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2021-2024 LCCMR, Biocontrol in bee lawns and parklands
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Activity 1: For long-term management and biocontrol of exotic Japanese beetle, *Popillia japonica*, a host specific and native fungal pathogen called *Ovavesicula popilliae* needs to be cultured and released. Beetles collected in MN were studied by Michigan State University and the pathogen was found in low numbers in MN. Surveys will reveal the pathogens presence statewide in MN. The pathogen will be cultured, distributed, and its efficacy evaluated through research.



First introduced to the US from Japan in 1916, Japanese beetle was commonly found in MN by the 1990's. Adult feeding by Japanese beetles result in damage to foliage and fruits and reduction in food for bees and wildlife.

Japanese beetles feed on pollen and ovaries of flowers depriving bees of food. Flowers that are damaged will not make fruits, such as berries, for wildlife.

The long term research outcome is to establish an endemic pathogen to kill Japanese beetle. The pathogen *Ovavesicula popilliae* was first described in CT and was introduced by researchers into MI, KY, AR, and KS.

Results shows that infected grubs are between 25 to 50 % less likely to survive winter. Populations of beetles decrease by 60 % in 5 years. The pathogen has been found in MN thru collaboration with Michigan State University.

Activity 2: For short-term management, research on the efficacy of new EPA approved microbial products, GrubGone (*Bacillus thuringiensis galleriae*), soil applied fungus *Beauveria bassiana*, parasitic nematodes, and bee-friendly insecticide chlorantranilprole will be studied. The outcome will be site specific IPM protocols, demonstration projects in parks, and educational programs for outreach to increase implementation.



Bee lawns have been established in MN in state and local programs to help provide habitat and flower resources to native bees, butterflies, and endangered rusty patched bumblebee.

The most common exotic pest of bee lawns is Japanese beetle. The highest use of insecticides in urban areas is to control Japanese beetle as adults on plants and grubs in the soil under grass.

Research on IPM and biocontrol to manage Japanese beetle and protect pollinators is needed. Demonstration projects in parks will help with IPM adoption.

Outcomes are to provide IPM management that protects pollinators in established bee lawns and restorations using biocontrol to reduce non-target effects from insecticides for native pollinators and beneficial insects.