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## Appendix A – Crops and Their Best Suited Environmental Factors Considered

### A.1 Vegetable Crops

1. Bush and Pole Beans

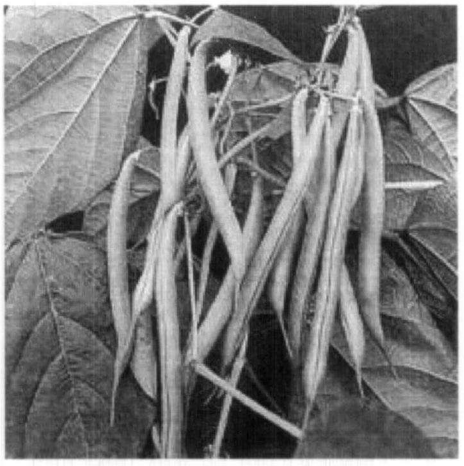

Figure A.1 Bush and Pole Beans

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Well drained soils are suitable for the growth of beans. Preferable pH value is 6.Ill drained soils can cause growth problems. All ecological regions are fine for the growth of beans except the up country wet zone.

2. Eggplant (Brinjal)

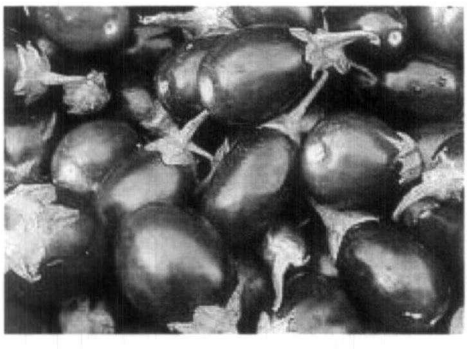

Figure A.2 Eggplant

Well drained light to medium textured soils are suitable for the growth of eggplants. pH value 5.5 – 6.8 is preferred for the healthy growth. Poorly drained soil should be avoided. Eggplants can be grown in both wet zone and dry zone.

3. Beet

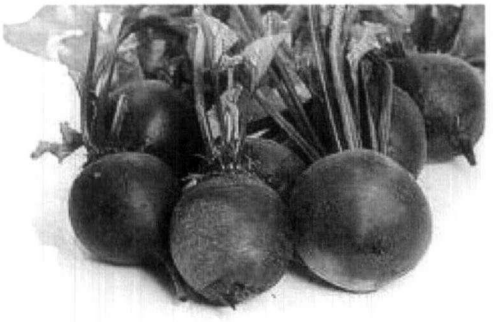

Figure A.3 Beet

Well drained soils are suitable for the healthy growth of beet. Ill drained soils can cause growing problems. Preferable pH value varies from 6.3 to 7.5.

4. Cabbage

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Figure A.4 Cabbage

Well drained Soils are Suitable for the growth of cabbage. Preferred pH value varies from 6 to 6.8

5. Capsicum

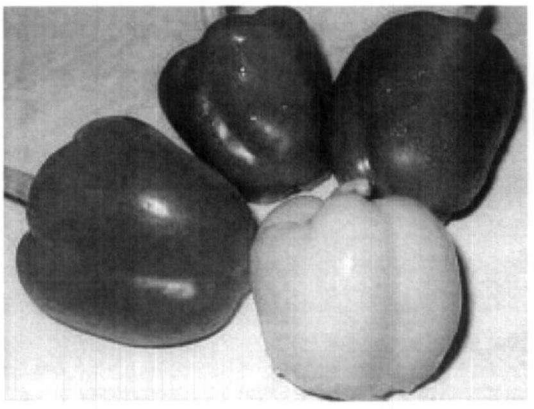

Figure A.5 Capsicum

Loamy well drained soils are suitable for capsicums. Preferred pH value varies from 5.5 to 6.8.Excessive soil moisture is detrimental to growth.

6. Carrot

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Figure A.6 Carrot

Well drained soils are suitable for the growth of carrot. Poorly drained soils can cause growth problems. Preferred pH value varies from 6 to 6.8.

7. Cauliflower

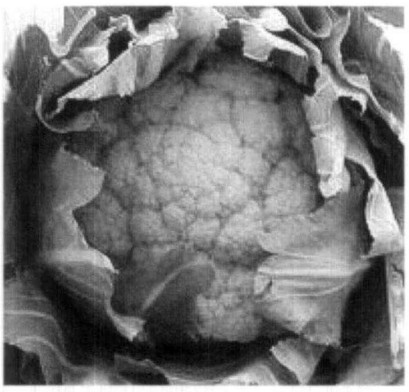

Figure A.7 Cauliflower

Well drained soils are suitable for healthy growth of cauliflower. Ill drained soils should be avoided. Higher yields can be obtained on clay loam or silty loam soils. Preferred pH value varies from 6 to 6.8.

