Canadian Grapevine Certification Network

CGCN-RCCV

Réseau Canadien de Certification de la Vigne

# CGCN-RCCV CERTIFICATION PROGRAM, OPTION 1 PROTOCOLS

CANADIAN GRAPEVINE CERTIFICATION NETWORK
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VERSION CODE: 1.3 (amended June 29th, 2021)

TITLE: CGCN-RCCV Certification Program, Option 1 protocols

SUBJECT: This program contains the requirements for the production of *Vitis* spp. nursery stock (grapevines) for domestic use, including ornamental species. This program uses a systems approach in order to produce virus tested grapevines.

**Updates**
The Program will be amended from time to time as new knowledge emerges, and the most recent version will be published on the CGCN-RCCV website, www.cgcn-rccv.ca. Users should ensure that they are referring to the most recent version.

**Disclaimer**
While this Program's objective is to allow verification of plant material that has been produced under a system which aims to minimize the risk of infection being present in grapevines, there remains the possibility that a proportion of plants may contain viruses. CGCN-RCCV accepts no liability for claims regarding virus being present in any plants produced under this program.

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**Review**
This directive will be reviewed by the CGCN-RCCV Board of Directors every five years unless otherwise needed. For further information or clarification, please contact the CGCN-RCCV.

Endorsement

Approved by:

Hans Buchler, Chair, CGCN-RCCV

Date: March 8th, 2021

## Introduction

The propagation and shipment of grapevines is considered to be a high-risk pathway for the movement of plant pests. Viruses and virus-like organisms are very common in the production of grapevines. While some viruses are known to have a minor effect on infected grapevines, other viruses can cause very serious diseases and can lead to major crop losses (e.g. Grapevine leafroll disease). Grapevines that have been infected by viruses, and most other virus-like organisms, cannot currently be cured. The only way to remove a virus from a vineyard or a block of nursery grapevines is by destroying the infected host plants and by replanting clean grapevines free of viruses listed in Appendix 5. A virus certification program, like the one described in this document, is based on the propagation of grapevines using nuclear material (called Generation 1 (G1) in this document). The virus certification program described in this document uses a systems approach in order to produce virus tested grapevines. Various independent components such as virus-testing, field inspection, isolation distances, and vector control, all work together to minimize the presence and the spread of viruses.

The CGCN-RCCV Certification Program is an audit-based program which uses testing and integrated pest risk management measures as the basis for the phytosanitary certification of grapevines. The CGCN-RCCV Certification Program is designed to suit the domestic need largely based on the current CFIA export directive.

## Scope

This program is for the use of Canadian grapevine nurseries and breeders wishing to participate in the CGCN-RCCV Certification Program and for CGCN-RCCV staff involved in compliance with this program.

## Definitions

Buffer zone: An area free of grapevines, measured from the drip line of the grape canopy to the drip line of the adjacent crop. The drip line is the outermost portion of a canopy from which water would drip to ground.

Grapevine(s): Vines, cuttings, grafts, scions, buds, rootstock and other plants and plant products of grapevine for vegetative propagation.

Nursery: Facility that produces nursery stock.

Option 1: A certification system and process starting from G1 (Generation one) tested plant material.

> Certified Plus: The Certification mark or label identifying grapevines certified under Option 1.

Option 2: A certification system and process based on testing grapevines used for propagation for pathogens listed in Appendix 5.

> Certified: The Certification mark or label identifying grapevines certified under

Option 2.

Pest or pest organism: Anything that is injurious or potentially injurious, whether directly or indirectly, to plants or to products or by-products of plants, and includes any plant prescribed as a pest, pathogens, vectors insects or others

Pest control manager: A qualified person employed by an approved facility and given overall responsibility and authority for implementing the requirements of a specified program.

Pest management plan: A written description of procedures or processes designed to control, suppress, or eradicate pest populations to meet prescribed phytosanitary standards.

Tested: Having been subjected to an official examination, other than visual, to determine the presence or absence of a pest.

Vector: an organism, that transmits a disease or parasite from one plant to another.

Virus: Virus and virus-like pathogens including phytoplasmas, viroids, and graft-transmissible agents.

Virus-certified stock: Plants for planting and propagation produced under an official virus testing and certification program.

## 1.0 General requirements

To be involved in this program a nursery must be located in Canada and produce propagative grapevines, either own rooted or grafted. Nurseries must have the means to keep adequate records and adhere to outlined protocols.

## 1.1 Fees

The CGCN-RCCV is charging fees in accordance with the CGCN-RCCV Fee Schedule (Appendix 4). For more information regarding fees associated with this program, contact the CGCN-RCCV.

## 1.2 Pests regulated under the CGCN-RCCV CERTIFICATION PROGRAM

Movement of propagated grapevine planting material is a pathway for the spread of a number of serious pests; therefore, plants produced under the CGCN-RCCV Certification Program must originate from mother plants that have been tested by the Canadian Food Inspection Agency (CFIA), or other facilities approved in writing by the CFIA, and found to be free from viruses and virus-like pathogens of concern. A list of grapevine pathogens or viruses that are covered under this program can be found in Appendix 5. Virus testing methods used are based on tests reported in the scientific literature. Reference Appendix 5 for a list of virus-testing methods currently authorized and viruses of concern.

## 1.3 Regulated commodities

All propagative plant parts other than seed of the genera *Vitis* spp. intended for propagation and distribution for domestic use.

## 2.0 Specific requirements

Facilities intending to participate in the CGCN-RCCV Certification Program must submit a complete application package to the CGCN-RCCV by March 31st of the calendar year prior to planting. In subsequent years, a participant in good standing is required to renew their participation in the program by March 31st of the calendar year. If the participant withdraws, or is removed from the program, another application will be required for re-entry into the program.

