UVic Integrated Pest Management Plan

December 11, 2017

Submitted by the Office of Campus Planning and Sustainability

University of Victoria

Contents

Background

UVic practices environmental stewardship on its grounds. A program to naturalize areas of campus was started in the spring of 2011 to reduce water use. UVic also maintains a large proportion of its land to an organic standard, including Mystic Vale, South Woods, and the Bowker Creek water shed. UVic employs an informal integrated pest management approach on the remainder of its grounds. A formally developed Integrated Pest Management Plan is a best practice among post-secondary institutions. Universities that manage pests according to a formal Integrated Pest Management plan include the University of British Columbia, Simon Frasier University, the University of Calgary, and the University of Alberta. As such, UVic Campus Planning and Sustainability initiated the formalization of the UVic Integrated Pest Management approach.

The UVic Integrated Pest Management plan guides the control of pests at UVic and the circumstances in which the various techniques employed by UVic ground staff including cultural, physical, mechanical, biological, and chemical control methods will be used. The list of techniques can be understood as a hierarchy, with biological and chemical pesticides used as the last resort. When pesticides are required, Integrated Pest Management plans provide guidance with regard to the legislative requirements around pesticide use.

The main thrust of integrated pest management plans is to limit the use of pesticides. In B.C. the Integrated Pest Management Act (IPMA) governs pesticide use. The Act sets out the terms under which pesticides can be sold, contained, transported, stored, prepared, mixed, applied and disposed. The purpose of this act is to safe guard human health and promote stewardship of ecosystems.

The IPMA regulates the use of certain pesticides on UVic property though a licensing process. These include pesticides not listed on Schedule 2 of the IPM Regulation. According to the legislative summary prepared by the IPMA,

> "Licence holders are required to comply with the consultation, notification, reporting and record keeping provisions as well as the standards for use of integrated pest management and for the protection of human health and the environment, specified in the Act and Regulation."

The IPMA relies on the Federal Pest Control Products Act, which regulates the pesticides registered for use in Canada. One important aspect of the Federal act is the establishment of Canadian pesticide registry. Only pesticides approved to be on this list by the Pesticide Management Regulatory Agency can potentially be sold in Canada.

Purpose

The purpose of this plan is to document the UVic pest management procedures and to codify those procedures into a formal integrated pest management plan. This includes codifying the informal integrated pest management approach employed by the UVic Facilities Management Grounds and Environmental Services division (hereafter referred to as Grounds) that focuses on limiting the uses of chemical and biological pesticides. The Plan will also facilitate compliance with BC's Integrated Pest Management Act and Regulations.

Definitions

Integrated pest management is a process for managing pest populations that includes the following elements:

1. Planning and managing ecosystems to prevent organisms from becoming pests;
2. Identifying pest problems and potential pest problems;
3. Monitoring populations of pests, damage caused by pests and environmental conditions;
4. Using previously established tolerance levels in making intervention decisions;
5. Suppressing pest populations to acceptable levels using strategies based on considerations of:
    a. Biological, physical, cultural, mechanical, behavioural and chemical controls in appropriate combinations,
    b. Environmental and human health protection; and
6. Evaluating the effectiveness of pest management intervention.

Grounds refers to the Facilities management Grounds and Environmental Services division.

Grounds Staff refers to employees working under the Manager of Grounds and Environmental Service division in the University of Victoria Facilities Management.

Naturalized Area refers to the practice of eliminating watering and grass cutting in areas of campus during the summer months. The naturalized areas include: Alumni Garry Oak meadow, areas near the Alumni Chip trail, and part of the Cedar Hill Corner property.

Pest refers to an injurious, noxious or troublesome living organism, but does not include a virus, bacteria, fungus or internal parasite that exists on or in humans or animals.

Tolerance: Pest tolerance levels are defined categorically at four levels and are established through visual inspection:

1. High – many pests of a category can be observed in a specified area.
2. Medium – some pests of a category can be observed in a specified area.
3. Low – very few pests of a category can be observed in a specified area.
4. Zero tolerance – no pests of a category can be observed in a specified area.

Scope

The UVic Integrated Pest Management Plan cover the University land managed by the following groups:

1. The Facilities Management Grounds Unit,
2. University Athletics and Recreation Services, and
3. Residence Services.

The Grounds Unit provides services to Athletics and Residence Services, who in turn specify service levels and requirements for the university spaces they manage. The Grounds unit determines service levels and requirements for the spaces they manage.

