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## FAO QUELEA RESEARCH IN AFRICA

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*Background*

Large scale grain growing schemes are developing rapidly in Africa and the importance of birds as pests becomes more evident each year. Although the potential production of cereals is quite high in some parts of Africa, effective methods for protecting the new schemes from bird damage will have to be developed if their food raising potential is to be realized.

The bird problem for mechanized schemes is quite different from that faced by the traditional farmer in the bush whose well-being depends directly on his ability to raise a crop. He can and will, if necessary, devote a major part of his family's time and effort to scaring birds from his field. His methods usually involve guards who watch for birds and frighten them away with noise-makers and simple scaring devices. The percentage of damage is not what concerns him most, but rather, the total amount that he harvests.

In mechanized schemes the percent of damage is often the limiting factor. In the underdeveloped tropics production costs such as equipment, fuels, fertilizers, and transport may be very high and in consequence the profit margin low. Investment capital to develop these schemes often must be borrowed from foreign sources and the interest paid further cuts into profits. Where birds regularly cause damage, even if only a small percentage, they can be the deciding factor between economic success and failure. At present granivorous birds act as a brake on the development of cereal production in many African regions.

The best known of the avian pests of cereals in Africa is *Quelea quelea*. In addition to their importance as pests their notoriety is due to their intensely gregarious nature. The cloudlike feeding swarms and dense nesting colonies with millions of nests are a sight never to be forgotten. Although *Quelea* often ignore crops and feed on the seeds of wild grasses they are a constant threat and at times when their natural foods are scarce they may cause spectacular damage to domestic grains.

*Development of the Quelea Project*

The FAO's involvement in the bird problem began in September, 1965, when representatives from several African countries meeting in Douala, Cameroon, discussed the problem and decided that research into the control of *Quelea* damage was badly needed. By July, 1968, plans had been finalized and the Plan of Operations for the *Quelea* Project was signed by the following charter member countries: Cameroon, Chad, Dahomey, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan and Upper Volta. A Project Headquarters was established in Fort-Lamy (now renamed N'Djamena), Chad. A number of frustrating delays hindered the project during its first years but by August, 1971, the staff was complete and research programs were underway.

Before the start of the project, control methods used by the member countries were aimed mainly at destruction of as many birds as possible whenever they could be found. Avicides sprayed by aircraft and ground equipment, and explosives set in roosting and nesting areas killed many millions of *Quelea* every year. The goal of this kind of control was to reduce the numbers of birds and thereby reduce their amount of damage.

It was soon apparent to the FAO staff that, while killing birds might have some use in specialized situations where a particular concentration of birds was known to be causing damage, a general population reduction was not economically feasible. Further, significant damage to cereals is caused by species other than *Quelea*, including *Ploceus spp.*, *Euplectes spp.*, *Psittacula spp.* and others. Ducks, geese, cranes and other large birds are responsible for important damage in certain situations.

Limited scientific literature on migration and general ecology of the pest species indicated a need for more basic biological research as part of the search for practical control methods. To move the research on several fronts, cooperators in other organizations were sought, IEMVT (Institut d'Elevage et de Médecine Vétérinaire Tropicales) which also has a laboratory in N'Djamena, provided sub-contract assistance of a plant ecologist and an avian pathologist. Consultants were sought from the Denver Wildlife Research Center in the U.S.A., the Centre for Overseas Pest Research in the U.K.; and ORSTOM (Office de Recherches Scientifique et Technique d'Outre Mer) and the Museum d'Histoire Naturelle of Paris, as French aid.

The first phase of the project was closed at the Coordinating Committee Meeting in Dakar, Senegal, in December, 1973. A second phase scheduled to run until June, 1976, was opened with unanimous support of the members joined by Ethiopia and Somalia which will enter the project in January, 1974.

#### *Plans for Phase II*

During Phase II of the project new research headquarters will be set up in Khartoum, Sudan, and Dakar, in addition to the existing facility at N'Djamena, with the central management and administration in Dakar. Each of the three teams will be composed of biologists and pest control specialists working simultaneously on biological research and the development of control techniques. Counterpart personnel will be closely involved in all aspects of the work. The main effort during Phase II will be to study damage control methods that currently show promise, such as crop protecting repellants, resistant crops, and (in specialized situations) mass destruction techniques. Studies to relate bird crop damage patterns to bird migrations may allow the scheduling of planting and harvest to avoid maximum damage periods in some areas. Studies of parasites and diseases and food habits in relation to environmental factors will continue from Phase I.

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The foregoing report is summarized from the Report to the 6th Coordinating Committee of the FAO-UNDP *Quelea* Project in Dakar, Senegal, in December, 1973.