

NOTICES
DEPARTMENT OF AGRICULTURE
Order of Quarantine; Phorid Fly
Amended

Recitals

A. Phorid Fly, *Megaselia halterata*, (Phorid Fly) is an organism that has been detected in the Commonwealth. The phorid fly reproduces in dark, damp areas such as mushroom production houses.

B. The Phorid Fly feeds on decomposing materials such as carrion and nutrient rich soil amendments and substances. It also lays eggs in soil, where the larvae feed on the roots of healthy plants, making it detrimental to plants, plant products and crops.

C. The Phorid Fly causes mushroom yield losses due to the larvae of Phorid Fly feeding on the mycelia or carpophores, and due to other pests and diseases for which the Phorid Fly serves as a vector. Infestations of Phorid Flies carry green mold, resulting in *agaricus* mushrooms exhibiting browning reactions, and are vectors for secondary invaders such as *Penicillium*. Mushroom crop losses in Pennsylvania since the onset of these Phorid Fly induced diseases are estimated annually to be in the millions of dollars.

D. The Phorid Fly has been determined by the Department to be an organism that is capable of causing physical damage to plants or plant products, and economic injury to the mushroom industry of this Commonwealth, and it is hereby declared a "plant pest."

E. The Plant Pest Act (act of December 16, 1992, P.L. 1228, No. 162) (3 P.S. §§ 258.1—258.27) (Act) empowers The Department of Agriculture (Department) to take various measures to detect, contain and control plant pests. These powers include the authority to establish quarantines to prevent the spread of plant pests within this Commonwealth, to make surveys to determine the existence, distribution and damage caused by the plant pest, to collect samples and to prescribe treatment for control of the plant pest (3 P.S. §§ 258.18, 258.19 and 258.21).

F. The Act provides the Department authority to ". . .establish quarantines. . .to prevent the dissemination of plant pests within this Commonwealth. When a pest or pests that have the potential to cause serious damage to agriculture are found in any geographic area, the area and any adjacent areas as the Department deems necessary shall be quarantined. . ." (3 P.S. § 258.21(a)).

G. The counties, areas or zones of the Commonwealth in which the plant pest Phorid Fly has been detected or confirmed and adjacent areas that are quarantined are set forth in Article I, paragraph 1 (related to Establishment of Quarantine) of this Order of Quarantine; Phorid Fly (Order of Quarantine). Any new county, area or zone of the Commonwealth in which the plant pest, *Megaselia halterata* (Phorid Fly), is later detected or confirmed and adjacent areas shall be added to this Order of Quarantine through an addendum delineating the county, area or zone to

be added to this Order of Quarantine. Such addendum shall be published in the *Pennsylvania Bulletin* and enforcement of this Order of Quarantine with regard to that county, area or zone shall become effective immediately upon such publication in the *Pennsylvania Bulletin*.

Order

Article I. General Provisions.

Under authority of section 21 of the Act (3 P.S. § 258.21), and with the Recitals previously listed incorporated into this Order of Quarantine by reference, the Department hereby Orders the following:

(1) *Establishment of Quarantine.* A quarantine is hereby established for Chester County for the plant pest Phorid Fly. Additional counties, areas and zones required to comply with this Order may be added pursuant to an addendum to this Order of Quarantine as set forth in Paragraph G. of the "Recitals" to this Order of Quarantine.

(2) *Purpose of Quarantine.* The purpose of this Order of Quarantine is as follows:

(a) To establish provisions to suppress and control the plant pest Phorid Fly.

(b) To establish requirements and parameters, including treatment, monitoring and recordkeeping standards, to which individuals and persons owning or operating mushroom production facilities and houses, within the counties, areas and zones covered by this Order of Quarantine, and any future addendum hereto, shall adhere.

(3) *Definitions.*

Agent, inspector or deputy. A representative of the Department of Agriculture duly appointed by the Secretary of Agriculture to carry out the provisions of the Act.

Control. The reduction of the population of a plant pest to an acceptable level as determined by the Secretary of Agriculture or his agents.

Department. The Department of Agriculture of the Commonwealth.

Person. An individual, partnership, association, firm, corporation, limited liability corporation, state agency, municipality or other governmental unit or agency or any other legal entity.

Plant pest. An organism, including other plants, causing or capable of causing injury or damage to plants or plant products. In this case, specifically *Megaselia halterata* (Phorid Fly).

