CONCLUSIONS
The salient features of the results from the various experiments and studies discussed in the previous chapters are enumerated below:

I. Soil nutrient status of Badagara taluk, a premier coconut growing area of Kerala and which contains almost all the soils on which coconut grows well has been determined and the following points emerged from the study. The total area of the taluk is 54,977.40 hectares and coconut occupies in 28,378.18 hectares of land.

(a) There are five soil groups in the taluk viz.,
(i) Laterite, occupying 95% of the total coconut area
(ii) River alluvium occupying 2% of the area
(iii) Coastal sandy alluvium occupies 1.5% of the area
(iv) Valley soil occupies 1% of the area
(v) Red sandy loam occupies 0.5% of the area

(b) The nitrogen status of all the soils is low except in the case of laterite, in which it is medium. The P and K contents of all the soils are low except in the red sandy loam, in which the P content alone is high. So better yields can be obtained if balanced manuring is resorted to.

II. Manural experiments with two materials, which are the by-products of industry, i.e. (i) NK fertilizer from sea bitterns (containing 2.65% K₂O and 21.8% N) and (ii) trisodium phosphate (containing 19.9% water soluble P₂O₅)
and also with chilean natural potassium nitrate (containing 15% N and 12% K₂O) were conducted on coconut trees.

(a) NK fertilizer was found to be neither superior nor inferior to ammonium sulphate and it can be used as a nitrogenous manure for coconut.

(b) Trisodium phosphate was also found to be equally good like superphosphate as a phosphatic fertilizer for coconut. It may be particularly suitable for acidic soils due to its alkaline nature because of its content of sodium hydroxide.

(c) Chilean natural potassium nitrate can be used as a NK fertilizer after suitably fortifying the material with definite proportions of ammonium sulphate and muriate of potash to have definite proportions of N and K.

III. The possibility of moisture conservation in three coconut soils viz., sandy, red sandy loam and laterite gravelly, under the influence of common salt at two levels and potassium chloride at one level was examined during three consecutive years. The data revealed that the salts at the levels studied had no effect on the soil to retain more moisture.

In the experiment to study the manurial value of common salt, it was found that increase in yield of nuts was not statistically significant for any of the treatments including common salt.

IV. The soil analytical data for six years as well as the leaf analytical data and soil data for the summer and rainy
seasons from the long term experimental plots of coconut at the Central Plantation Crops Research Institute, Kasaragod were scrutinised and the following points emerged:

(a) Regular cultivation and manuring are necessary to increase and maintain the yield at a high level.

(b) Regular cultivation by itself is effective in increasing yields, even in the absence of manuring.

(c) Cultivation and manuring increases the available K and P in comparison with the uncultivated and unmanured plots.

(d) Cultivation and manuring increases the leaf nitrogen and potassium significantly in summer and rainy seasons.

(e) Leaf nitrogen and potassium contents are more during rainy season than that of the summer season. However, Ca and Mg are more in summer than in rainy season in the cultivated + manured plot and in cultivated, but not manured plot.

V. Different parts of the nuts from the low yield group (30 nuts and below per tree per year) and high yield group (above 30 nuts per tree per year) and three soil groups available at the Central Plantation Crops Research Institute, Kasaragod are analysed in summer and rainy seasons.

Nutrient removal by the nuts from the coastal sandy alluvium, red sandy loam and laterite from 1 ha having 175 palms are given below:
<table>
<thead>
<tr>
<th>Soils</th>
<th>N  (kg)</th>
<th>P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt; (kg)</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;O (kg)</th>
<th>CaO (kg)</th>
<th>MgO (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coastal sandy</td>
<td>21.8</td>
<td>8.3</td>
<td>70.7</td>
<td>14.8</td>
<td>6.7</td>
</tr>
<tr>
<td>alluvium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Red sandy loam</td>
<td>21.1</td>
<td>5.7</td>
<td>55.1</td>
<td>7.5</td>
<td>3.8</td>
</tr>
<tr>
<td>3. Laterite</td>
<td>17.2</td>
<td>6.0</td>
<td>52.2</td>
<td>6.7</td>
<td>6.3</td>
</tr>
</tbody>
</table>

VI. In the sandy area of the Institute a number of palms showed intense foliar yellowing particularly in the outer whorls. A micro-nutrient supplemented NPK addition to the above palms was done in order to see as to whether the green colour can be restored. The application was done consecutively for 3 years and observations showed that molybdenum, boron, copper and manganese in the order mentioned influenced to restore the foliar green colour to a considerable extent. In soil regions, where comparatively larger soil depletion due to leaching or non-availability of nutrients to roots, damage consequent on water stagnation or ill drained soil systems occur, proper soil management together with the application of micro-nutrients chiefly molybdenum, copper and boron are recommended to supplement the NPK addition.