NIPM Item #7

APPROVED TREATMENT AND HANDLING PROCEDURES TO ENSURE AGAINST NEMATODE PEST INFESTATION OF NURSERY STOCK

In accordance with the Regulations for the Nursery Stock Nematode Control Program, California Code of Regulations (CCR) Sections 3055 to 3055.6 and Section 3640, the California Department of Food and Agriculture (CDFA) hereby specifies soil treatment and handling procedures which, when verified and documented, are approved to ensure nematode cleanliness of both field and container grown nursery stock. These procedures are not aimed at control of soil pathogens, weeds, or other soil-borne pests. The "Report of Supervision of Nursery Fumigation and Other Approvals" (form 64-054) is to be used to document compliance with these approved procedures. This report must be submitted monthly along with the "Nursery Stock Nematode Certification Report Form" (form 64-086).

Section 3640, CCR, makes it mandatory that nursery stock for farm planting be commercially clean with respect to economically important nematodes. Exempted from this requirement are garlic, mint, onion, and seed potato nursery stock and any nursery stock grown only in non-soil media.

FIELD GROWN STOCK

Soil preparation is the most important factor affecting the success of fumigation. The County Agricultural Commissioner or the CDFA shall verify to ensure that all of the following requirements for pre-treatment preparation, treatment, and post-treatment handling of soils have been met.

1. Trash Removal. Trash (crowns, stems, roots) from the previous crop must be removed as completely as possible, to eliminate or minimize plant residues that may harbor nematodes during the waiting period. After trash removal, the land should be disked thoroughly to reduce the size of the remaining plant tissues and to hasten its decomposition. The waiting period may not begin until trash removal has been completed. Soil treatment cannot be approved if trash removal has not been completed.

2. Waiting Period. After trash removal and before soil treatment, a crop-free, clean-fallow waiting period shall be observed as follows:

    a. Not less than 24 months following removal of an orchard or vineyard that has been in place for more than one year;

    b. Not less than 9 months following removal of a woody nursery crop which has been in place for more than one year;

    c. Not less than 6 months following removal of a nematode host crop (including seedling or June-budded fruit trees, grapevine or strawberry nursery stock, cotton, or alfalfa) which has been in place for less than one year.

    d. No waiting period is required after the removal of an annual vegetable crop, provided that the vegetable crop residue is removed prior to soil treatment.

3. Pre-Treatment Soil Preparation. The following pre-treatment soil preparations may be verified up to three days (72 hours) prior to soil treatment:

   a. Deep tillage - The soil should be plowed or subsoiled 2 to 3 feet by plow or chisels to break up hardpan or plowsole.

   b. Soil moisture - Soil moisture should be adequate to prepare soil to seed bed tilth. Large fluctuations in temperature or rainfall may require re-verification.

   c. Cultivation - The top 6 to 8 inches of soil should be cultivated to break up clods and render the soil in seed bed condition.

4. Treatment. The treatment shall be verified and documented by the County Agricultural Commissioner or the CDFA to ensure compliance with the required treatment and handling procedures.

   a. Application - All applications of pesticides must be made in strict compliance with all applicable laws and regulations.

   b. Material and Schedule of Dosages - The rate per acre for the fumigant used shall not be less than the minimum prescribed by the CDFA.

   c. Soil temperature - May be verified up to three days (72 hours) prior to start of soil treatment. Soil temperature measured at the depth of injection shall be between 40˚F and 80˚F. If the soil temperature is between 81˚F and 85˚F, the dosage of methyl bromide should be increased by 5 percent over the minimum specified by the CDFA **(provided this will not exceed maximum allowable application rates)**.

   d. Clay soils - There are no recommended treatments for soils which contain more than 30% clay. Clay soil treatments cannot be approved.

   e. Approval duration - Treatments made and approved in accordance with these procedures shall be good for 18 months from the date of treatment to the date of planting provided that the treated area is clean-fallowed and otherwise not exposed to nematode reinfestation.

