

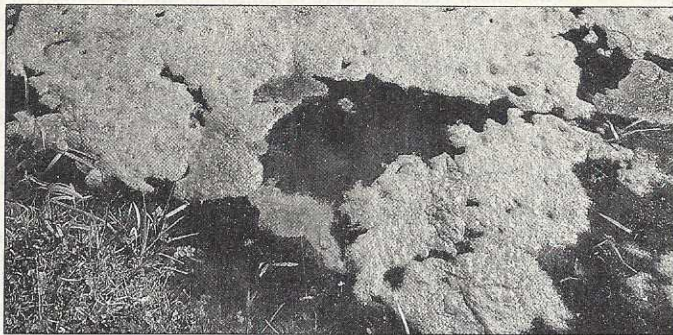
How straw in the pond keeps algal slime at bay

ROTTING STRAW releases a chemical which inhibits the growth of algae, according to scientists in Britain. This confirms an observation made by a farmer several years ago. He noticed that the algae in a lake virtually disappeared when some old, rotten bales of straw fell in.

Algae have become a particular problem in Britain during the past two summers, which have been hot. Algae flourish when there is plentiful sunshine and also when there is a supply of phosphates in the water, usually from detergents. Many lakes and waterways have become smothered with blankets of algal slime. The algae block drainage ducts and deoxygenate the water, killing the fish. Some even produce chemicals that are highly poisonous to animals and humans.

Pip Barrett and his colleagues at the Aquatic Weeds Research Unit near Reading, confirmed the farmer's observation that rotting straw reduces algae. They then carried out a series of experiments to investigate four possible reasons for the effect.

First, they wondered whether microbes in the straw were taking up vital trace elements that algae need. They also considered the possibility that the rotting straw attracts shrimps, fleas or lice that eat the algae. A



Slime solution: a natural algicide could curb troublesome algae

Jeremy Burgess/SPL

third possibility was that residues from pesticides which had been used on the straw were leaching off. Lastly, the researchers wondered whether the straw was producing something that actively killed the algae—which is what proved to be the case.

In the course of their experiments, Barrett and his colleagues found that the water retained its nutrients when straw was added. They also found that algae were killed even if the straw had been grown without the use of pesticides.

Barrett and his colleagues believe that rotting straw kills algae because it produces a natural algicide as it decomposes. "We still don't know the exact identity of the molecule—factor X. But we do know it is one of

the common algicides produced by fruit," he says.

The algae take up the chemical quite rapidly, and it is absorbed by the mud in lakes as well. According to Barrett, it does not appear to harm higher plants, and fish flourish in the region of the straw.

For the rotting straw to have its effect on algae, the water must contain plenty of oxygen. But remarkably little straw is needed—only 10 grams per cubic metre of water, the scientists say. Barley straw proved

to be the most potent.

Barrett recommends that straw should be applied to a lake twice a year: once in the autumn, because it takes at least a month to start working, and once again in the spring, because the effect only seems to last about six months.

He believes the straw offers the first satisfactory solution to the algae problem. "Herbicides kill the higher plants too, and when the algae are destroyed their toxins are released into the water," he says. "Moreover, once the plants have all gone, algae are the first to recolonise." Removing the growth mechanically is not practical. It's like lifting enormously heavy wet blankets, Barrett says. **Jane Bird**