

HORTICULTURAL CROPS

HOME VEGETABLE INSECT CONTROL

Alton N. Sparks, Jr., Extension Entomologist

NOTE: Insecticide registrations can change rapidly and can vary with the specific product or formulation of the product used (e.g. not all products containing malathion are labeled for use on the same crops; not all formulations of Sevin have the same use patterns). Always carefully read and follow the label instructions for the specific product being applied. If using transplants, make sure plants are free of pests before purchasing.

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
All crops	Multiple pests	pyrethrins pyrethrins+PBO	RTU	0	Provides rapid knock down and suppression of most pests directly contacted. Little or no residual activity.
	Soil pests	bifenthrin 0.115% granular	1 lb. per 500 sq. ft.		Apply prior to planting and work into top 4-6 inches of soil. (May also be applied to bifenthrin labeled crops with PHI same as foliar application s).
	Slugs and Snails	metaldehyde	See label		Do not contact plants with material.
		iron phosphate	See label		Do not contact plants with material.
	Fire Ants	Esteem Ant Bait is registered for use in man y vegetable crops (see label). Spinosad products may be used as a mound drench in crops where foliar applications are allowed (see label). Other ant bait s may be used around the garden, which for small gardens is frequently ad equate.			
Leafminers	No general use insecticides provide control of leafminer larvae inside leaves. Spinosad products may provide some suppression on registered crops. Leafminer problems are frequently caused by overuse of insecticides. Hand-pick mined leaves.				
Asparagus	asparagus beetle, cutworms	carbaryl (Sevin) 22.5%	1.5-3 oz.	1	Also available as a ready-to-use product.
		permethrin 2.5% 0.25% dust	1.5 oz. Dust plants lightly	1 1	
		spinosad 0.5%	2 oz.	60	Post-harvest treatment only.
Beans, Peas	aphids	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	green-3 dry-21	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	7	
		malathion 50%	1.5-2 tsp.	bean-1 peas-3	
		insecticidal soap	follow label direc- tions	0	No residual activity. Thorough coverage is essential.
	bean beetles (Mexican bean beetle, bean leaf beetle), caterpillars (corn earworm), cowpea curculio, stink bugs	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.
		carbaryl 22.5% 5% dust 10% dust	0.75-1.5 oz. 0.5-1 lb. 0.25-0.5 lb.	fresh-3 dry-21	Also available as a ready-to-use product. Not for stink bugs or caterpillars.
		esfenvalerate 0.425%	2 Tbs.	green-3 dry-21	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	7	
		spinosad 0.5%	2 oz.	3	For caterpillar pests only. Will also suppress thrips and leafminers.
		NOTE: For cowpea curculio make 3 applications at 5 day intervals starting when pods are ½ inch long.			

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS	
Beans, Peas (cont.)	spider mites	malathion 50%	1 Tbs.	beans-1 peas-3	Marginal control of this pest.	
		sulfur 90%	2 Tbs.	0	Do not use if > 95 degrees. Do not use within 3 weeks of oil spray.	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
	NOTE: Bifenthrin applied at high rates may provide suppression of mites.					
	whitefly	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
		pyrethrins+PBO	RTU	0	No residual activity.	
Beets	flea beetles	carbaryl 22.5% 5% dust 10% dust	0.75-1.5 oz. 0.25-0.5 lb. 0.125-0.25 lbs.	Root-7 tops-14	Also available as a ready-to-use product.	
		malathion 50%	1 Tbs.	7		
Broccoli, Brussels Sprouts, Cabbage, Cauliflower	aphid	acetamiprid 0.006%	RTU	7		
		bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	3	Not for use on Brussels Sprouts. Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	1	Also available as a ready-to-use product.	
		lambda-cyhalothrin 0.5%	1 Tbs.	1	Also available as a ready-to-use product.	
		malathion 50%	1.5-2 tsp.	broccoli-3 others-7		
		permethrin 2.5% 0.25% dust	1 oz. Dust plants lightly	1		
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
	caterpillars on foliage, cutworms	<i>Bacillus thuringiensis</i> (Dipel, Thuricide and other formulations)	Follow label directions.	0	Not for cutworms. Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.	
		bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	3	Not for use on Brussels Sprouts. Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	1	Also available as a ready-to-use product.	
		lambda-cyhalothrin 0.5%	1 Tbs.	1	Also available as a ready-to-use product.	
		permethrin 2.5% 0.25% dust	1 oz. Dust plants lightly	1	Not registered for cutworms.	
		spinosad 0.5%	2 oz.	1	Not registered for cutworms.	

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
Broccoli, Brussels Sprouts, Cabbage, Cauliflower (cont.)	flea beetles, stink bugs, harlequin bug	bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.
		carbaryl 22.5% 5% dust 10% dust	0.75-1.5 oz. 0.25-0.5 lb. 0.125-0.25 lb.	3	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	3	Not for use on Brussels Sprouts. Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs		Also available as a ready-to-use product.
		lambda-cyhalothrin 0.5%	1 Tbs.	1	Also available as a ready-to-use product.
		permethrin 2.5% 0.25% dust	1 oz. Dust plants lightly	1	
Cantaloupe, Cucumber, Pumpkin, Squash, Watermelon Apply sprays late in the day to reduce kill of pollinating insects.	aphid	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	3	Also available as a ready-to-use product.
		malathion 50%	2 tsp.	Pumpkin-3 Others-1	Use and registration varies with specific product. Do not apply unless leaves are dry.
		permethrin 0.25% dust	Dust plants lightly	0	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
	cucumber beetle adults, squash bug, pickleworm, melonworm, rindworms	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.
		carbaryl 22.5% 5% dust 10% dust	1.5 oz. 0.5 lb. 0.25 lb.	3	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	3	Also available as a ready-to-use product.
		permethrin 0.25% dust	Dust plants lightly	0	
		spinosad 0.5%	2 oz.	cucumber-1 others-3	For caterpillar control only.
		NOTE: Late planted crops are heavily attacked by pickleworm and melonworm. Begin treatments at first bloom and repeat weekly as needed.			
	Squash vine borer	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product. Direct sprays at base of plants.
		esfenvalerate 0.425%	2 Tbs.	3	Also available as a ready-to-use product. Direct sprays at base of plant.
	Spider mites	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
		malathion 50%	2 tsp.	Pumpkin-3 Others-1	Use and registration varies with specific product. Marginal control of this pest. Do not apply unless leaves are dry.
		NOTE: Bifenthrin applied at high rates may provide suppression of mites.			

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
Cantaloupe, Cucumber, Pumpkin, Squash, Watermelon (cont.)	whitefly	bifenthrin 0.3%	1.5 oz.	3	Also available as a ready-to-use product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
		pyrethrins+PBO	RTU	0	No residual activity.
Collards	aphid	acetamiprid 0.006%	RTU	7	
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		malathion 50%	2 tsp.	7	Use and registration varies with specific product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
	caterpillars on foliage	Bacillus thuringiensis (Dipel, Thuricide and other formulations)	Follow label directions.	0	Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.
		carbaryl 22.5% 5% dust 10% dust	1.5-3 ozs. 0.5-1 lb. 0.25-0.5 lb.	14	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		spinosad 0.5%	2 oz.	1	
	flea beetles, harlequin bug, stink bugs	carbaryl 22.5% 5% dust 10% dust	0.75-1.5 ozs. 0.25-0.5 lb. 0.125-0.25 lb.	14	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
Corn, Sweet	corn earworm, fall armyworm, European corn borer flea beetle, cucumber beetle, stink bug	bifenthrin 0.3%	1.5 oz.	1	Also available as a ready-to-use product.
		carbaryl 22.5% 5% dust 10% dust	1.5-3 oz. 0.75-1.0 lb. 0.4-0.5 lb.	2	Not for stink bug control. Also available as a ready-to-use product.
		cyfluthrin 0.75%	1 Tbs.	0	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	1	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	21	Also available as a ready-to-use product.
		lambda-cyhalothrin 0.5%	1 Tbs.	21	Also available as a ready-to-use product.
		permethrin 2.5% 0.25% dust	1.5 oz. Dust plants lightly	1	
		spinosad 0.5%	2 oz.	1	For control of caterpillar pests only.
		NOTE: For caterpillar pests of ears, begin treatment when silks appear. Repeat at 2 day interval with sprays directed at ears.			