5. Application Methods.

   a. Dual Application (applies to methyl bromide and Telone II™). Apply the first treatment by injecting the chemical at a minimum depth of 20 inches (51 cm) at a chisel spacing of 30 inches (76 cm) or less; wait at least 7 days (methyl bromide) or at least 14 days (Telone II™), then turn under the top 12 inches (31 cm) of soil with a plow. (Alternatively, soil may be flipped just prior to the second treatment provided the appropriate waiting period has passed.) Apply the second treatment in the same manner as the first application. Seal the surface with a ring roller immediately after each application. Wait at least 14 days following the second treatment before disturbing the soil. (Methyl bromide fumigations must abide by and made in accordance with CCR, Section 6450.3)

   b. Tarping (applies to methyl bromide and Telone II™). Tarping refers to the post-application covering of soil with plastic tarpaulins. For methyl bromide applications, tarpaulins must be approved by the California Department of Pesticide Regulations (see CCR, Section 6450 (e) for details). Two methods may be used to accomplish a complete

coverage of the production area. "Solid tarping" accomplishes coverage in one step using equipment which glues together the overlapping edges of the plastic strips. The outside edges are buried at least 6 inches (15 cm) deep. "Strip tarping" is used in a two-step soil treatment. Soil strips approximately 12 feet (3.7 meters) wide are fumigated and mechanically covered with a plastic tarpaulin, all edges of which should be buried at least 6 inches (15 cm). These strips are alternated with untreated, untarped strips about 10 feet (2.8 meters) wide. After 48 hours the tarps are removed from the treated soil strips and treatment and tarping are applied to the alternate and previously untreated strips.

Methyl bromide and methyl bromide/chloropicrin formulations (mixtures) should be injected at a depth of 10 to 15 inches (25 to 38 cm) on a 12 inch (31 cm) spacing, with the total dosage applied at one time. Tarps should be applied simultaneously with treatment or immediately following. The outside edges of the tarp should be buried at least 6 inches deep. The tarp shall not be cut until a minimum of 5 days (120 hours) following application and tarp removal shall not begin sooner than 24 hours after tarp cutting (see CCR, Section 6450.3 (3) for details). [1]

CONTAINER, FLAT, AND FRAME GROWN NURSERY STOCK

1. Used containers (flats, frames, pots) not cleaned to the satisfaction of the CDFA or the County Agricultural Commissioner, recycled potting mixes or planting materials, and soil, shall be treated prior to planting.

2. Approved Treatments.

   a. Aerated steam in a closed chamber until temperature of all soil reaches at least 140˚ F that is maintained for a minimum of 30 minutes.

   b. Steam in a closed chamber or under a tarpaulin until temperature of all soil reaches 180˚ F.

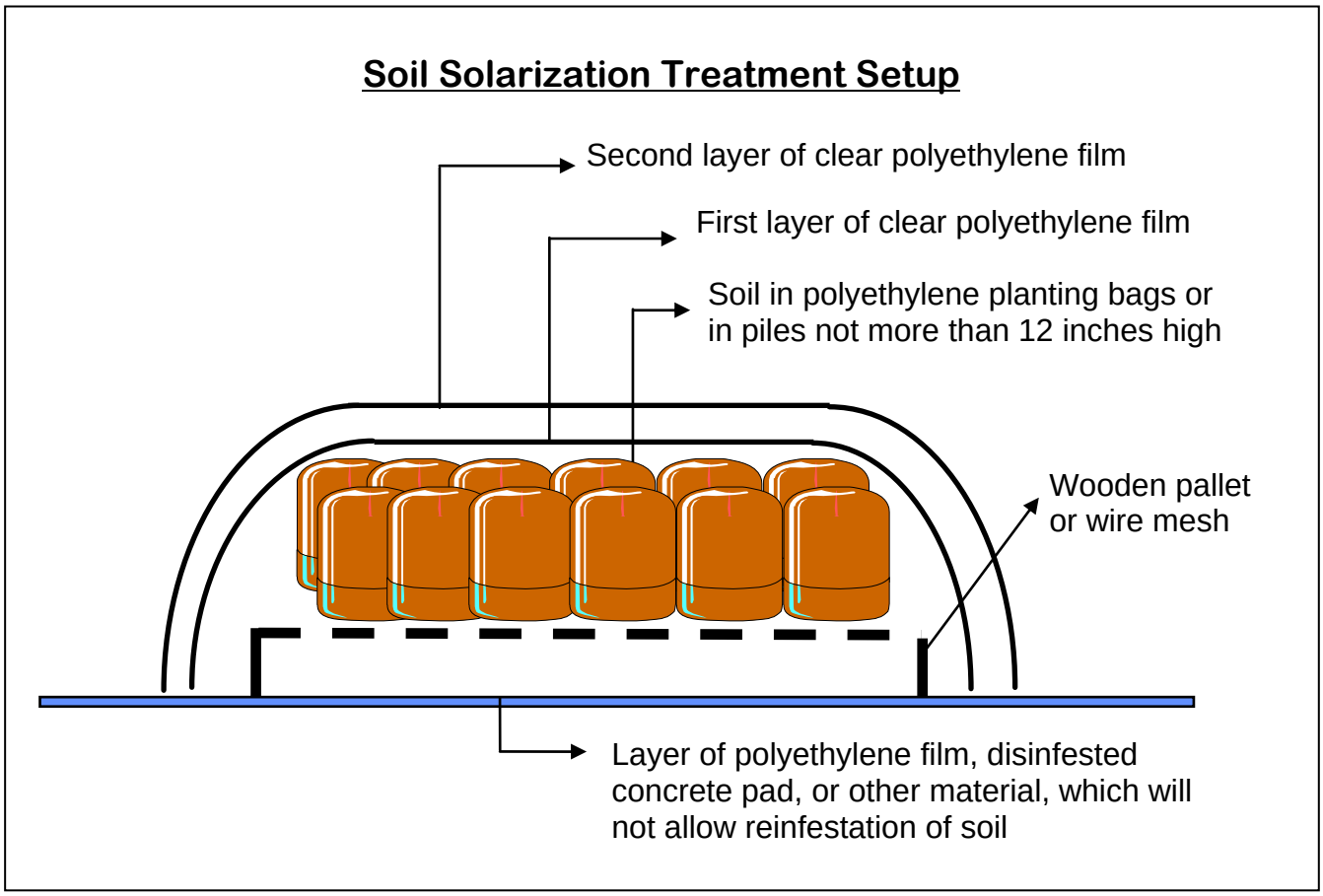
   c. Fumigation with methyl bromide at the rate of 2 pounds per 100 cubic feet under a plastic tarpaulin or in a gas-tight chamber for 24 hours. Soil temperature should not be below 50˚ F when treated. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS**.

