

## AGRICULTURE

# Agriculture Advances

► THE U. S. DEPARTMENT of Agriculture, Washington, D. C., reviewed its research findings and advances, including some 20 advances made during 1960.

Among the basic research finds:

The sex attractant produced by the female gypsy moth was synthesized and can now be manufactured in unlimited quantities for detecting infestations and may be used in moth control programs.

A chemical that causes sterility of both male and female houseflies and fruit flies when placed in their food was given its first field trials. The result is self-annihilation of the flies.

A newly discovered species of water mold fungus, common to Louisiana sugarcane soil and believed to be widely distributed in nature, was tested for biological control of nematodes (small, round worms). In the laboratory, this fungus, which kills by penetrating the skin and growing inside the nematode, was successful in killing eight kinds of harmful nematodes.

A poultry cancer, Rous sarcoma, previously thought to be non-contagious was proved transmissible by direct contact between birds. These studies support the belief of many scientists that viruses cause some forms of cancer.

Other USDA scientists bred chickens resistant to an infectious leukemia-like cancer of the bone marrow and blood, thus showing that animals can be bred for resistance to at least one type of cancer and that both sexes can transmit resistance to their offspring.

The ribonucleic-acid core of foot-and-mouth virus, the part that produces the disease, was found to resist destruction by heat more vigorously than was previously believed.

Among the crop and livestock management advances achieved by USDA scientists at more than 330 Federal and cooperating state stations:

A new method was developed for drying grains by solar-heated systems in which the blower fans require 50% less electricity than those in the conventional system.

Completely automatic handling of poultry feed from storage bins to feeders was perfected. This system uses electrically operated units that automatically blend, grind, convey and distribute feed, thus maintaining a constant supply to the poultry houses.

Hard-to-handle, volatile, weed-killing chemicals were shown to be more effective (90%) when applied in a thin band under the surface of cottonseed beds before planting. The older method of application, spraying the chemical on the soil surface and mixing with a rotary hoe, is only 75% effective.

Dairy cattle studies showed that the dairy-cow "type," the one that wins blue ribbons in the show ring, is only slightly correlated with high milk production. USDA scientists believe this finding warrants greater emphasis on dairy management and less on a show animal.

Pigs were found to produce a higher percentage of lean cuts when fed the whole ground-up corn ear, including the cob.

Twenty-one new crop varieties, incorporating better flavor, more disease and insect resistance, and higher yields were released by USDA in 1960. In the improved list were pears, citrus fruits, peabeans, lettuce, onions, cabbage, wildrye, durum wheat and hard red winter wheat.

New instruments developed include a device that determines the changing shape of the water surface and bottom of sandbed streams and another that measures minute differences in relative soil humidity.

In the future, USDA predicts, family farms will increase in size and will adopt more labor-saving improvements. The number of farms will decrease and by 1975, family farms will be even more specialized than at present, but they will continue to dominate most types of farming.

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## ORNITHOLOGY

## Kookaburra Has New Foe

► NEW SETTLERS in Australia are shooting the friendly kookaburra bird, or laughing jackass, despite strict conservation laws.

Kookaburras frequent open forest country, especially in the sandstone areas of the Blue Mountains. They are very social in their habits and often get together in groups of up to a dozen. Whole families are often seen.

The kookaburra's extraordinary laughing notes, perhaps the most familiar sound in the Australian bush, may be heard at all times of the day, but especially in the early morning and at twilight.

This bird, native to eastern Australia, has been introduced and established in Western Australia and Tasmania. Though of the kingfisher family, the kookaburra does not feed on fish, but lives on snakes, insects and carrion.

The kookaburras are almost perfectly

## ORNITHOLOGY

## Flightless Goose Found

► ISLANDS OFF the southern California coast were once the nesting grounds of a flightless goose whose wings were "clipped" by nature.

When the island sanctuary submerged temporarily, the goose sank into oblivion, Dr. Loye Miller, biologist-paleontologist at the University of California at Los Angeles, found from studies of fossil remains of the glacial age goose known as *Chendytes*. The remains were found on San Nicolas Island.

The ancient bird, which was about the size of the modern snow goose, probably evolved into a flightless form because its island nesting place was free of predators.



THREATENED KOOKABURRA—  
is a friendly bird

camouflaged into the gray-green background of the bush trees. They wait unseen for hours on tree limbs for their prey. Then they dive down on snakes, grab them by the neck in their strong beaks, fly away and drop them from a great height or break their necks against gum-tree trunks.

Kookaburras are easily made into pets by families living in the bush. They often make their nests in termites' nests high in the trees, although they sometimes use a hole in a tree.

In order to dig a hole in the very hard substance of the termites' nest, the birds fly straight at it from the nearest convenient branch, driving their stout wedge-shaped bills into the selected spot. They sometimes keep this up for several days until the hole is large enough to hold four or five white eggs.

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The genetic drift toward a tiny, virtually useless wing was not a significant handicap because the bird was not forced to use flight to escape its enemies. It swam far and wide, diving for its food, and walked from the shore to its nest.

However, its island sanctuary was its undoing. The offshore islands apparently submerged in the unstable geological processes characteristic of this area in recent geological times. With this loss of sanctuary, the bird became extinct. When the islands rose again, only a few scattered fossilized remnants were left.

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