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
Eggplant	aphid	acetamiprid 0.006%	RTU	7	
		bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	5	
		malathion 50%	2 tsp.	3	Use and registration varies with specific product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
	Caterpillars on foliage Colorado potato beetle flea beetle	bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.
		carbaryl 22.5%	1.5-3 oz.	3	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	5	
		permethrin 2.5% 0.25% dust	3 oz. Dust plants lightly	3	
		spinosad 0.5%	2 oz.	1	Not for use against flea beetles..
	lacebug	bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.
		carbaryl 22.5%	1.5-3 oz.	3	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	5	Also available as a ready-to-use product.
	spider mite	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
		malathion 50%	2 tsp.	3	Use and registration varies with specific product. Marginal control of this pest.
		NOTE: Bifenthrin applied at high rates may provide suppression of mites.			
	whitefly	acetamiprid 0.006%	RTU	7	
		bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
pyrethrins+PBO		RTU	0	No residual activity.	
Lettuce, Spinach	aphid	acetamiprid 0.006%	RTU	7	
		bifenthrin 0.3%	1.5 oz.	7	For use on head lettuce only. Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	1	For use on lettuce only. Also available as a ready-to-use product.
		lambda-cyhalothrin 0.5%	1 Tbs.	1	For use on lettuce only. Also available as a ready-to-use product.
		malathion 50%	1.5-2 tsp.	head - 7 leaf - 14 spinach - 7	Use and registration varies with specific product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
Lettuce, Spinach	caterpillars on foliage, flea beetles, harlequin bug, and stink bug	<i>Bacillus thuringiensis</i> (Dipel, Thuricide and other formulations)	Follow label directions.	0	For control of caterpillar pests only. Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.
		bifenthrin 0.3%	1.5 oz.	7	For use on head lettuce only. Also available as a ready-to-use product.
		carbaryl 22.5% 5% dust 10% dust	1.5 - 3 oz. 0.5 - 1 lb. 0.25 - 0.5 lb.	14	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs.	1	For use on lettuce only. Also available as a ready-to-use product.
		lambda-cyhalothrin 0.5%	1 Tbs.	1	For use on lettuce only. Also available as a ready-to-use product.
		permethrin 2.5% 0.25% dust	2 oz. Dust plants lightly		
		spinosad 0.5%	2 oz.	1	For control of caterpillar pests only.
Mustard greens	aphid	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
		acetamiprid 0.006%	RTU	7	
		malathion 50%	2 tsp.	7	Use and registration varies with specific product.
	caterpillars on foliage	<i>Bacillus thuringiensis</i> (Dipel, Thuricide and other formulations)	Follow label directions.	0	Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.
		carbaryl 22.5% 5% dust 10% dust	1.5 - 3 oz. 0.5 - 1.0 lb. 0.25 - 0.5	14	Also available as a ready-to-use product.
		spinosad 0.5%	2 oz.	1	
	flea beetles	carbaryl 22.5% 5% dust 10% dust	0.75 - 1.5 oz. 0.25 - 0.5 lb. 0.125 - 0.25 lb.	14	Also available as a ready-to-use product.
Okra	aphid	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
		malathion 50%	2 tsp.	1	Use and registration varies with specific product.
	caterpillar pests	spinosad 0.5%	2 oz.	1	

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS	
Onions	thrips	gamma-cyhalothrin 0.25%	1 Tbs	14	Also available as a ready-to-use product.	
		lambda-cyhalothrin 0.5%	1 Tbs.	14	Also available as a ready-to-use product.	
		malathion 50%	2 tsp.	3	Use and registration varies with specific product.	
Peppers	aphid	acetamiprid 0.006%	RTU	7		
		bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	5		
		malathion 50%	2 tsp.	3	Use and registration varies with specific product.	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
	caterpillar pests, flea beetle	bifenthrin 0.3%	1.5 oz.	7	Also available as a ready-to-use product.	
		carbaryl 22.5% 5% dust 10% dust	1.5-3 oz. 0.5-1 lb. 0.25-0.5 lb.	3	Also available as a ready-to-use product.	
		cyfluthrin 0.75%	1 Tbs.	7	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	5		
		permethrin 2.5% 0.25% dust	2 oz. Dust plants lightly	3		
		spinosad 0.5%	2 oz.	1	For control of caterpillar pests only.	
	spider mites	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
		malathion 50%	2 tsp.	3	Use and registration varies with specific product. Marginal control of this pest.	
		NOTE: Bifenthrin applied at high rates may provide suppression of mites.				
	Potatoes, Irish	aphid	esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
			malathion 50%	1.5-2 tsp.	0	
permethrin 2.5% 0.25% dust			1.5 oz. Dust plants lightly	14		
insecticidal soap			follow label directions	0	No residual activity. Thorough coverage is essential.	

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS
Potatoes, Irish (cont.)	Colorado potato beetle, flea beetles, potato tuberworm	carbaryl 22.5% 5% dust 10% dust	1.5-3 oz. 0.25-0.5 lb. 0.125-0.25 lb.	7	Not for control of potato tuberworm. Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		permethrin 2.5% 0.25% dust	1.5 oz. Dust plants lightly	14	
		spinosad 0.5%	2 oz.	7	
		NOTE: For potato tuberworm, treat when foliage or tuber damage is noticed. Store tubers promptly after digging to avoid tuberworm infestation in storage.			
Potatoes, sweet	Flea beetles, cucumber beetles	carbaryl 22.5%	1.5-3 oz.	7	Also available as a ready-to-use product.
		malathion 50%	4 tsp.	3	
	Caterpillars on foliage	<i>Bacillus thuringiensis</i> (Dipel, Thuricide and other formulations)	Follow label directions.	0	Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.
		carbaryl 22.5%	1.5-3 oz.	7	Also available as a ready-to-use product.
		spinosad 0.5%	2 oz.	7	
	sweet potato weevil	carbaryl 22.5%	1.5-3 oz.	7	Also labeled as pre-plant dip (follow label). Also available as a ready-to-use product.
Radishes	aphid	esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
		malathion 50%	1.5-2 tsp.	7	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
	flea beetle	carbaryl 22.5% 5% dust 10% dust	0.75-1.5 oz. 0.25-0.5 lb. 0.125-0.25 lb.	7	Also available as a ready-to-use product.
		cyfluthrin 0.75%	1 Tbs.	0	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	7	Also available as a ready-to-use product.
Tomato	aphid	acetamiprid 0.006%	RTU	7	
		bifenthrin 0.3%	1.5 oz.	1	Also available as a ready-to-use product.
		cyfluthrin 0.75%	1 Tbs.	0	Also available as a ready-to-use product.
		esfenvalerate 0.425%	2 Tbs.	1	Also available as a ready-to-use product.
		gamma-cyhalothrin 0.25%	1 Tbs	5	Also available as a ready-to-use product.
		lambda-cyhalothrin 0.5%	1 Tbs.	5	Also available as a ready-to-use product.
		malathion 50%	1.5-2 tsp.	1-7	PHI varies with specific product.
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.

