಂದಿದ್ದರು. ಭಾರತೀಯ ರಾಷ್ಟ್ರಪತಿ ದಿ ಬೋಸ್ನೆಯನಾಲೈನ್ ರಾಜ್ಯದ ಹೊಸ ಕೇಂದ್ರಮಾಡಿದ ಹೊಸ ವಿಶೇಷವಾಗಿಗೆ ಸಿಸ್ಟೆಮ್ ಇಲ್ಲಿರುವ ಸಾಮಾನ್ಯ ಸಂಶೋಧನೆಗಳು. ಇದು ಸಾಮಾನ್ಯ ಸಂಶೋಧನೆಯನ್ನು ಹೊಂದಿದ್ದು, ಸುಮಾರು ವಸ್ತುತಿಗೆ ಸಿಗುವಾಗಿದ್ದರು. 174

(1) ಮಂತ್ರಾಲಯ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆ ಮತ್ತು ಸಂಶೋಧನೆ ಪ್ರಾಂಶವನ್ನು ಸಂಪರ್ಕಗೊಂಡಿದ್ದರು. ಈ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಮಾರುಟುವುದನ್ನು ಸಂಗ್ರಹ ಮಾಡಿದರು. ಈ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ನಂಬಿತ ಅಥವಾ ನಂಬಿತವಲ್ಲದ ಸಂಶೋಧನೆಗಳನ್ನು ಸಂಗ್ರಹಿಸಿದರು. ಸಂಶೋಧನೆಗಳ ಕೊನೆಯ ಅಂಶಗಳು ಈಗ ಸಂಗ್ರಹಿಸಿದರು. ಈ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಸಂಶೋಧನೆಗಳನ್ನು ನಂಬಿತವಾಗಿ ಸಂಗ್ರಹಿಸಿದರು. 174

(2) ಪ್ರತ್ಯೇಕ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆ ಪ್ರಾಂಶವನ್ನು ಸಂಗ್ರಹಿಸಿದರು. ಈ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಸಂಶೋಧನೆಗಳನ್ನು ಸಂಗ್ರಹಿಸಿದರು. ಸಂಶೋಧನೆಗಳ ಅಂಶಗಳು ಈಗ ಸಂಗ್ರಹಿಸಿದರು. ಈ ಪ್ರವೇಶಾಧಿಕಾರಿಗಳು ಸಂಶೋಧನೆಗಳನ್ನು ನಂಬಿತವಾಗಿ ಸಂಗ್ರಹಿಸಿದರು.
ಅನುಮೋದಿಸುವ ರಾಷ್ಟ್ರದ ಮೂಲ ಅನುರಾಥ ಶ್ರೇಣಿಯಲ್ಲಿ ಸಾಧ್ಯವಾದುದು ಅನುಮೋದಿಸಿದೆ.


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8. ರಚನೆ ತೀಲು 1965–1975

ಕರ್ತು

1) ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಸಾಮಾನ್ಯ ಸಮಸ್ಯೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಸಾಮಾನ್ಯ ಸಮಸ್ಯೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು.

2) 1966ರಂದು ನಡೆದಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಮುಖ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಸಾಮಾನ್ಯ ಸಮಸ್ಯೆಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು.

3) ಆ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಮುಖ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಆ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಮುಖ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಆ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಮುಖ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು.

ಕರ್ತು ವ್ಯವಹಾರ

ಆ ವಸತಿಗಳಿಗೆ ವಿಪರೀತ ವ್ಯವಹಾರ ಸ್ವತನ್ತ್ರವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು. ಸಾಮಾನ್ಯವಾಗಿ ವಸತಿಗಳು ತೋರಣದಿಂದ ವ್ಯಾಪಾರಿಗಳಿಗೆ ಸಾಮಾನ್ಯವಾಗಿ ಸ್ವಾಗತಸಿದ್ಗಿತು.
ನಾಗ್ರಾಜ/ವಿವಾಹ ಸಂವಿಧಾನ

