WASHINGTON STATE UNIVERSITY
EXTENSION

Weed Control Pome Fruit

Seasonal Weed Control

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
Grass and/or broadleaf weeds	**indaziflam** Alion	3.5-6.5 fl oz	12 h	14 d	29	NR	WSSA Group 29: inhibits cellulose biosynthesis, disrupts cellulose formation in the cell wall. Alion is a pre-emergent annual grasses and broadleaf weed herbicide. Rate, timing and tank mixes will effect control. It will not control established perennials or emerged annuals. Excessive crop residue or leaf litter may also reduce efficacy. Apply to trees established for at least three years. Apply as a uniform broadcast or banded application to dry soil surface that does not have cracks or depressions. Do not use on sand or soils containing >20% gravel. Do not apply to frozen/snow covered soils or saturated soils. Light irrigation or rain within three weeks is necessary for incorporation. Spring applications are more effective if glyphosate was used in the previous fall or late summer to control perennial weeds. Avoid direct contact with foliage, green bark, or roots.
	dichlobenil Casoron 4G	100-150 lb	24 h		20	NR	WSSA Group 20: inhibits cellulose biosynthesis, disrupts cellulose formation in the cell wall. A soil-active herbicide for long-term or seasonal control of most weeds. Dichlobenil can suppress the growth of some perennials (Canada thistle, quackgrass, field bindweed and bermudagrass), although higher use rates are recommended. Dichlobenil can be applied where weeds are present. Can be used in non-bearing orchards, as long as trees have been established for at least four weeks. More effective when applied in the fall when the soil is cool and still not frozen. Application before a rain will reduce volatility and improve weed suppression. Follow label directions closely for springtime applications.

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
	oxyfluorfen Goal 2XL Herbicide	2-6 pt	24 h	see note	14	NR	WSSA Group 14: protoporphyrinogen oxidase (PPO) inhibitor. Provides both pre-emergent and early post-emergent control of broadleaf weeds in dormant orchards. May require a tank mix partner to control grasses. It is most effective as a post-emergent when the seedling weeds have less than four leaves. Post-emergence weed control can be improved by tank-mixing with appropriate partners and adjuvants. Apply as a banded application to bare soil under healthy trees. Do not apply after tree buds start to swell or when foliage or fruits are present. Avoid direct plant contact. Soil moisture within 3 to 4 weeks will enhance pre-emergence herbicide activity.
	oxyfluorfen GoalTender	1-3 pt	24 h		14	NR	See comments for Goal 2XL.
	pronamide Kerb SC Herbicide	2.5-5 pt	24 h		3	NR	WSSA Group 3: microtubule assembly inhibitor. Pronamide is a soil-applied product that is used for the control of grasses (annuals and some perennials) and some broadleaved species. It is most effective on cool season grasses. Pronamide can control some small weeds that have emerged. Pronamide must be applied in the fall after harvest. Apply before leaf drop and soil freeze up to trash-free soil. Use the lower rates for annual grasses and susceptible broadleaf weeds; use the higher rates for controlling quackgrass. Use rate will also be affected by soil texture; use lower rates on coarse soils. Rainfall or overhead irrigation is required following application. Soil temperatures above 55°F may result in reduced weed control. Do not apply around seedling trees less than 1 year old or fall-transplanted trees established less than 1 year or spring transplanted trees established less than 6 months. Grazing of livestock is prohibited.

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
	rimsulfuron Matrix SG	4 oz	4 h	7 d	2	NR	WSSA Group 2: acetolactate synthase (ALS) inhibitor. Matrix SG has both pre-emergence and very early post-emergence activity. To broaden the weed control spectrum and/or extend the residual effectiveness rimsulfuron may be tank-mixed with other registered herbicides having a different mode of action. Tank mixes well with Alion. For maximum pre-emergence activity, the herbicide should be applied to a soil surface that is smooth and relatively free of crop and weed trash. Rainfall or irrigation is required within 2 weeks of application for pre-emergence incorporation. Susceptible weeds are controlled for 60 to 90 days after application. For best results, maintain spray tank solution at pH 5 to 7. Avoid contact with green bark, foliage, or fruit.
	simazine Princep 4L	2-4 qt	12 h	see note	5	NR	WSSA Group 5. photosystem II inhibitor. Princep is a soil applied herbicide with efficacy against some grasses and broadleaf weeds. Tank mixing with appropriate partners can increase the spectrum of weed control. Do not apply on light sandy or rocky soils with little organic matter. Do not apply to newly established orchards within 150 days of harvest. Moisture is required for activation. Precautions to reduce apple and pear crop injury: apply only trees that are established 12 months or more; immediately following application, limit irrigation to 1/2 inch. PHI for apple is 150 d, PHI for pear 21 d.
	simazine Princep Caliber 90 Herbicide	2.2-4 lb	12 h	see label	5	NR	

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
	pendimethalin Prowl H2O	2-4 qt	24 h	60 d	3	NR	WSSA Group 3: microtubule assembly inhibitor. Pendimethalin is a pre-emergence herbicide that is particularly effective against grasses. Often used in combination with other residuals, such as simazine or rimsulfuron, to broaden the spectrum of weed control. Pendimethalin should be applied to weed-free soil. Delay application to newly planted trees until ground has settled and no cracks are present. May be surface applied pre-emergence or surface incorporated. If applying before transplanting, do not allow treated soil to come into contact with roots. Contact with leaves, shoots, buds, or fruit may cause injury. The use rate is determined by the weeds requiring control and the length of control needed. Use lower rate for 4 month control and higher rate or 6-8 months control.