## 2.1 Participation in the program

To become an approved facility, the facility must:

- Complete and sign an Application for authorization under the CGCN-RCCV Certification Program for *Vitis* spp. nursery stock (see Appendix 1) indicating that the applicant is willing and able to comply with the terms and conditions of the CGCN-RCCV Certification Program;

- Develop a written Preventative Control Plan (PCP) (please see Appendix 2 for a checklist of items that must be included in the PCP), that clearly describes the procedures or processes designed to control a pest population to a level that meets the requirements of this program. The plan for the facility must include an internal system to verify compliance with the PCP;

- Designate a qualified individual to be the Pest Control Manager (PCM). The PCM is vested with the authority and responsibility to develop and implement a quality management system that meets the requirements of the CGCN-RCCV Certification Program. The PCM may designate qualified personnel or contractors to assist in developing and implementing different components of the quality management system such as: pest management, record keeping and administration;

- Develop a quality management system to meet the administrative, plant identification, and record-keeping requirements of the CGCN-RCCV Certification Program as described in this program;

- Complete a facility inventory declaration that includes the varieties/clones and rootstocks to be planted, their origin, the class of plantings, the total area to be planted, the field/block history for the past two years and the location of the fields/blocks to be planted, Universal Transverse Mercator grid reference (system of numerical coordinates to identify any point on the earth's surface) where available range road or lot and concession number, etc. as appropriate. Please see Appendix 3 for the Facility Inventory Declaration.

- Prepare a clear and detailed map of the facility indicating anticipated cultivar locations;

- Submit the completed signed application form and a copy of the facility's PCP to the CGCN-RCCV; and

- Successfully complete a facility evaluation by a CGCN-RCCV authorized auditor (see Appendix 2 for a facility evaluation checklist).

Once a facility is approved under the CGCN-RCCV Certification Program, it will be assigned a unique registration number. The facility will be listed in a central public registry on the CGCN-RCCV website.

### 2.1.1 Transition from the CFIA Plant Protection Export Certification Program for Grapevine Nursery Stock, *Vitis* spp. to the CGCN-RCCV Certification Program

Facilities currently certified under the Canadian Food Inspection Agency (CFIA) regulatory directive D-97-06: Plant Protection Export Certification Program for Grapevine Nursery Stock, *Vitis* spp. wishing to be certified under the CGCN-RCCV CERTIFICATION PROGRAM must sign and submit the application in Appendix 1to the CGCN-RCCV office.

### 2.1.2 Registration transfer to a new owner

Facilities that are approved under the CGCN-RCCV Certification Program and have been transferred to a new owner must re-apply for participation within the program.

## 2.2 Certification levels

All propagative material produced under this program must be derived from Generation 1 (G1) virus-tested stock grown under conditions that mitigate the risk of reinfection. Generation 1 level material is produced at the CFIA, Sidney Laboratory in North Saanich, BC or other facilities approved in writing by the CGCN-RCCV. The accession numbers relating to the single grapevine source at the Sidney Laboratory or other approved facilities must be retained for tracking purposes. At each stage of propagation, progeny plants drop to a lower certification level.

The four certification levels are:

### 2.2.1 Generation 1 (G1) - synonym: Nuclear stock (Canada), Foundation (U.S.)

Original mother plants tested for the viruses of concern by the CFIA Sidney Laboratory or a facility approved by the CFIA. The tests are done according to internationally accepted standards, and the plants are maintained in isolation. Example: by tissue culture or in a sealed screen house (requirements available upon request) or other secure structure approved in writing by the CGCN-RCCV or in an isolated field block and grown in accordance with the requirements of this program.
This material must continue to be monitored for symptoms of viruses and tested as required by the CFIA and CGCN-RCCV.

### 2.2.2 Generation 1A (G1A) - synonym: Pre-elite

Material propagated from G1 mother plants and maintained in a fashion to mitigate the risk of re-infection or contamination (i.e. Maintained as tissue culture or in a CGCN-RCCV approved controlled environment such as a screen house, or some other secure structure approved in writing by the CGCN-RCCV and grown in accordance with the requirements outlined in this program).

### 2.2.3 Generation 2 (G2) - synonyms: Elite (Canada), Primary increase block (U.S.)

Material must be propagated from G1 or G1A mother plants and grown in accordance with the requirements in this program.

### 2.2.4 Generation 3 (G3) - synonyms: Foundation (Canada), Secondary increase block (U.S.)

Material must be propagated from G1, G1A or G2 mother plants, grown in accordance with the requirements in this program.

### 2.2.5 Generation 4 (G4) - synonyms: Certified (Canada), Nursery block (U.S.)

Material must be propagated from G1, G1A, G2 or G3 mother plants, grown in accordance with this program. This is material most often grown for retail sale, i.e. wholesale and retail nurseries.

## 2.3 General production requirements

### 2.3.1 Planting sites

All planting sites, regardless of the level of certification, must be clean cultivated or planted with an approved cover crop as outlined in Appendix 9.

Planting sites should be selected to minimize contamination by virus-vectoring nematodes from surrounding land, through drainage, flooding, irrigation, or other means. Section 2.4 of this program outlines the buffer zone requirements in relation to plantings.

Material that is not regulated under the CGCN-RCCV Certification Program but that may be a host of the pests regulated under the CGCN-RCCV Certification Program should be located as far as possible from plantings of CGCN-RCCV Certification Program approved material. Minimum distances are described in section 2.4.

