



Old military method aids farmers

A device once used for military spying may soon be playing a new role in agricultural defence.

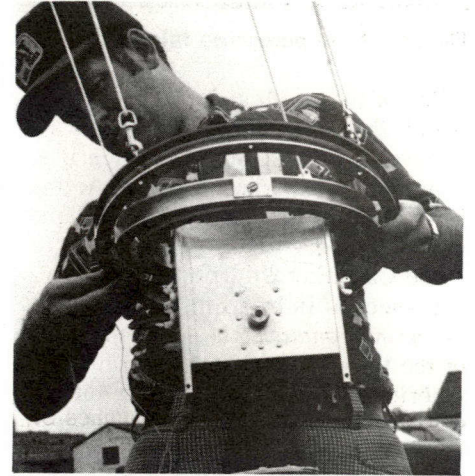
Agriculture Canada researchers in Ottawa have been testing a helium-filled balloon for aerial surveys to spot crop diseases and insect attacks. The unmanned balloon is tethered to the ground and carries a radio-controlled camera.

Dr. Alex Mack, a scientist at the Soil Research Institute, lists economy as one advantage over aerial photography using aircraft or helicopters. This is particularly important where repetitive photography is needed for studying crop development, spread of crop damage or animal behaviour.

The test balloon, made from two mil polyurethane, is about 30 feet long and weighs only 4 pounds. It exerts an upward pull of about 60 pounds when filled with helium gas at a cost of about \$125.

Once it lifts the remotely-controlled camera aloft — from 500 to 16,000 feet

A technician makes final adjustments (top right) to a gimbal-mounted camera before it is hauled aloft by a balloon during aerial survey tests at the Central Experimental Farm in Ottawa. The line holding the balloon is carried around test plots (left) while the remotely-controlled 70-mm camera is set in action. A photograph of the test plots taken from an altitude of 250 feet is shown below.



— there's little additional cost involved in leaving it airborne," Dr. Mack says.

Initial cost of a large test balloon is about \$2,500, but the researcher says a smaller balloon at about half the cost would be suitable for most agricultural purposes. Smaller balloons would be easier to move from field to field and cheaper to keep inflated throughout the summer. The 70-mm Hasselblad camera and other instruments are mounted on a gimbal and slung beneath the balloon.

The balloon can be left in the desired location, tethered to the ground, until weather and crop conditions are right. Aircraft-mounted aerial survey equipment is expensive to hold on standby during cloudy or hazy conditions.

"We leave the balloon where we want it until the weather clears. Then we switch on the radio-controlled camera to start photographing the survey area," says Dr. Mack.