8. Cucumber

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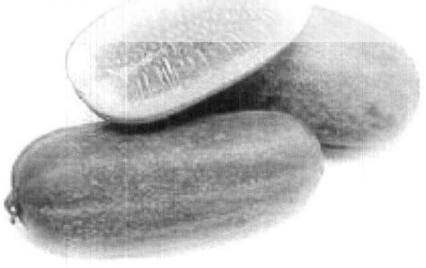

Figure A.8 Cucumber

Soils rich in humus with good drainage are suitable for cucumber growth. Preferred pH value varies from 5.5to 7.5

9. Gourds

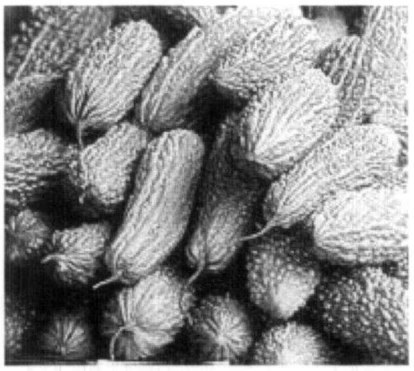

Figure A.9 Gourds

Humus rich soils are suitable for the growth of gourds. Preferred pH value varies from 5.5to 7.5. Maintaining soil moisture at field capacity is good for the growth. Excess moisture is detrimental to the root system.

10. Leek

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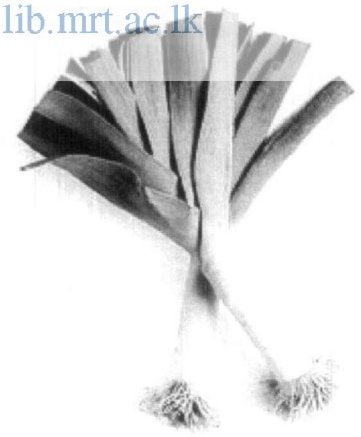

Figure A.10 Leek

Very rich soil well supplied with humus is desirable for best growth of leek. Preferred pH value varies from 5.0to 6.0.

11. Okra

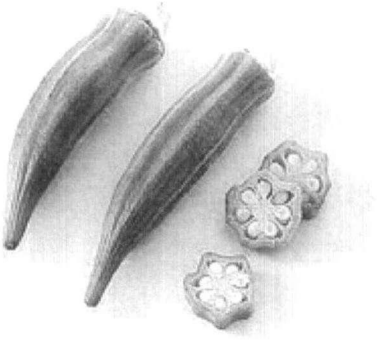

Figure A.11 Okra

Well drained soil is suitable for the healthy growth of okra. Preferred pH value is around neutral. Water logging should be avoided.

12. Pumpkin and Squash

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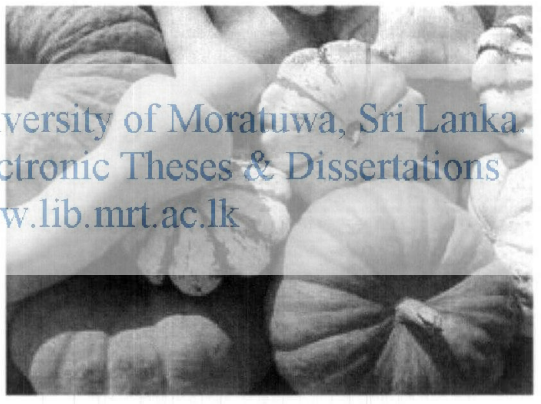

Figure A.12 Pumpkin and Squash

Soils should be rich in humus for the better growth of pumpkin and squash. Preferred pH value varies from 5.5 to 7.5

13. Radish

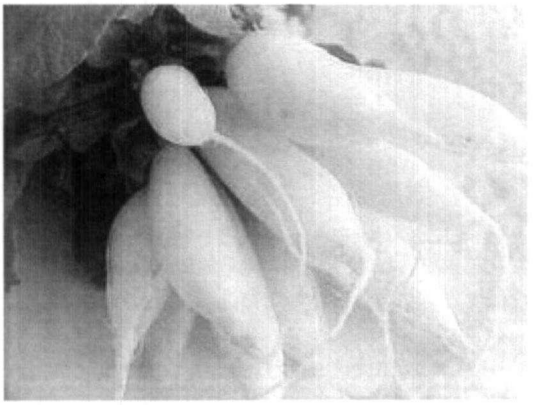

Figure A.13 Radish

Well drained soils are suitable for the better growth of radish. Poorly drained soils should be avoided. Suitable pH ranges from 6.0 to 7.5.

14. Tomato

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Figure A.14 Tomato

Loamy soils with high humus content are good for the growth of tomatoes. Heavy clay soils should be avoided. Preferred pH value changes from 5.7 to 7.3.

15. Vegetable Cowpea

Figure A.15 Vegetable Cowpea

Sandy soils, particularly sandy loams are suitable for growth of vegetable cowpea. Preferred pH value changes from 5.6 to 7.Should avoid planting on ill drained or clayey soils.