Secretary. The Secretary of Agriculture of the Commonwealth.

Treatment order. A written document specifying certain measures to be taken to control or eradicate a plant pest, including destruction of appropriate, crops, plants or plants products.

(4) *Authority of Department.* As authorized at sections 18 and 19 of the Act, (3 P.S. §§ 258.18 and 258.19(a)), the Department of Agriculture or its agents may enter onto any premises within the counties, areas or zones established in this Order of Quarantine, or any subsequent

addendums hereto, to survey, collect samples, investigate, determine compliance with and carry out eradication or control measures where necessary.

Article II. Requirements for Treatment.

The person owning or operating any mushroom house located within the counties, areas and zones established by this Order of Quarantine shall employ and adhere to the treatment methods and standards established in this Order of Quarantine and set forth in Attachment A – entitled “Required Primary Treatment Standards” and at least one of the treatment methods and standards set forth in Attachment B – entitled “Required Secondary Treatment Standard,” and to any treatment order issued by the Department, or standards set forth in an addendum to this Order of Quarantine. The following practices shall be implemented, and the following standards shall apply:

(1) Mushroom houses and any building in which mushrooms are grown or cultivated and the premises on which they are located shall be treated in accordance with the standards set forth in Attachment A and Attachment B to this Order of Quarantine, which are incorporated herein and made a part of this Order of Quarantine.

(2) A mandatory monitoring program shall be implemented, in accordance with the requirements of Attachment C - entitled “Mandatory Monitoring Program” - and the standards set forth in Article V. of this Order of Quarantine, for the premises and for all mushroom houses and any buildings in which mushrooms are grown or cultivated.

(3) The Department may approve, in writing through the issuance of a treatment order or through addendum to this Order of Quarantine, an alternative treatment method for control of the plant pest Phorid Fly by the owner or operator of any mushroom house and the premises on which they are located.

Article III. Inspections.

The Department, during normal business hours, may enter onto and inspect the land and premises, including mushroom houses and any building in which mushrooms are grown or cultivated, along with mushroom soil, planting medium and other medium on which the plant pest Phorid Fly may breed or exist for purposes of enforcement of this Order of Quarantine and the provisions of the Act and its attendant regulations

Article IV. Duty to Report, Treat, Continuing Obligation and Noncompliance.

(1) *Duty to Report* Phorid Fly. The person owning or operating any mushroom house or business located within the counties, areas and zones established by this Order of Quarantine and any premises subject to this Order of Quarantine shall report the existence of Phorid Flies on the property to the Department and shall continue to implement the treatment standards established in Article II of this Order of Quarantine and any requirements set forth in a Treatment Order issued by the Department.

(2) *Record of Treatment.* The Record of Treatment filing shall include the name of the owner and person in charge, number of houses and buildings treated, premise location and individuals

responsible for management and treatment of the premises, along with specific treatment plans to be undertaken based on the data collected and calculated in accordance with Attachment C. or any plan to change secondary treatment standards. In addition, a general notification of treatment to amend primary or secondary treatment plans shall be included with the Record of Treatment filing. These treatment records are due on Friday of every week. Such report may be filed to RA-AGPhorid@pa.gov.

(3) *Continuing Obligation.* The obligation of the person owning or operating any mushroom house or business located within the counties, areas and zones established by this Order of Quarantine and any premises subject to this Order of Quarantine to treat and report shall continue so long as the plant pest Phorid Fly, including its eggs or larvae, is present on the property.

(4) *Noncompliance.* If the person owning or operating any mushroom house or business located within the counties, areas and zones established by this Order of Quarantine and any premises subject to this Order of Quarantine does not comply with the treatment provisions of this Order of Quarantine or any Treatment Order issued by the Department. Failure of any person to comply with a provision of this Order of Quarantine, a Treatment Order issued by the Department, or any provision of the Act or regulations shall result in that person being ineligible to receive any Department provided financial assistance established for the purpose of mitigation and control of the Phorid Fly.

Article V. Monitoring Program.

The person owning or operating any mushroom house or business located within the counties, areas and zones established by this Order of Quarantine and any premises subject to this Order of Quarantine shall implement a quantitative monitoring system as set forth in Attachment C - entitled "Mandatory Monitoring Program" - to this Order of Quarantine, which is incorporated herein and made a part of this Order of Quarantine.

Article VI. Recordkeeping.

