

## JAPANESE BEETLE IMPACT SURVEY

### **About the Japanese Beetle**

On April 27, 2018, the Canadian Food Inspection Agency issued an Infested Place Order to the City of Vancouver in order to prevent the spread of Japanese beetle (*Popillia japonica*).

The Japanese beetle is invasive to North America and has been established in eastern Canada and the US for over a century. In 2015, the US Department of Agriculture estimated the cost to control the Japanese beetle was more than \$460 million a year, making it the country's most expensive turf-grass pest.<sup>1</sup> Beetle populations have not been established in the west, but recent introductions in California, Oregon, New Mexico, Utah, Idaho and Washington all point to an increasing threat to British Columbia's agriculture sector.

The Japanese beetle consumes over 300 types of plants, decimating leaves and flowers and affecting the production and quality of fruits, vegetables, flowers, shrubs and trees. The larvae feed on roots, especially turf and grasses. All told, the establishment of the species in BC has the potential to cause significant damage to parks, lawns, golf courses, landscapes and the province's nurseries and farms.

### **Outbreak in Vancouver**

The Japanese beetle was found by the CFIA during routine monitoring in the False Creek neighbourhood of Vancouver in August 2017. The British Columbia Ministry of Agriculture is heading a coordinated effort to eradicate the beetle before it spreads to other parts of the region. Along with the CFIA, City of Vancouver and other industry and non-governmental stakeholders, the cooperative program involves several components, including:

- Surveillance – CFIA will be conducting a trapping program in and around the infested area.
- Movement Controls – CFIA has established a regulated area within Vancouver where restrictions have been placed on the movement of plant materials, landscape waste and soil. These restrictions apply to everyone, including homeowners, renters, landscape companies, retailers and construction companies.

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<sup>1</sup> United States Department of Agriculture, 'Managing the Japanese Beetle: A Homeowner's Handbook,' 2015.

- Treatments – The larvicide Acelepryn is being applied to both public and private treatment zones within the regulated area.

A new regulatory authority will soon be established to allow the province to take responsibility for Japanese beetle treatment orders beginning in 2019, when an enhanced trapping plan will see the approximately 1,500 traps placed not only in the control area but also from Hope to Whistler. Eradication of the beetle is anticipated to take 3 to 5 years minimum.<sup>2</sup>

### **Potential Movement**

Japanese beetle can be transported during both larval and adult phases: in dirt, sod, root balls, foliage, flowers, harvested berries and green waste. To mitigate the risk of spreading, the movement of rooted plants and soil out of Vancouver's regulated zone has been forbidden, and above ground plant waste is being treated at a temporary facility inside the regulated zone until October 15<sup>th</sup>, when the flight period of the adult beetle ends.

The Japanese beetle is a competent flyer able to travel as far as 8 kilometers with the aid of wind.<sup>3</sup> The greatest risk of beetle movement, however, is human assisted; adult beetles are known to “hitchhike” on vehicles, trailers, equipment and even planes.

In eastern North America, freezing soil temperatures have helped mitigate the population growth of Japanese beetle.<sup>4</sup> Given the temperate climate of coastal BC, along with an abundance of host plants, such as Himalayan blackberry, it's likely the beetle can easily survive and proliferate in the region.

### **Looking Ahead**

Widespread Japanese beetle infestation in British Columbia could cause untold environmental and economic devastation. Due to the concentration of lawns and landscaping in cities, small farmers and nurseries near urban areas will likely be affected the most, as well as organic farmers, as there is no effective biological control for the pest registered in Canada.<sup>5</sup> A BC Ministry of Agriculture projection from 2017 sets the price

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<sup>2</sup> Minter, Brian. 'Japanese Beetle A Serious Threat to Vancouver,' Vancouver Sun. June 1, 2018.

<sup>3</sup> Canadian Food Inspection Agency, 'Japanese Beetle Fact Sheet.'

<sup>4</sup> Cloyd, R. and P. Nixon. 2003. 'Japanese Beetles: Impact of Winter,' University of Illinois Extension. <http://hyg.ipm.illinois.edu/pastpest/200315f.html>

<sup>5</sup> Minter, Brian.

tag for annual crop damage in the province at \$14.5 million. Golf courses alone could spend an estimated \$13.6 million a year battling the pest.<sup>6</sup>

When it comes to domestic and international trade, BC's nurseries may stand to lose the most (approximately \$3.1 million/year<sup>7</sup>). All underground plant parts, such as bulbs or whole plants with roots, are regulated for Japanese beetle under the CFIA's phytosanitary requirements, contained in Directive D-96-14. These requirements are observed bilaterally with the US, and they provide a framework for the certification, treatment and trade of products between infested and pest-free areas of both countries. Currently, Ontario, Quebec, Nova Scotia, New Brunswick and PEI are listed as Category 3 (generally infested), as well as 36 states.<sup>8</sup>

In the case of British Columbia, a change in the Japanese beetle regulatory status from pest-free to infested doesn't pose an all-out trade barrier, but it could increase industry production costs by requiring regulated products to be treated and/or certified prior to export to pest-free areas, especially live plants exports to unregulated US states.<sup>9</sup>

It is worth noting that timber and agricultural products are exempt from CFIA regulations.<sup>10</sup>

In addendum 1, we have presented a list of host plants identified by the Ministry of Agriculture in their 2017 analysis that can be affected by an infestation of Japanese beetle, their harvested areas in the province, and value of production in 2017.

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<sup>6</sup> BC Ministry of Agriculture, 'Economic Risk Analysis: British Columbia and the Japanese Beetle,' 2017.

<sup>7</sup> Ibid.

<sup>8</sup> Canadian Food Inspection Agency, 'Appendix 1: Regulatory Status of Areas in Canada and the United States for Japanese Beetle.' <http://www.inspection.gc.ca/plants/plant-pests-invasive-species/directives/horticulture/d-96-15/appendix-1/eng/1346826626609/1346826990603>

<sup>9</sup> Canadian Food Inspection Agency, 'Japanese Beetle Detection in the False Creek Area of Vancouver,' 2017.

<sup>10</sup> Canadian Food Inspection Agency, 'Phytosanitary requirements to prevent the spread of Japanese beetle, *Popillia japonica*, in Canada and the United States,' Section 4.3 Exempted Articles. 2018.

## Addendum 1

A list of host plants in BC that can be impacted by an infestation of Japanese beetle, their harvested area, and production value in 2017.

Host Crops grown in BC	Bearing or harvested area (in hectares)	Production value (in \$ millions)
Nurseries	3,371	\$198
Grapes	3,772	\$63
Berries (excluding cranberries)	10,866	\$160
Tree fruits	6,352	\$163
Corn (fodder)	10,500	\$29 *
Corn (sweet)	924	\$7
Beans/peas	667	\$5
Asparagus	93	\$1
Potatoes	2,588	\$36 *
Tomatoes/peppers (greenhouse) <sup>11</sup>	28,286,452	\$244
Tomatoes/peppers (field)	273	\$7
Grasses (sod)	599	\$12
Grasses (forage/hay)	339,900	\$27 *
<b>Total</b>		<b>\$952</b>

(Source: Statistics Canada, CANSIM tables (various). \* Where series have been terminated or unavailable, values derived by RKA)

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<sup>11</sup> In square feet.