



# Managing Weeds in New York Vineyards

## IV. Post-Emergence Herbicides

Richard M. Dunst, Andrew F. Senesac, and Robert M. Pool

Despite the use of pre-emergence herbicides or other management techniques, as outlined in Grape Fact Sheets 1 and 3, additional weed control measures are often required. Current recommendations for their use are given in Cornell Cooperative Extension *Pest Management Recommendations for Grapes*. (See Fact Sheets 1 and 2 for general information regarding weed management in vineyards and about chemical control of vineyard weeds. Fact Sheet 3 contains information about pre-emergence herbicides which may be used in New York vineyards.) This Fact Sheet provides information on post-emergence herbicides recommended for vineyard use. Information about usage restrictions is summarized in Table 1 and Table 2 lists information about persistence and soil behavior.

### *Paraquat (Gramoxone Super, Gramoxone Extra)*

Paraquat is the only contact herbicide currently labeled for use in vineyards. It is used to control emerged annual grasses and broad-leaf weeds, and for burndown and suppression of perennial weeds and grape suckers.

Paraquat should be applied when weeds are succulent and when new growth is one to six inches high. For burndown of green grape suckers, it should be applied when sucker growth is no more than eight inches long. Retreatment may be necessary to control perennial weeds, and suckers and late germinating weeds. The label cautions that spray should not be allowed to contact green stems (except suckers), fruit or foliage,

as injury may result. Do not spray under windy conditions, and use a shield for application to young vines. The label states that paraquat is rapidly absorbed into weed foliage, and that rain occurring 30 minutes or more after application will not affect its performance. ***Paraquat is a restricted use pesticide that can only be purchased or applied by certified pesticide applicators. It is a dangerous poison that can be harmful to skin and eyes, and can be fatal if swallowed, inhaled, or if absorbed through skin.***

### *Glyphosate (Roundup)*

Glyphosate is an extremely versatile vineyard herbicide that is used to control emerged annual and perennial grasses and broad-

leaf weeds. It is useful in controlling perennial weeds in site preparation prior to planting new vineyards. Glyphosate is commonly used to control weeds under the trellis, and as an alternative to cultivation in the row middles. For perennial weed control, the best application time is when photosynthates are moving into the root system. Generally, this is as close to the end of grape bloom as possible. Reduced control may result from applications made when weeds are growing slowly, which can result from conditions such as drought stress or low air temperature. Rainfall within six hours of application may also reduce effectiveness of glyphosate. Consult the label for proper timing and rates to control specific weeds.

Because of its ability to translocate within plants, vineyard use of glyphosate is restricted to conditions that minimize the likelihood of damage to grapevines. All contact with green grape tissue should be avoided, since minute quantities of this herbicide can cause severe damage. Many weeds can be controlled by glyphosate before bud break or after 100 per cent leaf drop. Other weeds, such as bindweed, hemp dogbane, and woody perennials, are best controlled with applications as late in the growing season as possible. In this case, all grape foliage must be removed from the spray zone to avoid contact with glyphosate. Ap-

plications of glyphosate are not permitted after the end of grape bloom but can be made after harvest following the first killing frost.

***Fluazifop-P-butyl (Fusilade) and Sethoxydim (Poast)***

Fluazifop and sethoxydim are chemically quite different, but are similar in function and selectivity. They are selective post-emergence herbicides that control annual and perennial grasses, but they do not control broadleaf weeds or sedges. They are useful in vineyards for controlling perennial grasses that were not eliminated during site preparation, or for controlling annual and perennial grasses that were not controlled with pre-emergence herbicide applications. Fluazifop and sethoxydim are systemic herbicides that move from treated foliage into the shoots, leaf tips, roots and other underground plant parts of susceptible weeds. Fluazifop is registered for use in nonbearing vineyards only, and cannot be applied within one year of harvest. Sethoxydim is registered for use in bearing and nonbearing vineyards, but not within 50 days of harvest.

Fluazifop or sethoxydim should be applied at growth stages as specified in their labels. Applications should not be made to grasses that have tillered, formed seed heads, or exceeded recommended growth stages. They should also not be applied to grasses under stress due to lack of moisture, cold temperature, or mechanical or herbicide injury, since unsatisfactory control will probably result. The fluazifop

label states that contact with vines should be avoided by using directed sprays, and recommends the addition of surfactant or crop oil concentrate. The sethoxydim label does not specify the use of directed sprays, so over-the-top applications are permitted. The addition of oil concentrate is recommended for improved control.

