THE STRAWBERRY GROWER
NORTH CAROLINA STRAWBERRY ASSOCIATION
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New Fumigation Buffer Zone Regulations

EPA has approved new regulations for the fumigants methyl bromide, chloropicrin, dazomet, metam sodium, and metam pottassium. Similar regulations are already in effect for Telone and methyl iodide (Midas). While other aspects of the new regulations may be equally challenging – including personal protectin equipment, posting/notification requirements, and fumigant management plans – buffers are clearly a concern for many growers. Detailed information may be found at www.epa.gov/opp00001/reregistration/soil_fumigants/ . Click on the RED for the specific chemicals. For iodomethane, visit www.epa.gov/opp00001/factsheets/iodomethane_fs.htm. Regulations for Midas and Telone are already in effect; the other rules are not scheduled to take effect until 2010.

General Requirements

The following are from the general buffer zone requirements for methyl bromide, chloropicrin, and other soil fumigants currently going through the reregistration process. (Midas info follows.)

• "Buffer zone" is an area established around the perimeter of each application block or greenhouse where a soil fumigant is applied. The buffer zone must extend from the edge of the application block or greenhouse perimeter equally in all directions.

• 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 transit.

• An "application block" is a field or portion of a field treated with a fumigant in any 24-hour period. [For strip-tarped fields like strawberries, the entire field is used in determining the field size, however the application RATE is reduced to reflect the fact that only part of the soil area is treated. *Editor's note*]

• 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.

• Only authorized handlers who have been properly trained and equipped according to EPA's Worker Protection Standard (WPS) and label requirements may be in the buffer zone during the buffer zone period.

• No fumigant applications will be permitted within 0.25 miles of schools, state licensed day care centers, nursing homes, assisted living facilities, elder care facilities, hospitals, in-patient clinics and prisons if occupied during the buffer zone period.

• Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted.

• Bus stops or other locations where persons wait for public transit are not permitted within the buffer zone.

• Buffer zones may not include buildings used for storage such as sheds, barns, garages, etc., *unless,*

1. The storage buildings are not occupied during the buffer zone period, and
2. The storage buildings do not share a common wall with an occupied structure.

• Buffer zones may not include residential areas (including employee housing, private property, buildings, commercial, industrial, and other areas that people may occupy or outdoor residential areas, such as lawns, gardens, or play areas), *unless*,

1. The occupants provide written agreement that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
2. Reentry by occupants and other non-handlers must not occur until,
   - o The buffer zone period has ended, &
   - o Two consecutive air samples taken in the structure at least 1 hour apart indicate [specified fumigant levels have been met]

• Buffer zones may not include agricultural areas owned/operated by persons other than the owner/operator of the application block, *unless*,

1. The owner/operator of the application block can ensure that the buffer zone will not overlap with a buffer zone from any adjacent property owners, and
2. The owner/operator of the areas that are not under the control of the application provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.

• Buffer zones may not include publicly owned and/or operated areas (e.g., parks, rights of way, sidewalks, walking paths, playgrounds, athletic fields, etc), *unless*,

1. The area is not occupied during the buffer zone period,
2. Entry by non-handlers is prohibited during the buffer zone period, and
3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Iodomethane (Midas)

Specific regulations have been developed for iodomethane, though since it currently has a one-year registration, these may change. The buffer zones provide flexibility based on several factors such as application rate, field size, application method, type of tarp, and soil characterization.

• Buffer zone reductions of 10% each are allowed for applications where flat fume fumigation is used, when high barrier films are used, and the soil has an organic matter content of greater than or equal to 3. The buffer zone for applications utilizing all 3 credits can be reduced

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The NC Strawberry Association is a membership association of growers, researchers, and others in the strawberry industry. Other activities of the association include funding research, an annual conference – the Southeast Strawberry Expo – and promotion of strawberries to the general public. For a membership form or more information about the association, visit www.ncstrawberry.com, email info@ncstrawberry.com, or call 919-542-4037.

by 30%. However, the minimum buffer zone is always 25 ft regardless of credits.

• The certified applicator is responsible for establishing the buffer zone, ensuring that workers or bystanders do not enter the buffer zone for 48 hours following the end of the application. An exception will be allowed for transit through the buffer zone, e.g. < 15 minutes for roads and vehicle passage ways where transit is unavoidable.

