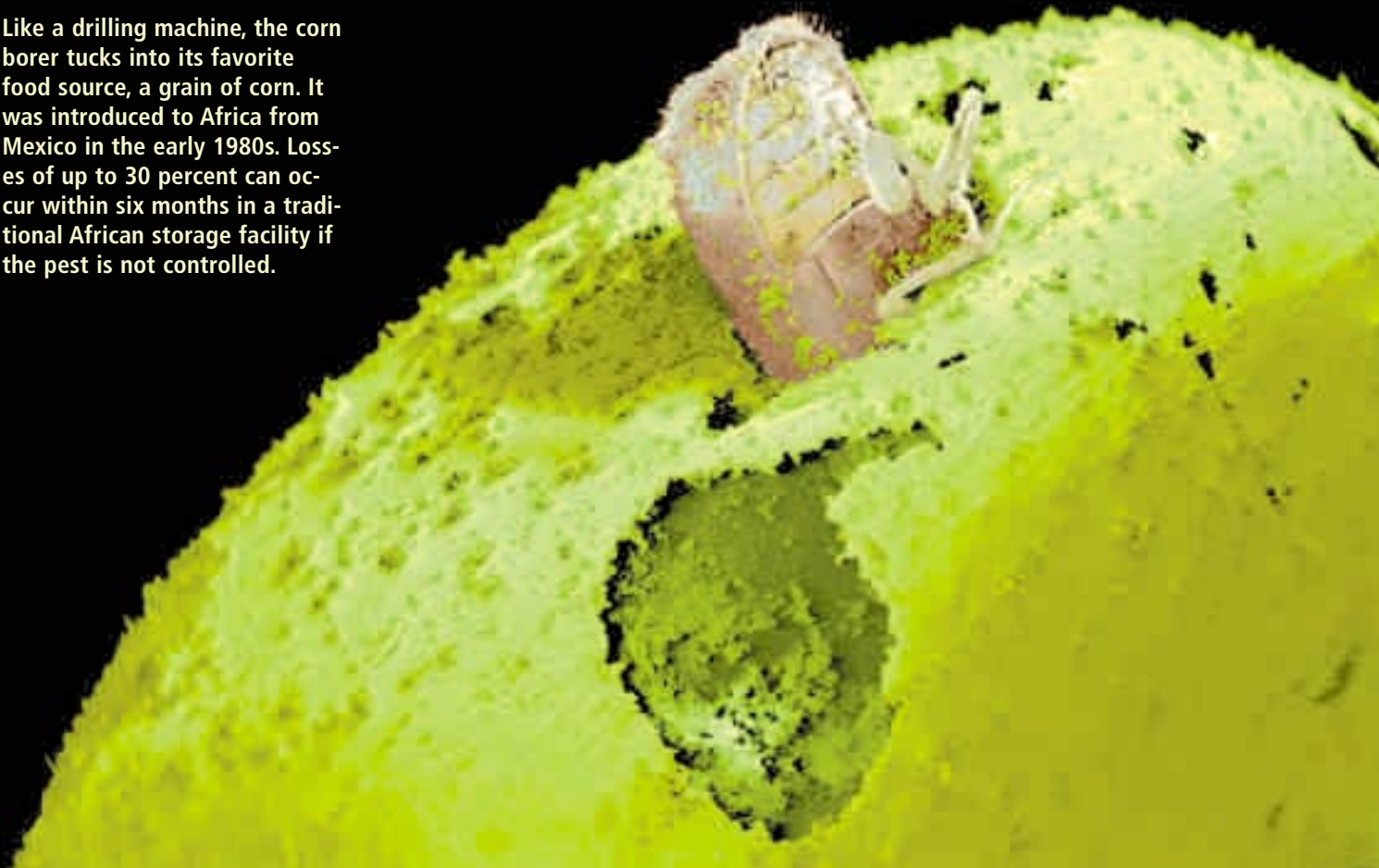


Voracious beasts approaching!

Insects are not always pests. But all over the world, they make people's lives difficult and invade plantations and food storage facilities unchecked. Bayer CropScience breeds some of these pests in its Monheim Agricultural Center for research purposes. Using a special technique and with lots of patience, scientific photographer Volker Steger built up a rogues' gallery of pests.

Corn borer

Like a drilling machine, the corn borer tucks into its favorite food source, a grain of corn. It was introduced to Africa from Mexico in the early 1980s. Losses of up to 30 percent can occur within six months in a traditional African storage facility if the pest is not controlled.





Heavenly: The insects shown on this double page are particularly fond of eating at tables as richly laden as this, with everything from nuts to spices.

A tough little pest

Despite its diminutive size of approximately three millimeters, the rice weevil can cause considerable damage. An immigrant from Surinam, the rice weevil has reproduced vigorously in granaries the world over and lays waste to reserves. The weevil can even survive for a few months without food.



A soft spot for tobacco

The cigarette beetle is a true omnivore. From flour and raisins to medicines, it thus destroys almost everything. It is particularly fond of tobacco, and expensive cigars are a favorite. The adult beetle lives for around three to four weeks and can only survive in permanently heated rooms.





Virus transmitter

The highly prolific melon aphid bores into a bean leaf. The aphid is mainly on the hunt for sugar, but proteins are even more welcome. The agricultural damage this aphid causes by spreading plant viruses is immense.