   d. Solarization of soil using a “double-tent” setup until temperature of all soil reaches a minimum of 158˚F (70˚C) that is maintained for at least 30 continuous minutes, or a minimum of 140˚F (60˚C) that is maintained for at least 60 continuous minutes. Soil must be either in polyethylene planting bags or in piles not more than 12 inches high. Soil in piles must be placed on a layer of polyethylene film, concrete pad, or other material, which will not allow reinfestation of soil, and covered by a sheet of clear polyethylene film. An additional layer of clear polyethylene film must be suspended over the first layer to create a still air chamber over the soil to be treated. Soil moisture content must be near field capacity. Soil temperature at the bottom center of the pile or bag must be monitored

[1] Pesticide regulations may require a longer period. If so, pesticide regulations or permit conditions will govern the time the tarp must remain in place. Coordination with county pesticide use enforcement officials is necessary.

and recorded to ensure that the minimum temperature of 158˚F (70˚C) for 30 minutes, or 140˚F (60˚C) for 60 minutes is achieved.

3. Following treatment, the soil and containers shall be protected from reinfestation by nematodes.



PLANTING STOCK AND POST-HARVEST HANDLING

1. Planting Stock. Any rooted nursery stock for planting in approved treated soil must meet the Nursery Stock Nematode Certification regulations. If not, it must be sampled and found free of economically important plant-parasitic nematodes or the approved soil treatment will be nullified. (CCR 3055.1)

2. Post-Harvest. Nursery stock produced in accordance with approved procedures shall be stored, healed-in, or calloused in media, beds or storage areas approved by the Department or County Agricultural Commissioner. Treatment as necessary to protect against nematode infestation may be required.

NON-SOIL MEDIA

Non-Soil Media. These growing media include bark, cinders, gravel, peat moss, perlite, rock wool and vermiculite. Other media may be considered non-soil but will be identified on a case-by-case basis.

Schedule A. Protection for a 26-month crop. Treatments in Schedule A shall be required for all properties:

(a) Known to be infested with plant-parasitic nematodes, or not previously treated in accordance with approved treatment and handling procedures and for which the nematode pest status is unknown; and

(b) Upon which the previously grown crop was a nematode host.

This dosage schedule is for nematode control only. It is not recommended for control of soil-borne pathogens such as *Phytophthora* spp. Treatment recommendations for the latter should be obtained from local Farm Advisor(s). **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

		DOSAGE PER ACRE (HECTARE)[1]	
Material	Application Method	Sandy Soils	Clay Loam Soils
Methyl bromide[2] (actual CH_3BR)	Tarped[4]	300 lbs (336 kg) a.i	400 lbs (448 kg) a.i
Methyl Bromide (actual CH_3BR)	Dual Application[3] Untarped	Application #1 300 lbs (336 kg) a.i	Application #1 400 lbs (448 kg) a.i
		Application #2 150 lbs (168 kg) a.i	Application #2 150 lbs (168 kg) a.i

1 One pound per acre equals 1.12 kg per hectare.

2 Formulations (mixtures) of methyl bromide and chloropicrin may be used provided that the actual amount of methyl bromide is not less than the amounts shown in this schedule.