Expansion of blocks at planting sites is possible upon request. All of the requirements necessary for authorizing a new block must be met. The expanded block must be contiguous with the original block. Unless it is growing in the same block as the variety that is being expanded, rootstock and scion wood used in the expansion must originate from the CGCN-RCCV Certification Program approved material that was produced in the previous generation. For example, expansion of a G3 block requires the use of rootstock and scion wood produced at a G2 level in a different block, e.g. G2

mother blocks. Sampling and virus testing of the expanded section of the block must be conducted on the same schedule as the original part of the block.

For information regarding the detection of a quarantine pest in relation to planting sites, please see section 2.8.1 of this document.

### 2.3.2 Pest management

Regular treatment schedules, or other pest management strategies, must comply with provincial recommendations and treatments must be applied to control potential virus vectors, e.g. mealy bugs, scale, aphids, mites, treehoppers, leafhoppers, etc. Records of spraying, surveying or other pest management actions must be maintained and made available to the CGCN-RCCV inspector on request. Treatment and control of known and suspected vectors of grapevine viruses is critical for the maintenance of virus-free status and should be practiced on both the certified area and the surrounding grape plantings if the area is maintained by the operator.

### 2.3.3 Nematode testing

Prior to approval of a new facility, all planting sites, including the buffer zones, should be sampled and found free of *Xiphinema* and *Longidorus* nematodes capable of transmitting nepoviruses, or fumigated in a manner that has been approved by the CGCN-RCCV. If the CGCN-RCCV inspector is not present at the time of fumigation, a certificate of application from a registered fumigation applicator must be retained by the grower as proof of treatment for CGCN-RCCV reference.

Soil sampling must be conducted by a CGCN-RCCV approved person and, any analysis of soil samples for virus-vectoring nematodes must be carried out by a laboratory authorized (Appendix 8) by the CGCN-RCCV.

#### 2.3.3.1 New planting sites

New planting sites for all certification levels should be either fumigated or inspected under the supervision by CGCN-RCCV and soil samples should be collected and analyzed for the presence of virus vectoring nematodes prior to planting according to the requirements applicable to the appropriate certification level. Registration may be granted only after this has been completed and approved. The presence of nematodes will not disqualify a planting site, but will serve as an indicator of the potential for nepovirus contamination. The grower should be aware that the presence of nepovirus vectors increases the risk of nepovirus contamination and the subsequent loss of certification status should the grapevines be found infected by re-testing.

#### 2.3.3.2 Established CGCN-RCCV Certification Program blocks

If blocks are initially fumigated or tested and found free of virus-vectoring nematodes, follow-up nematode testing of established blocks will be at five (5) year intervals or as determined by the CGCN-RCCV.

### 2.3.4 Virus testing

If blocks are initially fumigated or tested and found free of virus-vectoring nematodes, follow-up nepovirus testing is not required unless subsequent soil sampling reveals the presence of virus vectoring nematodes. If the presence of virus vectoring nematodes is determined, the grapevines must be sampled and analyzed for nepoviruses at least once every three (3) years except for G4 material.

### 2.3.5 Sanitation and cultural practices

Operators must take steps to ensure that tractors and other equipment used in the CGCN-RCCV Certification Program approved block are free of soil and other matter potentially harbouring vectors prior to entering the block. Suitable precautions must be taken to prevent the introduction of pathogen virus-vectoring nematodes, which may be associated with soil and could be moved into the CGCN-RCCV Certification Program blocks with cultivation or spray equipment. Records of equipment cleaning must be maintained and made available upon request.

Production maintenance activities must be planned so that workers start with the highest certification level block and proceed downwards through the lower levels, e.g. G2 to G3 to G4 to non-CGCN-RCCV Certification Program plants in order to minimize the movement of potentially virus infected, nematodes, mealybug and scale insect populations from lower level blocks with less stringent isolation and control measures to higher level blocks.

### 2.3.6 Block/field monitoring

The PCM must monitor the approved block for visual symptoms of viruses and other diseases at least once a month during the growing season. Records of these inspections must be kept, including the name of the person who performed them, the dates inspected, area monitored and the results of the monitoring. If signs or symptoms of a virus or other pests of significance are found during these visual inspections, the CGCN-RCCV must be contacted immediately for further testing and confirmation.

### 2.3.7 Identifying marks

The CGCN-RCCV and the facility PCM must agree upon appropriate labels for the facility. The labels must be weather resistant and must distinguish material grown under the CGCN-RCCV Certification Program from other types of material. The PCM must notify the CGCN-RCCV in advance if the facility wishes to modify the labelling system.

### 2.3.7.1 Grapevines planted in the ground

In a row of grapevines in which every plant consists of the same cultivar/rootstock combination, the grapevines at both ends of the row must be labelled to identify the cultivar/rootstock combination of that row. When more than one combination is planted in a row, each cultivar/rootstock combination must be clearly labelled within the row.

### 2.3.7.2 Grapevines in pots or pot-in-pot systems (containerized material)

Each potted grapevine or container must be clearly identified to reflect its certified status and the cultivar/rootstock combination. A typical weather-resistant label attached directly to the grapevine and bearing that information is recommended however any weather-resistant identification method (stickers, paint, pot colour, rubber tape, etc) approved by CGCN-RCCV may be used. If another identification method other than labels is used then the facility's records must include the required information and link it to the chosen identification method.

### 2.3.7.3 Harvested stock

Harvests of individual grapevines, bundles or crates must be labelled and processed in separate facilities or on separate days from material not in the CGCN-RCCV Certification Program. If processing happens in the same facility where non-certified material is handled, the facility needs to be thoroughly cleaned and any non-certified propagating material has to be removed from the premises in order to avoid any accidental co-mingling of product. A record of the cleaning procedure must be kept.