(1) *General Documentation and Recordkeeping for Treatments.* The records required under this Article VI, sections (1)-(6) shall be kept at the site of each mushroom house and business, located within the counties, areas and zones established by this Order of Quarantine and any addendum hereto, and made available to the Department upon request.

(a) Documentation of each treatment required under Article II of this Order of Quarantine shall be kept for each separate treatment.

(b) The treatment documentation shall be kept for each separate mushroom house and building in which mushrooms are grown or cultivated. Each record shall contain the following information:

(i) The methods of treatment employed as required by Attachment A and Attachment B to this Order of Quarantine.

(ii) The date and time of each treatment.

(iii) The house or building and all materials treated and the type of treatment.

(iv) The exact house and building treated, length of treatment for each house and building treated, temperature of each house and building during treatment and the treatment undertaken during each phase of the required treatments set forth in Article II and Attachment A and Attachment B of this Order of Quarantine.

(v) The name of the person(s) that treated the regulated article.

(2) *Recordkeeping for Attachment A requirements.* The following records shall be kept for every treatment of each mushroom house, growing room, and building, and the location thereof, as required under Attachment A to this Order of Quarantine.

(a) The date each mushroom house, growing room and building was steamed and the phase of steaming in accordance with the steaming standards set forth at Section II. (1)-(4) of Attachment A of this Order of Quarantine.

(b) The temperature achieved in each mushroom house, growing room and building for each date steamed in accordance with the standards set forth in Section II. (1)-(4) of Attachment A of this Order of Quarantine.

(c) The date of cleanout and steaming of each mushroom house, growing room and building in accordance with the standards set forth in Section III. (3) and IV. (2) of Attachment A of this Order of Quarantine.

(d) The date of the steam application to each growing room, mushroom house and building, and the bed temperatures achieved and the number of hours each was steamed as required by section III. (7)(a) and (b) of Attachment A of this Order of Quarantine.

(e) The hours of continuous steaming for each growing room, mushroom house and building in accordance with Section III. (8) of Attachment A of this Quarantine Order.

(f) A record of the date each growing room or mushroom house or building was steamed and substrate temperature, number of probes utilized, and hours steamed for each bed in each growing room, mushroom house and building as required by Section III. (9)(a)-(d) of Attachment A of this Quarantine Order.

(3) *Recordkeeping for Attachment B requirements.* The following records shall be kept for treatments required under Attachment B to this Order of Quarantine.

(a) Where Exclusion and Inclusion secondary practices are utilized, the following records shall be kept.

(i) The date of inspection for inclusion and exclusion practices for each growing room, mushroom house and building.

(ii) The effectiveness of the inclusion and exclusion practices in reducing phorid fly populations in each growing room, mushroom house and building.

(iii) A list of corrective action necessary where phorid fly populations continue to persist.

(iv) The type of corrective actions taken and the date of the corrective actions for each growing room, mushroom house and building.

(b) Where Parasitic Nematodes are utilized as secondary practices, the following records shall be kept.

(i) The location of each growing room, mushroom house and building where nematodes were released and the date of release.

(ii) The number of nematodes released in each mushroom growing room.

(iii) The date of each reapplication.

(iv) The effectiveness of the applications in reducing phorid fly populations.

(c) Where Predatory Mites are utilized as secondary practices, the following records shall be kept.

(i) The location of each growing room, mushroom house and building where predatory mites were released and the date of release.

(ii) The rate of application – in liters per 1000 or 8000 square feet in each mushroom growing room.

(iii) The date of each reapplication.

(iv) The effectiveness of the applications in reducing phorid fly populations.

(d) Where Adulticides are utilized as secondary practices, the following records shall be kept.

(i) The location of each growing room, mushroom house and building where adulticides were utilized and the date of application.

(ii) Name of adulticide.

(iii) The date of each reapplication.

(e) Where Long Lasting Insecticide Nets (LLIN) are utilized as secondary practices, the following records shall be kept.

(i) The location of each growing room, mushroom house and building where each LLIN was used and the dates for the period of use of each LLIN.

(ii) The date of each removal and replacement with the information required in subsection (i).

(iii) The effectiveness of the applications in reducing phorid fly populations.

(iv) A list of corrective action necessary where phorid fly populations continue to persist.

(v) The type of corrective actions taken and the date of the corrective actions for each growing room and mushroom house and building.

