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Intelligent Agricultural Crop Selection System



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Declaration

We declare that this thesis is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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Dedication

This dissertation is dedicated to my beloved father who gave me endless courage whenever I was discouraged and to my beloved mother who taught me that even a large task can be accomplished if it is done one step at a time.



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Abstract

Farm managers have to deal with many conflicting objectives when planning which crop to cultivate. Soil characteristics are extremely important when determining yield potential. Fertilization and liming are commonly used to adapt soils to the nutritional requirements of the crops to be cultivated. Planting the crop that will best fit the soil characteristics is an interesting alternative to minimize the need for soil treatment, reducing costs and potential environmental damages. In addition farmers usually look for investments that offer the greatest potential earnings with the least possible risks. According to the objectives to be considered the crop selection problem can be difficult to solve using traditional tools. Therefore, this work proposes an approach based on Expert System Concept to help in the selection of an appropriate cultivation plan considering crop alternatives and objectives simultaneously.

Users of the Artificial Intelligent Crop Selection System would be modern farmers. Inputs for the system are some environmental factors such as soil pH value, soil Type, rainfall, temperature etc. Output of the system would be a list of suitable crops for a given land. Process of the project include design and develop an interface for inserting the input values for the system and getting the output of the system, designing and developing the knowledge base with a selected crop list and their best suited land conditions for a healthy growth of crops, designing and developing the inference engine to query the knowledge base, and giving the best suited crops.

Top level design of the proposed system consists of three major components as User interface, Inference engine and the knowledgebase. User Interface is to interact with the system in case of providing inputs and receiving outputs. Knowledge base is used to store the knowledge factors about the selected crops. And the inference engine to search through the knowledge base and giving an intelligent answer.

The purpose of this project is to develop a system for addressing the lack of agricultural knowledge in the community to select best crops suited for their agricultural fields at their natural conditions with the use of expert systems shell concept.

Contents

	Page
Chapter1 - Introduction	1
1.1 Introduction	1
1.2 Background and Motivation	1
1.3 Aim and Objectives	6
1.4 Solution in Brief	6
1.5 Structure of the Dissertation	8
1.6 Summary	9
Chapter 2 - Current Issues of Agricultural Expert Systems	10
2.1 Introduction	10
2.2 Literature Survey	10
2.3 Summary	16
Chapter 3 - Technology adapted	17
3.1 Introduction	17
3.2 Technology adapted	17
3.3 Summary	21
Chapter 4 - Using Expert Systems for the Development of Agriculture	22
4.1 Introduction	22
4.2 Using Expert Systems Shell Concept to Select the Best Crops	22
4.3 Summary	23
Chapter 5 - Analysis and Design	24
5.1 Introduction	24
5.2 Agricultural Factors That Affects in Implementing the IACSS	24
5.3 Major Soil Varieties Seen in Sri Lanka	26
5.4 Crops Considered in IACSS	31
5.4.1 Vegetable Crops	31
5.4.2 Grain Legumes	31
5.4.3 Economic crops	32
5.5 Analyzing and Designing of IACSS	32
5.6 Summary	33
Chapter 6 - Implementation	34
6.1 Introduction	34

6.2 Software requirement	34
6.3 Hardware Requirements	34
6.4 Flow Chart of Intelligent Agricultural Crop Selection System	35
6.5 User Interface of Intelligent Agricultural Crop Selection System	36
6.6 Sample Code Segment of Knowledge Base	37
6.7 Sample Code Segment of Inference Engine of IACSS	38
6.8 Sample Code Segment of User Interface of IACSS	39
6.9 Jess Rule Engine	41
6.10 Summary	41
Chapter 7 - Evaluation	42
7.1 Introduction	42
7.2 Evaluation Strategy	42
7.3 Evaluating the IACSS	42
7.4 Drawbacks of the Intelligent Agricultural Crop Selection System	43
7.5 Limitations of the Intelligent Agricultural Crop Selection System	45
7.6 Summary	45
Chapter 8 - Conclusion and Further Work	46
8.1 Introduction for the Conclusion	46
8.2 Conclusion	46
8.3 Further Work	47
Reference	48
Appendix A	52
Appendix B	68
Appendix C	70
Appendix D	83

List of Tables

	Page
Table 2.1 - Comparison on different Agricultural Expert System tools	16
Table D.1 – Evaluated Test Cases for IACSS	88

List of Figures

	Page
Figure 5.1 Climatic Zones of Sri Lanka	25
Figure 5.2 Major Soil Varieties of Sri Lanka	30
Figure 5.3 Top Level Architecture of the Proposed System	33
Figure 6.1 Flow Chart of Intelligent Agricultural Crop Selection System	35
Figure 6.2 User Interface of Intelligent Agricultural Crop Selection System	36
Figure 7.1 Agro Climatic Zones of Sri Lanka	44
Figure A.1 Bush and Pole Beans	51
Figure A.2 Eggplant	51
Figure A.3 Beet	52
Figure A.4 Cabbage	52
Figure A.5 Capsicum	53
Figure A.6 Carrot	53
Figure A.7 Cauliflower	54
Figure A.8 Cucumber	54

Figure A.9 Gourds	55
Figure A.10 Leek	55
Figure A.11 Okra	56
Figure A.12 Pumpkin and Squash	56
Figure A.13 Radish	57
Figure A.14 Tomato	57
Figure A.15 Vegetable Cowpea	58
Figure A.16 Winged Bean	58
Figure A.17 Cowpea	59
Figure A.18 Green Gram	59
Figure A.19 Black Gram	60
Figure A.20 Ground Nut	60
Figure A.21 Soya Bean	61
Figure A.22 Tea	61
Figure A.23 Rubber	62
Figure A.24 Coconut	62
Figure A.25 Castor	63
Figure A.26 Chillie	63
Figure A.27 Gingelly	64
Figure A.28 Mustard	64
Figure A.29 Big Onion	65
Figure A.30 Red Onion	65
Figure A.31 Potato	66



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Abbreviations

IACSS - Intelligent Agricultural Crop Selection System



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