3 Two treatments are required; see item 5.a. on page 2. Applications must be made in accordance with label and permit requirements.

4 See item 5.b. on page 2.

Schedule B. Protection for a 26-month crop and June-budded trees. Treatments in schedule B are approved only for properties on which at least two field-grown crops have been produced, for each of which:

(a) An approved soil treatment to ensure against nematode infestation has been applied, or no nematode infestation has been detected using laboratory methods; and

(b) The property has not been exposed to nematode infestation during the interval between crops.

This dosage schedule is for nematode control only. It is not recommended for control of soil-borne pathogens such as *Phytophthora* spp. Treatment recommendations for the latter should be obtained from local Farm Advisor(s). **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

		DOSAGE PER ACRE (HECTARE)[1]	
Material	Application Method	Sandy Soils	Clay Loam Soils
Methyl bromide[2] (actual CH_3BR)	Tarped[4]	300 lbs (336 kg) a.i	400 lbs (448 kg) a.i
Methyl Bromide (actual CH_3BR)	Dual Application[3] Untarped	Application #1 300 lbs (336 kg) a.i Application #2 150 lbs (168 kg) a.i	Application #1 400 lbs (448 kg) a.i Application #2 150 lbs (168 kg) a.i
Telone II™	Dual Application[3] Untarped	Application #1 332 lbs (351 kg) a.i Application #2 120 lbs (159 kg) a.i	None

1 One pound per acre equals 1.12 kg per hectare; one gallon per acre equals 9.35 liters per hectare.

2 Formulations (mixtures) of methyl bromide and chloropicrin may be used provided that the actual amount of methyl bromide is not less than the amounts shown in this schedule.

3 Two treatments are required; see item 5.a. on page 2. Applications must be made in accordance with label and permit requirements.

4 See item 5.b. on page 2.

Schedule C, Chart I. Treatments in schedule C may be approved for use in growing shallow-rooted nursery plants such as strawberry or vegetable plants, which ordinarily are in place for only one season's growth. If these nursery plants remain in the ground for more than one season, sampling for nematodes will be required.

This dosage schedule is for nematode control only. It is not recommended for control of soil-borne pathogens such as *Phytophthora* spp. Treatment recommendations for the latter should be obtained from local Farm Advisor(s). **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Material	Application Method	DOSAGE PER ACRE (HECTARE)[1] Sandy Soils	Clay Loam Soils
Methyl bromide[2] (actual CH_3BR)	Tarped[4]	200 lbs (224 kg) a.i	300 lbs (448 kg) a.i
Methyl Bromide (actual CH_3BR)	Dual Application[3] Untarped	Application #1 300 lbs (336 kg) a.i	Application #1 400 lbs (448 kg) a.i
		Application #2 150 lbs (168 kg) a.i	Application #2 150 lbs (168 kg) a.i
Telone II™	Dual Application[3] Untarped	Application #1 285 lbs (319 kg) a.i Application #2 142 lbs (159 kg) a.i	None

1 One pound per acre equals 1.12 kg per hectare; one gallon per acre equals 9.35 liters per hectare.
2 Formulations (mixtures) of methyl bromide and chloropicrin may be used provided that the actual amount of methyl bromide is not less than the amounts shown in this schedule.
3 Two treatments are required; see item 5.a. on page 2. Applications must be made in accordance with label and permit requirements.
4 See item 5.b. on page 2.

Schedule C, Chart II. Protection for a 26-month crop. Telone II™, single application, tarped.

This dosage schedule is for nematode control only. It is not recommended for control of soil-borne pathogens such as *Phytophthora* spp. Treatment recommendations for the latter should be obtained from local Farm Advisor(s). **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

		DOSAGE PER ACRE (HECTARE)[1]	
Material	Application Method	Sandy Soils	Clay Loam Soils
Telone II™	Single Application Tarped	332 lbs (372 kg) a.i	None

[1] One pound per acre equals 1.12 kg per hectare; one gallon per acre equals 9.35 liters per hectare. Applications must be made in accordance with label and permit requirements.