Rate and PHI indicated is for foliar application. Efficacy numbers denote the relative efficacy of a pesticide against a given pest on a 1 to 4 scale with 1 being low and 4 high efficacy. This information is based primarily on research conducted with WSU researchers in Washington.

Temporary Weed Control

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
Broadleaf weeds	**2,4-D** Saber	3 pt	48 h	14 d	4	NR	WSSA Group 4: synthetic auxin. Talk to your consultant for formulation and application recommendations to prevent crop safety concerns. Alternate trade names: Saber, Orchard Master, Weedar 64, Opti-Amine, Amine 4 2,4-D. Kills most annual and many perennial broadleaf weeds. Apply as directed spray on weeds to point of run-off. Avoid contact with tree foliage, limbs, and trunk. Do not apply during windy periods. Do not apply to shallow or sandy soils. Best results are obtained when applied within 2 days following an irrigation and the weeds are growing actively. In sprinkler-irrigated orchards, apply only after irrigation and never to dry or bare ground. Can be absorbed by tree roots and cause serious injury if carried into the root zone by irrigation. The Gala, Fuji and Golden Delicious apple varieties appear to be more sensitive to root uptake of 2,4-D than other varieties. Reduce possible root uptake by applying 2,4-D at a time of season when frequent irrigation is not necessary. Do not apply to trees established in orchard less than 1 year. Do not apply during bloom. Do not make more than two applications per season. Do not harvest within 14 days of application.
	clopyralid Stinger	1/3 - 2/3 pt	12 h	30 d	4	NR	WSSA Group 4: synthetic auxin. Labeled for apple but not pear in WA. Controls many difficult to control weeds in the sunflower, buckwheat (or knotweed), nightshade and legume families. Apply to actively growing weeds in a minimum of 10 gallons of water per acre. Apply to Canada thistle after a majority of basal leaves have emerged, but prior to bud stage. Up to two applications may be made during the crop year, but do not exceed a total of 2/3 pint of product per sprayed acre per year. Do not apply within 30 days of harvest.

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
	pyraflufen-ethyl Venue	3-4 fl oz	12 h	0 d	14	NR	Group 14: protoporphyrinogen oxidase (PPO) inhibitor. A contact herbicide that is active on annual broadleaf weeds. Use as a directed spray when the weeds are less than 4 inches tall or 3 inches across. Thorough coverage is required for control. Apply during the dormant season and prior to bloom. Addition of a crop oil concentrate or non-ionic surfactant will enhance control. Keep off green stems and foliage, will burn off young green crown and root suckers. Use lower rates for small weeds and higher rate for larger weeds. Tank mixing can increase the weed spectrum that is controlled. Do not exceed 3 applications per year for weed control or 2 for sucker control.

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
Grass and/or broadleaf weeds	**Paraquat dichloride** Paraquat dichloride	See Label	48 h		22	NR	See label for mixer/loader and applicator filtering face respirator and enclosed cab requirements. Precautions: Do not allow spray to contact green stems (except suckers), or foliage. Use a shield or wrap plant when spraying around young trees.
	glufosinate-ammonium Rely 280 Herbicide	48-82 fl oz	12 h	14 d	10	NR	WSSA Group 10: glutamine synthase inhibitor. Foliage applied, contact herbicide used to control annual broadleaf and grass weeds and to suppress perennial weeds. Apply when weeds are small and actively growing. Stressed weeds may be more difficult to control. Use rate is dependent on weed size and growth stage. Use as a directed spray. Avoid contact of spray or mist on new foliage or green shoots; only apply to trees with calloused, mature, brown bark. Thorough coverage of target weeds is essential for control. No additional surfactant is needed. Do not apply more than a maximum cumulative amount of 246 fl oz/a per 12 month period. Do not make more than 3 applications per 12-month period at 82 fl oz/a. Separate sequential applications by at least 14 days.
	glyphosate glyphosate	1-3 qt	4 h	1 d	9	NR	WSSA Group 9: EPSPS inhibitor. Glyphosate is a broad-spectrum, systemic herbicide. It is one of the most commonly applied herbicides and is sold under many trade names. Some of the products containing glyphosate are identical to the original product, others vary in their additives (such as wetting agents) and amount of active ingredient. The parent acid, the "active ingredient," is formulated with ammonium, potassium, or isopropylamine and varies in content per gallon from one product to another. The active ingredient is called "acid equivalent" in glyphosate products, and can range from 3 to 5 pounds per gallon, depending on the product. If you switch products, compare the acid equivalent of the two, and make rate adjustments, if necessary. Repeated use of glyphosate has led to the development of glyphosate resistance in many species common to perennial systems in the West Coast; rotate with other foliar-applied herbicides. Water quality and quantity can affect glyphosate performance; high pH, presence of cations, or dirty water can reduce efficacy. See label regarding adjuvant use.

Weed	Chemical	Rate per Acre	REI	PHI	MOA	Eff.	Notes
	Quizalofop-P-ethyl + Glufosinate- ammonium Zalo	46 fl oz	12 h	14 d	1, 10	NR	Do not reapply within 14 days of previous application. Do not exceed 0.165 lb quizalofop-p-ethyl per acre per calendar year. Do not exceed 4.5 lb glufosinate ammonium per acre per calendar year.

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See General Recommendations for guidelines on table use. Read all product labels carefully.

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