## 2.4 Specific production requirements

### 2.4.1 G2 and G3 requirements

Re-grafting (repeating a graft or bud that has failed on a rootstock or young grapevine) or top working (the process of converting an established grapevine to a new variety by grafting multiple scions /buds onto the main scaffold limbs of the grapevine) of plants in G2 and G3 mother blocks is only permitted when the propagative material being used is from a higher certification level.

G2 and G3 blocks cannot be established on land on which non-certified grapevines have been grown within the last 10 years, non-certified fruit trees within the last two years, and other Rosaceous plants not tested within the last two years for nepoviruses of grapevines known to occur in Canada. Documented proof or an affidavit should be provided to the CGCN-RCCV inspector prior to the block assessment.

### 2.4.1.1 Buffer zone

Buffer zones are necessary to reduce the chance of infection by naturally transmitted viruses. G2 and G3 blocks must be separated from other non-certified material by a minimum of 6 metres from the drip line of the canopy on all sides. The buffer zones must be clean cultivated or planted with an
approved cover crop or the buffer zone may be planted with virus tested Rosaceae or *Vitis* spp. plants. For more information on cover crops, please reference Appendix 9.

### 2.4.1.2 Virus testing

If blocks are initially fumigated or tested and found free of virus-vectoring nematodes, follow-up nepovirus testing is not required unless subsequent soil sampling reveals the presence of virus vectoring nematodes. If the presence of virus vectoring nematodes is determined, the grapevines must be sampled and analyzed for nepoviruses at least once

every three (3) years except for G4 material.

### 2.4.2 G4 requirements

Planting sites on which grapevines or other Rosaceae originating outside this certification program, or grapevines were previously grown, cannot be used for planting G4 blocks for two years after removal of these crops. Alternatively, these plants can be treated with a systemic herbicide, followed by removal of the treated host plants. This must be followed by a fallow period of one growing season.

#### 2.4.2.1 Buffer zone

Approved planting sites must have a minimum of 4 metre buffer zone separating CGCN-RCCV Certification Program grapevines from grapevines not in the CGCN-RCCV Certification Program. The buffer zones must be clean cultivated or planted with an approved cover crop. Alternatively, the buffer zone may be planted with woody plants, such as conifers, that are not hosts to grapevine viruses or virus tested *Vitis* spp. or Rosaceae plants.

#### 2.4.2.2 Identifying Marks

G4 plants of the same rootstock/scion combination in nursery rows must be clearly labeled at the beginning and end of the rows. If more than one rootstock/scion combination is planted in a row, they must be separated by a one metre gap and clearly labeled at the beginning and end of each combination.

#### 2.4.2.3 Virus testing

Follow-up virus testing of G4 material is not required except when virus-like symptoms are detected during inspection.

### 2.4.3 Specific requirements for the production of containerized grapevines

Containerized grapevines must meet all the requirements of this program as outlined in this document, and the specific containerized requirements outlined below must also be followed.

#### 2.4.3.1 Soil and growing media

#### 2.4.3.1.1 Soil-free growing media

The growing media to be used in containers must consist of soil-free material, including but not limited to: expanded or baked clay pellets; ground coconut husks, coffee hulls, cocoa pods or rice husks; peat; perlite, pumice, sawdust, sphagnum, vermiculite or bark. The components of the growing media must not have been previously used for growing plants or for other agricultural purposes. The components of the growing media must be mixed and maintained under conditions which preclude soil contamination or contamination by water runoff. At the inspector's discretion, samples of the media may be taken to verify the absence of soil and/or nematodes. The above list of growing media is not exhaustive. Other growing

media may be used if approved by the CGCN-RCCV.

#### 2.4.3.1.2 Soil

Soil may be used for containerized plants but the soil shall be tested and found free of *Xiphinema* and *Longidorus* nematodes capable of transmitting nepoviruses, or fumigated prior to planting. Other treatments may also be used if approved by CGCN-RCCV. The soil must also be sieved to remove any significant root debris. Note: Further restrictions for other soil pests (ex.: Japanese Beetle or Grape Phylloxera in regulated areas) may apply regarding the use of soil for containerized plants, for domestic movement.

#### 2.4.3.1.3 Barriers to prevent soil contamination

For containerized plants grown in nursery blocks, the containers must be set on a barrier which prevents direct soil contact, such as plastic, hard packed clay, pavement, or a minimum of five centimeters of coarse gravel. The site must be located to preclude soil contamination, either directly or through water runoff from drainage, flooding, irrigation or other means eg. raised, or protected by dams or drainage ditches.

#### 2.4.3.1.4 Buffer zones

Buffer zones are not required for containerized grapevines.

### 2.5 Record keeping requirements

A participating facility must maintain records on its premises. All records must be maintained and retained in a manner so as to prevent accidental loss. These records must be kept on site for seven years and made available to CGCN-RCCV staff upon request. Failure to produce these records in a timely manner may jeopardize certification status. These records include:

- Records indicating the quantity, Latin (botanical) name, variety /clone, rootstock, origin, date of introduction of grapevine stock to the facility, date of propagation, field, nursery row planting and accession number. These records must be kept at the nursery for seven years after the grapevines have been sold or removed. The use of Appendix 3, facility inventory declaration, for these records is suggested. Growers inventory records can be used instead of Appendix 3 provided they contain the same information. Records must be updated to include material planted since the last systems audit inspection;

- the facility inventory declaration must be updated whenever new material is planted or new blocks are established;

- records of sale or plant movement, invoices. The records must list all grapevines (grafted or own rooted) planted and sold under the CGCN-RCCV Certification Program;

- data collected from monitoring, control or eradication and surveillance activities;

- any cultural and treatment records including planting dates, spray records, cultivation, virus monitoring, bud collecting, grafting and regrafting, quantities, etc.; and,

- maps of the facility indicating planting blocks.