16. Winged Bean

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Figure A.16 Winged Bean

Winged beans can be grown in soil types ranging from sands to heavy clays. It can be grown on alkaline soils which has pH value 8.But a well drained sandy loam or clay loam rich in organic is preferred.

## A.2 Grain Legumes

1. Cowpea

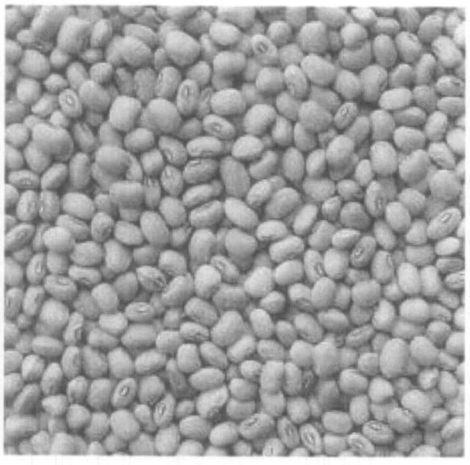

Figure A.17 Cowpea

Wide range of soils, from predominantly sandy loams to clays ranging from acidic to basic pH 4.5- 8.0 are suitable for grow cowpea. However best yields are obtained on a pH of 6-7. It is highly sensitive to water logging. Even 24 hours of standing water can adversely affect growth.

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2. Green Gram

Figure A.18 Green Gram

Green grams can be grown in wide range of soil types from light sandy soils to heavy clays, from well drained uplands of the dry zone during 'Maha' to well and imperfectly drained soils during 'Yala'. Although grown on both acidic and alkaline (pH 5.0-8.0), well drained sandy loams with pH value 6-7 are preferred.

3. Black Gram

Figure A.19 Black Gram

Black grams can be grown in Wide range of soil types from light sands to heavy clays. Well drained sandy loams with pH value 6-7 are preferred.

4. Ground Nut

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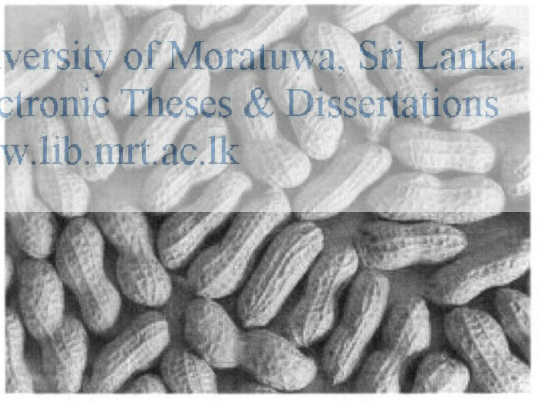

Figure A.20 Ground Nut

Ground nuts can be grown in well drained sandy loam soils with pH range 5.5 to 6.5.It can be grown in reddish brown earth soils if they are moist at harvest.

5. Soya Bean

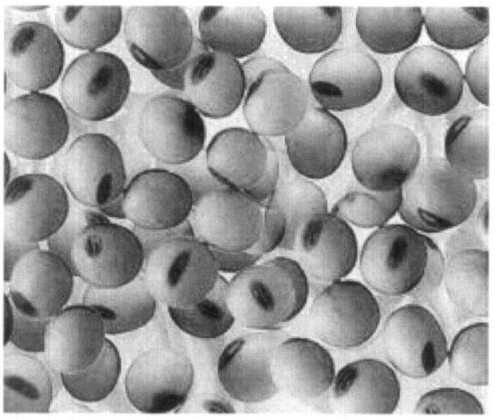

Figure A.21 Soya Bean

pH value 6-7 is adequate for soya beans to grow.Excessive moisture is not acceptable. Soya beans tolerate a degree of poor drianage.

**A.3 Economic crops**

1. Tea

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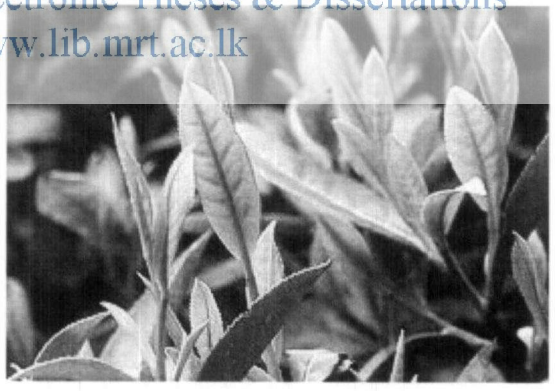

Figure A.22 Tea

Alluvium soil is good for the healthy growth of tea plant. High humidity makes it a most suitable environment for growing tea. Preferred pH value range is from 6.0 to 6.5. Preferred temperature range is 15.6 - 27 °C. Annual rainfall preference is 1900mm-5460 mm. Red yellow podsolic soil is also good for tea cultivation.

