

SABUJEEMA

An International Multidisciplinary e-Magazine

www.sabujeema.com

Volume 2 | Issue 8 | AUGUST, 2022

WEB BASED EXPERT SYSTEM FOR AGRICULTURE

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Sabujeema Sabujeema
editorsabujeema@gmail.com
sabujeema-international
multidisciplinary-e-magazine





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[Article ID: SIMM0181]

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INTRODUCTION

A Web Based Expert System is a computer program that stimulates the judgment and behavior of a human (or) an organization that has expert knowledge and experience in a particular field. It is program that emulates the interaction a user might have with a human expert to solve a problem. The expert systems proved powerful tool to solve many real-world problems of technological, social, agricultural and life science spheres. This has been resulted in the ES development as a prominent area of research for Artificial Intelligence branch and also for many interdisciplinary research works. In agriculture, this transfer is always taking place from research to extension, from extension to farmers, and even from farmers to farmers. Expert system present excellent tools for relieving the increasing pressure on the limited expertise available in developing nations.

IMPORTANCE OF AGRI EXPERT SYSTEM

The complexity of problems faced by the farmers are yield loses, soil erosion, selection of crop, increasing chemical pesticides cost, pest resistance, diminishing market prices from international competition and economic barriers hindering adoption of farming strategies. Expert System are computer program that are different from conventional computer programs as they solve problems by mimicking human reasoning process, relying on logic, belief, rules of thumb opinion and experience. In agriculture Expert System are capable of integrating the perspectives of individual disciplines such as plant pathology, entomology, horticulture and agricultural meteorology into a framework that best address the type of ad hoc decision making required of modern farmers. Expert system can be one of the most useful tools for accomplishing the task of providing growers with day-to-day integrated decision support needed to grow their crops

EXPERT SYSTEM FOR WHEAT:

EXOWHEM is a web-based Expert System developed for the wheat growing farmers of India. It provides the complete information about the Wheat Crop Management in the country. It advises wheat varieties on the basis of area, cultural and climatic conditions and other characteristics of farmer's interest. It also suggests the appropriate cultural practices like field preparation, fertilizer application, schedule of irrigation etc. It guides them in protecting the crop from insects/diseases/weeds etc. It also provides solution to the problems faced by the farmers through online queries.



EXPERT SYSTEM FOR MUSHROOM:

Expert System for Mushroom Crop has been developed using Agri Daksh. This system is a farmer oriented and user-friendly software which provides spectrum of information with images of mushroom crop such as cultivation technology of different mushrooms, diseases and pest management, spawn production technology, compost preparation by short & long method, post-harvest handling & harvesting, Crop management, Nutrition & medicinal value, Transfer of technology, Fungal, viral, bacterial diseases & abiotic disorders etc. Cultivation Technology module gives detail information about compost preparation, spawning, spawns running, casing, fruiting. Post-harvest management module gives detail information about Packing and Storage and Short-Term Storage. Pest & Diseases module gives detail information about Insect, Pest like Nematodes, mites and springtails and several diseases like Dry Bubble (brown spot), Wet Bubble (White Mould), Cobweb, Green Mould, False truffle (Truffle disease) etc., and timely control measures against pests & diseases. This Expert System is developed by Directorate of Mushroom Research & Indian Agricultural Statistics Research Institute.

EXPERT SYSTEM FOR SEED SPICES:

Expert System on Seed Spices (ESSS) is a web-based Expert System developed on Seed Spices. It provides the complete information about Seed Spice Production Management in the country. The System covers altogether 10 Seed Spices Namely Cumin, Fenugreek, Coriander, Fennel, Nigella, Dill, Ajowain. It advises farmers of Seed Spice on varieties on the basis of area, cultural and climatic conditions and other characteristics of farmer's interest.

It also suggests the appropriate cultural practices like field preparation, fertilizer application, schedule of irrigation etc. It guides them in protecting the Seed crop from insects/diseases/weeds etc. It also provides solution to the problems faced by the farmers through online queries

EXPERT SYSTEM FOR TOBACCO:

Knowledge based system on tobacco has been developed using Agri Daksh. This expert system is farmer / extension personal oriented with easily retrievable modules on various aspects of tobacco cultivation. This system aimed to improve the efficiency of farmers and economic status and also information to policy makers. The modules included are on Tobacco insect pests and diseases, Abiotic stresses, Varieties, Soil types and Nutrient disorders, Weed management and World tobacco scenario. Pests and disease module gives detailed information about pests and diseases attacking tobacco both in nursery and field crops including insects, fungal, bacterial, viral and nematodes and their management. The module on abiotic stresses gives detailed information on abiotic stresses including post-harvest management and during the curing. Module on varieties gives comprehensive information on parentage, year of release, yield potential and suitability to the locations. Module on soil types and nutrient disorders provides information on soil types suitable to the tobacco cultivation and nutrient requirements including macro and micro nutrients and their deficiencies and adjustments. The module on weeds includes information on types of weeds in tobacco and their management in both nursery and field crop. The information system for world tobacco includes tobacco production and problems in the different countries. This Expert system is developed by Central



Tobacco Research Institute (CTRI) in association with Indian Agricultural Statistics Research Institute.

INFORMATION SYSTEM FOR TOMATO:

The Information System for Integrated Pest Management in Tomato Crop provides the information, a user might ask to a human expert to solve a problem. It is meant to enhance the efficiency of farmers or Agricultural Extension personnel for pest management in Tomato crop and to increase the crop yield. It provides the best strategy for controlling disease, pest attacking the tomato crop. Presently, it has two subsystems: Disease pest information and Integrated Pest Management (IPM). The Disease, Pest Information subsystems gives the information about diseases and pests attacking the tomato crop and suggests preventive and control measures. Integrated Pest Management (IPM) subsystem gives IPM practices that farmers may follow to protect the crop against diseases and pests appearing at different stages of Crop life cycle.

REFERENCE

IASRI Web Portal, Agri Daksh,
<http://agridaksh.iasri.res.in/>