(4) *General Documentation and Recordkeeping for Monitoring Program.* The following records shall be kept.

(a) Those records required to be kept under Mandatory Monitoring Program established in Attachment C of this Order of Quarantine.

(b) Records of the Invader/Emerger Ratio calculated and recorded in the manner set forth in Attachment C of this Order of Quarantine, or another monitoring system approved in writing by the Department, which shall include recordkeeping standards

(c) Additional recordkeeping shall include:

(i) Records of the number of phorid flies accumulated on each monitoring trap in a 24-hour period.

(ii) The date each phorid fly monitoring trap is replaced.

(iii) The location of each phorid fly monitoring trap.

(5) *Alternative Treatment Record Keeping Requirements.* For alternative treatments undertaken pursuant to a Department approved treatment order or addendum as allowed under Article II. (3) of this Order of Quarantine, the type of treatment undertaken as required by the treatment order or addendum to this Order of Quarantine issued by the Department, along with the information required in the Department approved treatment order or addendum.

(6) *Inspection and Maintenance of Records.*

(a) The person owning or operating any mushroom house or business located within the counties, areas and zones established by this Order of Quarantine and any premises subject to this Order of Quarantine shall allow the Department access to the property and to all records during normal business hours, to inspect records required to be kept under this Order of Quarantine or any Treatment Order issued by the Department. Department staff will check-in to the mushroom house office prior to inspection.

(b) Records required to be maintained under this Order of Quarantine are to be maintained for a minimum of two (2) years with copies provided to the Department upon request.

Article VII. No Preclusion of Powers.

(1) This Order of Quarantine does not effect, preclude or prevent the Department from enforcement of all statutory and regulatory authority bestowed upon the Department.

(2) This Order of Quarantine shall not preclude the routine inspection, sampling, and testing of regulated articles by the Department.

Article VIII. Penalties, Cooperation, Effective Date.

(1) *Violations.* In accordance with the provisions of section 258.22 of the Act (3 P.S. § 258.22) it shall be unlawful to violate or fail to comply with any provision of the Act, regulations or this Order of Quarantine or any Treatment Order issued by the Department.

(2) *Criminal and Civil Penalties.* In accordance with the provisions of the Act, at sections 258.23 and 258.24 (3 P.S. §§ 258.23 and 258.24), a person who violates this Order of Quarantine may face summary criminal prosecution carrying up to 90 days imprisonment and a fine of up to \$300 with respect to each violation. In addition, a person who violates this Order of Quarantine may be assessed a civil penalty of up to \$20,000 with respect to each violation.

Article IX. Effective Date and Rescission of February 2025 Order.

This Order of Quarantine is effective upon signature and shall be published in the *Pennsylvania Bulletin* and shall remain in effect until rescinded by subsequent order. This Order of Quarantine rescinds and replaces the “Order of Quarantine: Phorid Fly” [55 Pa. B. 1461][Saturday, February 15, 2025].

Attachment A

REQUIRED PRIMARY TREATMENT STANDARDS

Instructions for Post-Crop Steaming/Steam-Off in Mushroom Farming.

Post-crop steaming, also known as steam-off or post-crop pasteurization, is an essential step in ensuring a clean growing environment for subsequent crops. Below is a step-by-step guide based on the Best Management Practices for Mushroom Farming.

I. General Standards to be Achieved.

(1) Prevent pests and pathogens from spreading to subsequent or adjacent crops when spent mushroom substrate is removed from the growing room.

(2) Kill adult flies, eggs, larvae, and fungal, bacterial, and viral pathogens in the spent mushroom substrate and wooden bed boards. Kill everything including remaining mushrooms so nothing will be spread or grown when spent mushroom compost is applied to fields or gardens.

(3) Reduce the risk of pests infesting new crops and neighboring areas.

II. Specific Standards. The following specific standards shall be followed.

(1) **Temperature.** To properly control adult flies and the larval stages within a mushroom house, 130 ° Fahrenheit shall be the minimum temperature to achieve in each mushroom house or building required to be treated by the Order of Quarantine.

(2) **Number of Treatments.** The following number and types of treatments shall be required for phorid fly control..

(a) Phase 1 Crops.

(i) One (1) steam per crop.

(ii) Steam each crop once post-harvest.

(b) Phase 2 or 3 crops.

(i) One (1) steam per crop.

(ii) Steam once post-harvest.