2. Rubber

Figure A.23 Rubber

Well drained loamy soil is good for the growth of rubber plant. Preferred pH value changes from 4.5 to 6.0. Uniform temperature near 27 °C is suitable for the healthy growth of the rubber plant. The tree requires a climate with heavy rainfall throughout the year.

3. Coconut

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Figure A.24 Coconut

Gravel soils are good for the growth of coconut. Preferred pH value changes from 5.5 to 7.5. Coconut can be found growing in regions with annual precipitation varying from 1,000 to 4,000 mm. But even in very dry climates, coconut can grow when soil water supply is adequate, such as in valley bottoms or at the foothills of mountains where water infiltrates into the soil from higher areas. Sandy and salty soils are good for the growth of coconut.

4. Castor

Figure A.25 Castor

Medium textured, deep and well drained fertile soils are good for the growth of castor. It cannot tolerate water logging or soil alkalinity. The range of pH value is 5-8 with an optimal pH 6.The optimum temperature is 20-25 °C.Soil should be deep sandy loam.

5. Chillie

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Figure A.26 Chillie

Deep, fertile, well-drained loamy soils are suitable for the growth of chillies. With sufficient organic manure, light textured soils also produce a good crop of chillies.

6. Gingelly

Figure A.27 Gingelly

Sandy loam soil is good for the growth of gingelly. Very sandy and alkaline soils are not suited for the healthy growth. If well drained it performs reasonably well on poor soils.

7. Mustard

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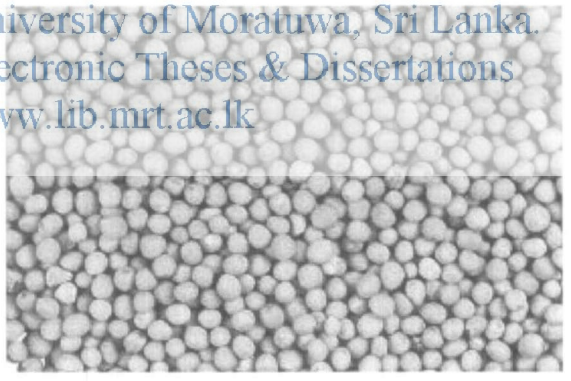

Figure A.28 Mustard

Well drained sandy loam soil is good for the growth of mustard. Well structured, deep soils favor establishment of a deep and extensive root system. Good soil fertility is essential for the healthy growth.

8. Big Onion

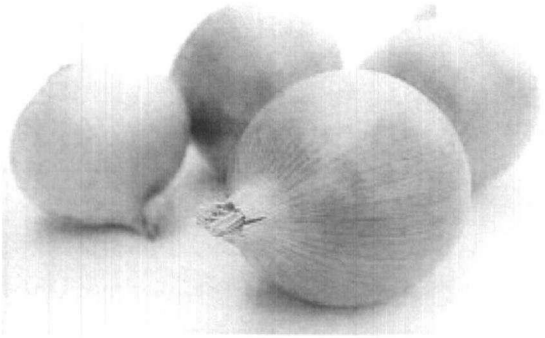

Figure A.29 Big Onion

Wide range of soil types except ill drained and heavy soil types are suitable to grow big onions. Preferred pH value range is from 6.5 to 7.8.For best results soil should be free of stones and gravel.

9. Red Onion

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Figure A.30 Red Onion

Wide range of soil types except ill drained and heavy soil types are suitable to grow red onions. Preferred pH value range is from 6.5 to 7.8.

10. Potato

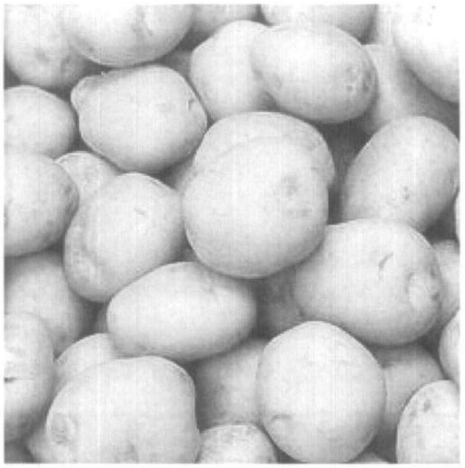

Figure A.31 Potato

Well drained latosols regosols, and non calcic brown soils of the low country and all up country soils are preferred. But ill drained soils are generally unsuitable [5].

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## B.1 Installation Details

Installation details of the Intelligent Agricultural Crop Selection System is given in the below sections.