## 2.6 Required CGCN-RCCV inspections

The CGCN-RCCV will conduct one systems audit inspection per year and a minimum of one surveillance audit inspection during the production season at a time when disease expression can be observed in the plant material. Audit inspections will take place at a time agreed to by CGCN-RCCV and the approved facility. CGCN-RCCV reserves the right to hire an independent inspector to conduct one or both audit inspections. Facility management representation during the audit is recommended. All costs associated with performing the inspections (including travel) will be the responsibility of the inspected nursery.

The systems audit inspection is a review of the organizational structure, procedures, processes and resources used in implementing the CGCN-RCCV Certification Program in the designated facility. This inspection will assess all system elements of this policy using the checklists in Appendix 2 and may include a hands-on product and/or block/field inspection for viral symptoms or other regulated pests.
The surveillance audit inspection involves an inspection of the plant material, culture of plant material, and a review of documents in the facility to ensure that these conform to the requirements of the CGCN-RCCV Certification Program.

All G1A, G2, G3, and G4 blocks must be inspected by a CGCN-RCCV approved inspector at least once during each growing season, and at other times as deemed necessary by a person designated by the CGCN-RCCV to ensure that the program requirements are met. The inspection includes the stock, the land, and any associated documentation.

If it is suspected that material may be infested with a listed pest (refer to Appendix 5), samples of plant parts or the soil surrounding the plants may be taken and tested, at the facility's expense, in order to ensure that the approved block continues to meet the requirements of this program.

## 2.7 Testing

Any testing for viruses, virus-like diseases, phytoplasmas or viroids must be carried out by an approved lab in Appendix 8. All testing will be at the expense of the nursery facility.

## 2.8 Non-conformances

The CGCN-RCCV reserves the right to suspend a facility from the CGCN-RCCV Certification Program if any non-compliance is found that threatens the integrity of the program. Elements of the program of a non-critical nature which are evaluated as not in compliance during the facility surveillance or systems audit inspection must be corrected

within a timely fashion, as determined in consultation with an Approved Laboratory (Appendix 8). The PCM must attend the facility evaluation and annual systems audit inspection. The PCM is also responsible for ensuring appropriate corrective actions are undertaken.

If the CGCN-RCCV determines that a facility shall be suspended from the CGCN-RCCV Certification Program, the CGCN-RCCV must notify the facility, in writing, that it is no longer eligible to market plants under the CGCN-RCCV Certification Program. In addition, the facility must be informed in writing of the corrective actions required for compliance. Non-compliance with any requirements in this program may result in the cancellation or suspension of registered status of the block or facility until corrective action has been undertaken and approved by the CGCN-RCCV. If corrective action is feasible, and is undertaken within one growing season, registration of a block or facility may be reinstated. Any infected material and its progeny or parents will cease to be eligible for sale under this program until pest freedom can be re-established and confirmed.

If corrective action is not feasible or is not undertaken within the growing season, CGCN-RCCV Certification Program authorization of a block or facility will be cancelled and it will be prohibited from producing plants under the CGCN-RCCV Certification Program.

Appeal Process - CGCN-RCCV Board decisions/recommendations

If the CGCN-RCCV Board of Directors has granted a certificate of Certification on a conditional basis that the nursery disagrees with, the nursery has 30 days upon notice of conditions to appeal the decision. Throughout the whole appeal process, the nursery is always provided with the option of withdrawing from the CGCN-RCCV Certification program. If the nursery chooses to withdraw from the program, the nursery must provide CGCN-RCCV with a formal letter of notice.

Upon notice of rejection, the nursery can initiate an appeal process by submitting a formal appeal letter to the CGCN-RCCV Project Manager. The letter must provide justification for taking appeal action, explain why the nursery believes the decision of the CGCN-RCCV Board of Directors is wrong or unjust, and present a potential solution. Once the CGCN-RCCV Project Manger receives this letter, they will pass along the request to the CGCN-RCCV Board of Directors.

The appeal will be reviewed and managed by an ad hoc appeal committee agreed upon by the CGCN-RCCV Board of Directors and the nursery. The ad hoc appeal committee may be chaired by the CGCN-RCCV Vice-Chair or other Board representative; however, this Board member will not be given any vote within the appeal committee. The other 2-3 members of the appeal committee may not include members from the CGCN-RCCV Board of Directors. Upon review of the appeal, the appeal committee will work closely with the CGCN-RCCV Audit Committee (and CGCN-RCCV Approved Inspector, if needed) to either 1) agree with the appeal, 2) recommend alternate acceptable solution(s), or 3) reject the appeal all together.

Appeal Process Upon Rejection of Verification

If the CGCN-RCCV Board of Directors has voted against providing a nursery with a certificate of Certification, the nursery has 30 days upon notice of rejection to appeal that decision. Throughout the whole appeal process, the nursery is always provided with the option of withdrawing from the CGCN-RCCV Certification program. If the nursery chooses to withdraw from the program, the nursery must provide CGCN-RCCV with a formal letter of notice.

Upon notice of rejection, the nursery can initiate an appeal process by submitting a formal appeal letter to the CGCN-RCCV Project Manager. The letter must provide justification for taking appeal action, explain why the nursery believes the decision of the CGCN-RCCV Board of Directors is wrong or unjust, and present a potential solution. Once the CGCN-RCCV Project Manger receives this letter, they will pass along the request to the CGCN-RCCV Board of Directors.