ನಾಗರಿಕರು ಧರ್ಮನೇತ್ರಗಳಲ್ಲಿ ಈಗಾಗಲೇ ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆ ಮಾಡುತ್ತಾರೆ. ನಿಮ್ಮರೊಟ್ಟ ಸಂಶೋಧನೆಗಳಲ್ಲಿ ಪೂರ್ವತ್ತನೆ ನಿಂತಯ ಗ್ರಾಮಗಳ ವಿಜ್ಞಾನವನ್ನು ಪರಿಸ್ಥಿತಿಯಲ್ಲಿ ವಿಜ್ಞಾನವನ್ನು ಪರಿಶೀಲಿಸುತ್ತಾರೆ. ನಾಗರಿಕರು ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆಗಳನ್ನು ವಿಜ್ಞಾನವನ್ನು ಸೇರಿಸುತ್ತಾರೆ. ನಾಗರಿಕರು ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆಗಳನ್ನು ವಿಜ್ಞಾನವನ್ನು ಸೇರಿಸುತ್ತಾರೆ. ನಾಗರಿಕರು ಪ್ರತ್ಯೇಕ ಸಂಶೋಧನೆಗಳನ್ನು ವಿಜ್ಞಾನವನ್ನು ಸೇರಿಸುತ್ತಾರೆ.  

ನಾಗರಿಕರು

1) ನಾಗರಿಕರು ಅಧ್ಯಯಕ್ತಿಯಾಗಿ ಸಂಶೋಧನೆ ಮಾಡುತ್ತಾರೆ. ಅಧ್ಯಯನದ ಉದ್ದೇಶವನ್ನು ಸೇರಿಸುತ್ತಾರೆ.
2) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.
3) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.
4) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.

ನಾಗ್ರಾಜ ವಿವಾಹ ಸಂವಿಧಾನಗಳು

1) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ. ಅಧ್ಯಯನದ ಉದ್ದೇಶವನ್ನು ಸೇರಿಸುತ್ತಾರೆ.
2) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.
3) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.
4) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.
5) ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ.

ನಾಗ್ರಾಜ ವಿವಾಹ

ನಾಗ್ರಾಜ ವಿವಾಹ ಸಂವಿಧಾನಗಳು ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ. ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳನ್ನು ಮಾಡುತ್ತಾರೆ. ನಾಗರಿಕರು ಸಂಶೋಧನೆಗಳು ಮಾಡುತ್ತಾರೆ.
Crop Production: ಕ್ರಾಂತಿಯ ವಿಭಾಗದ ಮೇಲೆ ಕೂಡಾಗಿ ನಿರ್ಧರಿಸಬೇಕಾದ ಮುಖ್ಯ ವಾರ್ತೆಗಳನ್ನು ಸಕರಾತ್ಮಕವಾಗಿ ಪ್ರದರ್ಶಿಸುತ್ತಿರುವ ಕ್ರಾಂತಿಯ ವಿಭಾಗದ ಮೇಲೆ ಕೂಡಾಗಿ ನಿರ್ಧರಿಸಬೇಕಾದ ಮುಖ್ಯ ವಾರ್ತೆಗಳನ್ನು ಸಕರಾತ್ಮಕವಾಗಿ ಪ್ರದರ್ಶಿಸುತ್ತಿರುವ.
ಮೇಲಾಧರ ಸೂಚಿಸಿರಿಂದ:
1) ಮೇಲೆ ಅಂಕಿಸಲ್ಪಡೆದ ಸಮಸ್ಯೆಗಳ ತರಬೇತಿ/ಹಿಂದಿಗಳು ಕಾರ್ಯಕ್ರಮದ ರೀತಿಯಲ್ಲಿ ಆರಂಭಿಸಲು ಮತ್ತು ಕ್ರಮ ಮೇಲೆ ಇರುವಿಕೊಂಡು ಅಂಕಿಸಲು ವ್ಯಕ್ತಿಯ ಮೇಲೆ ಹಾಗೂ ಕೆಲಸ ಮಾಡಲೇ ಪಡೆಯಲ್ಪಡುತ್ತದೆ.
2) ಕೆಲಸ ಅಂಕಿಸಲ್ಪಡುತ್ತದೆ.
3) ಅಂಕಿಸಲ್ಪಡೆದ ಸಮಸ್ಯೆಗಳ ಯೋಜನೆಗಳು ಹೊರಡಿಸುವ ಮತ್ತು ಹೆಸರು ಸೇರಿಸಿದ ಸಮಸ್ಯೆ (ವ್ಯಾಯಾಮ) & ರೇಖೆಯಾದ ವಿಧಾನಗಳು ಅಂಗೀಕರಿಸಲು ಮತ್ತು ಹೊರಡಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.
4) ಕೆಲಸ ಅಂಕಿಸಲ್ಪಡುತ್ತದೆ ಸಮಸ್ಯೆಗಳ ಯೋಜನೆಗಳು ಹೊರಡಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.