Schedule D. Schedule D treatments (Charts I - VII) may be used instead of schedules A, B, or C at lower dosages where appropriate soil moistures, soil textures, and soil temperatures allow. If soil conditions are such that Schedule D cannot be used, the appropriate schedule A, B or C must be used.

Procedure for Schedule D:

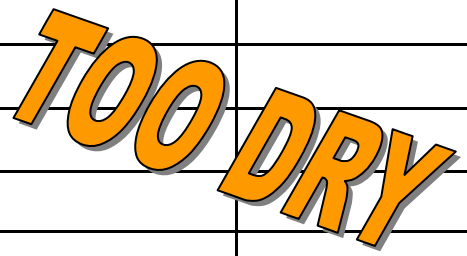
A = Tare Weight
B = Fresh Soil Weight (including Tare Weight)
C = Dried Soil Weight (including Tare Weight)
D = Difference Between Fresh and Dried Soil Weights
E = Dried Soil Weight Minus Tare Weight
F = % Soil Moisture

Procedure for Selection of Treatment Rates and Methods

1. Use local experience or a soils map to locate the site where the highest soil moisture is expected. The wettest site is usually of finer texture or has a hard pan layer within the soil profile.
2. Take soil samples at each 12-inch increment down to 5 feet. Sub-samples are not necessary. Determine, by the feel method, the soil texture at each depth and record on the data sheet. Place each soil sample (pint each) into a moisture-tight container. Seal and label according to site and depth.
3. Record the soil temperature at the 12 inch depth only. Allow 5 minutes for equilibration before recording on the data sheet.
4. Now select an area of the field which you estimate is representative of the nursery site relative to field moisture. Repeat steps 2 and 3 above and record data.
5. At the location of the scales and microwave oven, mix each soil sample and place 100 to 150 grams of soil into each weighing dish. Weigh immediately, record weights and place into oven with lids off. About 10 soil samples can be dried simultaneously. An open vessel of water should not be placed in the oven when using a modern microwave oven. The oven should be run at high range (650 watts) for 15 minutes.
6. Oven-dried samples will absorb moisture from the atmosphere if they are allowed to sit in the open. Therefore, weigh each dish quickly and record the dry weights of the samples.
7. Calculate the difference in weight between the fresh and dried soil (B minus C = D).
8. Subtract the tare weight from the dried soil weight (C minus A = E).
9. Divide the difference in weight by the dried soil weight to compute the % of soil moisture (D/E) x 100 = F).
10. You now have a record of soil texture, temperature, and moisture within the 5-foot soil profile. A fumigation is limited by the highest soil moisture. For example, if a soil profile has a silt layer at the 3 ft. depth, which exceeds the fumigation range on the fumigation charts, do not expect to kill nematodes below the 3 ft. depth. In every case except one, the treatment must be delivered to the 5 ft. depth. The one possible exception is a soil which has a hardpan layer which does not contain old roots. In such a case, control to the hardpan layer is all that is necessary. However, many hardpan layers have fracture points which may contain old roots.
11. Additional soil samples may be helpful if there is disparity across the field due to high moisture areas or if the field is quite large (more than 20 acres). Additional sampling is at the discretion of the inspector.

<u>Schedule D, Chart I</u>. Protection for a 26-month crop. Methyl bromide with a high barrier tarp such as HBF-1. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C				10 to 20˚C	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	200 lbs. a.i					
3 to 8%		200 lbs. a.i				
4 to 10%			200 lbs. a.i			
10 to 12%			300 lbs. a.i			
6 to 14%				300 lbs. a.i		
14 to 18%				400 lbs. a.i		
8 to 12%					300 lbs. a.i.	
12 to 18%					350 lbs. a.i	
18 to 22%					400 lbs. a.i	
15 to 22%						400 lbs. a.i.
22 to 35%						



- Numbers indicate the pounds per acre of methyl bromide. Highest soil moisture percent in the top five feet of soil shall be considered.

Schedule D, Chart II. Protection for a 26-month crop. Telone II™, soil flipped at 10 to 12" depth after 14 to 30 days and retreated with Telone II™. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	**5 to 25˚C**		**10 to 25˚C**		**15 to 20˚C**	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	285/190 lbs. a.i					
3 to 6%		285/190 lbs. a.i				
6 to 8%						
4 to 7%			285/190 lbs. a.i			
7 to 10%						
10 to 12%						
6 to 14%						
14 to 18%						
8 to 12%						

TOO DRY

TOO WET

- Numbers indicate pounds of active ingredient of Telone II™ applied at a minimum depth of 16 inches and a chisel spacing of 30 inches (76 cm) or less. Second application 14 to 30 days later at the lower dosage. Treatment followed by ring roller or compaction device. Highest soil moisture percent in the top five feet of soil shall be considered.