### B.1.1 To run the applet in the browser

1. Copy the IACSS folder to your computer
2. Go inside IACSS folder and double click the exprt.html file

### B.1.2 To setup the project to run as a program

1. Copy the jdk7 setup file in the cd to your computer and install it
2. Set Environment variables (JAVA_HOME and PATH) to show the jdk directory in your computer
3. Copy the eclipse folder to your computer
4. Copy the workspace folder as appropriate (this should be the workspace for eclipse)
5. Start eclipse
6. Go to "Exprt" Project
7. Run ExpertSystem.java as an applet

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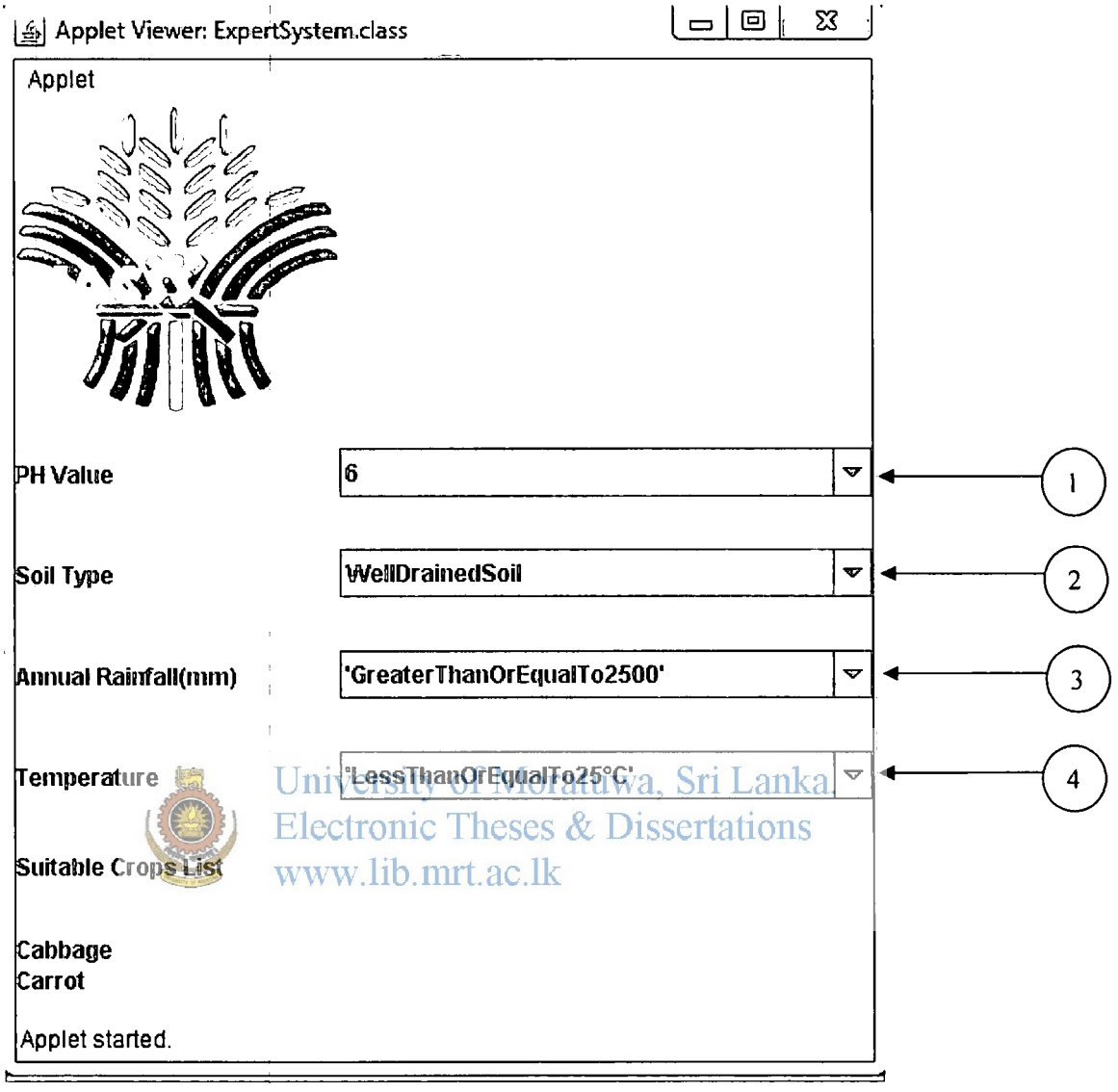
## B.2 How To Use The System

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Intelligent Agricultural Crop Selection System is very user friendly to use. However this user guide would help the users when dealing with the system at first time.

First of all the user should select relevant pH value from the drop down list as indicated as No.1, with the pH value for the given land. Next select the appropriate soil type from the provided soil types as indicated by No.2.

Next step is to select the annual rainfall as indicated with No.3 and finally select the temperature of the environment as indicated by No.4.

Those are the 4 simple steps to go by a user who wish to interact with the system and doing so will list the best crops for the given land.