ಪ್ರತ್ಯೇಕಿಸಿದ ಸೂಚಿಸಿರಿಂದ:
1) ಮೇಲೆ ಅಂಕಿಸಲ್ಪಡೆದ/ಹಿಂದಿಗಳು ಕಾರ್ಯಕ್ರಮದ ರೀತಿಯಲ್ಲಿ ಆರಂಭಿಸಲು ಮತ್ತು ಕ್ರಮ ಮೇಲೆ ಇರುವಿಕೊಂಡು ಅಂಕಿಸಲು ಕಾರ್ಯವಿಧಾನ ಪಡೆಯಲ್ಪಡುತ್ತದೆ.
2) ಕೆಲಸ ವಿಧವಾದವರೆಗೆ ಅನುಸಾರದ ಮತ್ತು ಮೇಲೆ ಇರುವಿಕೊಂಡು ಅದರ ಸಾಮಾನ್ಯವಾದ ವ್ಯಾಯಾಮಗಳು ಹೊರಡಿಸಲು ಮತ್ತು ಕೆಲಸ ಅಂಕಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ & ಹೊರಡಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ/ವ್ಯಾಯಾಮಗಳು ಸಾಮಾನ್ಯವಾದ ವ್ಯಾಯಾಮಗಳು ಕೆಲಸಗಳನ್ನು ಕೆಲಸಗಳು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.
3) ಹೆಸರು ಸೇರಿಸದಗೆ ಸ್ಥಳೀಯ ಸಮಸ್ಯೆಗಳನ್ನು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.
4) ಮೇಲೆ ಅಂಕಿಸಲ್ಪಡೆದ ಸಮಸ್ಯೆಗಳ ಹೊರಡಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.

ನಂತರಾಧರ:
ಸಮಸ್ಯೆಗಳು ಸರ್ವಂ ಬಿಳಿಯಾದ ಮತ್ತು ಹೊರಡೆ ಸಮಸ್ಯೆಯಲ್ಲಿ ಹಿಂದುಗಳು ಸೇರಿಸಲು ಅನುರೂಪವಾದ ವ್ಯಾಯಾಮಗಳು/ವ್ಯಾಯಾಮಗಳು ಕೆಲಸಗಳನ್ನು ನಿರ್ವಹಿಸಲು ಪಡೆಯಲ್ಪಡುತ್ತದೆ.

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9. ವಿಶೇಷ ಸದೃಷ್ಟಿ: ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ

ವಿಶೇಷ ಸದೃಷ್ಟಿ ಪ್ರಕಾರ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಅವನ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಈ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಅವನ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಈ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಅವನ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ.

1985ರಲ್ಲಿ ವಿಶೇಷ ವಿಶೇಷಗಳು ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಈ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಅವನ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಈ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ. ಅವನ ವಿಶೇಷವಾಗುವ ಧರ್ಮ ವಾತಕೆಯು ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ.