• Currently, all certified applicator are required to maintain records related to their use of restricted use pesticides. In addition, for iodomethane, certified applicators must maintain records that demonstrate the method of buffer zone calculations, buffer zone size, how applications met sensitive site requirements, and how occupied structures were handled.

• Use within ¼ mile of any occupied sensitive site such as a school, day care facility, nursing home, hospital, prison, or playground is prohibited.

• Certified applicators must be on site within the line of sight of the field during application.

Figuring Buffer Zones

The table below for iodomethane is from the Midas 50:50 label, and the others are from the EPA's re-registration documents for chloropricrin and MB. When the registrations are completed, each *product* will have buffer zones on its labels. (EPA says that for a two-chemical combination, you add up lbs. ai of both but use the chart for the chemical you are using more of – it doesn't say what to do if they are equal.)

For bedded applications, according to EPA, use the whole field to determine the field size. But convert the pounds ai per treated area to a broadcast equivalent application rate to determine the minimum buffer zone distance. For example, using standard bed spacing for strawberries, only 50% of field is fumigated, so the *effective broadcast equivalent rate* is half the broadcast rate. At the MB/Chloropicrin 50:50 rates used by most NC growers, the rate would be 200 lbs. with regular plastic. With VIF tarping, growers reduce the rate by 40% or even 50%, making the rate 120 lbs ai/A or 100 lbs. ai/A.

The wording and intent of the Midas label are problematic, but, according to Bob Kreger of Arysta LifeScience, strawberry growers (using VIF plastic) would generally use 160 lbs., or the 175 lb. rate on the chart. Some interpretations of the label, however, would indicate that rate would be 80 lbs. The commonly used rates are circled on the charts below. Check these against your acreage to figure buffer zones for your farm, and stay tuned for the final regulations.❖

EPA is soliciting comments on the implementation of these regulations until Oct. 30, 2008. The NC Strawberry Association is sending comments to EPA about these regulations on behalf of all strawberry growers in our region. Individual growers may also send comments. Visit the EPA website listed on the front page for more information.

Chloropicrin Buffer Zones

Table 2. Tarp Bedded and Broadcast Buffer Zone Distances (feet)

Block Size (acres)	Broadcast Equivalent Application Rate (lb ai/acre)												
	35	52.5	70	87.5	105	122.5	140	157.5	175	192.5	210	245	262.5
1	25	25	25	25	25	50	75	100	125	135	150	175	225
5	25	25	25	25	50	75	125	175	225	275	300	375	450
10	25	25	50	75	100	175	250	350	400	450	550	650	700
20	25	35	50	125	250	350	450	550	650	750	850	1025	1150
30	25	35	70	200	350	475	600	750	900	1000	1100	1400	1500

MIDAS 50:50 Application Rate (lbs/ treated acre)	Size of Field in Acres Buffer Zone Distance in Feet					
	Up to 5 acres	5-10 acres	11-15 acres	16-20 acres	21-25 acres	25-30 acres
125	25	40	75	110	130	145
150	25	45	90	130	155	175
175	25	50	100	150	175	200
200	30	60	120	175	205	235
Label shows additional rates & acreages. For rates not listed use next highest rate or calculate as shown on label.						

Methyl Bromide Buffer Zones

Tarped Bedded Buffer Zone Distances (feet)

Block Size (acres)	Broadcast Equivalent Application Rate (lb ai/acre)												
	25	44	63	79	94	110	125	141	157	172	188	204	219
1	25	25	25	25	25	25	25	25	25	45	50	70	90
5	25	25	25	45	65	85	100	140	175	215	250	290	325
10	25	25	25	70	115	160	200	260	315	370	425	470	515
20	25	25	25	110	190	270	350	425	500	575	650	720	790
30	25	25	25	135	240	345	450	550	650	750	850	940	1025

Several sessions at the 2008 Southeast Strawberry Expo, to be held November 6-8 in Charlotte, North Carolina, will address fumigant-related issues, including transition to methyl bromide alteratives, fumigant safety, and dealing with new worker-protection requirements, including use of respirators, in these new regulations. Visit www.ncstrawberry.com, email info@ncstrawberry.com, or call 919-542-4037 for more information about the Expo.