This plan does not cover pesticides used for academic research purposes in a manner that complies with the intended use (per pesticide label) and research performed in a laboratory.

Areas covered by UVic Integrated Pest Management Plan

The UVic IPM Plan covers the Gordon Head Campus as depicted in *appendix 2*. This includes the following areas:

- University grounds,
- The Residence Service Precinct,
- Athletics and Recreation fields,
- University food outlets

Approach:

Areas under the scope of this plan will be stewarded such that chemical and biological pesticides are used as a matter of last resort. Campus pests are controlled primarily to controlling the spread of invasive species and for health and safety reasons.

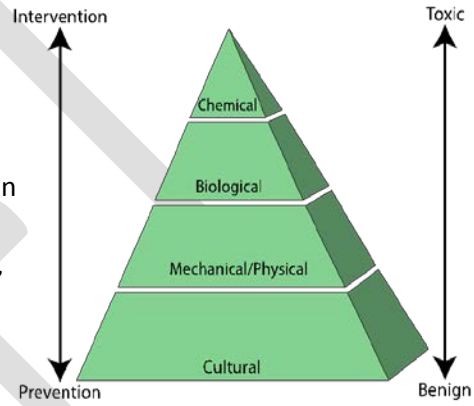


Figure 1: Integrated Pest Management Hierarchy

The hierarchy of integrated pest management starts with prevention (see figure 1). The plants and materials UVic chooses to install, and where those plants and materials are installed can help deter pests, The hierarchy moves to increasingly toxic forms of interventions from there. For example, it is recognized that rodent issues at UVic can be prevented by creating space between residence buildings and the landscape plantings. However, many residence buildings at UVic have shrubs that have advanced on the building and as a result, mechanical means of prevention are used, namely trimming, to create space between the building and the shrubs. Dispute the mechanical means, rodents are often reported on campus. A biological control may be considered, such as deploying a predator, however, this is not often effective. As a result, that level of the hierarchy is skipped. Chemical rodenticides may be deployed in pet/child safe traps as a final resort to control rodent populations.

In some cases, resources factor strongly in the progression of intervention decisions. That is to say, the preferred intervention for removing pest plants may be mechanical but the Grounds unit may not have the staff available to remove the plant. As a result, the only method readily available to reduce the pest population to an acceptable level may be to apply a pesticide.

Procedures

Establish thresholds and tracking population levels

Integrated pest management starts with establishing tolerance levels for specific pest species and monitoring those pest populations. In some cases, such as with Field 5, there is a simple zero tolerance for pests like plantain (Plantago major). There is also a zero tolerance for rodents or squirrels living within residence services buildings. In other cases, the actionable pest population levels are more variable.

The grounds staff use their professional judgement to determine the pest levels via visual inspection. Grounds staff conduct visual assessments, and based on these observations will determine when a mechanical or chemical intervention is needed. However, prior to this plan's development, they did not record the observed levels or track those levels over time. Population levels will continue to be observed by visual inspection but they will also be tracked. Ground staff track, as they are required by the Integrated Pest Management Regulation, each application of a non-excluded pesticides. Grounds staff will also log observed pest levels and pest management interventions on a seasonal basis.

Pest tolerance level

The university will maintain a list of pests that potentially require chemical interventions as a separate appendix to this plan. The list will include a specified tolerance levels (high, medium, low, or zero tolerance) for each pest species or category and will be updated upon the discovery of new pest issues.

Contracting pest management services

Pest management at the university is performed partly by grounds, and partly by a pest management contractors. The university issues a central contract for pest management services. Animal pest control is provided by the university contractor and plant pest control is provided by the Facilities Management Ground unit. Grounds staff will also manage wasp nests should they present at 12 feet or below in the tree canopy along pedestrian paths.

Departments who utilize the university pest management contractor will be made aware of this plan and provided a copy. Departments will be responsible for providing oversight to guarantee that the contractor is complying with this plan. In particular, when pesticides are applied the contractor will detail the steps taken along integrated pest management hierarchy and include the rational for why a chemical intervention was implemented by way of written feedback to the University.

Wildlife control that occurs on campus, for animals such as Raccoons, is provided by a contractor who is licensed to trap animals. Poisoning animals covered under the BC Wildlife Act is illegal. No chemical interventions that harm wildlife have been or will be used to control wildlife on campus. The contractor dealing with wildlife issues is required to provide written feedback to the University and, if applicable, that feedback will be made available to the department that requested the wildlife issue resolved.