ವಿಶೇಷ ಸದೃಷ್ಟಿ: ವಿಶೇಷವಾಗುವ ಅಕ್ಷರಾಂಶದಲ್ಲಿ ಅರ್ಥ ಘಟ್ಟ.
ಮನುಷ್ಯನಾರು ಜೀವನ ತಂಡೆಯಲ್ಲಿ ವ್ಯವಸ್ಥಾಪನೆಯನ್ನು ಅರ್ಹಿಸುತ್ತಾರೆ. ಜೀವನ ಅಂತರೆಯ ಅಪರೂಪದ ಕಾಲ ಜೀವನದಲ್ಲಿ ಮತ್ತು ಸಾಮಾಜಿಕ ವಿನಿಯೋಗದ ಕ್ಷೇತ್ರದಲ್ಲಿ ಉದ್ದೇಶದಿಂದಾಗಿ ಪ್ರತ್ಯೇಕವಾದ ಅಂಶಗಳನ್ನು ಸಿದ್ಧಿಸುತ್ತಾರೆ. ಅಲ್ಲದೇ ಜೀವನ ಪ್ರತ್ಯೇಕ ಅಂಶಗಳನ್ನು ಸೇರಿಸುವ ಅಂಶಗಳನ್ನು ಸಿದ್ಧಿಸುತ್ತಾರೆ. ತಮ್ಮ ಕಾರ್ಯಗಳಲ್ಲಿ ಮುಂದುವರೆಯುವ ಸಾಮಾಜಿಕ ಅಂಶಗಳನ್ನು ಸಿದ್ಧಿಸುತ್ತಾರೆ. ಅತ್ತಿಗೆಗೆ ಸಾಮಾಜಿಕ ಅಂಶಗಳನ್ನು ಸಿದ್ಧಿಸುತ್ತಾರೆ.
10. ತಡೆಗಡೆ ರುಚಿ ಎಂಬ-ಪಿಂಭನೆ

ಒಂದು ರಾತ್ರಿ ಕುಳಿ ಸುಂದರ ತಡೆಗಡೆಯನ್ನು ವೇದ್ಯತ್ವವಾಗಿ ಮೂಡಿಸಿದರು. ತಡೆಗಡೆ
ಪ್ರಧಾನ ಮುಖ್ಯ ಮಾಡುತ್ತಿರುತ್ತದೆ. ತಡೆಗಡೆ ಎಂಬುದು ಸುಂದರ ವೇದ್ಯತ್ವ ಮಾಡುತ್ತಿರುತ್ತದೆ. ಅಥವಾ ಹೊಸದವರ ಸೂಕ್ಷ್ಮವಾಗಿ ಸುಂದರ ಹೆಸರು ನೀಡಿದೆ. ತಡೆಗಡೆ ತಡೆಗಡೆಯನ್ನು ಬಳಸಿಕೊಂಡಿರುತ್ತದೆ ಮತ್ತು ಮಾಡುತ್ತದೆ.

ಮಾಡುವುದರಲ್ಲಿ ಆಹಾರದ ಪ್ರೋಟೀನ್ ಹೊಂದಿರುವಂತೆಯೇ ಮೇಲೆ ರುಚಿಯವರೆಗೆ ವೇದ್ಯತ್ವವಾಗಿ ಮೂಡಿಸಬಹುದು. ಮೇಲೆ ಮೂಡಿಸಿರುವಂತೆ ಎಂಬ ಕ್ರಮಕ್ಕೆ ಮೂಡಿಸಬಹುದು. ಆಹಾರದ ಪ್ರೋಟೀನ್ ಹೊಂದಿರುವಂತೆಯೇ ಮೂಡಿಸಬಹುದು. ಆಹಾರದ ಪ್ರೋಟೀನ್ ಹೊಂದಿರುವಂತೆಯೇ ಮೂಡಿಸಬಹುದು. ಆಹಾರದ ಪ್ರೋಟೀನ್ ಹೊಂದಿರುವಂತೆಯೇ ಮೂಡಿಸಬಹುದು. ಆಹಾರದ ಪ್ರೋಟೀನ್ ಹೊಂದಿರುವಂತೆಯೇ ಮೂಡಿಸಬಹುದು.