The appeal will be reviewed and managed by an ad hoc appeal committee agreed upon by the CGCN-RCCV Board of Directors and the nursery. The ad hoc appeal committee may be chaired by the CGCN-RCCV Vice-Chair or other Board representative; however, this Board member will not be given any vote within the appeal committee. The other 2-3 members of the appeal committee may not include members from the CGCN-RCCV Board of Directors. Upon review of the appeal, the appeal committee will work closely with the CGCN-RCCV Audit Committee (and CGCN-RCCV Approved Inspector, if needed) to either 1) agree with the appeal, 2) recommend alternate acceptable solution(s), or 3) reject the appeal all together.

## 2.8.1 Detection of a quarantine pest

If a quarantine pest and/or disease to Canada is detected in an approved facility, the CFIA will be notified immediately by the CGCN-RCCV. Further action will be the responsibility of the CFIA. Depending on the severity of the pest infestation, the facility may be suspended from the CGCN-RCCV Certification Program.

## 2.8.2 Re-approval following suspension from the CGCN-RCCV CERTIFICATION PROGRAM, Option 1 protocols

When a facility wishes to re-register a block with lapsed registration, the CGCN-RCCV will evaluate the block on a case-by-case basis. The CGCN-RCCV will only re-register such a block if it is satisfied that the block meets the criteria for the requested level of authorization. Significant sampling and testing over a period of time may be required before the CGCN-RCCV is confident that the block meets the criteria.

## 2.9 Corrective measures

When appropriate corrective actions have been taken and the facility meets all the requirements of a facility evaluation and all other conditions of this program, the CGCN-RCCV may authorize reinstatement in the program.

## 3.0 Appendices

## Appendix 1: Application for authorization under the CGCN-RCCV Certification Program for grapevines

Name of facility:

_____

Location of facility:

_____

_____

Mailing address of facility (if different from location):

_____

_____

Telephone number: _____ Fax number: _____

Email Address: _____

Name, contact phone and email of owner/person having the possession, care or control of the facility:

_____

Name and contact phone and email of Pest Control Manager:

_____

Intended Canadian provinces for sales of produced grapevines:

_____

_____

I, _____ the owner/person in possession, care, or control of the above-named nursery have read and understood all the conditions and obligations stated herein by which I may sell grapevine nursery stock, *Vitis* spp., in accordance with the CGCN-RCCV CERTIFICATION PROGRAM.

I agree to immediately suspend shipment of regulated commodities if notified by the CGNC-RCCV that the designated facility is in non-compliance with the CGCN-RCCV CERTIFICATION PROGRAM. I will immediately notify the CGCN-RCCV if viruses or any other regulated pests are found in the facility. I will allow the name and location of my facility to be included on a publicly accessible website list of nurseries approved under the CGCN-RCCV CERTIFICATION PROGRAM.

Dated _____, 20__ at _____,

Province of_____

Applicant's Signature_____

Facility and Preventative Control Plan evaluation completed and facility recommended for participation by:

_____

Authorized CGCN-RCCV Official: _____Date:_____

Facility registration number: _____

Application approved by: _____

Authorized CGCN-RCCV Official Date: _____

## Appendix 2: Critical elements for the evaluation of the application, facility declaration and the facility preventative control plan.

ITEM CHECK

| ITEM | CHECK |
|---|---|
| 1. Has the facility developed and implemented a Preventative Control Plan (PCP) that meets the requirements of the CGCN-RCCV Certification Program. | |
| 2. Does the PCP describe, specify all details (when, where, by whom, how, what is done if pests are found) the procedures for: | |
| 2.1 examination of plant material entering an approved facility | |
| 2.2 examination of production areas (Is there a map of the facility provided in the PCP?) | |
| 2.3 examination of shipping areas | |
| 2.4 pest controls | |
| 2.5 handling, storage and delivery areas | |
| 2.6 ensuring that all pest finds are entered into a Pest Log and that the PCM and the CGCN-RCCV are notified immediately of any pest finds of significance. Refer to Appendix 5 | |
| 2.7 ensuring that the persons designated to carry out particular components of the PCP are qualified to do so. | |
| 3. Are the buffer zones owned or under appropriate management control by the applicant? Please provide detail. | |
| 4. Does the facility have a system in place to ensure that only eligible grapevines that comply with the requirements described in this program are marketed under the CGCN-RCCV Certification Program. | |
| 4.1 Clear separation in location or time of non-certified material processing. | |
| 5. Records management: | |
| 5.1 Are they kept for 7 years | |
| 5.2 Is there a responsible person named and contact information provided? | |
| 5.3 Do the records adequately record tracking of material on-site, how material is stored and propagated, records of propagation, procedures or instructions for working with certified material, organizational structure and responsibilities, corrective or preventive actions ordered, record of distribution, list of all suppliers providing plants and products including certification documentation, copies of Phytosanitary Certificates issued, data collected from monitoring, treatment, control or eradication and verification activities. | |

## Appendix 3: Facility inventory declaration – G1A, G2 and G3

Facility name: _____
Pest Control Manager: _____
CGCN-RCCV Registration number: _____
Date: _____
Facility mailing address:
_____

Block /Field No.:_____
Variety /Clone:_____
Variety/Clone Source:_____
Rootstock:_____
Rootstock Source:_____
No. of ha: _____
Generation:_____
Quantity Planted:_____
Date of Planting/Proposed Date of Planting: _____
Block/Field History:_____
Location of Field:_____
Previous Year:_____
2nd Year Previous:_____

**repeat as needed for each block/field/clone at the G1A, G2, and G3 level*

## Appendix 3B: Facility inventory declaration – G4

Facility name: _____
Pest Control Manager: _____
CGCN-RCCV Registration number: _____
Date: _____
Facility mailing address:
_____

Block /Field No.:_____
Variety /Clone:_____
Variety/Clone Source:_____
Rootstock:_____
Rootstock Source:_____
No. of ha: _____
Generation:_____
Quantity Planted:_____
Date of Planting/Proposed Date of Planting: _____
Block/Field History:_____
Location of Field:_____
Previous Year:_____
2nd Year Previous:_____

**repeat as needed for each block/field/clone at the G4*

## Appendix 4: Fee Schedule

Nurseries applying to the CGCN-RCCV Certification Program will be required to submit a $500 non-refundable administration fee along with their application. This will go towards the administration costs involved in reviewing the application, as well as setting up the applicant nursery for testing.

