

# Trouble from the sky



*Best agricultural practices may be the best scarecrows for Africa's nemesis in rice fields*

**M**rs. Aguénou from Benin might not have seen Alfred Hitchcock's terrifying movie *The Birds*, which shows masses of ordinary birds mysteriously attacking people, but she is ready to do anything, including going to voodoo priests, to get rid of the flock of ravenous red-billed quelea birds that invade her rice fields every year.

Queleas—often referred to as “feathered locusts”—are probably the most destructive birds in the world. In Africa, they have been a granivorous pest for thousands of years, as seen from the images in pyramids showing farmers using whips to scare them off.

“These birds can easily wipe out the whole rice crop and they are very difficult to manage because they move quickly from one area to the next,” Mrs. Aguénou said.

Birds feeding on ripening grain are known to be very damaging to rice and, in Africa, they are considered a major pest because small farmers have few options to manage them.

Traditionally, women, along with their children, run up and down in the field, shouting, waving, clapping hands, throwing stones, and sometimes trying to scare the birds off with rattles and drums. In some places, farmers use large nets to catch birds or sound cannons and scarecrows.

In Uganda, for example, the news of children missing school to chase birds off their parents' rice farms evoked so much negative reaction among the public that the government had to set up a commission to solve the problem with birds.

## Farmers are right

Farmers in Senegal and Mali attribute 10–15% crop loss to birds. Annual surveys over several years in the Senegal River Valley, a key rice belt in West Africa, show that farmers consider weeds and birds as the two



most important pests in irrigated rice production.

The Global Rice Science Partnership (GRiSP), the CGIAR Research Program on Rice, confirmed this. GRiSP identifies birds as the second most important biotic constraint in African rice production after weeds, based on farmer surveys in 20 African countries.

“However, there are limited recent and accurate estimates of the rice crop losses inflicted by birds and their temporal and spatial variability,” observed Africa Rice Center (AfricaRice) economist Matty Demont. Thus, information on the

extent of damage is urgently needed to guide future R&D priority setting.

Since bird-inflicted losses are a major obstacle to the development of intensive rice production in the Senegal River Valley, Dr. Demont recently studied the use of a damage abatement framework.

The damage abatement framework is based on the idea that some agricultural inputs, such as bird-scaring efforts, are not yield-enhancing, but they abate yield losses. According to Dr. Demont, this is probably the first study providing detailed estimates of bird damage in irrigated rice production.

The study indicated that birds cause more than US\$9 million in losses in the Senegal River Valley per year—with an annual bird damage of 13.2% of potential rice yield during the wet seasons from 2003 to 2007.

This analysis was complemented by a survey to check the reliability of the estimates using the damage abatement approach. The estimates were found consistent with farmers' perceived bird-inflicted crop losses, averaging 15%. However, the study also indicated that losses reach \$18.6 million when pressure from birds is highest.

“Moreover, farmers indicated that, at high bird pressure, traditional bird-scaring methods are not effective,” said Dr. Demont. “This suggests that monitoring, controlling bird populations by applying avicides on a large scale, and insurance measures against massive invasions are urgent.”

## The bird and weed nexus

In an AfricaRice survey near Saint Louis, Senegal, farmers said that, if they managed their weeds in their rice fields, they would have fewer bird attacks. “It's not the rice that attracts the birds at first; it's the

weeds that bring the birds to the fields,” they said.

AfricaRice weed scientist Dr. Jonne Rodenburg found out that the farmers were right. His experiments showed that weed-free fields discouraged birds. Weedy fields attracted birds because they fed on weed seeds, found shelter in the weeds, and perched on the weeds to eat the rice.

## Combining methods

In general, birds can be kept away from rice fields by following good agricultural practices. In addition to keeping fields weed-free, planting early-maturing rice varieties, experimenting with different planting times, and avoiding open water in the middle of rice fields are recommended to farmers.

Also, the removal of nesting, perching, and roosting sites around the field can reduce the number of birds. Reflective ribbons or used video/cassette tapes and nets have been found to be effective, too. However, birds quickly get used to such methods. Therefore, farmers are advised to combine the techniques.

Sometimes broad-spectrum poisons are used to kill destructive birds. However, aside from damaging the environment and human health, these also kill birds that do not eat grain.

Alternatives to these harmful pesticides, such as bio-repellents for birds, are now increasingly being promoted across many countries in Africa. In addition, scientists are continuously working with farmers to help develop environment-friendly tools to protect rice crops from birds.

However, Dr. Demont points out that, if one farmer scares birds from his field, these birds only move to adjacent fields. “Unless all farmers regionally coordinate their bird control practices, damage will only be shifted among farmers.”

His study recommends that policymakers treat regional bird control as a public good. “This can be seen as an important step towards increasing domestic rice production as well as ensuring that children go to school instead of chasing birds,” he concluded. 🍌