

SPECIMEN FORMAT FOR THESES OF MONTH

Faculty : Science

Department : Mathematics

Branch/ Area: : Mathematics

Sub Subject Heading: : Fuzzy Mathematics

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Title of the thesis : Analysis on Causes, Effects and Preventive Measures on the use of Pesticide Endosulfan By FCM Models.

(i) In Roman Script -

(ii) In roman Script -

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Designation of Supervisor : Professor

Centre/department/school in which research was conducted : Mathematics, Avinashilingam University Institute for Home Science and Higher Education for Women
Coimbatore – 641 043

University's Name & Address : Avinashilingam University Institute for Home Science and Higher Education for Women
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Abstract within 300 words:

In this thesis we “analyse the causes, effects and preventive measure on the use of Endosulfan by FCM models” .which leads to most dangerous side effects in human beings faced by by the peoples of South Indian state of Kerala (Kasargod and Palakkad Districts). A detailed report on the harmful effects faced by the people with the usage of pesticide in India was telecasted in Star T.V. dated June 24, 2012 “Satyameva Jayathe” anchored by film star Amir Khan.

This thesis uses the models called Fuzzy Cognitive Maps (FCMs) introduced by Kosko. Also explains Combined Fuzzy Cognitive Maps (CFCM), Induced Fuzzy Cognitive Maps(IFCM) and newly introduced model Maximum Fuzzy Cognitive Maps (MFCM). And finally find out recommendations for this problem.

RECOMMENADATIONS

For every research it is of high importance to access the quality of the end product. As an end product, some recommendations are collected to protect people and the planet from the hands of the deadly pesticide Endosulfan.

Recommendations to protect people and planet from the hands of the deadly pesticide Endosulfan

The study considers the over whelming evidence that the dangers associated with the use of Endosulfan use outweigh its benefits. Further, the study summaries the robust evidence of the considerable threats that Endosulfan poses to human health and environmental security. In light of the evidence (by the mathematical analysis) a number of recommendations are presented to key decision makers, with the ultimate aim of attaining a global ban of this deadly chemical pesticide.

Global Ban

- Endosulfan is a highly dangerous and outdated chemical, the safe use of which cannot be guaranteed by many poor countries where it is still used. Government should ban Endolsulfan usage and the Designated National Authorities in countries which are signatories of the

Rotterdam Convention should propose the chemical for inclusion in the Convention's Prior Informed Consent procedure.

- Endosulfan is a persistent chemical which has been demonstrated to bioaccumulate in organisms that are exposed to Endosulfan. As such, it should be included on the list of Persistent Organic Pollutants targeted for global elimination of pesticide Endosulfan by the Stockholm Convention.
- Further, to promote better practice, the World Health Organisation should: upgrade endosulfan from Class II (moderately hazardous) to Class Ib (highly hazardous), in line with the USA's EPA classification. Such a move would assist countries like Cambodia which has banned all Class Ia and Ib chemicals, to promote safer agrochemical practices.

Alternate Pesticide

- Safe alternatives to Endosulfan must be researched, identified and widely promoted. Pesticides Action Network Asia-Pacific lists a number of alternatives to endosulfan that can be used in different agricultural contexts (PANAP 1996). These include the use of botanical pesticides (neem extracts), parasitic wasps in rice production, and baculoviruses which are natural enemies as well as pheromone traps that are used to control cotton pests.
- Endosulfan is not the only viable option for protecting crops. Promoting sustainable, economically and technically viable alternatives to Endosulfan will help secure public and environmental health.

i) Major objectives :

AIM AND OBJECTIVE OF THE STUDY:

- ❖ To learn and apply various types of FCM (Fuzzy cognitive maps) models such as FCM, CFCM and IFCM to real life problems which are faced by people living in the area where Endosulfan is used as pesticide in agriculture.
- ❖ To define a new model MFCM (Maximum fuzzy cognitive maps), to apply MFCM to the problem under consideration and to compare the result with that of the other models of FCM.
- ❖ To suggest remedial measures to come out of the ill effects of Endosulfan.
 - ❖ Promote organic, ecological and natural agriculture

- ❖ Protection of Environment
- ❖ Develop Eco-Tourism
- ❖ Involvement of NGO organization
- ❖ Educated younger generation to enter agriculture
- ❖ Improve the online information service for non chemical pest management
- ❖ Start of vocational training centres including awareness generation programme, job orientation courses for the welfare of women and child.
- ❖ Promote the support of Government and research Institutions
- ❖ Organize different types of environmental awareness programmes

The research work is divided into three parts to study causes, effects and preventive measures on the use of Endosulfan in Kerala through various types of FCM models. The analysis is done from the linguistic questionnaire from 101 pesticide Endosulfan victims from the area of Kasargod and Palakkad districts in Kerala.

ii) Findings:

- Recommenadations
- Global Ban
- Alternate Pesticide
- Organic farming and Integrated Pest Management (IPM)
- Upliftment of Farm Labourers / Farmers

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