Schedule D, Chart III. Protection for a 26-month crop. Telone II™, not flipped, followed within 7 to 21 days (on or after 7th day but not later than the 21st day) with 20 gallons metam-sodium rototilled into the top 4 inches or sprinkled in with 3 inches of water. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C		10 to 25˚C		15 to 20˚C	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	332 lbs. a.i					
3 to 8%		332 lbs. a.i				
4 to 8%			332 lbs. a.i			
8 to 12%			475 lbs. a.i			
6 to 14%				475 lbs. a.i		
14 to 18%				570 lbs. a.i		
8 to 12%					570 lbs. a.i	
12 to 18%					665 lbs. a.i	
18 to 22%					760 lbs. a.i	
15 to 22%						760 lbs. a.i

- Numbers indicate the pounds of active ingredient of Telone II™ applied at a minimum depth of 16 inches and a chisel spacing of 30 inches (76 cm) or less. Treatment followed by ring roller or compaction device. Highest soil moisture percent in the top five feet of soil shall be considered.

Schedule D, Chart IV. Protection for a 14-month crop. Methyl bromide, not tarped, followed by Vydate (Oxamyl) at 1 pound active ingredient monthly through emitter tubing with 12 inch or less emitter spacings (drip irrigation). Do not use Chart IV if pencil-sized or larger viable roots are present in the top 12 inches of soil. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C				10 to 20˚C	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	200 lbs. a.i					
3 to 8%		200 lbs. a.i				
4 to 10%			200 lbs. a.i			
10 to 12%			300 lbs. a.i			
6 to 14%				300 lbs. a.i		
8 to 17%					300 lbs. a.i	
17 to 22%					400 lbs. a.i	
15 to 22%						400 lbs. a.i
22 to 35%						

TOO DRY

TOO WET

- Numbers indicate the pounds of methyl bromide applied per acre with shanks 18 or more inches deep. Highest soil moisture percent in the top five feet of soil shall be considered. It is not necessary to apply monthly applications of Vydate until the crop is planted and the soil temperature exceeds 14˚C at a depth of 12 inches.

Schedule D, Chart V. Protection for a 14-month crop. Telone II™, not flipped, followed by Vydate (Oxamyl) monthly through emitter tubing with 12 inch or less emitter spacings (drip irrigation). Do not use Chart V if pencil-sized or larger viable roots are present in the top 12 inches of soil. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C		10 to 25˚C		15 to 20˚C	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	190 lbs. a.i					
3 to 8%		190 lbs. a.i				
4 to 9%			190 lbs. a.i			
9 to 12%			285 lbs. a.i			
6 to 9%				190 lbs. a.i		
9 to 14%				285 lbs. a.i		
14 to 18%						
8 to 12%					285 lbs. a.i	
12 to 18%						

TOO DRY

TOO WET

- Numbers indicate the pounds of active ingredient of Telone II™ applied at a minimum depth of 16 inches and a chisel spacing of 30 inches (76 cm) or less. Treatment followed by ring roller or compaction device. Highest soil moisture percent in the top five feet of soil shall be considered. It is not necessary to apply monthly applications of Vydate until the crop is planted and the soil temperature exceeds 14˚C at a depth of 12 inches.

Schedule D, Chart VI. Protection for a 14-month crop. Methyl bromide with shanks no more than 2.7 feet apart, not tarped, and only if the surface 8 inches of soil is in the "too dry" category. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C		
Soil Moisture	Sand	Loamy Sand	Sandy Loam
2 to 6%	300 lbs. a.i		
3 to 8%		300 lbs. a.i	
4 to 10%			300 lbs. a.i

- Numbers indicate the pounds of methyl bromide applied per acre with shanks 18 or more inches deep. Highest soil moisture percent in the top five feet of soil shall be considered.