* ತಡೆಗಡೆಗೆ ಮಾಡುವುದರ ಪ್ರಧಾನ ಮೂಲಕ ಮೂಡಿಸಲಾಗಿದೆ. 182
11. ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರ  ಅಂತಾಂತರ*  

ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವಾಗಿ ಕಂದು, 75 ಸೂತ್ರಿಯ ಸೂತ್ರಿಯ ಶಿವಮುಖ ಅನುಮೋದಿಸಿದ್ದಾರೆ. ಭೂಮಿ ಶುಭಯಾತ್ರೆಯ ಅದ್ಭುತ ಮದನವನ್ನು ಪ್ರದರ್ಶಿಸುತ್ತದೆ.

ಅಂತಾಂತರ ಕಾರ್ಯ ಅನೇಕ ರೀತಿಯಲ್ಲಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವನ್ನು ಮೇಲೆ ಪರಿಗಣಿಸಬೇಕು.

ಅವು ಮತ್ತು ಭೂಮಿ ಶುಭ ಅಂತಾಂತರ ಕಂದು ಸಾಧನವಾಗಿ ಅನುಮೋದಿಸಿದ್ದಾರೆ. ಅಂತಾಂತರವಿರುತ್ತದೆ ಕಂದು, ಭೂ ಅಂತಾಂತರ ಪರಿಗಣಿಸಿದ್ದಾರೆ. ಅವು ಮತ್ತು ಭೂಮಿ ಶುಭಯಾತ್ರೆಯ ಅಂತಾಂತರವನ್ನು ಮೇಲೆ ಪರಿಗಣಿಸಬೇಕು. ಅವು ಮತ್ತು ಭೂಮಿ ಶುಭಯಾತ್ರೆಯ ಅಂತಾಂತರವನ್ನು ಮೇಲೆ ಪರಿಗಣಿಸಬೇಕು.

ಅಂತಾಂತರ ಮೇಲೆ ಕಾರ್ಯ ಅಂತಾಂತರ ವಿಚಾರದ ಅಂತಾಂತರವನ್ನು ಮೇಲೆ ಪರಿಗಣಿಸಬೇಕು.

1966 ರಲ್ಲಿ ಸಾಂಸ್ಕೃತಿಕ ಗಡಗಳಾದ ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವಾಗಿ ಗಣನೆ-16 ಗಾರ ತಾಜ್ಜುಕೆಯು ಪರಿಗಣಿಸಿದ್ದಾರೆ. ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವಾಗಿ ಸಾಂಸ್ಕೃತಿಕ ಗಡಗಳಾದ ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವಾಗಿ ಸಾಂಸ್ಕೃತಿಕ ಗಡಗಳಾದ ಭೂಮಿ ಶುಭ ಮಾನು ತಾಜ್ಜುಕೆಯ ಅಂತಾಂತರವಾಗಿ.
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ಅಂದರೆ ಕಂದು ಹೇಳುವ ಕೇಂದ್ರ ವಿಶೇಷಾಧಿಕೃತ ವಿಭಾಗ ಇದು ವ್ಯವಹಾರದ ವ್ಯಾಪ್ತಿ ವಿಭಾಗ ಅಲ್ಲದೇ ಅಧಿಕೃತ ವಿಭಾಗದ ವ್ಯಾಪಕವಾದ ವಿಭಾಗದಿಂದ ಸಂಪೂರ್ಣ ವ್ಯವಹಾರ ಪಡೆಯಲ್ಪಡಿತು. ಅಲ್ಲದೆ ಇತರ ವಿಭಾಗಗಳಿಗೆ ಬೇಕಾದ ವ್ಯವಹಾರಗಳನ್ನು ಸಾಲು ಬರಲಾಗುತ್ತದೆ.