HOME VEGETABLE INSECT CONTROL (continued)

VEGETABLE	INSECT	INSECTICIDE AND FORMULATION	AMOUNT OF FORMULATION PER GALLON OF SPRAY	PHI (DAYS)	REMARKS AND PRECAUTIONS	
Tomato (cont.)	flea beetles, Colorado potato beetle, fruitworm, hornworm, tomato pinworm	bifenthrin 0.3%	1.5 oz.	1	Also available as a ready-to-use product.	
		carbaryl 22.5% 5% dust 10% dust	1.5-3 oz. 0.5-1 lb. 0.25-0.5 lb	3	Primarily for control of beetles. Also available as a ready-to-use product.	
		cyfluthrin 0.75%	1 Tbs.	0	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	1	Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	5	Also available as a ready-to-use product.	
		lambda-cyhalothrin 0.5%	1 Tbs.	5	Also available as a ready-to-use product.	
		permethrin 2.5% 0.25% dust	1.5 oz. Dust plants lightly	0	Not registered for cutworms.	
		spinosad 0.5%	2 oz.	1	Not registered for flea beetles or cutworms.	
	spider mites	sulfur 90%	2 Tbs.	0	Do not use if > 95 degrees. Do not use within 3 weeks of oil spray.	
		insecticidal soap	follow label directions	0	No residual activity Thorough coverage is essential.	
		NOTE: Bifenthrin applied at high rates may provide suppression of mites.				
	stink bug, leaffooted bug	bifenthrin 0.3%	1.5 oz.	1	Weekly treatments may be needed for late season control.	
		cyfluthrin 0.75%	1 Tbs.	0	Also available as a ready-to-use product.	
		esfenvalerate 0.425%	2 Tbs.	1	Also available as a ready-to-use product.	
		gamma-cyhalothrin 0.25%	1 Tbs	5	Also available as a ready-to-use product.	
		lambda-cyhalothrin 0.5%	1 Tbs.	5	Also available as a ready-to-use product.	
		NOTE: Weekly treatments may be needed for late season control.				
	whitefly	acetamiprid 0.006%	RTU	7		
		bifenthrin 0.3%	1.5 oz.	1	Also available as a ready-to-use product.	
		insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.	
		pyrethrins+PBO	RTU	0	No residual activity.	
	Turnips	aphid	insecticidal soap	follow label directions	0	No residual activity. Thorough coverage is essential.
			malathion 50%	2 tsp.	7	Use and registration varies with specific product.
caterpillars on foliage		carbaryl 5% dust 10% dust	0.5-1 lb. 0.25-0.5	Tops - 14 Root - 7	Also available as a ready-to-use product.	
		<i>Bacillus thuringiensis</i> (Dipel, Thuricide and other formulations)	Follow label directions.	0	Treat as soon as damage is found and repeat as needed. Susceptible larvae will stop feeding soon after eating treated foliage but may not die for several days.	
flea beetles, harlequin bug		carbaryl 5% dust 10% dust	0.25-0.5 lb. 1.25-2.5 lb.	Tops - 14 Root - 7	Also available as a ready-to-use product.	

HOME VEGETABLE DISEASE CONTROL

Elizabeth Little, Extension Homeowner IPM Specialist

**Please note: This is not an all-inclusive list of products available to homeowners. It is a list of commonly used products available at local retail locations. This guide can be used to find additional products by referencing the active ingredient and searching for products containing that active ingredient at your local store. Remember to ALWAYS read the label carefully and follow ALL directions, restrictions, and precautions listed in the manufacturer's label!

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
ASPARAGUS					
Cercospora Leaf spot	Bonide Mancozeb Flowable	Mancozeb	2 tbsp./gal.	120	
Crown Rot and Root Rot	Dragon Mancozeb Disease Control	Mancozeb	6 tsp./gal.		
Bacterial Blight	Bonide Copper Spray or Dust	Copper	2 ½ - 5 ozs./gal.	NTL	See label
	Dragon Copper Fungicide		4 tsp./gal.	NTL	
	Hi-Yield Copper Fungicide		2 - 4 tsp./gal.	NTL	
Powdery Mildew	Sulfur - spray or dust (Several brands until available)	See label	NTL		Apply at first appearance and continue on 7- 10 day intervals disease is no longer present.
Rust	Ortho Garden Disease Control	Chlorothalonil	1.0 Tbs./gal.	7	See Label.
	Sulfur (spray or dust)	Sulfur	NTL		Begin application during early bloom stage. (With Top Cop: 4 applications are usually sufficient).
	Dragon Mancozeb Disease Control	Mancozeb	3 tsp./gal	180	Apply these products only after harvest.
	Bonide Mancozeb Flowable	Mancozeb	4 tsp./gal	180	4 applications are usually sufficient
BEANS (Lima and Snap)					
Anthrachnose	GardenTech Daconil Fungicide	Chlorothalonil	2.25 lbs./acre	7	9 lbs. Maximum Seasonal Application rate
Bacterial Blight	Bonide Liquid Copper fungicide	Copper Soap	0.5-2 oz/gal	NTL	For protective sprays, begin application 2 weeks before disease normally appears.
Botrytis (Gray mold)	GardenTech Daconil Fungicide	Chlorothalonil	2.25 lbs./acre	7	9 lbs. Maximum Seasonal Application rate
	Ortho Garden Disease Control				
Powdery mildew	Topsin M 70WP	Thiophanate-methyl	1-2 lbs./acre	See label.	Make first application when 10-30% of plants have at least one open bloom.
	Safer Garden Fungicide	Sulfur	4 tbsp /gal water	Up to day before harvest.	Spray at first sign of disease.
	Bonide Sulfur Plant Fungicide		1.5 to 3 tbsp /gal. water		Begin when first true leaves form or at first sign of disease.
	Hi-Yield Dusting Wettable Sulfur	(Several products)	see label		
Root rot and seedling disease (Rhizoctonia)	Terraclor 75%WP	PCNB	see label	Apply only at planting time.	Apply as directed at planting time.

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
BEANS (Lima and Snap) (continued)					
Rust	Sulfur Dragon Mancozeb Disease Control Ortho Garden Disease Control	Sulfur Mancozeb Chlorothalonil	2 qts/ac. see label see label		Begin during early bloom or when disease first threatens.
White mold (Sclerotinia)	Terraclor 75%WP	PCNB	see label		Apply only at planting time.
Root Knot (Nematode)	Hi-Yield Nem-A-Cide Nematode Control	Chitin	See label		A single application is sufficient for nematode. For best results, a soil analysis for nematode typing and counts of adults should be done before and after each crop season.
BEETS					
Downy Mildew, Leaf spots, and Blights	Copper Sulfate Bonide Liquid Copper Fungicide Dragon Copper Fungicide	Sulfur Copper Copper	2.0 -3.0 lbs. 1 tsp./gal. 1 ½ tsp./gal.	NTL NTL	Begin when disease appears and repeat every 7-10 days. Begin when disease appears and repeat every 7-10 days. Begin application when disease first appears and then every 7-14 days.
Seed-rot & Damping off	Hi-Yield Captan Fungicide 50% WP	Captan	½ tsp./1 Dry seed		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.
BROCCOLI, CABBAGE, BRUSSELS SPROUTS					
Wire Stem	Terraclor 75WP	PCNB	15 -20 lbs./100 gals./water		Apply ½ pint of solution around each plant at transplanting.
Alternaria Leaf spot & Downy mildew	Dragon Copper Fungicide Ortho Garden Disease Control (Daconil 2787) Bonide Copper Spray or Dust Bonide Liquid Copper Fungicide Basic Copper Sulfate Hi-Yield Daconil	Copper Chlorothalonil Copper Copper Chlorothalonil	1 tsp./gal. 1 ½ tsp./gal. 2 ¼ - 3 ¼ tsp./gal. 4 - 6 tsp./gal. 1.0 - 3.0 lbs. 3 tbs./5 -15 gals./water	NTL 0 NTL NTL NTL	Apply to 500 ft ² of garden area. Apply after transplant, emergence of seeded crop, or when conditions favor disease development.
Powdery mildew	Sulfate Hi-Yield Copper Fungicide See label, several brands available	Sulfur Copper	2 -3 tsp./gal.	NTL NTL	
CABBAGE					
Alternaria Leaf spot	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 ½ tsp./gal.	0	See Label.
Club Root	Terraclor 75%WP + hydrated lime	PCNB	2 lbs./100 gals. 1,500 lbs.		Broadcast and disc lime in soil 0 to 3 days before planting.
Damping-Off (plant bed)	Terraclor 75%WP	PCNB	½ lbs. (actual)		Sterilize seedbed soil. Drench seedbed after planting. If plants are purchased, be sure they are disease-free.

