

Soil Fumigation: Regulatory Update, Phase II Labels, Buffer Zone Specifics

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Fowler J. 2014. Soil Fumigation: Regulatory Update, Phase II Labels, Buffer Zone Specifics. In: Wilkinson KM, Haase DL, Pinto JR, technical coordinators. National Proceedings: Forest and Conservation Nursery Associations—2013. Fort Collins (CO): USDA Forest Service, Rocky Mountain Research Station. Proceedings RMRS-P-72. 35-37. Available at: http://www.fs.fed.us/rm/pubs/rmrs_p072.html

Abstract: New safety measures for soil fumigant pesticide applications implemented by the US Environmental Protection Agency (EPA) affect bareroot nursery applications of methyl bromide, chloropicrin, metam sodium/metam potassium, and dazomet. This paper summarizes some highlights from the EPA's fact sheets about safety and risk mitigation measures, including buffer zones and emergency preparedness requirements. Readers are directed to the original fact sheets, found in the EPA's online "Soil Fumigants Toolbox" http://www.epa.gov/pesticides/reregistration/soil_fumigants/

Key Words: methyl bromide, chloropicrin, metam sodium/metam potassium, dazomet, safety

Introduction

Information in this paper was abridged from at the following EPA publications:

- *Soil Fumigant Mitigation Factsheet: Buffer Zones*
- *Soil Fumigant Mitigation Factsheet: Emergency Preparedness and Response Requirements and*
- *Implementing New Safety Measures for Soil Fumigant Pesticides*

Web links for these publications are provided in the references.

As of December 1, 2012, a final set of soil fumigant product label changes went into effect, fully implementing important new protections for workers and bystanders. The amended product labels incorporate the second and final phase of mitigation measures required by the EPA's 2009 Reregistration Eligibility Decisions (REDs) for the soil fumigants methyl bromide, chloropicrin, metam sodium/metam potassium, and dazomet. The new measures appearing on soil fumigant Phase 2 labels include buffer zones, posting, credits, and overlap prohibition, emergency preparedness and response measures, restrictions on applications near sensitive sites, applicator training, first responder and community outreach, and compliance assistance and assurance measures. This paper excerpts key EPA information on buffer zone related mitigation measures.

Buffer Zones

Distance and Period

A buffer zone provides distance between the application site (i.e., edge of field) and bystanders. The buffer zone period starts at the moment when any fumigant is delivered/dispensed to the soil within the application block and lasts for a minimum of 48 hours after the fumigant has stopped being delivered/dispensed to the soil. All non-handlers including field workers, nearby residents, pedestrians, and other bystanders must be excluded from the buffer zone during the buffer zone period, except for people in transit. A buffer zone must be established around the perimeter of each application block where a soil fumigant is applied. The buffer zone must extend from the edge of the application block perimeter equally in all directions.

The size of the buffer zone can range from 25 ft (7.6 m) to 2640 ft (804.5 m). The size of the buffer zone is determined by four factors:

- *product formulation*
- *application rate*
- *field size (acres)*
- *application equipment and methods.*

Every product label will have a series of buffer zone tables; each application method will have its own table.

EPA Credits

EPA is giving “credits” to encourage applicators to employ practices that reduce emissions. Buffer credits will reduce buffer distances, and include organic matter and clay content of soils, soil temperature, potassium thiosulfate, water seal, and use of vapor-retentive films like “totally impermeable film” (TIF). Credits are additive, but cannot exceed 80%. Additionally, the minimum buffer zone distance is 25 ft (7.6 m) regardless of buffer zone credits available.