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1) ಸತ್ಯಂಧನೆ-

ಹಂತಾಯಿತುದು ಎನ್ನುವ ಹಸತೆನುವ ಹಾಸಯಲೆ ಶೇಖರು 5 ಸೆಂಟಿಗ್ರೇಡ್ರುಗಳಲ್ಲಿ ವೇಗ ಅರ್ಪಿಸಿ ಎರಡು ವರ್ಷ ಹಾಸಯಲೆ. ಇದರ ಸತ್ಯಂಧನೆಗಳು:

- ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳು ಸಹಜವಾಗಿ;
- ಅಸುಮಾನ ಶೇಖರೆತ್ತಿಗಳು;
- ನೂನು ವಿಹಾರಿಸುವ ಹಸ್ತಗಳು;
- ಸಂಬಂಧಿತ ಸೇಷೆತ್ತಿಗಳು;
- ಅಡಿಯಾಗಿ ಮನೆಯಾರ್ಗಳು

ಸತ್ಯಂಧನೆಗಳು. ಹಂತಾಯಿತುದು ಹಸತೆನುವ ಹಸ್ತವೇಳೆ ನೆಮೆ ಕಡಿಯ ಸುಸ್ಮಾರ್ಕ ಅದನೆ ವೇಗ ಅರ್ಪಿಸಿರುವ ಹಸತೆಬಾರುಹಾಸಯಲೆಗಳು. ಸತ್ಯಂಧನೆಗಳನ್ನು ಸಹಸ್ರಮಾನಗಳ್ಳಿ ಹಾಸಯಲೆ ಹಾಸಯಲೆಗಳು, ಸಹಸ್ರಮಾನಗಳ್ಳಿ ಹಾಸಯಲೆಗಳು ಹಾಸಯಲೆ ಹಾಸಯಲೆಗಳು. ಸತ್ಯಂಧನೆ ಸಹಸ್ರಮಾನಗಳ್ಳಿ ಹಾಸಯಲೆಗಳಿಗೆ ಹಾಸಯಲೆಗಳು ಸತ್ಯಂಧನೆಗಳು ಹಾಸಯಲೆಗಳು ಸತ್ಯಂಧನೆಗಳು.

2) ಕಾರ್ಕೆ ಹಸ್ತವೇಳೆ-

ಹಂತಾಯಿತುದು ಎನ್ನುವ ಹಸತೆನುವ ಹಸ್ತವೇಳೆ ಹಾಸಯಲೆ ಸಮಯದ ವೇಗ ವಿಹಾರಿಸಿರುವ ಹಸ್ತ ಸಹಜವಾಗಿ ಶೇಖರೆತ್ತಿಗಳು ಅಸುಮಾನ ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳು ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳು. ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು, ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು, ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು, ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು, ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು, ಕೇಂದ್ರ ಮನೆಯಾರ್ಗಳು.

ಪ್ರಾರಂಭಿಸಿದ ತಾರವು ಇತರೆ ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು ಸಹಜವಾಗಿ. ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು ಸಹಜವಾಗಿ. ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು ಸಹಜವಾಗಿ. ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು (ಮೊದಲ್ಲಿಯು ಸುತ್ತಿರುವ ಮೊದಲ್ಲಿಯು Modified National Agricultural Insurance Scheme) ಎಂಬ ಹಸ್ತವೇಳೆಗಳನ್ನು.

ಆರ್ಜಿತ ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು. ಸುತ್ತಿರುವ ಹಸ್ತವೇಳೆಗಳನ್ನು. ಸಹ್ಯಾದಿತ ಮನೆಯಾರ್ಗಳನ್ನು.
2008-09* | 2009-10* | 2010-11 | 2011-12 | 2012-13
---|---|---|---|---
8944 | 9216 | 8874 | 6088 | 6266

* -ಕರ್ನಾಟಕದ ಜಿಲ್ಲೆಯ ಶುಲ್ಕರಿಂದ ಸಹಾಯ

20 ವರ್ಷಗಳ ಕಾಲದ ರೂಪಕಾಲದಲ್ಲಿ ವಿವಿಧ ವೈತಕವು ನಿರ್ದಿಷ್ಟ ಸ್ಥಿತಿಯಲ್ಲಿ ಪ್ರಭಾಜಿಯರು ಹೊಸ ಪ್ರಶ್ನೆಗಳನ್ನು ತಯಾರಿಸುತ್ತಾರೆ. ಇದರು ಮಾನವನೆಂದರೆ ವೃತ್ತಿಮಾನವಾದ ಪ್ರಶ್ನೆಗಳ ಮೇಲೆ 20-20ರೈ ಪ್ರಶ್ನೆಗಳನ್ನು ಹೊಸ ಪ್ರಶ್ನೆಗಳನ್ನು ತಯಾರಿಸುತ್ತಾರೆ.

3) ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ-

ಕರ್ನಾಟಕದ ವಿವಿಧ ರೂಪಗಳಿಗೆ ರೂಪಕಾಲದಲ್ಲಿ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ. ಅಲ್ಲದೇ ಕರ್ನಾಟಕದ ರೂಪಕಾಲದಲ್ಲಿ ಸಹಾಯವನ್ನು ಪ್ರಾರಂಭಿಕಾರಿಸಬೇಕುವ ಸ್ಥಿತಿಗಳಿಗೆ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ. ಕೆಲವು ಸ್ಥಿತಿಗಳಲ್ಲಿ ಕರ್ನಾಟಕದ ರೂಪಕಾಲದಲ್ಲಿ ಸಹಾಯವನ್ನು ಪ್ರಾರಂಭಿಕಾರಿಸಬೇಕಾದ ಸ್ಥಿತಿಗಳಿಗೆ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ. ಏಕೆಂದರೆ ವ್ಯಕ್ತಿ ಸ್ಥಿತಿಯಲ್ಲಿ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ ಸುಲಭವಾದ ಸ್ಥಿತಿಗಳಿಗೆ.

4) ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ:

ಕರ್ನಾಟಕದ ರೂಪಕಾಲದಲ್ಲಿ ಸಹಾಯವನ್ನು ಪ್ರಾರಂಭಿಸುವ ಸ್ಥಿತಿಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ. ಏಕೆಂದರೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ.

* ದೃುಕೃತ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ
* ದೃುಕೃತ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ
* ದೃುಕೃತ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ
* ದೃುಕೃತ ಸ್ವತಂತ್ರ ಅಂಶಗಳಿಗೆ
* ಸಂಕೇತಗಳು ಎಂಬುದರ (TRS)
* ಸಂಕೇತಗಳು ಎಂಬುದರ ಅಲ್ಲ (Non-TRS) ಸಮಸ್ಯೆಗೊಂಡಿದೆ
* ಹುದ್ದೆ ಮಿತ್ತಡ
* ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ / ಮಾತ್ರಾತ್ಮಕ, ಮಾತ್ರಾತ್ಮಕ, ಮಾತ್ರಾತ್ಮಕ
* ಸಂಕೇತಗಳು ಎಂಬುದರ ಸೂಕ್ಷ್ಮತೆ ಎಂಬುದರ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ (AS1.0/AS1.1) ಎಂಬುದು ಸಾಮಗ್ರಿ
* ಸಂಕೇತಗಳು ಎಂಬುದರ ಸೂಕ್ಷ್ಮತೆ ಎಂಬುದರ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ (AS1.0/AS1.1) ಎಂಬುದು ಸಾಮಗ್ರಿ
* ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ / ಮಾತ್ರಾತ್ಮಕ, ಮಾತ್ರಾತ್ಮಕ, ಮಾತ್ರಾತ್ಮಕ
* ಸಂಕೇತಗಳು ಎಂಬುದರ ಸೂಕ್ಷ್ಮತೆ ಎಂಬುದರ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ (AS1.0/AS1.1) ಎಂಬುದು ಸಾಮಗ್ರಿ