(3) Steaming Requirements. A Post Harvest Steaming (Steam Off) shall be instituted immediately after the last flush of mushrooms has been picked. The growing room shall be steamed while spent mushroom substrate is still in place to kill any pests in the substrate.

(4) Optional Steam Off Empty After Spent Mushroom Substrate Removal. All spent mushroom substrate shall be removed. Once the spent mushroom substrate is cleared and the room has been cleaned of any remaining substrate debris, a second steaming process (Steaming Empty) may be completed to treat the room and wooden components.

III. Post Harvest Steam Off Day 1 – Before Clean out. The following standards shall be followed post-harvest, day 1, before cleaning out.

(1) The growing room or mushroom house to be steamed shall be sealed off in the following manner.

(a) Close off the growing room or mushroom house to be steamed completely before starting the steaming process.

(b) Check all doors and windows for leaks. The growing room or mushroom house shall be sealed up tight and the doors shall be secured to prevent phorid fly escape.

(c) All air intake and exhaust vents shall be sealed in a manner that seals out all light to keep the phorid flies from moving towards areas where there may be cracks to escape.

(d) A threshold seal, such as wrapping the threshold in poly Dacron blue filter, shall be used to prevent phorid fly escape under the doors.

(e) Doors shall be secure and tight.

(f) Where necessary to prevent phorid fly escape, spray foam insulation shall be used to seal up old PA style growing rooms and mushroom houses.

(2) Adjacent growing rooms and mushroom houses shall be closely monitored, in order to assure phorid flies don't leave the growing room or mushroom house being steamed and enter the adjacent growing rooms or mushroom houses as steaming begins.

(3) After the steaming process has been completed the growing room or mushroom house shall be cleaned and devoid of every mushroom.

(4) The harvesting lights and temperature probes shall be removed from the growing room or mushroom house.

(5) All doors and fresh air dampers shall be closed and tightly sealed.

(6) Measures shall be taken to ensure proper airflow during this process.

(7) Steam shall be applied to the growing room or mushroom house in the following manner.

(a) The steam thermostat temperature shall be set at 130 to 160 Fahrenheit. The steaming time shall be extended when temperatures do not reach and are unable to be sustained at 150 degrees Fahrenheit.

(b) All bed probes shall register a thermostat temperature of between 130 to 160 degrees Fahrenheit for a minimum of 8 hours at thermostat set temperature. The steaming time shall be extended when temperatures do not reach and are unable to be sustained at 150 degrees Fahrenheit.

(c) An HVAC unit shall be running the blower to circulate the steam through the room more evenly and to get the hot air through the HVAC unit air return and the growing room's or mushroom house's air supply ducts.

(8) The growing room or mushroom house shall be continuously steamed in the manner set forth subsection 7 above for a total time of at least 24 hours and longer period of time when 150 degree Fahrenheit temperatures are unable to be obtained

(9) The required spent mushroom substrate temperature shall be achieved. The following standards shall be followed to ensure the spent mushroom substrate temperature reaches and is sustained at between 130 to 160 degrees Fahrenheit to kill pests effectively.

(a) Five (5) probes shall be utilized to monitor the growing room or mushroom house in addition to standard temperature control mechanisms.

(b) Two (2) probes shall be utilized to monitor the air temperature.

(c) Three (3) probes shall be placed in beds to monitor the bed temperatures.

(d) The temperature shall be monitored until all beds reach the temperatures required in subsections 7 through 9 of this section.

(10) After steaming is finished, the growing room or mushroom house shall be cooled down by allowing steam out air egresses and utilizing air handling units.

(11) Once the growing room or mushroom house is cooled down, it shall be ready for spent mushroom substrate removal (cleanout).

IV. Post Harvest Steam Off Day 2 – Cleanout and optional Steam Empty Day. The following standards shall be followed post-harvest, day 2 related to clean out and steam empty day.

(1) The spent mushroom compost shall be removed from the growing room or mushroom house that has completed the day 1 steam off.

(2) The growing room or mushroom house that has completed the day 1 steam off shall be completely emptied of all spent mushroom compost and other organic matter.

(3) Washed and sanitized growing nets may be moved into the cleaned growing room or mushroom house

(4) Once the growing room or mushroom house is cooled down, the growing room or mushroom house shall be ready for the next crop starting with the filling of Phase 1 or Phase 2 pasteurized mushroom compost.

