APPENDIX
## APPENDIX I
### FORMULAE FOR ANOVA AND CD

### ANALYSIS OF VARIANCE

(ANOVA):

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom (d.f.)</th>
<th>Sum of Squares (S.S.)</th>
<th>Mean Sum of Squares (M.S.S.) (SS/df)</th>
<th>F-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Samples</td>
<td>(k-1)</td>
<td>[n_i(\bar{X}_i - \bar{X})^2] + [n_k(\bar{X}_k - \bar{X})^2]</td>
<td>[	ext{SS between} \over \text{SS within}]</td>
<td>[\text{MS between} \over \text{MS within}]</td>
</tr>
<tr>
<td>Within Samples</td>
<td>(n-k)</td>
<td>[\sum(X_{ij} - \bar{X})^2] + [\sum(X_{ij} - \bar{X}_j)^2]</td>
<td>[	ext{SS within} \over (n-k)]</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>(n-1)</td>
<td>[\sum(X_{ij} - \bar{X})^2]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where,  \(\bar{X}_1, \bar{X}_2, \bar{X}_3, \ldots, \bar{X}_k\) = mean of each sample

\(\bar{X}\) = mean of sample means

\(n\) = total number of items in all the samples, i.e., \(n_1 + n_2 + \ldots + n_k\)

\(k\) = number of samples

\(i = 1, 2, 3, \ldots\)

\(j = 1, 2, 3, \ldots\)
CRITICAL DIFFERENCE (CD)

CD at 5 % level of significance = \( (\sqrt{2 \text{ EMSS}}/r) \times t_{0.05} \)

CD at 1 % level of significance = \( (\sqrt{2 \text{ EMSS}}/r) \times t_{0.01} \)

where, EMSS = Error Mean Sum of Squares

\( r \) = number of replications
\( t_{0.05} \) = table value of t at 5% level of significance
\( t_{0.01} \) = table value of t at 1% level of significance
APPENDIX II

QUESTIONNAIRES (AS TRANSLATED FROM MARATHI)

(FOR CHAPTER 4 SECTION I)

1. Name: 2. Address: Village Taluka District
3. Education:
4. Number of family members:
5. Total landholding: Irrigated: Dry land: Barren:
6. Crops:
7. Secondary Occupation:
8. Total livestock: Bullocks Cow/buffalo Sheep/Goat Poultry Other:
9. Type of Soil:
10. Have you done soil testing?
11. Have you done water testing?
12. What is the soil pH?
13. What is the arrangement for providing water?
14. What is your total expenditure on crop cultivation?
15. What is your gross income per harvest?
16. Type of soil: (tick whichever is applicable)
   Do not know Black Sandy Hilly White
   Red More than one type Other
17. Which fertilizers and pesticides do you use (tick whichever is applicable)? Why?
   Organic Chemical Both
18. Which fertilizers do you think are the most profitable (tick whichever is applicable)? Why?
   Organic Chemical Mixed
19. Which pesticides do you use (tick whichever is applicable)? Why?
   Organic    Chemical    Both    None
20. Do you follow the practice of inter-cropping? Why?
21. What type of seeds do you use (tick whichever is applicable)? Why?
   Hybrid/Improved    Indigenous/Saved    Both
22. From which sources do you purchase your seeds (tick whichever is applicable)? Why?
23. How many members of your family work on the farm?
24. What is your annual labour cost?
25. Do you have adequate knowledge of the crop you have chosen for cultivation? From where did you get this knowledge?
26. Have the government programmes helped you in increasing your knowledge?
27. Have you benefited from your children’s education? In which way?
28. What do you know of organic farming?
29. Do you have adequate knowledge about organic farming?
30. Do you want to know more about organic farming?
31. Do you want to practise organic farming?
32. Do you intend to migrate?
33. Any other experience you would like to share about your farming business?
QUESTIONNAIRE FOR CHAPTER 4 SECTION II)

1. Name:  
2. Address: Village  
   Taluka  
   District  
3. Education:  
4. Number of family members:  
5. Total landholding:  
6. Crops:  
7. Secondary Occupation:  
8. Total livestock: Bullocks  
   Cow/buffalo  
   Sheep/Goat  
   Poultry  
   Other:  
9. Type of Soil:  
10. Have you done soil testing?  
11. Have you done water testing?  
12. What is the soil pH?  
13. What is the arrangement for providing water?  
14. Why did you switch over to organic farming?  
15. Which crops do you cultivate using organic methods?  
16. What was the total cost per acre?

<table>
<thead>
<tr>
<th>Items</th>
<th>Before converting</th>
<th>After converting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manures/Fertilizers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
17. Did your cost change after converting to organic farming? If so, by how much?

18. Total yield (per acre)
   Before conversion: After conversion:

19. Did the productivity of your farming increase or decrease after conversion? Reasons:

20. Does your organic produce fetch a higher price in the market? By how much?

21. Which manures/fertilizers did you use?
   Before conversion: After conversion:

22. Which pesticides did you use?
   Before conversion: After conversion:

23. Which manures/fertilizers and pesticides did you find more profitable, organic or chemical?

24. Did you produce organic manures and pesticides yourself, or purchases them from the market?

25. Did you require more labour after switching over to organic farming? Did your labour cost increase after switching over?

26. How many family members work on the farm?

27. How was the consumers’ response while selling/marketing organic produce?

28. Did your profitability increase or decrease after switching over to organic farming? By how much?

29. Did you get any help from the Government? If yes, please specify.

30. Had you taken a loan?

31. Does your children’s education help you in your farming?
32. Do you intend to migrate?
33. Have you tried to export your produce?
34. Are you satisfied after converting to organic farming?
35. What difficulties did you face during conversion?
36. Any other experience which you would like to share regarding organic farming?