Use of pesticides

UVic is licensed for non-service pesticide use, which is subject to periodic renewal. The license is held under a specific person's name. Pesticide applicators at UVic must be certified by the Province of British Columbia. In the event that the use of pesticides (including excluded pesticides) are determined to be necessary, pesticide user license holders will:

- Take precautions to prevent unprotected human exposure to pesticides,
- Maintain a 30 m no treatment zone around wells,
- Prevent release of pesticide spray or runoff into natural water bodies or onto an adjacent owner's land,
- Limit foliar spraying to periods when wind speed is less than 8 km/hour,
- Maintain a 10 m "pesticide-free zone" around bodies of water, dry streams and classified wetlands as specified, including a no treatment zone sufficient to ensure maintenance of the pesticide free zone,

- Record the treatment location, the day of use, the pesticide used (trade name), and the rational for the pesticides use in the log book using the form found in appendix 4, and
- Ensure that the deployment of rodenticide bait occurs in rigid walled containers that are fastened down, properly labeled "poison" with the symbol for poison, and that the bait contains a bittering agent when it is deployed in an area potentially used by children.
- Prepare a special Pest Management Plan and guarantee a pesticide use notice confirmation is receive by the university from the Ministry of Environment before any large-scale applications of pesticides are initiated (e.g. aerial spraying).
- Coordinate with University Food Services Associate Director/Executive Chef when pesticide applications occur within a food outlet specified areas (see appendix 2) to safeguard food from contamination.

Treatment notification:

When non-excluded pesticides are applied, notifications may be required. Notification of the Residence Facilities Associate Director and residence is required 72 hours in advance of pesticides applications in living areas, and 48 hours in advance of applications to outdoor common areas associated with residences. In the case of bed bugs, Residence Services policy requires student to vacate their room within 24 hours notice to allow for treatment to occur, which enables faster resolution of the pest issue.

Notification of the public is required immediately before applications to public areas that are maintained for public passage or recreation. Written notice to the University Food Services Associate Director/Executive Chef, or the Vikes Athletics Associate Director, Finance & Operation is required at least 48 hours prior to an application in their areas as identified in appendix 2. Pesticide applications in or around the UVic Child Care facility require special notification; the Manager of UVic Child Care Services must be provided notification at least 72 hours prior to any application. Advance notification may be waved if all parties directly involved agree to a faster treatment schedule.

The notifications posted outdoors are required to be posted at each gate or opening that provides access to a fenced area and at intervals around or along the area as necessary so that a notice is clearly visible and will provide notice of the pesticide use to any person approaching an unfenced area. Similarly, notifications for indoors applications will be posted at the entrance of the treated area. Notification will remain for at least 48 hours after the application occurs. Notifications must contain the following information:

- The description of the treatment area,
- The name of the targeted pest,
- The registration number under the federal Act of the pesticide to be used and its active ingredient,
- Proposed date and start time of the pesticide use and proposed alternate dates and times of the pesticide use,
- Name of licensee and licence number,
- A phone number at which the licensee or an employee can be reached for more information about the proposed pesticide use,
- Precautions that should be taken to minimize exposure to a pesticide or its residues, including, without limiting this, specifying the period following the use during which people should not enter the treatment area,

- Contain a cautionary symbol, like a stop sign or a raised hand, that will draw the attention of a person approaching the treatment area,
- Display, in bold, block letters, the words "NOTICE OF PESTICIDE USE" or, in place of the word "pesticide", the word "insecticide", herbicide" or another category of pesticide, and
- If fruit-bearing trees or other food crops are treated, the number of days before food can be harvested safely.

If notifications are posted in an outdoor area, they must be at least 550 cm2 in size and if posted in an indoor area, be at least 200 cm2 in size. If the notice may be exposed to water, the notification should e constructed of water resistant material.

Treatment notifications are not required if:

- An insecticide applied in cracks and crevices,
- An insect gel, or insect gel bait in a bait station, that is placed in a concealed location not accessible to children or pets,
- An insecticide applied to a wasp nest that is outdoors, or is indoors and no person will have access to the treatment area within the 48 hour period after the use,
- A rodenticide and is used in accordance with requirements under the Regulation,
- A herbicide and is used to manage weeds along fences or in cracks in the pavement on roads, in sidewalks or in parking lots,
- A granular pesticide used in flower, vegetable or shrub beds and mixed into soil, or
- A bacterial pesticide applied to water.