Attachment B

REQUIRED SECONDARY TREATMENT STANDARD

I. General Requirements. In addition to the primary treatment standards required in Attachment A of this Order of Quarantine, minimum of one of the following treatment standards shall be implemented and applied as a secondary control method.

(1) Exclusion and Inclusion Method.

The exclusion and inclusion method may be utilized as a required secondary treatment method for phorid flies. If the exclusion and inclusion method is utilized as a required secondary treatment method the following standards shall apply.

(a) Exclusion. Exclusion means the intentional act of keeping the phorid fly out of mushroom growing houses, buildings containing mushrooms, mushroom growing medium or compost or other materials capable of harboring the phorid fly or its larvae. Exclusion shall require the following.

(i) Sealing areas such as door jams, concrete blocks, and other openings with opaque caulking and using filter material or other means to seal doors when closed in a manner that prevents phorid fly entry.

(ii) No light shall be visible entering the mushroom growing house or any building containing mushrooms or mushroom compost or growing medium or any room within the mushroom growing house or building containing mushrooms or mushroom growing medium or compost including from outside or from an adjacent room.

(iii) Eaves, outside walls, interior walls and ceilings in older Pennsylvania style growing rooms shall be sealed by using Spray urethane.

(iv) Care must be taken when steaming rooms at the end of a crop to not exceed 160°F or the foam may buckle and no longer provide a seal.

(v) The condition of the premises surrounding the mushroom growing houses, buildings containing mushrooms or mushroom growing medium or compost shall have grasses and vegetation well-trimmed and be kept free of standing or pooling water.

(b) Inclusion. Inclusion means intentionally trapping the phorid fly in a manner that will result in its elimination. Inclusion methods to be utilized shall include the following:

(i) Incorporate large, blacklight fly trapping devices staged in mushroom house growing rooms or any building containing mushrooms or mushroom compost or growing medium that attract and capture phorid flies on Tangletrap coated plastic.

(ii) Install plastic fastened to doorways and coated with paste that will attract phorid flies in daylight hours if the door remains open, so light is visible in the room through the plastic.

(iii) Cover the entrance doorways of buildings not utilized for growing mushrooms with clear plastic that is coated with sticky paste to capture phorid flies in hallways during daylight hours if the door remains open.

(2) Parasitic nematodes.

Parasitic nematodes (*Steinernema carpocapsae*) may be utilized as a required secondary treatment method for phorid flies. If parasitic nematodes are utilized as a required secondary treatment method they shall be applied in accordance with label requirements.

(3) Predatory Mites

Predatory Mites (*Stratiolaelaps scimitus*) may be utilized as a required secondary treatment method for phorid flies. Predatory mites shall be applied to all beds, including upstairs beds and especially on the sixth beds. If predatory mites are utilized as a required secondary treatment method they shall be applied in accordance with label requirements.

(4) Adulticides.

Adulticides may be utilized as a required secondary treatment method for phorid flies. If adulticides are utilized as a required secondary treatment method they shall be applied in accordance with label requirements.

(a) Various Ecovia products have shown some efficacy against phorids. Dust or fog these products as adulticides in growing rooms following the label. These are Organic Material Review Institute (OMRI) listed.

(b) Organishield biochemical insecticide has shown some efficacy but has a 48-hour REI. It is OMRI listed.

(c) Permethrin based adulticides have not been tested for efficacy against phorids but farms could conduct tests if monitoring is in use to provide data.

(d) Insecticidal soaps also have shown some efficacy in the laboratory but are labeled only for equipment sanitation use at this time.

(5) Long Lasting Insecticide Nets (LLINs).

LLINs have been proven to be efficacious against phorid flies in controlled commercial testing and may be utilized as a required secondary treatment method for phorid flies. If LLINs are utilized as a required secondary treatment method they shall be applied in accordance with label requirements and the following standards shall apply.

(a) The netting shall not be utilized on or come in contact with compost, casing or mushrooms as it is not EPA approved to touch compost, casing, or mushrooms.

(b) The netting may be used on top of plastic applied to bed surfaces at the start of spawn run, on the ends of beds, and over air intakes and pressure reliefs.

(c) The netting may be attached to ceilings since phorid flies migrate upward in mushroom houses and can be seen massing in the eaves of rooms.

(d) The ceiling applied netting and netting over air intakes and pressure relief openings shall remain in place for the entire crop cycle.

