Cairo University

Faculty of Computers and Information

Operations Research and Decision Support Department

Developing A Decision Support System for Utilizing Farm Resources

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In Operations Research and Decision Support

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Approval Sheet

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List of Acronyms

CCP	Chance Constraint Programming
DBMS	Data-base Management System
DP	Dynamic Programming
DSS	Decision Support System
ES	Expert Systems
GA	Genetic Algorithm
GDSSPF	Generic DSS for Poultry Feeding
GP	Goal Programming
KADS	Knowledge Acquisition and Documentation Structuring
KBMS	Knowledge -base Management System
KSR	Knowledge Share and Reusing
LP	Linear Programming
MBMS	Model base Management System
MGP	Multi-Goal Programming
MOFP	Multi-Objective Fractional Programming
MOP	Multi-Objective Programming
NLP	Non-Linear Programming
NRC	National Research Council
PSM	Pearson’s Sq Method
QP	Quadratic Programming
RF	Risk Formulation
SAE	Simultaneous Algebraic Equations
STOM	Satisfying Trade-off Method
UIMS	User Interface Management System

Abstract

Poultry management aims to provide the conditions that ensure optimum performance and productivity of the birds. One of its aims is also to achive food security and it helps in satisfying the increasing demand on the white meat. It involves some factors, such as monitoring poultry health; ensuring that the poultry house is maintained with appropriate brooding, rearing, growing and laying conditions; and ensuring that recommended vaccinations are given and appropriate feeding programs are used.

Poultry farms producing meat or eggs can involve highly specialized operations. To maximize profits and plan future enterprise activities, a feasibility analysis prior to investment and proper management during the operation are required. Proper management ensures efficient production environment and good quality products (meat or eggs) to accomplish.

So in order to achive these goals we believe that developing a decision support system for poultry management and feeding will provide poultry farmers with the needed experience to enhance production and make profit.

We present a bird care decision support system which is supposed to have two main goals. The first is to provide the ability to trace birds from ‘farm to fork’, providing the essential requirement for food need and health status through giving the vital nutrients needed at every growth stage. The second is to provide a means to detect the emergence and re-emergence of abnormal symptoms, allowing appropriate deployment of field operations and resources to deal with identified problems if and when they occur. Such a system promotes transparency in the state of bird health, allowing bird care policies to be based on the best available evidence. A key component of bird care DSS is a so-called ‘knowledge based’ which provides the facilities to capture, store and link all relevant information about bird population of interest.

The proposed system is applied by the General Organaization of Vetrinary Services (GOVS) (http://www.govs.gov.eg/FrontEnd/en/Default.aspx).