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>CABBAGE (continued)</u>					
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50% WP	Captan	½ tsp./1 lb. Dry seed		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.
Downy Mildew	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 ½ tsp./gal	0	Apply every 14 days.
	Bonide Liquid Copper	Copper	1 1/3 - 2 tsp./gal.	None	
<u>CANTALOUPE</u>					
Alternaria Leafspot	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	See Label. Apply every 7 -10 days as needed.
	Bonide Copper Sulfate	Copper	2 ¼ tsp.	NTL up to day of harvest	
	Bonide Liquid Copper Fungicide	Mancozeb	4 tsp./gal	5	
	Dragon Mancozeb Disease Control		3 - 4 ¼ tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide	Copper	2 - 3 tbs./gal.	up to day of harvest	
Anthracnose	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	Use western-grown seed. Apply fungicides when true leave fully expand. Continue every 7 - 14 days until harvest.
	Basic Copper Sulfate		1.0 - 3.0 lbs.	NTL	Apply every 7 - 10 days as needed.
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp./gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Downy mildew	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	See Label
	Bonide Copper Sulfate	Copper	2.0 lbs.	NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp./gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Gummy Stem Blight	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	NTL	Use western-grown seed. Apply fungicides when true leave fully expand. Continue every 7 - 14 days until harvest.
	Basic Copper Sulfate	Cooper		NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	Apply every 7 - 10 days as needed.
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp./gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Powdery Mildew	Basic Copper Sulfate	Copper	2.0 lbs.	NTL	
	Bonide Liquid Copper Fungicide		4 - 6 tsp./gal	up to day of harvest.	
	Dragon Copper Fungicide		4 - 6 tsp./gal	up to day of harvest	
	Bonide Copper Spray or Dust		2 ¼ - 5 ¾ ozs./gal	NTL	
	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 tbs./gal.	0	
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50% WP	Captan	½ tsp./1 lb. Dry seed		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>CARROTS</u>					
Alternaria Blight	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	7	Apply every 7-14 days as needed.
	Bonide Copper Fungicide (Bordeaux)	Copper-lime	4-6 tsp./gal.	up to day of harvest	
Cercospora Leaf Blight	Hi-Yield Copper Fungicide	Copper	2-3 tsp./gal	NTL	
	Dragon Copper Fungicide		4-6 tsp./gal.	up to day of harvest	
	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 tbs./gal.	see label	
	Bonide Copper Spray or Dust	Copper	0.5-2 oz/gal	see label	
<u>COLLARDS</u>					
Alternaria Leafspot & Downy Mildew	Sulfur products Safer Garden fungicide	Sulfur	1 - 2 qts. 2 qts	NTL NTL	
<u>CORN (SWEET)</u>					
Leaf Blights and Rust	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2 tsp./gal.	7	See Label.
	Dragon Mancozeb Disease Control	Mancozeb	1½ tbsp./gal.	7	
	Bonide Mancozeb Plant Fungicide				
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50%WP	Captan	½ tsp./1 lb. Dry seed		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.
<u>CUCUMBER</u>					
Angular Leafspot	Hi-Yield Copper Fungicide	Copper Hydroxide	2 tsp./gal.	NTL	
	Bonide Copper Spray or Dust	Copper	2¼-5¾ ozs./gal.	NTL	
	Dragon Copper Fungicide		4-6 tbs./gal.	NTL	
	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 tbs./gal.	NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3 - 4¾ tsp./gal.	NTL	
	Bonide Mancozeb	Mancozeb	4-5 tsp/gal	5	
Anthracnose	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2 tsp./gal.	NTL	
	Basic Copper Sulfate	Copper Sulfate	2¼-5¾ ozs./gal.	NTL	Apply every 7-10 days as needed.
	Bonide Copper Spray or Dust	Bordeaux	4.5-11.5 tsp/gal	0	
	Dragon Mancozeb Disease Control	Mancozeb	See label	5	
Alternaria Leafspot	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2¼ - 2¾ tsp.	NTL	Apply every 7-10 days as needed.
	Basic Copper Sulfate	Copper Sulfate	4 tsp./gal.	NTL up to day of harvest	
	Bonide Liquid Copper Fungicide		2¼-5¾ ozs./gal.	NTL	
	Bonide Copper Spray or Dust Dragon Copper Fungicide		4-6 tsp./gal	up to day of harvest	

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
CUCUMBER (cont inued)					
Corynespora Leafspot	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	NTL	
	Bonide Copper Spray or Dust	Copper	2¼-5¾ ozs./gal.	up to day of harvest	
Downy Mildew	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2 tsp./gal.	NTL	Apply when disease threatens and every 7- 10 days. Apply every 7-10 days as needed.
	Basic Copper Sulfate Hi-Yield Copper Fungicide	Copper Sulfate Copper	NTL 2 tsp./gal.	up to day of harvest	
	Bonide Copper Spray or Dust		2¼-5¾ ozs./gal.	up to day of harvest	
	Bonide Liquid Copper Fungicide	4 tsp./gal.	0		
	Dragon Copper Fungicide	4-6 tsp./gal.			
	Dragon Mancozeb Disease Control	Mancozeb	3-4¾ tsp./gal.	5	
	Fruit & Belly Rot	Ortho Disease Control (Daconil 2787) (Supression only)	Chlorothalonil	1 tbs./gal.	See Label.
Gummy Stem Blight	Ortho Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	NTL	Use western-grown seed. Apply fungicides when true leaves fully expand. Continue every 7-14 days until harvest. Apply every 7 - 10 days as needed.
	Basic Copper Sulfate Dragon Mancozeb Disease Control	Copper Sulfate Mancozeb	3.0 - 4.75 tsp./gal.	NTL 5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp /gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Powdery Mildew	Basic Copper Sulfate Bonide Liquid Copper Fungicide	Copper Sulfate Copper	4 - 6 tsp./gal.	NTL up to day of harvest	Apply every 7-10 days as needed.
	Dragon Copper Fungicide		4 - 6 tsp./gal.	up to day of harvest	
	Bonide Copper Spray or Dust		2¼-5¾ ozs./gal.	NTL	
	Ortho Disease Control (Daconil 2787)	Chlorothalonil	1 tbs./gal.	0	
	Scab	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil		
	Basic Copper Sulfate Bonide Copper Spray or Dust	Copper Sulfate Copper	2¼-5¾ ozs./gal.	NTL up to day of harvest	
	Dragon Copper Fungicide		4-6 tsp./gal.	0	
	Dragon Mancozeb Disease Control	Mancozeb	3-4¾ tsp./gal.	5	
EGGPLANT					
Damping-Off (plant bed)	Captan 50WP	Captan	4 ½ Tbs.		Begin when all seeds have germinated and repeat at 10-day intervals.
Phomopsis, Alternaria, Anthracnose, Fruit Rots & Leaf Blights	Sulfur products Hi-Yield Copper Fungicide	Sulfur Copper	NTL 2 tsp./gal.	NTL	Apply at first sign of disease.
GARLIC	(See Onion)				