## Appendix C – Code Sample for Chapter Implementation

### C.1 Code Segment for GUI of IACSS

I have used 'gridbag' lay out in java applets for implementing the GUI of IACSS. The code segment given below illustrates that.

```
import javax.swing.GroupLayout;
import javax.swing.JComboBox;
import javax.swing.JLabel;
import javax.swing.JApplet;
import javax.swing.JPanel;
import javax.swing.SwingUtilities;
import jess.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.*;
import javax.swing.JButton;
import javax.swing.JTextField;

public class ExpertSystem extends JApplet
{
        boolean inAnApplet              = true;
        final boolean shouldFill        = true;
        final boolean shouldWeightX     = true;

        private int count       = 0;
        private int count2      = 0;
        private int count3      = 0;
```

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```
private int count4      = 0;

private int count5      = 0;


private int[] description       = {3,4,5,6,7,8};

private String[] description2  =

{"", "WellDrainedSoil", "WellDrainedLighttoMediumTexturedsoils",

"LoamyWellDrainedSoils","ClayLoamSoil","HumusRichSoil",

"WellDrainedSandyLoamSoil","AlluviumSoil","SolodizedSolonetzSoil",

"ReddishBrownEarthSoil","NonCalcicBrownSoil"};

private String[] descRain               = {"" ,"'GreaterThanOrEqualTo2500'",

"'1750-2500'", "'LessThanOrEqualTo1750'"};

private String[] descTemp               = {"" ,"'GreaterThanOrEqualTo30°C'",

"'25-30°C'", "'LessThanOrEqualTo25°C'"};

private JComboBox c                     = new JComboBox();

private JComboBox cTo                   = new JComboBox();

private JComboBox c2                    = new JComboBox();

private JComboBox cRain                 = new JComboBox();

private JComboBox cTemp                 = new JComboBox();

JLabel lbl                              = new JLabel();

public String rstl                      = "";


public String Get(int strPH,String strSoil,String strRain,String strTemp)throws
JessException

{

        rstl                            = "";

        Rete engine                     = new Rete();

        engine.batch("Knowledgebase.clp");
```

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```
        engine.reset();
        int PHvalue             =  ((Integer)c.getSelectedItem());
        String SoilType         =  ((String) c2.getSelectedItem()).trim();
        String Rainfall         =  ((String) cRain.getSelectedItem());
        String Temperature      =  ((String) cTemp.getSelectedItem());
        QueryResult result      = engine.runQueryStar
        ("search-by-EnvironmentalFactors", new
        ValueVector().add(SoilType).add(PHvalue).add(Rainfall).add(Temper
        ature);
        String br = "<br>";
         while (result.next())
        {
         rstl+= "<html> "+ result.getString("CropName") + br;
        }
        return rstl;
}

public ExpertSystem()
{
        Container contentPane       = getContentPane();
        GridBagLayout gridbag       = new GridBagLayout();
        GridBagConstraints a        = new GridBagConstraints();
        contentPane.setLayout(gridbag);
         if (shouldFill)
        {
        //natural height, maximum width
        a.fill = GridBagConstraints.HORIZONTAL;
        }
```

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```
setFont(new Font("Helvetica", Font.PLAIN, 14));
JLabel lblpH = new JLabel();
lblpH.setText("pH Value");
if (shouldWeightX)
{
a.weightx       = 0.5;
 }
a.weightx       = 0.5;
a.gridx         = 0;
 a.gridy        = 0;
a.insets        = new Insets(10,0,0,0);
gridbag.setConstraints(lblpH, a);
 contentPane.add(lblpH);
```

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```
a.weightx       = 0.5;
 a.gridx        = 1;
 a.gridy        = 0;
 a.gridwidth    = 1;
a.insets        = new Insets(10,0,0,0);
gridbag.setConstraints(c, a);
contentPane.add(c);
 JLabel lblsoil = new JLabel();
 lblsoil.setText("Soil Type");
a.gridx         = 0;
 a.gridy        = 1;
 a.insets       = new Insets(10,0,0,0);
gridbag.setConstraints(lblsoil, a);
```

```
contentPane.add(lblsoil);
a.weightx       = 0.5;
a.gridx         = 1;
 a.gridy        = 1;
 a.gridwidth    = 2;
a.insets        = new Insets(10,0,0,0);
 // c.setPreferredSize(new Dimension(20,20));
gridbag.setConstraints(c2, a);
contentPane.add(c2);
setFont(new Font("Helvetica", Font.PLAIN, 14));
JLabel lblRain = new JLabel();
lblRain.setText("Annual Rainfall(mm)");
if (shouldWeightX)
{
a.weightx = 0.5;
}
a.weightx       = 0.5;
 a.gridx        = 0;
a.gridy         = 2;
a.gridwidth      = 3;
a.insets        = new Insets(10,0,0,0);
gridbag.setConstraints(lblRain, a);
contentPane.add(lblRain);

a.weightx       = 0.5;
a.gridx         = 1;
 a.gridy        = 2;
```