Nurseries participating in the Program will be required to collect a $0.25 levy per vine sold under the CGCN-RCCV Certification Program. This amount will be remitted back annually to CGCN-RCCV on January 30th, for the 12 months prior (January 1st to December 31st) CGCN-RCCV reserves the right to audit invoices and nursery procedures to ensure the amount remitted is correct.

The price of a vine produced through this program is up to the discretion of the nursery.

The levy will be subject to a yearly review by CGCN-RCCV.

All costs associated with performing the systems and surveillance inspections (including travel) will be the responsibility of the inspected nursery.

## Appendix 5: Approved virus-testing methods and viruses of concern

The CGCN-RCCV Certification Program has identified the viruses of concern for testing at each Generation level. This is subject to revision as necessary.

**Grapevine Viruses of Concern:**

| Virus of Concern | G1 | G2 | G3 | G4 |
|---|---|---|---|---|
| Arabis Mosaic Virus | X | O | O | |
| Grapevine Fanleaf virus | X | X | X | |
| Grapevine Leafroll Associated Virus 1 | X | X | X | |
| Grapevine Leafroll Associated Virus 3 | X | X | X | |
| Grapevine Leafroll Associated Virus 4 strains | X | O | O | |
| Grapevine Leafroll Associated Virus 7 | X | O | O | |
| Strawberry latent ringspot virus | X | O | O | |
| Raspberry ringspot virus | X | O | O | |
| Tomato Ringspot virus | X | O | O | |
| Grapevine Fleck Virus | X | O | O | |
| Grapevine Leafroll Associated Virus 2 | X | O | O | |
| Grapevine Leafroll Associated Virus 2 Red Globe Strain | X | O | O | |
| Grapevine Virus A (associated with grapevine Kober stem grooving disease) | X | O | O | |
| Grapevine virus B (associated with grapevine corky bark disease) | X | O | O | |
| Grapevine Virus D (associated with rugose wood disease) | X | O | O | |
| *Grapevine Virus E | X | O | O | |
| *Grapevine Virus F | X | O | O | |
| Grapevine red blotch virus | X | X | X | |
| Grapevine Pinot gris virus | X | X | X | |
| Grapevine asteroid mosaic-associated virus | X | O | O | |
| **Grapevine rupestris stem pitting associated virus and its strains | X | O | O | |
| Raspberry ringspot virus | X | O | O | |
| Tomato black ring virus | X | O | O | |
| Phytoplasmas: Flavescence dorée, Bois noir, Australian grapevine yellows, Palatinate Yellow, Aster Yellows, X Disease | X | O | O | |
| *Crown Gall | X | O | O | |

**X: testing mandatory at generation level**
**O: option based on field agent recommendations**
***not on G1 testing under CFIA protocol**
****** allowed under Option 1 protocols**

**Approved testing methods:**

1) Nucleic acid detection by PCR (polymerase chain reaction), Quantitative PCR, ddPCR and MCHqPCR
2) High Throughput Sequencing
3) Any other diagnostic method approved by CGCN-RCCV

## Appendix 6: Frequency of testing at each generation

**G1(including G1A)**
At the G1 level, testing will be done upon receipt of material at 100%. The frequency of testing of G1A material the same as G1 material.

**G2 and G3**
**Every vine** in the CGCN certified **G2 and G3 increase blocks** shall be re-tested by CGCN authorised laboratory at least **once in every 6 years**. In the year one of the G2/G3 established block, no testing will be done. **From Year 2 to Year 6** testing will be done at 20% of total vines each year cumulating to 100% in six years. Sampling and testing methods will be same as described in 'Appendix 4' of the Interim Verification Program standards and Appendix 5 of this standard respectively, as **composites of five vines per sample**.

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If any positives found below the acceptable level of 0.1%, all vines in the composite plus one vine from each side in the same row must be removed or the individual vines within the composite should be re-tested for the above-mentioned viruses and identify the vines infected and removed along with ones on either side of the positively tested vine.

In the case of percent positives equals or exceeds the acceptable level of 0.1%, the sample size for subsequent years shall be calculated based on the Table 1 listed below.

In case of the percent positives records higher than the previous year testing which indicates the spread of virus within the vineyard block, then the sample size for subsequent years shall be calculated based on the Table 1 listed below. This applies to viruses that need to be tested at G3 level according to Appendix 5

**Table 1**

| **Virus Infection in Year 2 % of total vines tested** | **Virus testing for blocks exceeding allowable limit of 0.1% in 3rd or Subsequent Years** |
|---|---|
| **0.1-1%** | 20% |
| **1-2 %** | 40% |
| **2-5 %** | 60% |
| **>5 %** | 100% |

***virus testing in 3rd and subsequent years may be limited to viruses known to be present.**

## Appendix 7: Program and protocols regarding Agrobacterium vitis (crown gall)-tested propagating material for grapevines

*Agrobacterium vitis* (crown gall) is a bacterial disease that can weaken or kill a grapevine. It is spread mostly by infected propagating material. Another mode of infection is through soil that has previously been planted with grapevines infected with crown gall. Grapevine roots left in the soil can harbour *A. vitis* for years after the crop has been removed.

