

**ECOLOGICAL AND BIOLOGICAL STUDY ON
SOME AGRICULTURAL HARMFUL BIRDS IN
THE RECLAIMED LANDS AND BIRD
MANAGEMENT APPROACHES**

BY

WALIED FEKRY SOLIMAN

B. Sc. High Institute of Agricultural Cooperation, ١٩٩٥

**A Thesis Submitted in Partial Fulfillment
of**

The Requirement for the Master Degree

in

Environmental Science

Department of Agricultural Science

Institute of Environmental Studies & Research

Ain Shams University

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ABSTRACT

Walied Fekry Soliman: ECOLOGICAL AND BIOLOGICAL STUDY ON SOME AGRICULTURAL HARMFUL BIRDS IN THE RECLAIMED LANDS AND BIRD MANAGEMENT APPROACHES. Unpublished M. SC. Thesis, Department of Agricultural Science, Institute of Environmental Studies & Research Ain Shams University

- Survey of wild bird species was done in Tunes region, Yousf El-Sedik district, at EL Fayoum Governorate during the seasons of ٢٠٠٤ & ٢٠٠٥. Indicated that ٥٢ bird species were recorded in the present study, ١٧ bird species were resident while the rest ٣٥ bird species were visitors the common bird in this area was House sparrow *Passer domesticus niloticus* (٥٣٤,٣), while the common visitor bird was Black headed gull *Larus ridibundus* (١٢١,٦).

- The food preference and consumption of food by house sparrow was evaluated under laboratory conditions, wheat grains and barnyard seeds were the most preferred food to the sparrows followed by rice, barley, sorghum, sunflower and maize grains, respectively.

- The effectiveness of some mechanical approaches, revealed that nest destruction method seemed to be more effective as a control method against house sparrow when it run monthly during the breeding season, fish nets resulted a complete protection for all treated crops from bird attack. Bird damage reached ٢,٦ to ٤,٣ % in the untreated sunflower and broad bean crops, respectively, where it was nil in treated crops with protection index (PI) ١٠٠% during the seedling stages. In the same time, this method completely prevented the bird damage in vine grape and tomatoes fruits which reached ١٤,٦ & ٣,٦ % in the untreated area, Scarecrow method gave a considerable protection for the repining stages

of wheat, barley, broad bean, sunflower, grapes and tomatoes with protection index (PI) of 76.1, 71.2, 84.8, 51.7, 81.8 & 83.3 % , respectively. It is cleared also that reflecting strips method have an effective role in protection of the different tested crops from bird attacking as it protected wheat, barley and sunflower with PI. Of 80.0, 74.0 & 90.0%, respectively. Also it reduced bird damage in vine grape and tomatoes fields with PI. of 86.3 & 90.3 %.

- Some botanical extracts were tested to evaluate their effect as a bird repellent under laboratory conditions by using one choice method the highest repellence potential in these extracts was noted with hexanic geranium extract (73.0%) and ethanolic oshar extract (90.3%), the highest effect was recorded with hexanic geranium (76.4%) and ethanolic oshar extract (93.0%) in the multiply choice methods.

Key-Words: Survey, wild birds, House sparrow, Food preference, Mechanical control, Bird damage, resident birds, visitors birds, Plant extracts.

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I. INTRODUCTION

Animal kingdom is one of the two great categories of animate nature. Class aves has characteristics that distinguish them easily from all other animals, this class includes many useful and harmful birds. So it is of great economic importance in the agricultural sector. However the abundance of different bird species is further evidence for their success. Their numbers are most obvious when roosting flocks, breeding colonies or migrating birds are seen. Birds can survive in a wide range of climates on land and on water because with their basic body form, physiology and behaviour, they can adapt themselves to most of the stresses, which are imposed upon them by physical surroundings.

The combination of both geographical position and the great diversity of habitats in Egypt make it of particular importance to many types of bird life. Of the 1000 bird species occurring in Egypt, about 400 are resident breeding birds, while the rest are either migratory or winter visitors.

Bird damage problems all over the world are of important concern. In African countries, bird damage to cereal crops represents economic losses reached to 1-10% of

the production (**Burggers and Ruell, 1988**). Also, sparrows may be incriminated in transmitting the causative agents of several plant and animals diseases such as viruses, bacteria, fungi and others. On the other side, they may be considered as natural enemies to harmful insects and parasitic worms when they feed on these pests in considerable amounts.

Recently Egypt suffers significant losses from this flying vertebrates. Damage losses due to noxious birds attack varied from crop to crop and from year to another depending on agro ecosystem type and weather condition (**Wilson, 1988**).

Control of birds is one of the most difficult operations for pest control specialist to perform. Because many birds are protected by law or ordinance, the specialist must be sure that he is not running a foul of the law in his work.

The first step in the study of noxious birds is to conduct a survey to find out the extent of the flock and where the birds are roosting and nesting (**Truman *et al.*, 1988**).

The successful integrated management program to protect target crop from excessive loss by birds in many situations is depending, to a large extent, on the quality of

available information on that situation (**Williams and Schwab, 2000**).