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>IRISH POTATO</u>					
Black Scurf	Terraclor 10 G	PCNB	See label.		Apply according to label directions.
	Terraclor 75 WP	PCNB			
Early Blight and Late Blight	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 Tbs./gal.	NTL	See Label.
	Bonide Copper Spray or Dust	Copper	2¼ - 6 ozs./gal.		
	Dragon Copper Fungicide		4-6 tsp./gal		
	Dragon Mancozeb Disease Control	Mancozeb	2-3 tsp./gal.		
	Bonide Mancozeb Plant Fungicide		1-2 tbsp./ gal.		
<u>KALE</u>					
Powdery Mildew	Sulfur	Sulfur	See Label	0	Spray when disease threatens; 7-10 day intervals.
Alternaria Leafspot Downy Mildew	Sulfur products	Sulfur	See Label	0	
<u>LETTUCE</u>					
Downy Mildew	Hi-Yield Copper Fungicide	Copper	1 tsp./gal.	NTL	
<u>OKRA</u>					
Pod Blight	No foliar fungicides available				Blight is associated with poor pollination— provide good air circulation. Rotate crops that are not susceptible to the Wilt.
Verticillium Wilt					
Root-knot Nematode	Hi-Yield Nem-A-Cide Chitin		See label.		One application is usually the only one necessary.
<u>ONION (DRY)</u>					
Purple Blotch	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1.0 Tbs./gal.		
Bacterial Leaf Blight	Dragon Mancozeb Disease Control	Mancozeb	4¾ tsp./gal.		
Botrytis Leaf Blight	Bonide Mancozeb Plant Fungicide		4 tbsp./gal.		
Downy Mildew					
<u>ONION (GREEN AND GREEN BUNCHING) – GARLIC, LEEK, SHALLOT, ONION GROWN FOR SEED</u>					
Botrytis Leaf Blight	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1.0 Tbs./gal.	14	See Label.
Downy Mildew	Hi-Yield Copper Fungicide	Copper	2 tsp./gal.	NTL	
Neck Rot					
Purple Blotch	Bonide Liquid Copper Fungicide		4 tsp./gal.	up to day of harvest	
	Dragon Copper Fungicide		4-6 tsp./gal.	up to day of harvest	
	Dragon Mancozeb Disease Control	Mancozeb	2 tsp./gal	7	
	Bonide Mancozeb Plant Fungicide		3 tbsp./gal.	7	

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>PEAS (ENGLISH)</u>					
Powdery Mildew	Sulfur (spray or dust)	Sulfur	See label	NTL	Start application at first sign of disease and repeat every 7-10 days. Do not apply when temperature is above 90 degrees or when plants are wet.
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50%WP	Captan	½ tsp./1 lb. Dry seed	NTL	Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.
<u>BLACK-EYED PEAS (SOUTHERN)</u>					
Scab Anthracnose Mildew Rust	Sulfur	Sulfur	See Label	NTL	Begin during early bloom or when disease first threatens.
Cercospora Leafspot Powdery Mildew Rust	Sulfur products	See Label		NTL	Spray early bloom; repeat at 7 to 10 day intervals. See Label
<u>PEPPER</u>					
Cercospora, Anthracnose, Phytophthora blight Fruit Rots, Bacterial Spot	Sulfur	Sulfur	1.0 - 2.0 qts.		NTL
	Copper	Copper	2.0 - 3.0 qts.		NTL
	Hi-Yield Copper Fungicide	Copper Hydroxide	2 2/3 - 4 tsp /gal.		NTL
	Bonide Liquid Copper Fungicide	Copper	4 - 6 tsp./gal.		NTL
	Dragon Copper Fungicide		4 - 6 tsp./gal.		up to day of harvest
Blossom End Rot	CAB	Calcium	2.0 Tbs.	NTL	Apply at bloom. Make two to three applications at weekly intervals.
Southern Blight	Terraclor or PCNBP 75W	PCNB	3.0 - 5.0 Tbs		Use ½ pint per plant when transplanting. Rotate with corn or other grasses. Deep plow to cover debris.
<u>PUMPKIN</u>					
Downy Mildew	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	See Label Apply every 7 - 10 days as needed.
Verticillium Wilt	Basic Copper Sulfate	copper sulfate		NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp./gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Anthracnose	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1/3 Tbs.	5	Apply every 7 - 10 days as needed
	Basic Copper Sulfate	Copper Sulfate		NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp /gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>PUMPKIN (continued)</u>					
Gummy Stem Blight	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1/3 Tbs.		See Label. Apply every 7 - 10 days as needed.
	Basic Copper Sulfate	Copper Sulfate	3.0 - 4.75	NTL	
	Dragon Mancozeb Disease Control	Mancozeb	tsp./gal. 2.0 - 3.0 tsp /gal.	5	
	Bonide Mancozeb Plant Fungicide			5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Powdery Mildew	Basic Copper Sulfate	Copper Sulfate		NTL	Apply every 7-10 days as needed. Do not apply when temperatures exceed 95°F.
	Bonide Liquid Copper Fungicide	Copper	4.0 tsp./gal.	up to day of harvest	
	Dragon Copper Fungicide		2.25 - 5.75 oz./gal.	up to day of harvest	
	Bonide Copper Spray or Dust		2.0 - 4.0 tsp /gal.	NTL	
	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal	0	
Alternaria Leafspot	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	See Label. Apply every 7-10 days as needed.
	Basic Copper Sulfate	Copper Sulfate		NTL	
	Bonide Liquid Copper Fungicide	Copper	2 ¼ tsp.	up to day of harvest	
	Dragon Mancozeb Disease Control	Mancozeb	4 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		3 - 4¾ tsp./gal.	5	
	Dragon Copper Fungicide	Copper	2 - 3 tbsp./gal.	up to day of harvest	
Viruses	No chemical control available.				Reflective mulches, resistant varieties, plant earlier in season, watch for insect vectors (such as aphids).
<u>RADISH</u>					
Alternaria Leafspot	Top Cop with Sulfur Top Cop Tri Basic	Sulfur Copper			Begin application as soon as disease threatens and repeat at 7-10 day intervals. Use 3 day interval in plant beds. See label.
<u>SPINACH</u>					
Anthracnose & Cercospora Leafspot	Copper Sulfate	Copper Sulfate	1.0 Tbs.	NTL	Begin at first sign of disease and repeat every 7 days.
Downy Mildew & White Rust	Sulfur	Sulfur			See Label.
	Copper Copper Sulfate Hi-Yield Copper Fungicide	Copper Copper Sulfate Copper Hydroxide	1 ½ Tbs. 2-4 tsp./gal.	NTL NTL	
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50%WP	Captan	1.25 tsp.		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>SQUASH</u>					
Angular Leafspot	Copper Bonide Copper Spray or Dust Basic Copper Sulfate	Copper	See label	NTL	Apply every 7-10 days as needed.
Anthracnose, Downy Mildew, Cercospora, Scab	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal.	0	See Label.
	Basic Copper Sulfate	Copper Sulfate		NTL	
	Dragon Mancozeb Disease Control	Mancozeb	3.0 - 4.75 tsp./gal.	5	
	Bonide Mancozeb Plant Fungicide		2.0 - 3.0 tsp./gal.	5	
	Bonide Copper Spray or Dust	Copper	2.25 - 5.75 oz./gal.	NTL	
Powdery Mildew	Basic Copper Sulfate	Copper Sulfate		NTL	Apply every 7-10 days as needed.
	Bonide Liquid Copper Fungicide	Copper	4.0 tsp./gal.	up to day of harvest	
	Dragon Copper Fungicide		2.25 - 5.75 oz./gal.	up to day of harvest	
	Bonide Copper Spray or Dust		2.0 - 4.0 tsp./gal.	NTL	
	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	2.0 tsp./gal	0	
Seed-rot & Damping Off	Hi-Yield Captan Fungicide 50%WP	Captan	½ tsp./1 lb. Dry seed		Not for use at or immediately before planting. Mix thoroughly in a paper bag or glass jar.
Viruses	No chemical control				Plant earlier in the season to avoid high insect populations. Row covers provide early-season protection. Select resistant varieties.
<u>TOMATO</u>					
Anthracnose Early Blight Gray Leaf Spot Gray Leaf Mold Late Blight Septoria Leaf Spot	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1 Tbs./gal.	NTL	See Label.
	Bonide Copper Spray or Dust	Copper	2¼ - 6 ozs./gal.		
	Dragon Copper Fungicide		4-6 tsp./gal		
	Dragon Mancozeb Disease Control	Mancozeb	2-3 tsp./gal.		
	Bonide Mancozeb Plant Fungicide		1-2 tbsp./ gal.		
Bacterial Spot Bacterial Speck	Basic Copper Sulfate	Copper		NTL	up to day of harvest
	Hi-Yield Copper Fungicide		3-5 tsp./gal.	NTL	
	Bonide Liquid Copper Fungicide		4-6 tsp./gal.	NTL	
	Bonide Copper Spray or Dust		2¼-6 ozs./gal.	up to day of harvest	
	Dragon Copper Fungicide		4-6 tsp./gal.		
Botrytis (Gray Mold)	Ortho Garden Disease Control (Daconil 2787)	Chlorothalonil	1.0 Tbs./gal.	0	See Label.
<u>TURNIPS</u>					
Cercospora Cercosporiella Anthracnose Powdery Mildew	Copper Sulfur	Copper Sulfur	See label	NTL NTL	Do not make more than 3 applications per growing season.

