ANIMAL AND PLANT HEALTH INSPECTION SERVICE

Japanese Beetle Monitoring Plan

Domestic Aircraft Monitoring Industry Information

2007

PLANT PROTECTION & QUARANTINE

Presentation by Tess Acosta Williams – USDA, APHIS, PPQ

Japanese Beetle (Popillia japonica) - Identification

The Japanese beetle is a serious pest of turf and ornamental plants. Grubs feed on the roots of turf grass and adults feed on the foliage of more than 300 plant species.

Identifying adult Japanese beetles

Japanese beetle adults are approximately 3/8 inches in length.
The front of the beetle is dark metallic green. Its wing covers are a metallic dark tan.
The beetle has two small patches of short white hairs on its rear, and five white hair tufts along each side of the dorsal abdomen.
These patches are key characteristics for identification. If it does not have these patches, but has the other color traits, then it may be the false Japanese beetle.

Identifying the grub stage of Japanese beetles

The larval or grub stage of the Japanese beetle is a "C" shaped white grub that lives in the soil. Its primary food source is grass roots, but it is known to feed on the roots of corn, beans, tomatoes, and strawberries. All "white grub" species are similar looking but vary in their life cycles.

Life cycle of Japanese Beetle

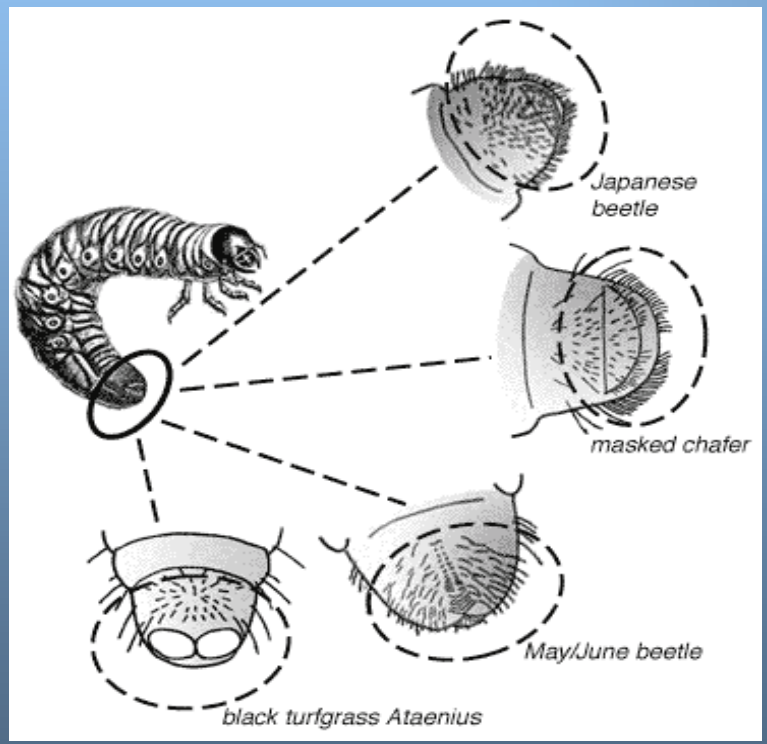
In the diagram below you can see the egg, grub, and adult stages. In June, the grub turns into a pupa. It emerges from the soil in late June and July as an adult, to mate and lay eggs.

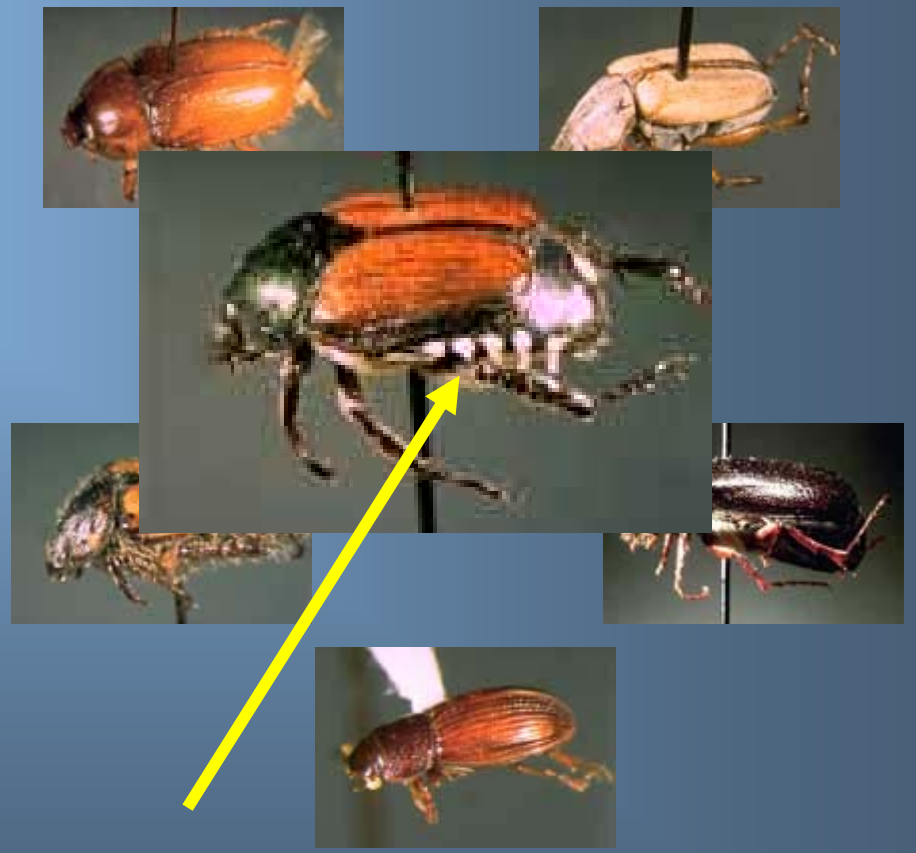



Eggs hatch in July and grubs are almost full grown by late August. Grubs do best in warm, slightly moist soil that has plenty of organic matter and tender grasses. **However, they can survive in almost any soil.**