Schedule D, Chart VII. Protection for a 26-month crop. Telone II™, applied simultaneously with 20 gallons of metam-sodium rototilled into the top 4 inches or sprinkled in with 3 inches of water. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	5 to 25˚C		10 to 25˚C		15 to 20˚C	
Soil Moisture	Sand	Loamy Sand	Sandy Loam	Loam	Clay Loam	Clay
2 to 6%	332 lbs. a.i					
3 to 8%		332 lbs. a.i				
4 to 8%			332 lbs. a.i			
8 to 12%			475 lbs. a.i			
6 to 14%				475 lbs. a.i		
14 to 18%				570 lbs. a.i		
8 to 12%					570 lbs. a.i	
12 to 18%					665 lbs. a.i	
18 to 22%					760 lbs. a.i	
15 to 22%						760 lbs. a.i

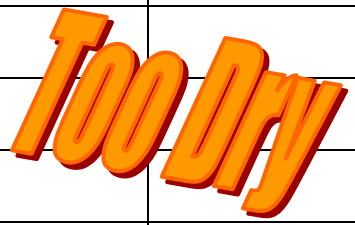
TOO DRY

TOO WET

- Numbers indicate the pounds of active ingredient of Telone II™ applied at a minimum depth of 16 inches and a chisel spacing of 30 inches (76 cm) or less. Treatment followed by ring roller or compaction device. Highest soil moisture percent in the top five feet of soil shall be considered.

*****Schedule E, Chart I.** Protection for a 26-month crop. 235 lb/ac of methyl iodide, at 18-22" inch depth plus 150 lb/acre Chloropicrin, at 26-30" depth plus 110 lb/ac of metam-sodium. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy Sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
3 to 6%	235/150/110						
4 to 8%		235/150/110					
5 to 10%			235/150/110				
6 to 12%				235/150/110			
7 to 12%					235/150/110		
8 to 10%						235/150/110	
12 to 18%							
18 to 20%							



#Pluot, plum, prune and cherry scions can exhibit iodide toxicity in sandy soils.
*****Not currently registered for use in California.**

*****Schedule E, Chart II.** Protection for a 26-month crop. *25 gpa Telone II™, at 18-22" inch depth plus 25 gpa Telone II™, at 26-30" depth plus 110 lb/ac of metam-sodium. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy Sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
5 to 10%							
6 to 12%							
10 to 15%						25/25/110	
12 to 15%					25/25/110		
15 to 19%							

*Must use Buessing winged shank in soil pre-ripped to 4 ft on 2 ft centers.
*****Not currently registered for use in California.**

Schedule E, Chart III. Protection for a 26-month crop. *33.7 gpaTelone II™, at 18-22" plus 250 lb/ac Chloropicrin, at 26-30" depth plus 110 lb/ac metam-sodium or tarp. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy Sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
5 to 10%							
6 to 12%							
10 to 15%					33.7/250/110		
12 to 15%						33.7/250/110	

*Must use Buessing winged shank in soil pre-ripped to 4 ft on 2 ft centers.

*****Schedule E, Chart IV.** Protection for a 26-month crop. **235 lb/ac methyl iodide, at 18-22" plus 300 lb/ac Chloropicrin at 26-30" depth then 110 lb/ac metam-sodium or tarp. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE.**

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy Sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
5 to 10%							
6 to 12%							
10 to 15%							
12 to 15%					235/300/110		
15 to 19%						235/300/110	

** Must use Buessing winged shank in soil pre-ripped to 5 ft on 2 ft centers.
#Pluot, plum, prune and cherry scions can exhibit iodide toxicity in sandy soils.
*****Not currently registered for use in California.**

Schedule E, Chart V. Protection for a 26-month crop. **33.7 gpa Telone II™, at 18-22" plus 350 Chloropicrin lb/ac at 26-30" depth then 110 lb/ac metam-sodium or tarp. **CHECK WITH COUNTY PESTICIDE USE ENFORCEMENT OFFICIALS PRIOR TO TREATMENT TO ENSURE COMPLIANCE WITH CURRENT STATE / COUNTY PESTICIDE USE RESTRICTIONS.**

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy Sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
5 to 10%							
6 to 12%							
10 to 15%							
12 to 15%							
15 to 19%						33.7/350/110	

** Must use Buessing winged shank in soil pre-ripped to 5 ft on 2 ft centers.

***** Schedule E, Chart VI.** Protection for a 26-month crop. **33.7 gpa Telone II™, at 18-22" plus 33.7 gpa Telone II™ at 30" depth then 110 lb/ac metam-sodium or tarp.