Pesticide containment

Storage and transportation of pesticides

All pesticides will be handled, stored, or transported on university property in their original containers with the manufacturer's labels intact and in a way that prevents discharge, or unauthorized removal the chemical. Pesticides are also stored, handled, or transported on university property in a way that prevents contamination of food or drinks intended for human or animal consumption.

Pesticides are stored in a facility in the Saunders Complex that is:

- Ventilated so that pesticide vapours are vented to the outside,
- Not used for the storage of food intended for human or animal consumption,
- Locked when unattended,
- Accessible only to authorized personnel,
- Clearly signed with the following words "WARNING: CHEMICAL STORAGE — AUTHORIZED PERSONS ONLY" written in block letters, and
- Equipped with an appropriate spill kit which should contain:
    - Personal protective equipment (e.g. unlined gloves, rubber boots, a respirator, protective Eyewear, disposable coveralls),
    - Dry absorbent material such as sawdust, vermiculite, dry coarse clay, kitty litter, commercial Absorbent, newspapers or paper towels,
    - Lime, chlorine bleach or washing soda to decontaminate spill areas,
    - Broom and scoop or shovel to pick up the contaminated material,

- A container with lid (i.e. 20 L pail or heavy duty garbage bag) to put the contaminated waste in. This container can also be used to store contents of the spill kit,
- A felt pen to write the name of the spilled pesticide on the container,
- A list of emergency phone numbers

Disposal

Disposal of unused pesticides will be handled according to the BC Hazardous Waste Regulations, and university standard procedure. This includes requesting hazardous waste pickup from UVic Occupational Health, Safety and Environment. Contact 250.853.3915 for more information.

Reporting

The university submits an annual report of pesticide use to the Ministry of Environment by January 31st each year. This report must include:

- The name and address of the licensee and their license number,
- Trade name, registration number under the federal Act, active ingredient and amount of product used during the previous year in kilograms, and
- Target organism – what was being treated
- Total area treated.

The university Grounds and Environmental Services Manager is responsible for the completion of this report, the template for which can be found on the Provincial Pesticide and Pest Management website at the following link location as of November 21, 2017: https://www2.gov.bc.ca/assets/gov/environment/pesticides-and-pest-management/pesticide-use/forms/annreportlicenceholder_fill.pdf

