

Japanese beetle invasion soon to begin

BY DEBBIE KOONTZ

LANCASTER — Get ready for the Japanese beetle invasion.

Every summer this voracious pest works its way out of the grub stage in the soil and, fully mature, flies into fields and gardens to feed on leaves and fruits of over 300 plants.

The Japanese beetle has already caused more than \$20 million in damages to plants, flowers, crops and lawns, reports Health-Chem Corporation from New York.

According to Jay Irwin, senior Extension agent from Lancaster County, the largest concern to homeowners at the present time should be their lawns, as the beetle is now in the grub stage, existing entirely in the soil and feeding on grass roots. Mid-June through August is the time to worry about damage the adult beetle can cause.

The female beetle usually lays 40 to 60 eggs, but can lay as many as 130. The eggs are laid from July to early September, and take from 10 to 21 days to hatch into beetle larvae or grubs, according to Health-Chem. The grubs move down into the soil when cold weather comes and remain inactive; but they stay within the top eight inches of soil. Then they begin feeding on roots again in the spring. Next they change to the beetle form and come to the surface to begin the cycle again.

The grub, whitish in color with brownish hard ends and brown hair, feeds on the roots and underground stems of a wide variety of grasses and plants, especially the roots of sweet corn, beans and tomatoes. If grubs are numerous, they can cause injury to the turf. This can be noticed by areas of dead grass in late summer.

Grub injury to lawns usually can be controlled with application of chemicals.

The transformation of a grub to an adult takes place in the upper layer of the soil. The adult is approximately $\frac{1}{2}$ inch long and has a bright metallic green body with coppery brown wings. It also has five patches of white hairs along each side and

two patches in the back, just under the edge of the wings.

The adult beetle's flying activity lasts for 2 to 3 months, but has a peak period of 4 to 6 weeks. On the average, the beetle will live from 40 to 50 days. In the Pennsylvania region, these beetles begin to emerge in mid to late June.

Though beetles rarely eat unripened fruit, they will feed on ripe fruit until nothing edible is left. They also attack leaves, chewing out the vein. All that is left is a lace-like skeleton, says Health-Chem.

Damage to corn can be intense also, according to Irwin. The beetles eat the silk as fast as it grows, keeping kernels from forming.

The November issue of Agricultural Research, a publication of the United States Department of Agriculture, reports that the Japanese beetle originally made its way to the United States in 1916, probably in a shipment of iris. The beetle, first identified in Riverton, New Jersey, has spread north into southern Maine and southward into Georgia and the Carolinas. Kentucky, Illinois, Michigan and Missouri have all reported major invasions also.

According to Agricultural Research, the beetle now has a force covering more than 300,000 square miles. The beetles are working their way into Canada, destroying as they go: lawns, golf courses, pastures, corn, tomatoes, strawberries, soybeans, grapes, roses, and the list goes on.

Though the number of beetles is increasing, so too are the amount of controls available to the farmer and homeowner. Nature's natural

control for the beetles is the bird; specifically starlings and sparrows.

But more effective than birds are the vast variety of chemical insecticides available which combine two attractive, irresistible lures for the pests: food and sex.

One of the best basic lure materials currently in use is phenethyl propionate, called PEP. It was developed by Agricultural Research Service scientists at the Japanese Beetle Research Laboratory, Ohio Agricultural Research and Development Center, Wooster, in 1970, patented by USDA, and licensed by commercial companies.

According to Agricultural Research, "The lure materials are attached to two metal or plastic plates fastened to each other at right angles with a funnel-shaped piece at the bottom. The beetles, not noted for their grace and agility, fly along following all the smells until they bang into one of the plates, fall down the funnel into a bucket or plastic bag, and are trapped. When the sun shines on the container, it heats up and the beetles normally die of heat stroke."

The synthetic sex attractant was produced originally by ARS. Since then they have added the drawing power of the rose's smell and the sex attractant to the trap.

