

BOTANY

Vital Protein Produced From Fungus Tissue

► IT MAY LOOK like caviar, but it is tasteless, and contains some of man's most needed food—protein.

Fungus, that pale non-chlorophyll plant like a mushroom or mold, could yield enough tissue from one 50,000-gallon tank to supply 1,400 people with protein for a year, according to Dr. William D. Gray, professor of botany and plant pathology at Ohio State University, Columbus.

The tissue could be dried and ground to a flour or formed into flakes or pellets, states Dr. Gray, who considers that the world's growing food shortage lies in protein more than in carbohydrates, which are in excess, or in oils and fats.

Dr. Gray does not propose that fungus tissue be used for human consumption right now. He believes it could be used today as an additional source of protein for livestock, and in this way the supply of animal protein could be increased.

The fungi *imperfecti*, a class of thousands of species of fungi, are grown in an aerated, submerged liquid culture here in small-scale laboratory tanks. Six pounds of carbohydrates—such as blackstrap molasses, beet molasses, whole sugar beets or cassava flour—are converted by the growing fungi into one pound of protein.

The amounts of fungal tissue and the protein content vary with the environment and with the kind of fungus. The protein content of the fungi *imperfecti* varies from 20% to 38%, which compares well with the 35% protein content of dried chipped beef, a meat with very high protein content.

Preliminary feeding trials have revealed no toxic species at the fungus research project, which is supported by Ohio State's Mershon Committee for Education in National Security and the Rockefeller Foundation.

• Science News Letter, 83:383 June 15, 1963

ENTOMOLOGY

Boll Weevils Destroyed By New Field Machine

► HUNGRY BOLL WEEVIL larvae, which lie feeding and hatching in fallen cotton flower buds, now are picked up, mashed and blown back to earth by a recently developed machine.

This machine has several flails that rotate 1,800 times per minute, creating a suction like that of a vacuum cleaner. The larvae-infested flowers are sucked from the ground, where they have dropped, into the flails where they are beaten to a pulp and then thrown back onto the ground.

Soon to be tested in Louisiana fields, the new machine is expected to pick up at least 94% of the fallen blossoms, or squares, as the agriculturalists call them. It was designed and built by E. C. Burt at the Boll Weevil Research Laboratory of Mississippi State University, State College, Miss., working in cooperation with the Mississippi Agricultural Experiment Station.

Adult boll weevils lay their eggs in the growing cotton buds that serve as food and

shelter for the hatching larvae. The infested bud squares die and drop to the ground, where the larvae continue eating them and develop into the ugly destructive insect called boll weevil, hated pest of cotton growers.

But the machine breaks this life cycle by destroying the weevils in larvae stage. In fields where it will be used, agricultural engineers now hope to decrease the boll weevil population low enough to insure a good cotton crop, without having to use chemical insecticides.

Cotton growers formerly hired crews to pick up the fallen squares each week, but rising labor costs forced them to discontinue this procedure. The new machine will pick up the squares about every five days in cotton fields that are heavily infested with boll weevils.

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The tiny molecule, *hemin*, in the red blood cells, when released into the blood, stimulates further production of red blood cells by the bone marrow.

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