Appendix 1: List of pests

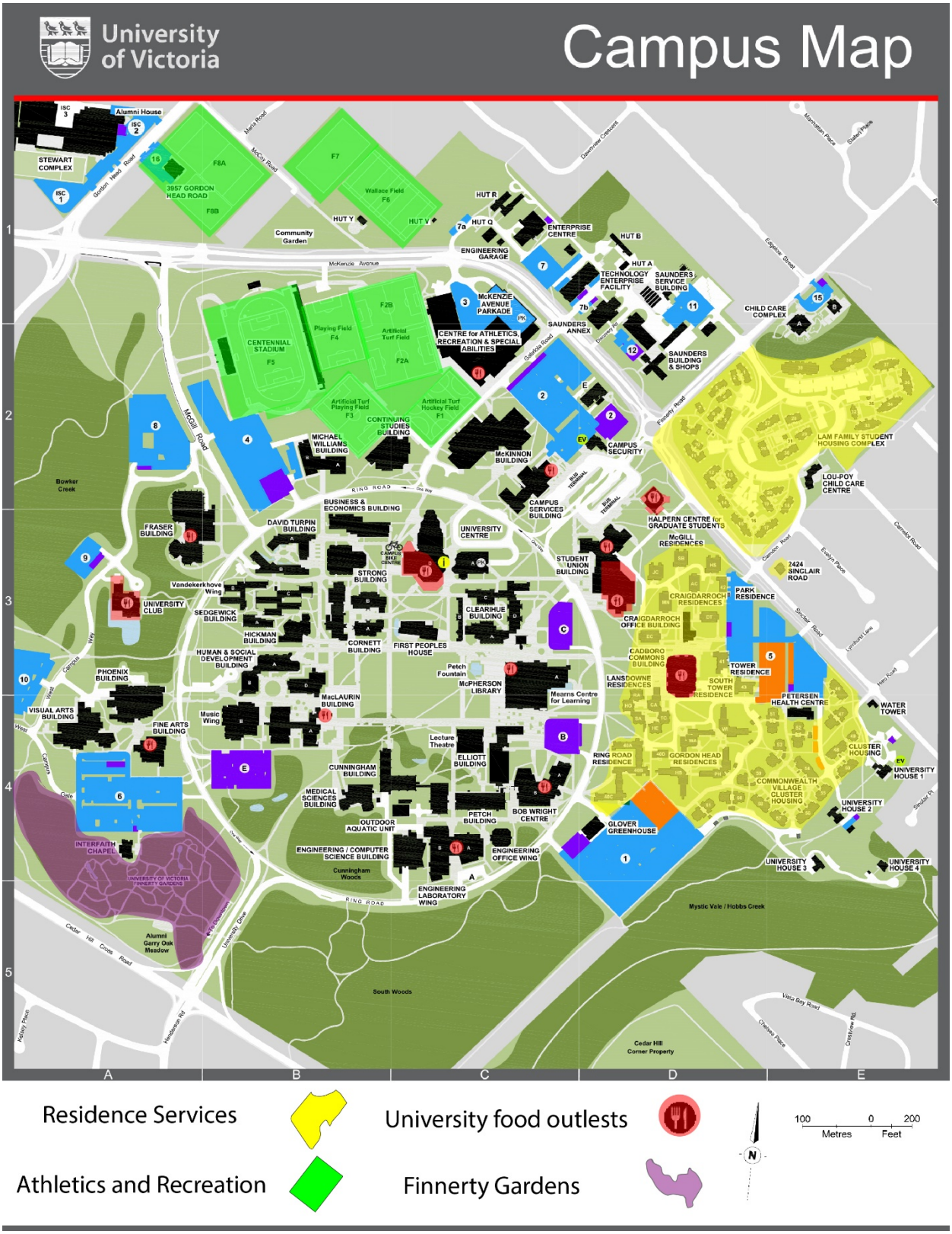
This list of pest expresses the preferred tolerance levels for pest species which could potentially require a chemical intervention to reduce their population levels. It is acknowledged that at the time of this plans creation, pest populations of many invasive species and some Weed Control Act designated species, pest levels exceed tolerance levels and have for many years. It is also acknowledged that deer, raccoons, and geese are consider pests on campus. However, those species are governed by the Wildlife Act and subject to a different set of regulations.

a. Plant Pest
    i. Celandine (Chelidonium majus): Celandine is an aggressive invasive, and considered a pest across campus. Tolerances are low across campus.
    ii. Clover (various species): There is a low tolerance for clover in Field 5, and a medium tolerance on Fields 8, 7, 6, 4.
    iii. Dandelion (various species): There is a zero tolerance for dandelion species in Field 5 and Field 1. There is a low tolerance for dandelion species in Finnerty Gardens and a medium tolerance on Fields 8, 7, 6, 4. Elsewhere on campus the tolerance is high.
    iv. Daphne laurel (Daphne laureola): There is a zero tolerance for Daphne in proximity to hiking trails and other pedestrian areas and in wooded areas on campus.
    v. Grasses (various species): There is a zero tolerance for grasses on artificial turf fields . In most other areas on campus grasses are not considered a pest.
    vi. Plantain (Plantago major): There is a zero tolerance for plantain in Field 5 and Field 1. In other areas of campus there is a medium tolerance for plantain.
    vii. Major Invasive species: The list below includes the major invasives, for which there is a low tolerance in the wooded and naturalized areas at UVic. It is, however, an acknowledged goal of the university to improve biodiversity on campus by removing these species through environmental restoration in those areas. A comprehensive list of invasives can be found in the 2017 Invasive Species Management Plan.
        1. English ivy (Hedera helix)
        2. English holly (Ilex aquifolium)
        3. Himalayan blackberry (Rubus armeniacus)
        4. Scotch broom (Cytisus scoparius)
        5. Grasses (various species)
    viii. Weed Control Act designated species: There is a low tolerance for these species on campus.
b. Animal pests
    i. Mice (Mus musculus): There is zero tolerance for mice in campus buildings. There is a medium tolerance for mice in the general campus environment.
    ii. Rats (Rattus norvegicus): There is zero tolerance for rats in campus buildings. There is a low tolerance for rats across campus.
    iii. Wasps (Vespula vulgaris and Vespula germanica): Tolerance levels for wasps are set in relation to their nests. There is a zero tolerance for wasps nests in campus

building walls, interiors and when Grounds Staff assessment have deemed that a nest location as a danger to the employees and or the public.

iv. Bees (various species): Tolerance levels for bees are set in relation to their nests. There is a zero tolerance for bee nests in campus building interiors and walls. There is a zero tolerance for bee nests in proximity to the dwelling of a resident of UVic housing who is known to be allergic to bees.
v. Bed Bugs (cimex lectularius): There is a zero tolerance for bed bugs on campus.
vi. Ants (various species): There is a zero tolerance for ants inside campus buildings. Elsewhere on campus, ants are not considered pests.
vii. Earwigs (Forficula auricularia): there is a medium tolerance for earwigs in the residence area.
viii. Silverfish (Lepisma saccharina): There is a low tolerance for silverfish across campus.