Proximity/Overlap

Before the start of the application, the certified applicator must determine whether their buffer zone will overlap any other buffer zones. Two or more adjacent blocks can be fumigated at the same time if buffers do not overlap. If buffers will overlap, then applications must be staggered by at least 12 hours and may require buffer monitoring or neighbor notification. To reduce the potential for off-site movement from multiple fields, buffer zones from multiple application blocks must not overlap unless:

- *a minimum of 12 hours have elapsed from the time the earlier application(s) was complete until the start of the later application, and*
- *Fumigant Site Monitoring or Response Information for Neighbors (Emergency Preparedness and Response Measures), have been implemented if there are any residences or businesses within 300 ft (91.4 m) of any of the buffer zones.*

Emergency Preparedness and Response Measures

To reduce risks to people who may be near a buffer zone (e.g., at their home or working in a nearby field), EPA is requiring applicators to either provide on-site monitoring of the buffer zone perimeter in areas where residences and other occupied structures are within a specific

distance, or, as an alternative to on-site monitoring, provide emergency response information directly to neighbors. Whether measures are required depends on the size of the buffer zone and how close people may be to the buffer zone (Table 1). If the buffer zone is 25 ft (7.6 m), the minimum buffer zone size, then Emergency Preparedness and Response measures are not required. Also, if all of the land within 300 ft (91.4 m) of the edge of the buffer zone is under the control of the owner of the fumigated field, then Emergency Preparedness and Response measures are not required regardless of the size of the buffer zone.

The certified applicator must either follow directions under the Fumigant Site Monitoring section or follow the directions under the Response Information for Neighbors section. Fumigant Site Monitoring is only required if the Emergency Preparedness Response Measures are triggered and directions from the Response Information for Neighbors section are not followed. Response Information for Neighbors is only required if the Emergency Preparedness and Response Measures are triggered and directions from the Fumigant Site Monitoring section are not followed. Additionally, the emergency response plan stated in the Fumigant Management Plan (FMP) must be implemented immediately if a handler conducting the air monitoring experiences sensory irritation.

Buffer Zones For “Difficult-to-Evacuate” Sites

There are extra buffer zone restrictions for difficult to evacuate sites. Difficult to evacuate sites are pre-K to grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

If the buffer zone is greater than 300 ft (91.4 m), no fumigant application is permitted within ¼ mile/.4 km (1320 ft/402 m) unless the site is not occupied during application and next 36 hours.

If the buffer zone is less than 300 ft (91.4 m), no fumigant application is permitted within 1/8 mile/.2 km (660 ft/201 m) unless the site is not occupied during application and next 36 hours.

Conclusion

The EPA has created an online “Soil Fumigants Toolbox” full of valuable information. This paper offers some excerpts of information from the toolbox, especially the fact sheets on buffer zones and emergency preparedness. More information can be found at the toolbox’s website: http://www.epa.gov/pesticides/reregistration/soil_fumigants/.

Readers are encouraged to explore this resource for easy access to fact sheets, training materials, worker protection information, management plan templates, and other information for handling soil fumigants more safely.

Table 1: Site-specific proximity triggers for buffer zones greater than 25 feet (from USEPA b, p.1)

If the buffer zone is:	AND there are residences and businesses:
> 25 ft (7.6 m) and ≤ 100 ft (30.5 m)	50 ft (15.2 m) from the edge of the buffer zone
> 100 ft (30.5 m) and ≤ 200 ft (61 m)	100 ft (30.5 m) from the edge of the buffer zone
> 200 ft (61 m) and ≤ 300 ft (91.4 m)	200 ft (61 m) from the edge of the buffer zone
> 300 ft (91.4 m)	300 ft (91.4 m) from the edge of the buffer zone

Applicator must either:
Monitor the air (option 1) or
Provide information to neighbors (option 2)

References

Text for this paper was excerpted from:

- [USEPA, a] March 2012. Soil Fumigant Mitigation Fact Sheet: Buffer Zones. US Environmental Protection Agency Office of Pesticide Programs. URL: http://www.epa.gov/pesticides/reregistration/soil_fumigants/factsheets/sfm-buffer-zones-2012.pdf and <http://www.epa.gov/pesticides/reregistration/x-soil-fum-HOLD/buffer-zones-fs.htm> (accessed 8 Feb 2014).
- [USEPA, b] March 2012. Soil Fumigant Mitigation Fact Sheet: Emergency Preparedness and Response Requirements. US Environmental Protection Agency Office of Pesticide Programs. http://www.epa.gov/pesticides/reregistration/soil_fumigants/factsheets/sfm-emer-pre-2012.pdf (accessed 8 Feb 2014).
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