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Richard M. Dunst is Superintendent of the Vineyard Laboratory, Cornell University, New York State Agricultural Experiment Station, Fredonia, New York

Andrew F. Senesac is Weed Scientist, Cornell Cooperative Extension Service, Long Island Horticultural Research Laboratory, Riverhead, New York

Robert M. Pool is Professor of Viticulture, Department of Horticultural Sciences, Cornell University, New York State Agricultural Experiment Station, Geneva, New York

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Table 1—Recommendations and Restrictions for Pre-emergence Herbicides used in New York Vineyards.

Trade Name	Common Name	Usage	Soil Types Restrictions	Vine Age Restrictions	Weeds Controlled	Weeds NOT Controlled
Kerb <sup>†</sup>	pronamide <sup>†</sup>	Pre&postemergence apply to trash free soil <55°F rain & snowmelt move it into weed zone.	Activity is best on coarse or medium textured soils with <4 % OM.	Can be used on vines established 6 months or more, nonbearing or bearing.	Annual & perennial grasses; broad leaf weed; winter annuals & few perennials	Most established broad leaf perennials
Gramoxone Extra <sup>†</sup>	paraquat <sup>†</sup>	Postemergence only will injure any green tissue, so direct spray to weeds only.	No soil texture restrictions applicable for NY.	No vine age restrictions.	Annual broad leaf & grasses. Top kill of emerged perennials	Repeated applications are needed for perennial weed control.
Roundup	glyphosate	Postemergence only nonresidual, systemic, allow 7-10 days before disturbing treated plants	No soil texture restrictions applicable for NY.	Preplant for site preparation & in vineyards only until the end of bloom	Annual broad leaf & grasses; perennial weeds	No residual soil activity, some perennial weeds need repeat applications.
Fusilade 2000	fluaz-ifop-p	Postemergence only systemic, no soil residual activity. Rate depends on grass size	No soil texture restrictions applicable for NY	Apply to bearing or non-bearing vineyards, but not within 50 days of harvest	Annual & perennial grasses ONLY	Any broad leaf weeds and nutsedge
Poast	sethoxy-dim	Postemergence only systemic, no soil residual activity; rate depends on grass size	No soil texture restrictions applicable for NY.	Preplant for site preparation & in nonbearing vineyards	Annual & perennial grasses ONLY	Any broad leaf weeds and nutsedge

It is the responsibility of the user to read and follow the directions on the label before applying any herbicide.

\* These data are from current herbicide labels and from the 6th Ed., Herbicide Handbook, Weed Science Society of America. It attempts to list all herbicides legal for use in New York.

<sup>†</sup> Paraquat (Gramoxone Extra) and pronamide (Kerb) are restricted use herbicides; pesticide application certification is required for purchase, possession or use.

## ERRATUM

Managing Weeds in New York Vineyards. IV. Post-Emergence Herbicides. Richard M. Dunst, Andrew F. Senesac, and Robert M. Pool. Cornell GrapeFacts Series, NY State Agricultural Experiment Station, Geneva. 1990.

Vine age restrictions for Poast and Fusilade herbicides are reversed in Table 1 (last two entries of column five).

**Table 2.—Soil Characteristics of Post Emergence Herbicides Registered for New York Vineyards.**

Trade Name	Common Name	Average Persistence at Use Rates	Soil Behavior	Primary Means of Loss from Soil
<b>Kerb</b> <sup>†</sup>	pronamide <sup>†</sup>	Persistence is variable. Greater in coarse soils low in organic matter. Carryover not usually a problem.	Strongly held to soil. Resists leaching.	Microbial breakdown primarily, photodegradation and volatility also play a role.
<b>Gram-oxone Extra</b> <sup>†</sup>	paraquat <sup>†</sup>	When bound to soil, it is very persistent, but biologically inactive.	Physically bound and inactivated by clay colloids. Forms non-degradable complexes with the clay particles.	Little degradation occurs.
<b>Round-up</b>	glyphosate	Non-persistent. No pre-emergence activity.	Strongly adsorbed to clay but not to organic matter. Little or no leaching occurs except in soils lacking clay.	Almost all is lost by microbial breakdown.
<b>Fusilade 2000</b>	fluazifop-p	Little or no soil activity. Half-life of 1 to 3 weeks in moist soil.	Low to moderate leachability, but generally degraded before it moves below the weed seed zone.	Almost all is lost by microbial breakdown.
<b>Poast</b>	sethoxydim	Little or no soil activity. Half-life of 4 to 11 days.	Weakly bound to soil organic matter.	Lost by microbial breakdown and photolysis

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