Appendix 2: Map of Pest Management Areas



Appendix 3: Schedule 5 Pesticides

A licence is required for applications of the following pesticides on UVic Property but reporting pesticide use is not required.

1. *Bacillus sphaericus*, also referred to as Bs (DOMESTIC)
2. *Bacillus subtilis* (DOMESTIC)
3. *Bacillus thuringiensis* var. *israelensis*, also referred to as Bti (DOMESTIC)
4. *Bacillus thuringiensis* var. *kurstaki*, also referred to as Btk (DOMESTIC)
5. citric acid (DOMESTIC)
6. copper (oxychloride and tribasic only) (DOMESTIC)
7. FeHEDTA (DOMESTIC)
8. ferric sodium (DOMESTIC)
9. garlic (DOMESTIC)
10. lactic acid (DOMESTIC)
11. *Phoma macrostoma* (DOMESTIC)
12. pyriproxyfen (DOMESTIC)
13. *Sclerotinia minor* (DOMESTIC)
14. sodium chloride (DOMESTIC)
15. spinosad (DOMESTIC)

Appendix 4: Pesticide Use Record found at:

http://www2.gov.bc.ca/gov/content/environment/pesticides-pest-management/business-industry/recordkeeping-reporting

BRITISH COLUMBIA | Ministry of Environment

Pesticide Use Record For The Year 20 ☐

Abbreviations or codes may be used to complete this record if a key to the abbreviations and codes is attached to this form.

Authorization Holder Name[1]

Authorization Number [2]

Client Name (if client holds an authorization)[3]

Client Authorization Number (if applicable)[3]

Applicator Name

Applicator Certificate Number

Pesticide Use Details

Date (mm/dd) | Start Time | Name[4]

Address[4]

Treatment Location (Address and/or Description)[5]

Target Pest or Purpose of Treatment

Pesticide Brand Name | PCP Number | Application Rate

Quantity of Pesticide Used | Application Method

Precaution Advice Given[7]

Monitoring Method | Injury Threshold

Precipitation[6] | Wind Speed[6] | Wind Direction[6] | Temperature[6]

Add Page | Delete Page

[1] Name of Licence, Permit or PUN Confirmation holder
[2] Licence, Permit or PUN Confirmation number
[3] Complete if pesticide application is performed for a Licence, Permit or PUN Confirmation Holder. Use separate pages to record information for each different Licence, Permit or PUN Confirmation holder.
[4] Client Name and Address if pesticide is applied as a service, otherwise Property Manager Name and Address
[5] Include enough information to ensure that a person can determine exactly what was treated.
[6] Record if pesticide application is outdoors.
[7] Safe re-entry time, days to harvest and other advice given

Print Form | Reset Form

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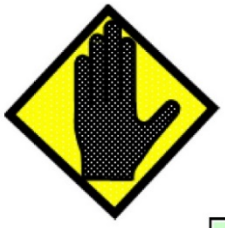
Appendix 5: Pesticide Treatment Notification found at:

https://www2.gov.bc.ca/assets/gov/environment/pesticides-and-pest-management/pesticide-use/forms/treatment_notice.pdf



NOTICE OF PESTICIDE USE

Hold your mouse over fields for information on how to complete them.

Treatment Area: _____

_____

_____

Pest(s) To Be Controlled: _____

Pesticide Active Ingredient(s) & Registration Number(s) (PCP): _____ , _____

_____ , _____

_____ , _____

Start Time and Date of Pesticide Application: _____ _____ _____

H:MM

Alternate Start Time and Date:

Licensee Name: _____

Licence Number: _____

Telephone Number: _____

Precautions to Minimize Exposure to Pesticides:

Do not enter the treated area before: _____

_____

_____

_____

_____

Do not remove this sign before _____

For emergency medical information contact:
B.C. Drug and Poison Information Centre 1-800-567-8911 or 604-682-5050

Print Form