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```
a.gridwidth      = 2;
a.insets         = new Insets(10,0,0,0);
 // c.setPreferredSize(new Dimension(20,20));
 gridbag.setConstraints(cRain, a);
 contentPane.add(cRain);

JLabel lblTemp = new JLabel();
lblTemp.setText("Temperature");
 if (shouldWeightX)
{
a.weightx = 0.5;
 }
 a.weightx       = 0.5;
 a.gridx         = 0;
 a.gridy         = 3;
 a.insets        = new Insets(10,0,0,0);
gridbag.setConstraints(lblTemp, a);
contentPane.add(lblTemp);

a.weightx       = 0.5;
a.gridx         = 1;
a.gridy         = 3;
a.gridwidth     = 10;
 a.insets        = new Insets(10,0,0,0);
 gridbag.setConstraints(cTemp, a);
contentPane.add(cTemp);
```

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```
JLabel lblRslt = new JLabel();
lblRslt.setText("Suitable Crops List");
a.ipady       = 0;
a.gridx       = 0;
a.gridy       = 4;
a.insets      = new Insets(40,0,0,0);  //top padding
gridbag.setConstraints(lblRslt, a);
contentPane.add(lblRslt);
a.weightx     = 0.5;
a.gridx       = 0;
a.gridy       = 6;
a.weighty     = 1.0;
a.ipady       = 10;
a.gridwidth   = 3;
a.insets      = new Insets(5,0,0,0);
gridbag.setConstraints(lbl, a);
contentPane.add(lbl);
}
public void init()
{
setSize(450, 400);
//Execute a job on the event-dispatching thread; creating this applet's
//GUI.
try
{
for (int i = 0; i < description.length; i++)
c.addItem(description[count++]);
```

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```
c.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
if (count < description.length)
c.addItem(description[count++]);
}
}
);
c.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
try
{
String aa = Get(((Integer) c.getSelectedItem()), ((String)
c2.getSelectedItem()),((String) cRain.getSelectedItem()),((String)
cTemp.getSelectedItem()));
lbl.setText(aa);
}
catch (JessException ed)
{
System.err.println("createGUI didn't complete successfully");
 }
}
}
);
for (int j = 0; j < description2.length; j++)
```

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```
c2.addItem(description2[count2++]);
c2.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
 if (count2 < description2.length)
 c2.addItem(description2[count2++]);
 }
}
);

c2.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
try
{
String  lname = Get(  ((Integer) c.getSelectedItem()), ((String)
c2.getSelectedItem()),((String) cRain.getSelectedItem()),((String)
cTemp.getSelectedItem()));
lbl.setText(lname);
}
catch (JessException ed)
{
System.err.println("createGUI didn't complete successfully");
}
}
```

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```
}
);

for (int i = 0; i < descRain.length; i++)
cRain.addItem(descRain[count3++]);
cRain.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
if (count3 < descRain.length)
cRain.addItem(descRain[count3++]);
}
}
);
cRain.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
try
{
String aa = Get( ((Integer) c.getSelectedItem()), ((String)
c2.getSelectedItem()),((String) cRain.getSelectedItem()),((String)
cTemp.getSelectedItem()));
lbl.setText(aa);
}
catch (JessException ed)
{
System.err.println("createGUI didn't complete successfully");
```

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```
}
}
}
);
for (int i = 0; i < descTemp.length; i++)
cTemp.addItem(descTemp[count4++]);
 cTemp.addActionListener(new ActionListener()
{
 public void actionPerformed(ActionEvent e)
{
 if (count4 < descTemp.length)
cTemp.addItem(descTemp[count3++]);
```

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```
cTemp.addActionListener(new ActionListener()
{
public void actionPerformed(ActionEvent e)
{
try
{
String aa = Get( ((Integer) c.getSelectedItem()), ((String)
c2.getSelectedItem()),((String) cRain.getSelectedItem()),((String)
cTemp.getSelectedItem()));
lbl.setText(aa);
}
catch (JessException ed)
```

```
{
System.err.println("createGUI didn't complete successfully");
}
}
}
);
SwingUtilities.invokeAndWait(new Runnable()
{
public void run()
{
String bb = "";
try
{
bb = Get(((Integer) c.getSelectedItem()), ((String)
c2.getSelectedItem()) ,((String) cRain.getSelectedItem()),((String)
cTemp.getSelectedItem())); lbl.setText(bb);
}
catch (JessException e)
{
System.err.println("createGUI didn't complete successfully");
}
}
}
);
}
catch (Exception e)
{
 System.err.println("createGUI didn't complete successfully");
```

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```
}
}

public static void main(String args[])
{
ExpertSystem window = new ExpertSystem();
 window.show();
}
}
```

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## Appendix D – Test Cases Used in evaluating IACSS

### D.1 Evaluated Test Cases for IACSS

These are the test cases executed to test the IACSS, which were resulted in the expected way.