Biological weapon

The Colorado beetle has reacted effectively to all attempts to stamp it out: it has become immune to many insecticides. Many farmers' hopes are now pinned on new, genetically modified plants which will spoil the appetite of the Colorado beetle and its larvae.



Cabbage patch kids:
Whole vegetable plantations are destroyed by the pests shown on these two pages.

The creepy-crawly house

The tiny tormentors are bred by Bayer CropScience in a special laboratory in Monheim. From bedbugs, wood lice and lobster cockroaches to malarial mosquitoes – Dr. Guenther Nentwig and his colleagues breed every kind of pest, which they then make available to Bayer scientists, universities and even schools for research purposes or as exhibits.

The very hungry caterpillar

This eating machine measuring approximately four centimeters in length is attracted by the bitter, pungent oils of cabbage and radish plants. It eats several times its own body weight in fields across several continents and, in cabbage gardens from here to Timbuktu, leaves behind a trail of destruction made up of rotting cabbage leaves and caterpillar droppings.



Pests in the fruit basket

In a squabble over its favorite food – a rotting banana – the fruit fly is attacked by a *Coenosia* fly. This predatory fly has purposefully sought out the victim's weakest point between its head and thorax and kills the victim in mid-flight. Another type of pest control.



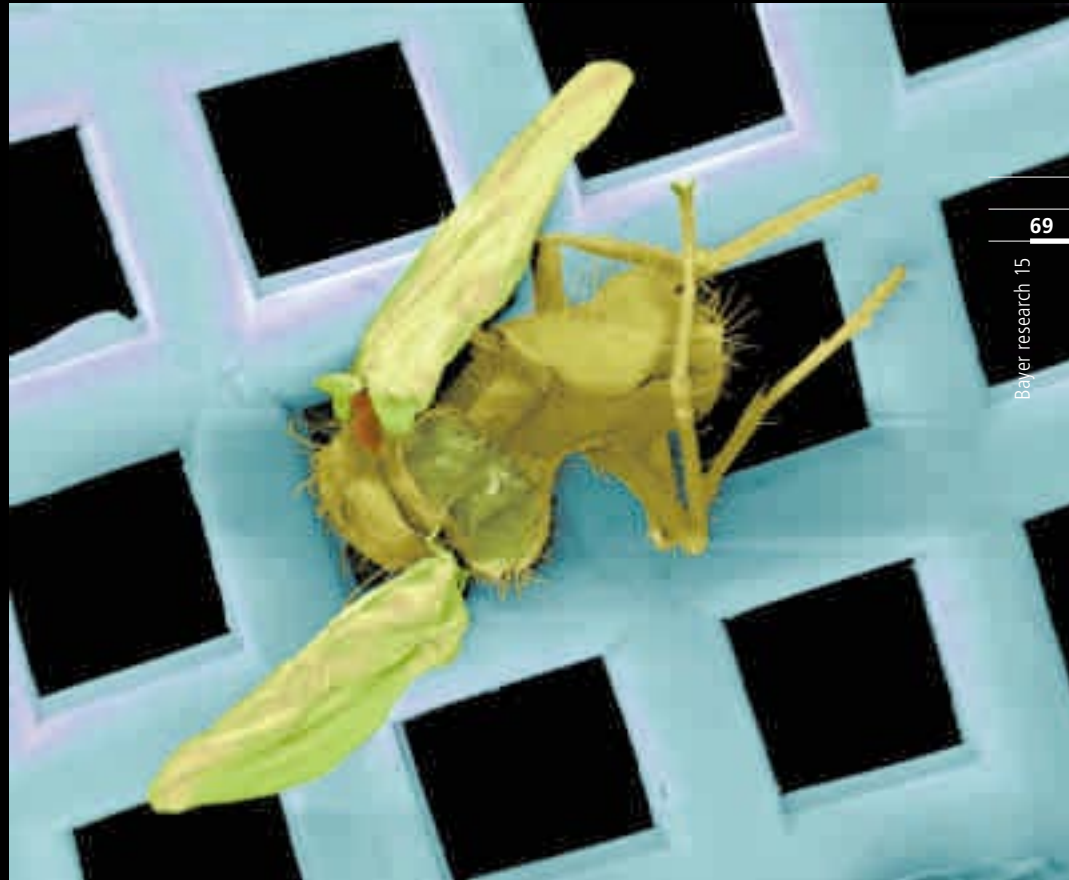
Dogged pursuers

In search of new territories, carpenter ants have followed humans half way across the world and discovered the most amazing sources of food: fuse boxes, coin operated telephones, rotten wooden benches and even drinks machines. The carpenter ant is the largest species of ant in existence. It recognizes its enemies by their smell and pursues them mercilessly.





Power lunch:
Ants, flies & co.
also help
themselves to
the food in
people's larders.



Household nuisance

The way that the fly flits from rotting carcasses, to feces, to food is not only unappetizing, it also makes it a carrier of harmful germs. It spreads infectious diseases ranging from cholera, dysentery and hepatitis to typhus. They also often lay their eggs in our food, which is why almost no home is without a fly swat.



Well prepared

If "live action shots" of the insects are to be obtained, their movements must be "freeze framed". There are various ways of achieving this, such as shock freezing in liquid nitrogen, slow cooling and treatment with

ether. The specimens are then stuck on little metal holders (see photo on left). A scanning electron microscope (SEM) scans the surface of the insect specimens with an electron beam. For this, the specimens must be dehydrated and have an electrically conducting surface.