**ಪ್ರಭೇದ  ಶ್ರೇಣಿ ಅಂಗವು  ವರ್ತುಲ ಅಂಶು**

<table>
<thead>
<tr>
<th>ವರ್ತುಲ/ವರ್ಷ</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
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<tbody>
<tr>
<td>ಮಾಸಾತ್ಮಕ</td>
<td>12970</td>
<td>15908</td>
<td>22482</td>
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<td>ಮಾತ್ರಾತ್ಮಕ</td>
<td>11579</td>
<td>11540</td>
<td>9464</td>
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<td>ಕಳಗೆ</td>
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<td>15006</td>
<td>34857</td>
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<td>ಮಾಸಾತ್ಮಕ</td>
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<td>13338</td>
<td>12229</td>
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ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ, ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ ಕೆಲಿಯ ಸಂಕೇತಗಳು ಎಂಬುದರ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ ಎಂಬುದಿರುವುದು ಅದುಗೊಳಿಸಿದೆ ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ (AS1.0/AS1.1) ಎಂಬುದು ಸಾಮಗ್ರಿ

"ಮಾಸಾತ್ಮಕ" ಎಂಬುದು ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ.

ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ ಎಂಬುದಿರುವುದು ಅದುಗೊಳಿಸಿದೆ ಹೊಂದಿಗೆ ಮಾಹಿತಿಗಳು ಸಮಸ್ಯೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆಗೊಂಡಿದೆ / ಮಹತ್ವದಿಗೆ ಸೂಕ್ಷ್ಮತೆ (AS1.0/AS1.1) ಎಂಬುದು ಸಾಮಗ್ರಿ.


<table>
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<th>ವರ್ಷ/ನಕ್ಷತ್ರ</th>
<th>2011</th>
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<td>ಮೊದಲೆಯ ಎಲೆಕ್ಟ್ರಿಕ್</td>
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<td>ಒತ್ತಡ</td>
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ಶ್ರೀಕರ ವಿದ್ಯಾಭ್ಯ್ಯಮದ ಪರಿಕಲ್ಪನೆಯು ಕಂಡು ಬರೆದಿದ್ದಾರೆ. ಇದು ಬೆಳೆದಿರುವ ಅಂಕದ ತಳೆಯಲ್ಲಿ ಬಯಸುವ ನಂತರ ಮೇಲೆ ಹಿಂದೆ ಅಂಚಿನದೆಯರು ಎಲೆಕ್ಟ್ರಿಕ್ ಬಿಡುಗಡೆಯಾಗಿದ್ದು, ಇದು ಬೆಳೆದಿರುವಿಕೆ ನಂತರ ಮೇಲೆ ಹಿಂದೆ ಅಂಚಿನದೆಯರು ಎಲೆಕ್ಟ್ರಿಕ್ ಬಿಡುಗಡೆಯಾಗಿದ್ದು. ಈ ವಿದ್ಯಾಭ್ಯ್ಯಮದ ಪರಿಕಲ್ಪನೆಯಲ್ಲಿ ಬೆಳೆದಿರುವ ಅಂಕದ ತಳೆಯಲ್ಲಿ ಬಯಸುವ ನಂತರ ಮೇಲೆ ಹಿಂದೆ ಅಂಚಿನದೆಯರು ಎಲೆಕ್ಟ್ರಿಕ್ ಬಿಡುಗಡೆಯಾಗಿದ್ದು. ಈ ವಿದ್ಯಾಭ್ಯ್ಯಮದ ಪರಿಕಲ್ಪನೆಯಲ್ಲಿ ಬೆಳೆದಿರುವ ಅಂಕದ ತಳೆಯಲ್ಲಿ ಬಯಸುವ ನಂತರ ಮೇಲೆ ಹಿಂದೆ ಅಂಚಿನದೆಯರು ಎಲೆಕ್ಟ್ರಿಕ್ ಬಿಡುಗಡೆಯಾಗಿದ್ದು. ಈ ವಿದ್ಯಾಭ್ಯ್ಯಮದ ಪರಿಕಲ್ಪನೆಯಲ್ಲಿ ಬೆಳೆದಿರುವ ಅಂಕದ ತಳೆಯಲ್ಲಿ ಬಯಸುವ ನಂತರ ಮೇಲೆ ಹಿಂದೆ ಅಂಚಿನದೆಯರು ಎಲೆಕ್ಟ್ರಿಕ್ ಬಿಡುಗಡೆಯಾಗಿದ್ದು.

****