USING HERBICIDES

When using herbicides, it is important to read all product label(s)– this is where information on how to use the product safely and legally is located.

It is important that all equipment is calibrated to determine the Gallons Per Acre (GPA) output, as this helps guide how much product to put in the tank to be effective and not go over the label rate. A small backpack wand puts out a different amount of volume/GPA rate when compared to a large tank spray gun, greatly impacting how much herbicide to put in the tank. Herbicide companies often print out Low Volume Foliage Treatment Cards that give information on how much herbicide to put in your tank for spot and backpack treatments based on the GPA output of your wand/handgun.

Pesticide Safety and Control Information: *http://gorseactiongroup.org/index.php/land-manager-resources*
Additional information on pesticide safety: *gorseactiongroup.org*

SELECTING THE RIGHT PRODUCT

There are many off-brand versions of herbicides available. Listed below are several herbicides containing Triclopyr, including Garlon 3A, Vastlan, and Garlon 4 Ultra. One of the biggest differences can be in the concentration (active ingredients or a.i.) that is listed on the first page of the label. Additionally, each product label indicates where it is appropriate to apply the product (e.g. range/pasture, non-crop, residential, aquatic, forest, rights-of-way, etc.).

Below is a table of products containing Triclopyr, in order of the lowest concentration (8.8% a.i.) to the highest concentration (83.9% a.i.):

Where to best use this product	Triclopyr Product	Percent active ingredient	Safe to use near water?	Potential for Volatility (gas vapor movement off side)	Label signal word for eye damage	Cost
Homeowner with very little gorse, effective only on small gorse re-sprouts or applying to cut-stumps	Image (Lilly Miller) Brush and Vine Killer, Ortho (Max) Poison Ivy & Tough Brush Killer, Bayer Advanced Brush Killer (Plus)	8.8%	No	Moderate	Caution	$
Near water, productive grazing, near wooded areas, dunes, bluffs and slopes, for native species	Garlon 3A	44.4%	Yes	Low	Danger	$$
Near water, near structures, small lots, productive grazing, near wooded areas, dunes, bluffs and slopes, for native species	Vastlan	54.7%	Yes	Low	Warning	$$$
Rights-of-way, production timber	Garlon 4 Ultra	60.4%	No	High	Caution	$$
Rights-of-way	Garlon XRT	83.9%	No	High	Warning	$$

In general, products with 8% a.i. are not effective in killing gorse, with the exception of a homeowner spraying small resprouts. Contractors, agency, and SWCD applicators are effectively killing gorse with the 44% – 60% a.i. products. Garlon XRT (83.9% a.i.) is being used in areas with bare ground where some residual is desired in the soil—not where you would be trying to seed or improve pasture, for instance.

By Carri Pirosko, Oregon Department of Agriculture

Thanks for doing your part to control gorse in our community. For more information visit: GORSEACTIONGROUP.ORG

ADDITIONAL CONSIDERATIONS

RISK FOR EYE DAMAGE

Triclopyr products can cause serious damage if it gets into your eyes. Always wear protective goggles or chemical glasses with full eye area protection when using herbicides. The risk of eye damage is indicated from greatest to least (Danger > Warning > Caution) in the table on the previous page and on triclopyr labels.

TRICLOPYR FORMULATIONS

Triclopyr formulations include an Ester formulation (Garlon 4 and Garlon XRT) and an Amine formulation (Garlon 3A and Vastlan). The reason this is important has to do with the potential for off-site movement of the product and possible damage to other vegetation, including a neighbor's sensitive flowers, trees, or crops. Ester formulations, under certain conditions (hotter summer temperatures in particular), can volatilize and travel a distance. This is more of a risk inland where temperatures are over 85°F for most of the summer and into early fall. In mid-summer, even on the coast, higher temperatures should be considered before using ester formulations of Triclopyr. Amine formulations, including a new choline-formulated amine version called Vastlan, is considered the lowest risk to use in terms of little-to-no risk of volatilization or movement of the herbicide.

SURFACTANTS/ADJUVANTS

Surfactants/Adjuvants (also called spreader, stickers, penetrants, etc.) are very important to use when spraying tough woody shrubs like gorse. The most commonly used surfactants for gorse are MSO (Methylated Seed Oil) and Syl-tac (a silicone based surfactant). Many companies make surfactants, so make sure to read the label carefully before buying. Some surfactants are labeled "Caution" or "Warning" (risk for eye damage). For example: MSO made by Alligare Company is labeled "Caution" and MSO made by Wilbur-Ellis is labeled "Warning". Additionally, some surfactants can be used near water and some cannot.

SPRAY COVERAGE MATTERS

When applying herbicide to gorse, ensuring that the entire gorse plant is being covered matters just as much as selecting the appropriate Triclopyr and surfactant. You must spray every single branch and all sides of the gorse plant, even the underside of the branches. Wearing eye protection is key, as spraying up and under branches is the biggest area for misfiring spray around the face and eyes of the applicator.