Temperature	**5 to 25 C°**		**10 to 25 C°**			**15 to 25 C°**	
Soil Moisture	Sand	Loamy sand	Coarse Sandy Loam	Fine Sandy Loam	Loam	Clay Loam	Clay
5 to 10%							
6 to 12%							
10 to 15%							
12 to 15%							
15 to 19%						33.7/33.7/110	

** Must use Buessing winged shank in soil pre-ripped to 5 ft on 2 ft centers.
*****Not currently registered for use in California.**

NURSERY SITE PRETREATMENT SOIL CONDITIONS DOCUMENTATION FORM

Site Depth		Temperature	Texture	Soil Moisture Content					
				Tare Wt.	Fresh Soil Wt.	Dried Soil Wt.	Difference	Dried Wt. Minus Tare Wt.	% Soil Moisture
				A	B	C	D	E	F
		˚C							
Wettest	1'								
	2’								
	3’								
	4’								
	5'								
		˚C							
Driest	1’								
	2’								
	3’								
	4’								
	5’								

SOIL TEXTURAL CLASS CHARACTERISTICS

Notes:

(1) The Natural Resources Conservation Service (NRCS) of the USDA has characterized the soil textures of almost all nursery sites in California. Their soil texture analyses provide a definitive guide to prevailing soil textures. However, the NRCS surveys could not evaluate and characterize the small localized textural differences that may be present in every field. Therefore, soil textural descriptions are provided below to serve as an in-field aid for confirming NRCS determinations or for modifying them as appropriate.

(2) The following soil type characteristics may not all occur with any particular soil type because of differences in clay and organic matter content, exchangeable cation ratios, or amount of soluble salts present.

SAND OR LOAMY SAND

Dry: Loose, single grained; gritty; no or very weak clods.
Moist: Gritty; forms easily crumbled ball; does not ribbon.
Wet: Lacks stickiness, but may show faint clay staining (loamy sand especially). Individual grains can be both seen and felt under all moisture conditions.

SANDY LOAM

Individual grains can be seen and felt under nearly all conditions.
Dry: Clods break easily.
Moist: Moderately gritty to gritty; forms ball that stands careful handling; ribbons very poorly.
Wet: Definitely stains fingers; may have faint smoothness or stickiness, but grittiness dominates.

LOAM

This is the most difficult texture to place since characteristics of sand, silt, and clay are all present but none predominates. Suggests other textures.
Dry: Clods slightly difficult to break; somewhat gritty.
Moist: Forms firm ball; ribbons poorly; may show poor fingerprint.
Wet: Gritty; smooth, and sticky all at same time. Stains fingers.

SILT OR SILT LOAM

Grittiness of sand is well masked by other separates. (Texture most likely SILT LOAM, there are a few SILT soils.)
Dry: Clods moderately difficult to break and rupture suddenly to a floury powder that clings to fingers; shows fingerprint.
Moist: Has smooth, slick, velvety, or buttery feel; forms firm ball; may ribbon slightly before breaking; shows good fingerprint.
Wet: Smooth with some stickiness from clay; stains fingers.

SANDY CLAY LOAM

Dry: Clods break with some difficulty.
Moist: Forms firm ball that dries moderately hard; forms ½" ribbons that hardly sustain own weight; may show poor to good fingerprint.
Wet: Grittiness of sand and stickiness of clay about equal, masking smoothness of silt; stains fingers.

CLAY LOAM

Dry: Clods break with difficulty.

Moist: Forms firm ball that dries moderately hard; ribbons fairly well, but ribbons barely support own weight; shows fair to good fingerprint.

Wet: Moderately sticky with stickiness dominating over grittiness and smoothness; stains fingers.

SILTY CLAY LOAM

Resembles SILT LOAM but with more stickiness of clay.

Dry: Clods break with difficulty.

Moist: Shows a good fingerprint; forms a firm ball; drying moderately hard; ribbons ½"-1" that can be fairly thin.

Wet: Stains fingers; has sticky-smooth feel with little grittiness of sand.

SANDY CLAY

Dry: Often cloddy, clods broken only with extreme pressure.

Moist: Forms very firm ball, drying quite hard; shows fingerprint; squeezes to thin, long, somewhat gritty ribbon.

Wet: Stains fingers; clouds water; usually quite sticky and plastic, but has some grittiness present.

SILTY CLAY

Dry: Same as SANDY CLAY.

Moist: Forms very firm ball; becoming quite hard on drying; shows fingerprint; squeezes out to a thin, long, smooth ribbon.

Wet: Stains fingers, clouds water, stickiness dominates over smoothness, grittiness is virtually absent.

CLAY

Dry: Cloddy, clods often cannot be broken even with extreme pressure.

Moist: Forms firm, easily molded ball; drying very hard; squeezes out to a very thin ribbon 2-3" long.

Wet: Stains fingers, clouds water; usually very sticky with stickiness masking both smoothness and grittiness; wets slowly.