| Test Case | Priority | Steps | Expected Output | Actual Output |
|---|---|---|---|---|
| 1 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as '25-30 °C' | Display bush beans under suitable crop list. | Display bush beans under suitable crop list. |
| 2 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained light to medium textured soils<br>3. Select annual rainfall as Less than or equal to 1750<br>4. Select temperature as '25-30 °C' | Display brinjal under suitable crop list. | Display brinjal under suitable crop list. |
| 3 | 1 | 1. Select pH value as 7<br>2. Select soil type as well drained soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as less than or equal to 25°C | Display beet and radish under suitable crop list. | Display beet and radish under suitable crop list. |

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| | | | | |
|---|---|---|---|---|
| 4 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as less than or equal to 25°C | Display cabbage and carrot under suitable crop list. | Display cabbage and carrot under suitable crop list. |
| 5 | 1 | 1. Select pH value as 6<br>2. Select soil type as Loamy well drained soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as less than or equal to 25°C<br>5. | Display capsicum under suitable crop list. | Display capsicum under suitable crop list. |
| 6 | 1 | 1. Select pH value as 6<br>2. Select soil type as clay loam soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as less than or equal to 25°C | Display cauliflower under suitable crop list. | Display cauliflower under suitable crop list. |

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| | | | | |
|---|---|---|---|---|
| 7 | 1 | 1. Select pH value as 7<br>2. Select soil type as humus rich soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display cucumber under suitable crop list. | Display cucumber under suitable crop list. |
| 8 | 1 | 1. Select pH value as 6<br>2. Select soil type as humus rich soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display gourds ,pumpkin and squash under suitable crop list. | Display gourds ,pumpkin and squash under suitable crop list. |
| 9 | 1 | 1. Select pH value as 5<br>2. Select soil type as humus rich soil<br>3. Select annual rainfall as greater than or equal to 2500<br>4. Select temperature as less than or equal to 25°C | Display leek under suitable crop list. | Display leek under suitable crop list. |

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| | | | | |
|---|---|---|---|---|
| 10 | 1 | 1. Select pH value as 7<br>2. Select soil type as well drained soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display okra under suitable crop list. | Display okra under suitable crop list. |
| 11 | 1 | 1. Select pH value as 6<br>2. Select soil type as loamy well drained soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display tomato under suitable crop list. | Display tomato under suitable crop list. |
| 12 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained sandy loam soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display vegetable cowpea, cowpea, green gram, black gram and ground nuts under suitable crop list. | Display vegetable cowpea, cowpea, green gram, black gram and ground nuts under suitable crop list.. |

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| | | | | |
|---|---|---|---|---|
| 13 | 1 | 1. Select pH value as 8<br>2. Select soil type as well drained sandy loam soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display winged beans under suitable crop list. | Display winged beans under suitable crop list. |
| 14 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display soya bean under suitable crop list. | Display soya bean under suitable crop list |
| 15 | 1 | 1. Select pH value as 6<br>2. Select soil type as alluvium soil<br>3. Select annual rainfall as 1750-2500<br>4. Select temperature as 25-30°C | Display tea under suitable crop list. | Display tea under suitable crop list. |
| 16 | 1 | 1. Select pH value as 5<br>2. Select soil type as loamy well drained soil<br>3. Select annual rainfall as 1750-2500<br>4. Select temperature as 25-30°C | Display rubber under suitable crop list. | Display rubber under suitable crop list. |

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| | | | | |
|---|---|---|---|---|
| 17 | 1 | 1. Select pH value as 6<br>2. Select soil type as solodized solonetz soil<br>3. Select annual rainfall as 1750-2500<br>4. Select temperature as 25-30°C | Display coconut under suitable crop list. | Display coconut under suitable crop list. |
| 18 | 1 | 1. Select pH value as 6<br>2. Select soil type as well drained sandy loam soil<br>3. Select annual rainfall as 1750-2500<br>4. Select temperature as less than or equal to 25°C | Display castor under suitable crop list. | Display castor under suitable crop list. |
| 19 | 1 | 1. Select pH value as 5<br>2. Select soil type as loamy well drained soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display chillie under suitable crop list. | Display chillie under suitable crop list. |
| 20 | 1 | 1. Select pH value as 7<br>2. Select soil type as well drained sandy loam soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display gingelly and mustard under suitable crop list. | Display gingelly and mustard under suitable crop list. |

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| | | | | |
|---|---|---|---|---|
| 21 | 1 | 1. Select pH value as 7<br>2. Select soil type as reddish brown earth soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display big onion and red onion under suitable crop list. | Display big onion and red onion under suitable crop list. |
| 22 | 1 | 1. Select pH value as 5<br>2. Select soil type as non calcic brown soil<br>3. Select annual rainfall as less than or equal to 1750<br>4. Select temperature as 25-30°C | Display potato under suitable crop list. | Display potato under suitable crop list. |

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Table D.1 – Evaluated Test Cases for IACSS

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