

USDA Declares Biological War on Cereal Leaf Beetle

A biological war is being waged by the U.S. Department of Agriculture against the cereal leaf beetle — a foreign invader currently threatening wheat, oat, and barley production in this country.

The cereal leaf beetle is particularly destructive in the United States because it has few natural enemies. USDA's Agricultural Research Service is attempting to correct this imbalance by rearing and releasing cereal leaf beetle parasites imported from other nations.

ARS scientists have found three species of tiny wasp parasites capable of adapting to conditions in this country and are now just beginning to rear these beneficial insects in mass. The wasps inject their eggs into cereal leaf beetle eggs or larvae. Newly hatched wasp larvae eat their hosts — destroying cereal leaf beetles before they can attack food crops.

During 1971, ARS and cooperating State scientists released nearly 700,000 egg parasites at 109 locations in Illinois, Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, and West Virginia. More than 65,000 larval parasites have been released so far this year at 11 sites in Indiana, Michigan, Ohio, and West Virginia.

The egg parasite (*Anaphes flavipes*) is reared at ARS' Cereal Leaf Beetle Laboratory, Niles, Mich. The three-lined potato beetle is a better laboratory host than the cereal leaf beetle because it lays eight times more eggs than the grain

pest. *Anaphes* eagerly parasitize potato beetle eggs in the laboratory but prefer to attack cereal leaf beetle eggs in the field.

Two larval parasites (*Tetrastichus julis* and *Diaparsius carinifer*) proved unsuitable for laboratory rearing. Instead, ARS and State agencies in the infested area cooperated to establish outdoor "insectories," or rearing beds. This year, two insectories are being established in Michigan, three each in Indiana and Ohio, and one in West Virginia.

ARS' worldwide search for natural enemies of the cereal leaf beetle began in 1965. But locating the parasites involved only a small part of the time and effort required to activate the cooperative Federal-State cereal leaf beetle parasite release program.

After the parasites cleared through U.S. quarantines, ARS scientists began rigorous, time-consuming studies to determine if each species could adapt to its new environment and if it would attack only target pests. Next, the scientists had to devise economical methods to mass produce the beneficial species. Other projects involved synchronizing the life cycles of biotic agents and pest, and studying ecological relationships between the cereal leaf beetle and the crops it attacks.

Discovered in Michigan and Indiana in 1962, the cereal leaf beetle has spread to Illinois, Kentucky, Maryland, New York, Ohio, Pennsylvania, Virginia, West Virginia, and Wisconsin.



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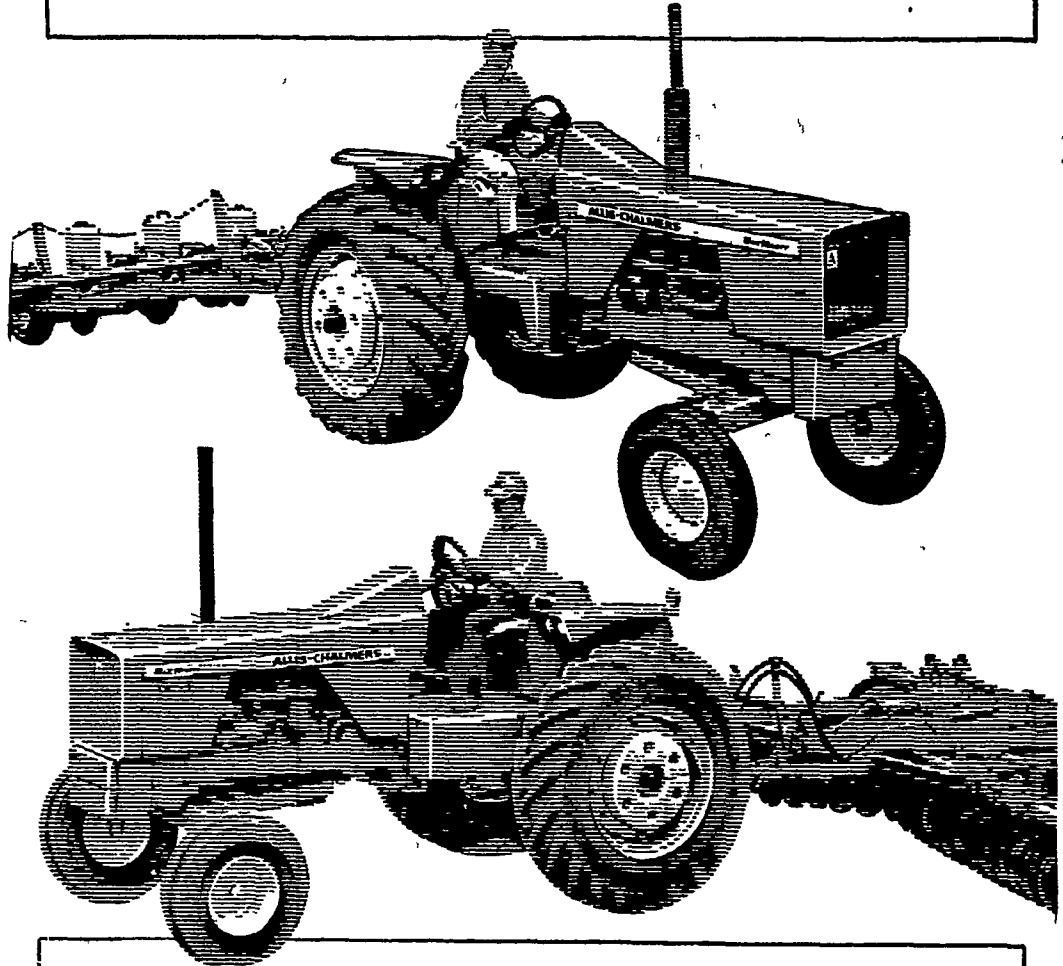


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