(e) LLINs shall only be used in accordance with label directions. LLINs are OMRI listed.

Attachment C

Mandatory Monitoring Program

I. General Requirement: A person subject to the requirements of the Order of Quarantine shall implement the following quantitative monitoring system or another monitoring system approved in writing by the Department, which shall include recordkeeping standards. Each room of every mushroom growing house shall be subject to these quantitative monitoring system standards.

II. Monitoring. One of the following two monitoring standards – A. or B. - shall be implemented.

A Department Approved Monitoring System. Monitoring system approved in writing by the Department, that provides quantitative data on phorid fly populations.

B. Invader Emerger Monitoring System.

(1) Invader/Emerger Terms. Phorid flies shall be counted and monitored in the following manner.

(a) Invader Term. Phorid flies shall be counted each day from Day 0 to Day 14. The number of phorid flies counted from Day 0 through Day 14 shall be listed as the Invaders.

(b) Emerger Term. Phorid flies shall be counted each day from Day 14 through the end of the crop. The number of phorid flies counted from Day 14 through the end of the crop shall be listed as the Emergers.

(2) Monitoring Traps. Install at least 1 phorid fly monitoring trap or similar device in every mushroom growing house.

(a) Monitoring traps shall be installed in each growing room, in a space close to the entrance of each growing room, and in the upper levels of each growing room.

(b) The monitoring traps shall be installed and monitored in the following manner.

(i) Ensure the sticky paper on the monitoring traps is sticky. Monitoring traps shall be replaced when tape is full or nearly full.

(ii) Count and record the number of phorid flies on each monitoring trap daily or every other day starting at Day 0 and ending on day 23 after casing. The monitoring traps shall be removed before steaming.

(iii) When phorid fly numbers on a monitoring trap are low, physically remove them with a finger or scrape them off with a penknife blade.

(iv) If a monitoring trap is heavily coated, counts shall be estimated in the following manner.

(A) Count the number of phorid flies on the heaviest concentrated one-fourth of each monitor trap and multiply by eight.

(B) For extremely heavy coverage on a monitoring trap, count the number of phorid flies on the heaviest concentrated one square inch area of each monitoring trap and multiply by the total square inches of the trap. Use a piece of cardboard with a one-inch square cutout as a counting frame or use monitoring traps with preprinted counting cells.

(c) Monitoring traps shall be replaced at the end of Day 14 and any time during the Invader Term or Emerger Term when they are heavily coated and require counting as set forth in subsection (b)(iv) above.

(3) Calculation of the Invader/Emerger Ratio. At the end of the crop the number of phorid flies captured during the Emerger Term shall be divided by the number of phorid flies captured during the Invader Term to calculate the Invader/Emerger Ratio. The Invader/Emerger Ratio shall be recorded for each room as set forth in section (4).

(4) Recording of Invader/Emerger Ratio. The Invader/Emerger Ratio shall be separately calculated and recorded in the following manner.

(a) For each room in each mushroom growing house and building containing mushrooms, mushroom growing medium or compost or other materials capable of harboring the phorid fly or its larvae.

(b) Cumulatively for each mushroom growing house.

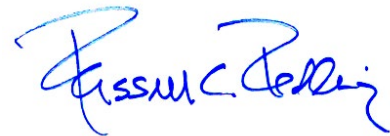
(5) Actions. Where the Invader/Emerger Ratio increases between rooms adherence to the standards required by this Order of Quarantine shall be reviewed and assessed to determine additional actions or adherence standards that may be required.

(6) Ratios.

(a) Ratio of less than 1 indicates more invaders than emergers and evidence that the phorid fly population is being controlled. Continue current treatments and monitoring

(b) Ratio of 1 indicates a balance of both emergers and invaders and evidence that phorid fly populations are being sustained by both emergers and invaders. In this case control measures shall have an increased focus on installation of phorid fly proof screens, air curtains and internal growing house, mushroom house, building and bed control measures.

(c) Ratio of greater than 1 indicates more emergers than invaders and evidence that phorid fly populations are primarily being sustained through external sources. In this case control measures shall have an increased focus on external barriers to growing houses, mushroom houses, buildings and mushroom beds, treatment of compost and movement off-site, limiting adult phorid fly inflow and reducing outside attractants, harboring and spawning sites.



RUSSELL REDDING,
Secretary
March 23, 2026