Illustration by Joel Floyd - USDA, APHIS, PPQ

The following are NOT Japanese Beetles





True JB

General JB Information

History

Japanese beetles appeared on the shores of the US near Riverton, NJ in 1916. There were no natural enemies to keep it under control, unlike those that kept it under control in Japan, and it soon became well-established.

Distribution

It has become a serious pest in the US and has become established from southern New Hampshire and Vermont south into North Carolina and westwardly into Ohio and West Virginia. Scattered local populations have been reported in Indiana, Illinois, Tennessee, Kentucky, Michigan, Iowa, Missouri, California, South Carolina, Georgia, Maine, Ontario, and Nova Scotia. This beetle has also cause severe defoliation on certain plants in Maryland, Indiana and Illinois.

Host Plants

It feeds on over 300 species of plants and turf as well. The list of Japanese beetle host plants is seems to never end, however, commonly attacked hosts include cultivated and wild grapes, raspberry, peach, plum, rose, apple, cherry, corn, soybean, Virginia creeper, hibiscus, marshmallow and Indian mallow, hollyhock, dahlia, zinnia, elm, horsechestnut, linden, lombardy poplar, petunia, willow, crepe myrtle, bracken and sensitive fern, elder, evening primrose, sassafras, and smartweed.

Damage

Japanese beetles are voracious foliage and fruit feeders. Feeding in June and July causes little injury to soybeans because the plants can compensate for 35 percent or greater foliage loss. Foliage loss greater than 35 percent may occur in spots 0.4 hectares (1 acre) or less in size. Damaged foliage is characteristically ragged, with only the larger leaf veins intact. Stringy, black excrement is also present.

PD recommendations for local PPQ JB program

- Generate a working list of airlines and flights currently servicing and operating to and from regulated areas/utilizing this list, generate a boarding schedule

- Generate a port risk assessment on current JB scientific information available and possible pathways from states known to be infested with JB

- Generate local fact sheet on JB risk/ PPQ activities/Airport responsibilities to include pictures of Japanese Beetle and all pertinent contact numbers for the airline industry and US Customs;

- Contact Airlines which have been identified to have risk involved and notify them of the upcoming season for Japanese Beetle Detection on domestic flights from infested/regulated states. Provide USDA APHIS PPQ's local proposed plan for inspections and treatments and State cooperative efforts

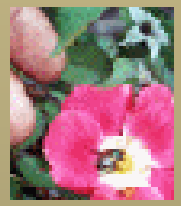
- Make appropriate contacts with State officials to provide weekly reports on areas regulated by JB traps for the weekly Port Director's meeting with the SPHD. Exchange contact information and establish a protocol for contacts made in case of pest emergency or pest interception

- PPQ will make appropriate contacts within the local airport(s) to promote and increase the level of cooperation with and awareness of the industry

- Contact Port Ops for supplier of approved aircraft aerosol insecticide

- Submit daily boarding reports to Supervisor which will include, but is not limited to, the following information :
  - Airline, flight number, Origin, Route, Final Destination, Number of PAX, Number of cargo airway bills, Date, Time, Blocking location (gate), Name of inspector, Badge number, JB found – Alive, Moribound, Dead-fresh, Dead-Dried.
  - Maintain a log of all aircraft boarding to be kept for the duration of the JB monitoring season and submitted to the Supervisor at the end of the season.
  - Establish procedures for notifying carriers of pest detection (to include other non- compliance issues)

Recommendations for protected States by National JB Program review panel



Many popular flowers, like this petunia, are subject to Japanese beetle damage.

1) A policy statement is needed regarding how passenger aircraft will be handled

2) A consistent inspection protocol, reporting requirements, and retreatment thresholds need to be developed

3) States need to continue, or in some cases begin, educating airport personnel and the public about the threats JB pose

4) Consistency is needed in classifying and determining if beetles are alive, moribound, or dead

•An electronic format is needed that will allow all protected states, as well as other interested parties, to have constant access to JB program information (*UPDATE*! This has been implemented)

Recommendations for Industry by National JB Program Review Panel

Two way communication between industry personnel at airports in infested states and their industry counterparts in protected states to facilitate inspection, exclusion, and other JB program activities – PPQ will provide this recommendation in the fact sheets produced and distributed locally to industry

Employees should be provided training and educational materials – PPQ will provide information to the industry members affected in order to assist them with accomplishing this (PPQ will make every effort to assist with any training efforts by industry)

Accurate flight schedule information should be made available to protected states.

UNITED STATES DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

2007 JAPANESE BEETLE

USDA/APHIS Japanese Beetle Program

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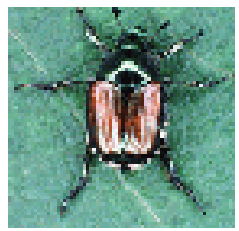

If you see this insect, contact your local State Department of Agriculture or USDA.
For details go to http://www.aphis.usda.gov/plant_health/plant_pest_info/jb/index.shtml