GORSE TREATMENT OPTIONS

The treatment options below are not intended to replace instructions on herbicide labels. Always read herbicide labels carefully. The label is the law.

I. CUT-STUMP OPTION (GOOD FOR INDIVIDUAL PLANTS AND SMALL PATCHES)

Depending on the size of gorse stem, use a chainsaw or loppers to cut the main stem and immediately (within a few minutes of cutting) spray undiluted 100% concentrate Triclopyr (Garlon 3A or Vastlan (both low risk near water) or Garlon 4 Ultra). A 32 oz or 1.5 quart spray bottle will work. Make sure to label the bottle with: FOR HERBICIDE USE ONLY. Extra care (gloves and full coverage eye protection) should be taken when pouring herbicide from a jug to a smaller spray bottle or sprayer.

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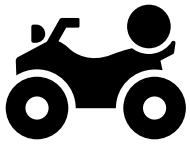
II. BACKPACK AND SPOT SPRAYING (HANDGUN OR WAND) APPLICATIONS

3-4 gallon backpack (wand, spot) application options:
Order when mixing: First fill tank with water to the half-way mark. Next add your Triclopyr herbicide. Then add the surfactant. Last, fill remainder of tank with water.

OPTION 1	(Safe around water) Garlon 3A has a DANGER label Garlon 3A: 3-4 ounces per gallon of water +MSO: 1/2 ounce per gallon of water
OPTION 2	(Safe around water and residences) Vastlan has a WARNING label Vastlan: 1.5-2 ounces per gallon of water +MSO or Syl-tac: 1/2 ounce per gallon of water
OPTION 3	(NOT safe around water) Garlon 4 has a CAUTION label Garlon 4 Ultra: 3-4 ounces per gallon of water +MSO or Syl-tac: 1/2 ounce per gallon of water

20 Gallon, ATV Type Small Tank (handgun, spot) application options:
A 20-gallon tank sprayer with a low-power wand or hand-gun is typically calibrated to 40-50 gallons per acre output. Order when mixing: First fill tank with water to the half-way mark. Next add the Triclopyr herbicide. Then add the surfactant. Last, fill the remainder of the tank with water.

OPTION 1	(Safe around water) Garlon 3A has a DANGER label Garlon 3A: 80 ounces into 20-gallon water tank +MSO: 8 ounces into the 20-gallon tank
OPTION 2	(Safe around water and residences) Vastlan has a WARNING label Vastlan: 50 ounces into 20-gallon water tank +MSO or Syl-tac: 8 ounces into the 20-gallon tank
OPTION 3	(NOT safe around water) Garlon 4 has a CAUTION label Garlon 4 Ultra: 60 ounces into a 20-gallon water tank +MSO or Syl-tac: 8 ounces into the 20-gallon tank



Application using a boom (multiple nozzles at once): Boom applications require some extra calculations, so it is best to get some help from your local OSU Extension agent before proceeding with this type of application (541-247-6672).

Sprayer Calibration Information:
https://11luuvtufne6f2y33i1nvedi-wpengine.netdna-ssl.com/wp-content/uploads/2017/11/Backpack-Sprayer-Calibration-FINAL.pdf

USEFUL DEFINITIONS

HERBICIDE FORMULATION

An herbicide formulation is a mixture of chemicals which effectively controls a pest. Herbicides are a type of pesticide. Formulating a pesticide involves processing it to improve its storage, handling, safety, application, and/or effectiveness. A pesticide formulation is a mixture of active and other ingredients (previously called inert ingredients). Herbicides come in several different formulations due to variations in the active ingredient's solubility, ability to control the pest, and ease of handling and transport. Common herbicide formulations include: flowable (liquid), granule or pellet, or emulsifiable concentrate.

For more information:

http://npic.orst.edu/factsheets/formulations.html

HERBICIDE DRIFT VS. VOLATILIZATION

Besides applicator error, there are two main causes of off-target damage: spray drift and volatility. Spray drift is defined as the movement of herbicides off the site where they were applied. Drift can occur either during herbicide application (particle spray drift) or after application to plants and soil when the herbicide volatilizes (vapor drift). Spray drift is a more common concern for off-target injury. Drift occurs when small droplets or droplet fines from the application solution move to nontarget vegetation without ever landing on the target site. Herbicide volatility is the result of movement after application when the herbicide converts to a gas and moves from the application site. Volatility can occur when spray solution settles on-site and then changes to a vapor and moves off-site.

For more information:

http://extension.oregonstate.edu/gilliam/sites/default/files/Prevent_Herbicide_Injury_Grapes_EM8860.pdf

http://www.dowagro.com/en-us/vm/evistas/december-2014/understanding-the-differences-between-volatility-and-spray-drift