**Source of propagating material:**
All material used to propagate plants that claim that they have been produced from rootstock and scion wood found free of *A. vitis* must be sourced from G1, G1a, G2 or G3 material that has been tested at the G1 level by dd PCR and found to be free of *A. vitis.* G1a and G4 material will qualify to make the claim: *Produced from material found to be free of A. vitis.* G2 and G3 plantings will need to be re-sampled and tested on an ongoing basis to qualify for the claim. Initially we recommend random sampling of 10% of plants annually.
Sites used for G2 and G3 plantings will conform to the Long Term CGCN-RCCV standard.

Following are two protocols; one for grapevines propagated in growing medium and another for grapevines propagated in soil.

**Growing medium:**
Any medium suitable for the production of grapevines that does not contain any trace of soil and has not been contaminated by soil during handling and has not been previously used for nursery production is allowed. (Reference CGCN-RCCV Certification Program, Section 2.4.3.1.1). Containers filled with growing medium used in the production of grapevines cannot be directly placed on soil but must be either on concrete, impermeable plastic sheets or other material that excludes the risk of contamination with soil.

**Propagation in field soil:**
Because *A. vitis* can survive in soil on grape roots and possibly other organic material, grapevine nurseries producing plants from material tested to be free from *A. vitis* cannot be grown on a plot of land that has been used for grapevine nursery or vineyard in at least the previous seven years. Land use history must be available and verifiable for a minimum of ten years. Propagating blocks must be mapped with GPS. A buffer of 3 metres on all sides must separate the *A. vitis*-tested propagating material from any other crop. If the neighbouring crop is grape, the buffer will be 8 metres.
Equipment used for planting, cultivating, spraying and harvesting must be thoroughly cleaned of any soil or other potential contaminants by pressure washing before it is used in the production of grapevines from *A. vitis*-free propagating material. Grafting and cutting tools must be cleaned with bleach or alcohol before use with crown gall free propagating material. Also see CFIA bio security protocol guidelines for tree fruit and nuts (https://www.cgcn-rccv.ca/site/blog/2019/10/28/managing-biosecurity)

**Processing, handling and record keeping:**
*Agrobacterium vitis*-free propagating material used for the production of grapevines making the claim that they were produced from crown gall-free material must be clearly identified and stored separately from untested material. Processing of the material must be done in a manner to ensure that any risk of contamination by and co-mingling with untested material is eliminated.
If propagating material must be hydrated, the water used must be clean and cannot have been used previously for hydrating material that has not been tested to be free from *A. vitis.*
Records must be maintained that detail amount of wood harvested and source and location of crown gall-free G2 or G3 blocks. Records of cleaning procedures of facilities and equipment prior to use with tested material must be maintained and made available upon request. In the case of grafted plants, both rootstock and scion material must be sourced from blocks tested and maintained under this program.

Crown Gall certification will only be available to nurseries after the CGCN-RCCV tests the G1 material for Crown Gall. Please contact the CGCN-RCCV for more information regarding timelines for this optional certification to be available.

## Appendix 8: Approved labs

The CGCN-RCCV has approved the following labs for testing of grapevine material in the CGCN-RCCV Certification Program. Lab choice for testing is based on location, and lab availability. Other labs will be considered as needed.

**Approved labs:**

CCOVI Virus Diagnostic Lab at Brock University
1812 Sir Isaac Brock Way
St. Catharines, Ontario
Contact: Sudarsana Poojari

(for G1 testing), Canadian Food Inspection Agency
Sidney Laboratory, Centre for Plant Health
8801 East Saanich Road
North Saanich, British Columbia
Contact: Anna-mary Schmidt

(for Crown Gall testing), University of British Columbia-Okanagan
3333 University Way
Kelowna, British Columbia
Contact: Tanja Voegel

# Appendix 9: Approved woody plants/cover crops

**1. Buffer Zones and Ground Covers**

1.1 To reduce *Xiphinema* and/or *Longidorus* nematode populations and their potential for lateral spread, and to control the spread of nepoviruses, **the groundcover of the 6 metre buffer zone and the certified block** should be one of the following**:**

- maintained as a homogeneous stand of perennial turf grass established by intentionally seeding with varieties of perennial ryegrass or fescue selected for use as perennial ground covers with minimal contamination by broadleaf weeds.
- planted to an annual Sudangrass or mustard species with biofumigant properties, such as white (*Sinapis alba*) or brown (*Brassica juncea*) mustards, and cultivated under in mid-season to optimize green manure biofumigant effects.
- clean cultivated at least twice a season to disrupt cycles of broadleaf weed growth.

1.2 If the **buffer zone or groundcover of the certified block** is not maintained according to one of the three options listed above, the soil must be tested for *Xiphinema* and *Longidorus* nematodes every year for 3 years and then every third year thereafter. If tests are positive, broadleaf weeds growing in the buffer zone should be tested for nepovirus. *Xiphinema or Longidorus* nematodes must be tested for presence / absence of nepovirus.

1.3 If *Xiphinema* or *Longidorus* are present in the buffer zone, grapevines in the certified block will also need to be tested for nepoviruses on an ongoing basis.

1.4 In addition to the above options, **the groundcover of the certified block** may be planted as a green manure cover crop to an annual or short-lived perennial legume species, such as white or berseem clover, with cultivation and re-seeding every 1-3 years, as appropriate to the legume species, in order to control perennial weeds.