According to research conducted by the ARS, the combination of attractants during the peak period averaged 2,507 beetles per trap per day. Traps baited only with the sex attractant averaged 1,186 beetles and those baited only with food attractants caught 652 beetles per trap.



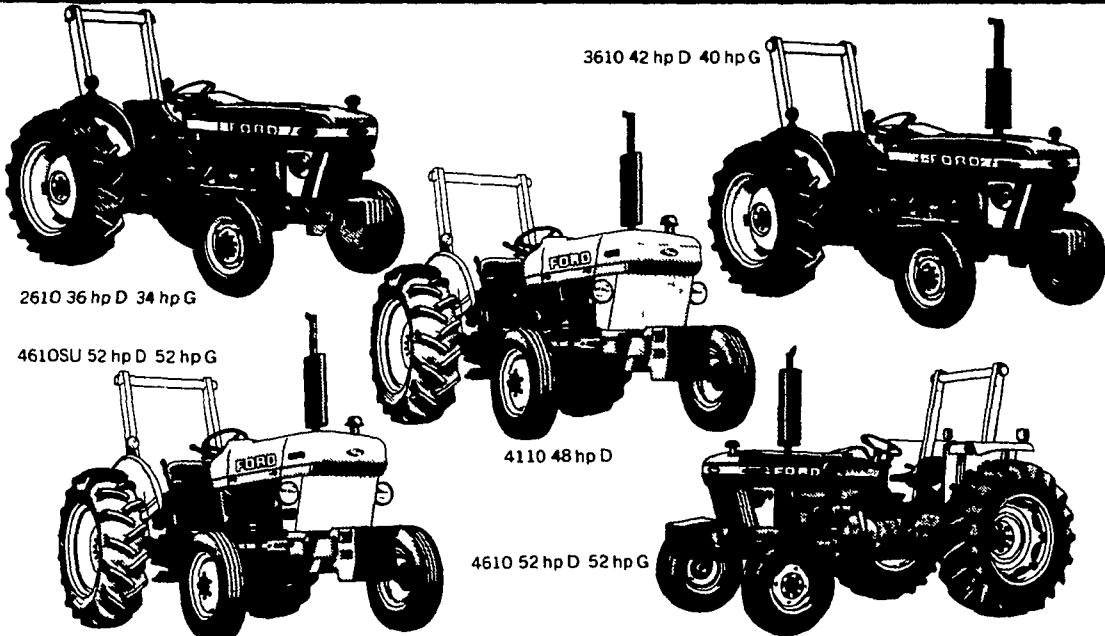
Adult Japanese beetles feed on leaf tissue between the veins, leaving a lacy skeleton. They often mass on ripening fruit, feeding until nothing edible is left.



Japanese beetle larvae: white grubs spend this life stage in the soil feeding on roots of plants, particularly grasses. The damage often goes unnoticed until the plants are permanently stunted or die. Photos courtesy of Agricultural Research Service.

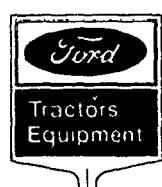
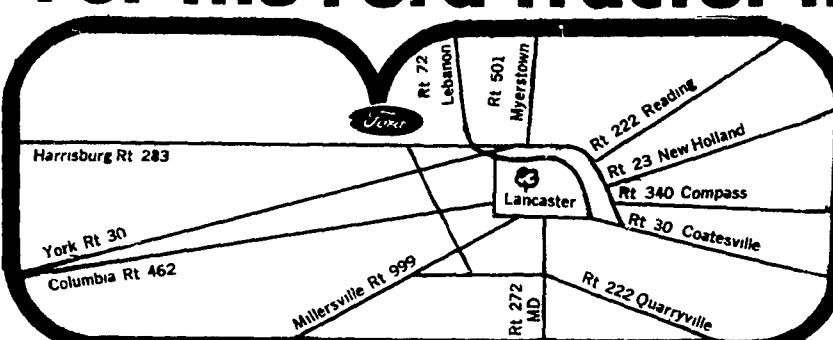
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