HOME VEGETABLE DISEASE CONTROL (continued)

COMMODITY DISEASE	BRAND/TRADE NAME	ACTIVE INGREDIENT	RATE	MINIMUM DAYS TO HARVEST	METHOD, SCHEDULE REMARKS
<u>TURNIPS, MUSTARD, & COLLARDS</u>					
Alternaria Leafspot Downy Mildew	Copper Sulfur	Copper Sulfur	see label	NTL NTL	
Powdery Mildew	Wettable Sulfur 95%	Sulfur	2.0 Tbs.	NTL	Begin at first sign of disease. Apply every 7-10 days.
<u>WATERMELON</u>					
Anthracnose	Ortho Garden Disease Control (Daconil 2787) Basic Copper Sulfate Dragon Mancozeb Disease Control Bonide Mancozeb Plant Fungicide Bonide Copper Spray or Dust	Chlorothalonil Copper Sulfate Mancozeb Copper	2.0 tsp./gal. 3.0 - 4.75 tsp./gal. 2.0 - 3.0 tsp./gal. 2.25 - 5.75 oz./gal.	5 NTL 5 5 NTL	Apply every 7 - 10 days as needed.
Bacterial Fruit Blotch	Basic Copper Sulfate Hi-Yield Copper Fungicide Dragon Mancozeb Disease Control Dragon Copper Fungicide	Copper Sulfate Copper Mancozeb Copper	2-4 tsp./gal. 3-4¾ tsp./gal. 4-6 tsp./gal.	NTL NTL NTL	Studies have shown that ½ rate of copper materials applied weekly is as effective as applying the full rate on a 14 day schedule.
Downy Mildew	Ortho Garden Disease Control (Daconil 2787) Basic Copper Sulfate Dragon Mancozeb Disease Control Bonide Mancozeb Plant Fungicide Bonide Copper Spray or Dust	Chlorothalonil Copper Sulfate Mancozeb Copper	2.0 tsp./gal. 3.0 - 4.75 tsp./gal. 2.0 - 3.0 tsp./gal. 2.25 - 5.75 oz./gal.	0 NTL 5 5 NTL	See Label.
Fusarium Wilt	No chemical control.				Plant resistant varieties. Long rotations should be used (do not plant more than once every 5 years).
Gummy Stem Blight	Ortho Garden Disease Control (Daconil 2787) Basic Copper Sulfate Dragon Mancozeb Disease Control Bonide Mancozeb Plant Fungicide Bonide Copper Spray or Dust	Chlorothalonil Copper Sulfate Mancozeb Copper	3.0 - 4.75 tsp./gal. 2.0 - 3.0 tsp./gal. 2.25 - 5.75 oz./gal.	NTL 5 5 NTL	Apply every 7 - 10 days as needed.
Powdery Mildew	Bonide Liquid Copper Fungicide Dragon Copper Fungicide Bonide Copper Spray or Dust Ortho Garden Disease Control (Daconil 2787)	Copper Chlorothalonil	4 - 6 tsp./gal. 4 - 6 tsp./gal. 2¼-5¾ ozs./gal. 1 tbs./gal.	NTL up to day of harvest NTL 0	

Always check label for proper rates.

NTL = No time limit

WEED CONTROL IN HOME VEGETABLE GARDENS

A. Stanley Culpepper, Extension Agronomist – Weed Science
Lynn Sosnoskie – Weed Science

APPLICATION/ TIMING	HERBICIDE	CROPS	REMARKS AND PRECAUTIONS
Preplant or Preemergence	glyphosate (Roundup, many others)	Beans, Beet greens, Garden Beets, Broccoli, Brussels sprouts, Cabbage, Carrot, Cauliflower, Celery, Collards, Endive, Garlic, Kale, Leek, Lettuce, Mustard greens, Okra, Onion, Peas, Potato, Spinach, Sweet potato, Tomato, Turnip, Yams	Controls most annual weeds and suppresses or controls many perennial weeds. Apply at least 3 days prior to the emergence of direct seeded vegetables or at least 3 days prior to transplanting vegetables. Most weeds can be controlled by applying 0.75 to 2.0% glyphosate-solution using a hand held sprayer and spraying to wet; see label for exact rates for specific weed problems and application methods. For nutsedge and bermudagrass, sequential applications at 1.5 to 2.0 % glyphosate solution will likely be necessary.
		Cantaloupe, Cucumber, Eggplant, Gourds, Melons (all), Muskmelon, Pepper, Pumpkin, Squash (summer, winter), Tomato, Watermelon	Allow at least 3 days after application before planting these crops.
		All vegetables listed above	If growing vegetables on plastic or in high plant residues, care must be taken to remove the glyphosate from the plastic or plant residue prior to transplanting. Glyphosate can be removed by a single 0.5 inch application of water by irrigation or rainfall.
Preplant incorporated, preemergence, or postemergence	trifluralin, (many brands including Weed Preventer, Preen 'n Green Granules, Weed and Grass Preventer) See label for specific product used.	From Seed: Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Collard, Green Peas, Kale, Lima Beans, Mustard Greens, Okra, Snap Beans, Southern Pea, and Turnip Greens	DOES NOT CONTROL EMERGED WEEDS. From Seed: For residual control of annual grasses and small seeded broadleaf weeds. Apply to prepared soil and incorporate 2 inches deep before planting. Be careful with use rate especially on broccoli, cabbage, cauliflower, turnip greens, mustard greens, collard and kale.
		Before Transplanting: Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Celery, Eggplant, Onions, Pepper and Tomato	Before Transplanting: For residual control of annual grasses and small seeded broadleaf weeds. Apply to prepared soil and incorporate 2 inches deep before planting.
		Post Emergent: Cantaloupe, Cucumber and Watermelon	Post Emergent: Provides residual control of annual grasses and small seeded broadleaf weeds. Apply after plants have developed at least 5 leaves. Apply between plants taking care to limit spray drift on plants.
		After planting: Potato	After planting but before emergence: Use care not to damage seed pieces in cultivating nor to allow treated soil to contact emerged plant foliage.
		All vegetables listed above	In all cases, cultivate into the soil after application using care not to damage emerged crops.

WEED CONTROL IN HOME VEGETABLE GARDENS (continued)

APPLICATION/ TIMING	HERBICIDE	CROPS	REMARKS AND PRECAUTIONS
Preplant incorporated, preemergence, or postemergence (cont.)	DCPA (Dacthal) W-75 (Dacthal) 6°F	<p>At seeding: Mustard greens, Turnip</p> <p>-----</p> <p>At seeding or transplanting: Broccoli, Brussels Sprouts, Cauliflower, Cabbage, Collards, Kale, Garlic, Onions, Sweet potato</p> <p>-----</p> <p>When plants have 4 to 5 true leaves: Seeded melons: (Cantaloupe, Honeydew, Watermelon)</p> <p>-----</p> <p>4-6 weeks after transplanting or direct seeding plants at 4-6 inches tall: Tomato and Eggplant</p>	<p>DOES NOT CONTROL EMERGED WEEDS</p> <p>Apply uniformly to soil as a spray at time of planting for residual control of grasses and small seeded broadleaf weeds.</p> <p>-----</p> <p>Apply uniformly to the soil as a spray for residual control of grasses and small seeded broadleaf weeds. Can be sprayed directly over transplants without injury.</p> <p>-----</p> <p>Apply only when plants have 4 to 5 true leaves, are well established, and growing conditions are favorable. Will not control emerged weeds.</p> <p>-----</p> <p>Can be applied overtop of transplants for residual control of annual grasses and small seeded broadleaf weeds.</p>
Postemergence	sethoxydim (Poast) 1.53 EC	Broccoli, Cabbage, Carrots, Cantaloupe, Cauliflower, Celery, Collard, Cucumber, Eggplant, Garlic, Green pea, Kale, Leek, Lettuce, Lima bean, Mustard, Okra, Onion, Pepper, Potato (Irish and sweet), Pumpkin, Spinach, Squash, Snap bean, Southern pea, Tomato, Watermelon	<p>Does not control broadleaf weeds or sedges. Apply postemergence over-the-top for control of emerged annual and perennial grasses at 1 pt per acre or approximately 0.75 Tbs/gal/1000 sq. ft. Use a crop oil concentrate (adjuvant) at a rate of 1 qt. per acre or approximately 1.5 Tbs./gal./1000 sq. ft.</p> <p>Do not apply within 14 days of harvesting cantaloupe, cucumber, okra, pumpkin, squash, or watermelon.</p> <p>Do not apply within 15 days of harvesting lettuce, spinach, succulent beans, or succulent peas.</p> <p>Do not apply within 30 days of harvesting broccoli, cabbage, carrots, cauliflower, celery, collard, eggplant, garlic, kale, lettuce, mustard, potato, or onion.</p> <p>Do not apply within 20 days of harvesting eggplant, pepper, or tomato.</p>
	bentazon (Basagran) 4 SL	English pea, Green pea, Kidney bean, Lima bean, Navy bean, Pinto bean, Snap bean, Southern pea	For postemergence control of yellow nutsedge and some broadleaf weeds. Does not control grasses. Apply when weeds are small and actively growing. Adjust rate according to weed size as suggested on label. Do not apply before the third trifoliate leaf is fully expanded. Add adjuvant according to label.
	glyphosate (Roundup WeatherMax) 5.5 SL	<p><i>Brassica:</i> broccoli, cabbage, collard, kale, mustard</p> <p><i>Bulb crops:</i> garlic, leek, onion</p> <p><i>Cucurbits:</i> cucumber, melons, pumpkin, squash</p> <p><i>Leafy vegetables:</i> celery, lettuce, spinach</p> <p><i>Fruiting vegetables:</i> eggplant, pepper</p> <p><i>Legumes:</i> lima bean, snap bean, southern pea, English pea, garden pea</p> <p><i>Root and Tuber:</i> beet, carrot, parsley, radish, rutabaga, sweet potato</p> <p><i>Other:</i> globe artichoke, okra, sugar beet</p>	<p>Apply as a hooded spray in row middles or as a wiper application in row middles. DO NOT ALLOW HERBICIDE MIXTURE TO CONTACT ANY PART OF THE CROP INCLUDING THE ROOTS!</p> <p>For crops that vine, applications must be made to row middles prior to vine development.</p> <p>Application must be made at least 14 days before harvest.</p> <p>May be applied as a POST-harvest application. Apply at least 30 days prior to planting any non-labeled crop.</p> <p>See label for use on additional crops.</p>

FOLIAR CALCIUM SPRAYS

George Boyhan, Professor and Extension Vegetable Specialist

CROP	MATERIAL	AMOUNT OF FORMULATION	REMARKS
Asparagus	Stoller Calcium 5X	1-2 qt/A	Apply when crowns begin to grow. Repeat after each cutting.
	Sorba-Spray CaB	1-4 qt/A	Apply when flowers are in bud stage. Repeat every 2-3 weeks. Also contains 5% nitrogen and 1.5% Boron.
Beans	Stoller Calcium 5X	1-2 pt/A	Apply at 4-5 inch stage, at early bloom and at early pod set.
	Stoller Calcium 5S	16 oz/A	Apply before flower bud formation or use half rate every 7-10 days beginning at third trifoliolate.
	Sorba-Spray CaB	1-2 qt/A	First application at bud to early bloom. Repeat in 2-3 weeks. Also contains 5% nitrogen and 1.5% Boron.
Broccoli	Ele-Max Clear Cal 12.1%	2 qt/A	Apply in 20 gallons water at head development. Repeat two to three times at 10-14 day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-5 leaves and every 10-14 days.
	Stoller Calcium 5S	12 oz/A	Apply at 4-5 leaf stage and then every 7-14 days.
	Sorba-Spray CaB	1-4 qt/A	Make 1-3 applications at intervals of 2-3 weeks beginning when plants are 3-4 weeks old. Also contains 5% nitrogen and 1.5% Boron.
Cabbage	Ele-Max Clear Cal 12.1%	2 qt/A	Apply in 20 gallons water at head development. Repeat two to three times at 10-14 day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-5 leaves and every 10-14 days.
	Stoller Calcium 5S	12 oz/A	Apply at 4-5 leaf stage and then every 7-14 days.
	Sorba-Spray CaB	1-4 qt/A	Make 1-3 applications at intervals of 2-3 weeks beginning when plants are 3-4 weeks old. Also contains 5% nitrogen and 1.5% Boron.
Cantaloupe	Ele-Max Clear Cal 12.1%	2 qt/A	Make two to three applications in 20 gallons of water beginning at first fruit set at seven day intervals. Also contains 21% Cl.
	Sorba-Spray CaB	1-2 qt/A	Make two or more applications at 2-3 week intervals starting just prior to bloom. Also contains 5% nitrogen and 1.5% Boron.
	Stoller CabY	1-2 qt/A	To correct physiological disorders begin 2-3 weeks after full bloom and continue at two week intervals. Also contains Boron.
Carrots	Ele-Max Clear Cal 12.1%	2 qt/A	Apply in 20 gallons water when crop is 4-6 inches tall. Repeat two to three times at 10-14 day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1 qt/A	Apply at enlarged root initiation and 2-3 weeks later.
	Sorba-Spray CaB	1-4 qt/A	Apply when plants are 3-4 weeks old. Repeat every 3-4 weeks. Also contains 5% nitrogen and 1.5% Boron.
Corn	Stoller Calcium 5S	16 oz/A	Apply at 2-6 leaf stage and half rate at 7-21 day intervals until end of tasseling.
	Stoller Calcium 5X	1 qt/A	Apply at 4-6 leaf stage.
	Sorba-Spray CaB	1-4 qt/A	As needed for nutrient stress. Also contains 5% nitrogen and 1.5% Boron.
Cucumbers	Ele-Max Clear Cal 12.1%	2 qt/A	Make two to three applications in 20 gallons of water beginning at first fruit set at seven day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-8 inch stage, at early bloom and at start of fruiting.
	Stoller Calcium 5S	8 oz/A	Apply at flower bud initiation and then at 7-10 day intervals.

FOLIAR CALCIUM SPRAYS (continued)

CROP	MATERIAL	AMOUNT OF FORMULATION	REMARKS
Eggplant	Stoller Calcium 5X	1-2 qt/A	Apply just prior to first bloom then 10 and 20 days later.
Leafy vegetables	Sorba-Spray CaB	1-4 qt/A	Make 1-3 applications at intervals of 2-3 weeks beginning when plants are 3-4 weeks old. Also contains 5% nitrogen and 1.5% Boron.
	Stoller Calcium 5S	12 oz/A	Apply at 4-5 leaf stage and then every 7-14 days.
Melons	Ele-Max Clear Cal 12.1%	2 qt/A	Make two to three applications in 20 gallons of water beginning at first fruit set at seven day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-8 inch stage, at early bloom and at start of fruiting.
	Stoller Calcium 5S	8 oz/A	Apply at flower bud initiation and then at 7-10 day intervals.
	Sorba-Spray CaB	1-2 qt/A	Make two or more applications at 2-3 week intervals starting just prior to bloom. Also contains 5% nitrogen and 1.5% Boron.
	Stoller CaBY	1-2 qt/A	To correct physiological disorders begin 2-3 weeks after full bloom and continue at two week intervals. Also contains Boron.
Onions	Ele-Max Calcium FL4%	1-2 qt/A	Apply at 6-leaf stage and 10-14 days later in 3-20 gallons of water.
	Ele-Max Clear Cal 12.1%	2-4 qt/A	Apply in 20 gallons per acre at bulb swelling and repeat at 7-14 days intervals as needed. Also contains 21% Cl.
	Stoller Calcium 5S	12 oz/A	Apply two weeks after emergence and at 10-14 day intervals.
	Sorba-Spray CaB	1-4 qt/A	As needed for nutritional stress. Also contains 5% nitrogen and 1.5% Boron.
Peas	Ele-Max Calcium FL4%	2 qt/A	Apply at 4-6 inch stage and 10-14 days later in 3-20 gallons of water.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-5 inch stage, at early bloom and at early pod set.
	Sorba-Spray CaB	1-2 qt/A	First application at bud to early bloom. Repeat in 2-3 weeks. Also contains 5% nitrogen and 1.5% Boron.
Peppers	Ele-Max Calcium FL4% Ele-Max	2 qt/A	One to four applications from flowering up to one month before harvest in 50 gallons of water. Allow 7 days between applications.
	Clear Cal 12.1%	2 qt/A	Apply one to four applications in 50 gallons water beginning at flowering. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 qt/A	Apply just prior to first bloom then 10 and 20 days later.
	Stoller Calcium 5S	8 oz/A	Begin at transplant then at 7-14 day intervals.
	Sorba-Spray CaB	1-4 qt/A	Make 1-3 applications at intervals of 3-4 weeks starting prior to bloom. Also contains 5% nitrogen and 1.5% Boron.
Potatoes	Ele-Max Calcium FL4% Ele-Max	2 qt/A	Two to three applications commencing at tuber initiation in 20 gallons of water. Allow 10-14 days between applications.
	Clear Cal 12.1%	2-4 qt/A	Two to three applications commencing at tuber initiation in 20 gallons of water. Allow 10-14 days between applications. Also contains 21 % Cl.
	Stoller Calcium 5X	1 qt/A	Apply at first tuber set and then 2-3 weeks later.
	Stoller Calcium 5S	1 qt/A	Apply at tuber initiation and use half rate at 8-10 leaf stage and every 10-14 days.
	Sorba-Spray CaB	1-4 qt/A	Apply when plants are 4-12 inches high and repeat three weeks later. Also contains 5% nitrogen and 1.5% Boron.

FOLIAR CALCIUM SPRAYS (continued)

CROP	MATERIAL	AMOUNT OF FORMULATION	REMARKS
Squash	Ele-Max Clear Cal 12.1%	2 qt/A	Make two to three applications in 20 gallons of water beginning at first fruit set at seven day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-8 inch stage, at early bloom and at start of fruiting.
	Stoller Calcium 5S	8 oz/A	Apply at flower bud initiation and then at 7-10 day intervals.
	Sorba-Spray CaB	1-2 qt/A	Make two or more applications at 2-3 week intervals starting just prior to bloom. Also contains 5% nitrogen and 1.5% Boron.
Sweet Potatoes	Sorba-Spray CaB	1-4 qt/A	Apply when plants are 3-4 weeks old. Repeat every 3-4 weeks. Also contains 5% nitrogen and 1.5% Boron.
Tomatoes	Ele-Max Calcium FL 4%	2 qt/A	One to four applications from flowering up to one month before harvest in 50 gallons of water. Allow 7 days between applications.
	Ele-Max Clear Cal 12.1%	2 qt/A	Apply one to four applications in 50 gallons water beginning at flowering. Allow 7 days between applications. Also contains 21% Cl.
	Stoller Calcium 5X	1 qt/A	Apply at transplanting and 2-3 weeks after first bloom.
	Stoller Calcium 5S	8 oz/A	Apply at flower bud initiation and at 7-10 day intervals.
	Sorba-Spray CaB	1-4 qt/A	Make 1-3 applications at intervals of 3-4 weeks starting prior to bloom. For blossom end rot apply 2qt/A every 7-10 days. Also contains 5% nitrogen and 1.5% Boron.
	Stoller CabY	1-2 qt/A	To correct physiological disorders begin 2-3 weeks after full bloom and continue at two week intervals. Also contains Boron.
Vegetables	Tracite Calcium 6%	1-2 qt/A	Apply every two weeks after first bloom.
	Dyna Gold Calcium 8.25% (Solanceous, Brassica and Cucurbits)	1-2 qt/A	Apply in enough water for thorough coverage at regular intervals.
	Dyna Gold CB Mix 6.0% (flowering crops)	1-1½ qt/A	Apply in enough water for thorough coverage. Make 2 to 3 applications. Also contains 2% boron.
	Foli-Gro Link Calcium 6%	1-2 pt/A	Apply at appropriate crop stage in 20 gallons of water.
	Foli-Gro Calcium 6%	1-2 pt/A	Apply each week in normal spray program in 20 gallons of water.
	Metalosate Calcium 6%	1-2 pt/A	Apply during periods of rapid growth. May repeat two times.
	Pro Natural Calcium 5%	2-32 oz/A	Apply during periods of rapid growth. May repeat two times.
Watermelons	Tracite Calcium 6%	1-2 pt/A	Apply in normal spray program at the low rate once per week. Increase to maximum rate during times when deficiency usually occurs.
	Ele-Max Clear Cal 12.1%	2 qt/A	Make two to three applications in 20 gallons of water beginning at first fruit set at seven day intervals. Also contains 21% Cl.
	Stoller Calcium 5X	1-2 pt/A	Apply at 4-8 inch stage, at early bloom and at start of fruiting.
	Stoller Calcium 5S	8 oz/A	Apply at flower bud initiation and then at 7-14 day intervals.
	Sorba-Spray CaB	1-2 qt/A	Make two or more applications at 2-3 week intervals starting just prior to bloom. Also contains 5% nitrogen and 1.5% Boron.
	Stoller CabY	1-2 qt/A	To correct physiological disorders begin 2-3 weeks after full bloom and continue at two week intervals. Also contains Boron.

FOLIAR BORON SPRAYS

George Boyhan, Professor and Extension Vegetable Specialist

CROP	MATERIAL	AMOUNT OF FORMULATION	REMARKS
Asparagus	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Beans and Peas	Foli-Gro Boron 10	½-1 pt/A	Apply pre-bloom and repeat in 14-21 days.
	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Broccoli, Cabbage, Cauliflower	Tracite Liquid Boron 10%	2-4 qt/A	As needed for nutrient stress at two week intervals.
Carrots	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Cucumbers	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Melons	Foli-Gro Boron 10	1-3 pt/A	Apply pre-bloom and repeat in 14-21 days.
Onions	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
	Foli-Gro Boron 10	1-2 qt/A	Apply three weeks after establishment and then three weeks later.
Potatoes	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Peppers	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Tomatoes	Tracite Liquid Boron 10%	1-2 qt/A	As needed for nutrient stress at two week intervals.
Vegetables	Metalosate Boron 5%	8-16 oz/A	Apply during periods of rapid growth or nutrient stress. May be repeated 2-3 times during the season.

Note: Never apply more than two pounds of elemental Boron to any crop during the season.