

The methods and solutions you need  
for individual plant treatments.

# Individual Plant Treatments

Your guide to the right methods for selective brush control.

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When treating areas in and around roadside or utility rights-of-way that are or will be grazed, hayed or planted to forage, important label precautions apply regarding harvesting hay from treated sites, using manure from animals grazing on treated areas or rotating the treated area to sensitive crops. See the product label for details.

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Tordon 101 Mixture and Tordon K are federally Restricted Use Pesticides. State restrictions on the sale and use of Accord XRT II, Capstone, Garlon 4 Ultra and Transline apply. Consult the label before purchase or use for full details. Always read and follow label directions.

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# Individual plant treatments.



## Options for eliminating unwanted vegetation and creating aesthetically pleasing rights-of-way.

Controlling unwanted weed and brush species — including invasives — has grown more important, making it essential to know what control options exist. Along with differing criteria such as stem height and density, vegetation species, proximity to the public, growing season and crew availability, knowing which treatment method to use can be difficult. At Dow AgroSciences, we're committed to developing innovative methods and effective solutions for individual plant treatments that match your needs — no matter what the scenario.

Use this guide to find several new plant treatments along with updated information on treatments you might already be familiar with. And so you have the right tool for the job, you'll find several herbicide suggestions from the vast lineup of vegetation management solutions from Dow AgroSciences. Capstone™ and Garlon® 4 Ultra specialty herbicides are just two examples of our latest innovations that deliver proven, effective brush and weed control.

### Inside you can look forward to learning about:

- Basal applications
  - Low volume
- Foliar applications
  - Low volume
- Cut-surface applications
  - Cut stump
  - Hack and squirt
  - Cut stubble
  - Injection
- Dormant-stem applications
- Combination mowing
- Soil-applied applications



## Select the Dow AgroSciences solution that meets your needs.

Restricted Use	Residual	Can Be Applied Under Trees	IPT-Foliar	IPT-Cut stump/Cut surface	IPT-Injection	IPT-Basal	Aquatics	Wetland Sites	Dormant Stem	Soil Applied	Combina-tion Mowing
		X	X	X	X			X			
	X	X <sup>4</sup>	X	X	X			X			
		X	X	X	X	X	X	X			
		X	X	X		X		X <sup>1</sup>	X		
		X	X	X	X		X	X <sup>1</sup>			X
		X	X	X	X	X		X <sup>1</sup>	X		X
	X	X <sup>4</sup>	X			X <sup>6</sup>		X <sup>1</sup>			
	X	X <sup>4</sup>	X					X <sup>1</sup>			
		X		X		X		X <sup>1</sup>			
	X			X	X						
		X	X	X	X		X	X			
	X									X	
	X									X	
X	X		X	X	X						X
X	X		X			X <sup>6</sup>					X
	X	X	X	X	X						X
		X	X								

<sup>1</sup>It is permissible to treat seasonally dry wetlands.  
<sup>2</sup>The use rate and application timing may affect the performance. Consult the product label for more details.  
<sup>3</sup>Recommended to control legume species alone, and is an effective addition to foliar tank-mix applications for control of hardwoods and conifers.  
<sup>4</sup>Can be applied under many tree species. Contact your Dow AgroSciences representative for more information. Or see the Milestone Guidelines for Use Under Trees at [www.milestone.com](http://www.milestone.com).  
<sup>5</sup>Labeled to control legume species.  
<sup>6</sup>Add to basal bark mixtures for enhanced control of target species.

# Count on Dow AgroSciences for reliable support and innovative solutions.

Day in and day out, we're working to come up with revolutionary innovations that benefit you and your business. But we know that it takes more than just an excellent product to be successful. For more than 50 years, we've been committed to developing a close business partnership — one forged on experience, knowledge and a level of trust other companies just can't match. In addition to the plant treatments, application methods and quality products listed in this guide, you can depend on Dow AgroSciences for:

- Comprehensive training with experienced specialists to fit your needs
- Continuum™ Prescription Control & Container Management System for increased efficacy
- Regulatory support when and where you need it most
- Stringent stewardship to help protect the environment, your employees and the public
- Complaint resolution and technical assistance
- Proven commitment to vegetation management for more than 50 years

For more information on our solutions and services, contact your Dow AgroSciences vegetation management specialist or visit [www.VegetationMgmt.com](http://www.VegetationMgmt.com).



Product	Broadleaf Control	Mixed Brush/Broadleaf Control	Brush Control	Hardwood Control	Conifer Control	Noxious/Invasive Weed Control	Grass Control
Accord® XRT II herbicide	X	X	X	X	X	X	X
Capstone™ specialty herbicide	X	X	X	X <sup>3</sup>	X	X	
DMA® 4 IVM herbicide	X	X	X	X	X	X	
Forestry Garlon® XRT specialty herbicide	X	X	X	X	X	X	
Garlon® 3A specialty herbicide	X	X	X	X	X <sup>2</sup>	X	
Garlon 4 Ultra specialty herbicide	X	X	X	X	X <sup>2</sup>	X	
Milestone® specialty herbicide	X	X	X	X <sup>3</sup>	X <sup>3</sup>	X	
Opensight® specialty herbicide	X	X	X	X	X <sup>3</sup>	X	
Pathfinder® II specialty herbicide			X	X	X	X	
Pathway® specialty herbicide			X	X	X	X	
Rodeo® herbicide	X	X	X	X	X	X	X
Spike® 80DF specialty herbicide	X	X	X	X	X	X	X <sup>2</sup>
Spike 20P specialty herbicide	X	X	X	X	X	X	X <sup>2</sup>
Tordon® 101 Mixture specialty herbicide	X	X	X	X	X	X	
Tordon K specialty herbicide	X	X	X	X	X	X	
Transline® specialty herbicide	X	X	X <sup>5</sup>	X <sup>5</sup>		X	
Vista® XRT specialty herbicide	X	X	X	X	X	X	

## The benefits of choosing an individual plant treatment.

### Targeted control and the environment.

Directly targeting the plant via foliage, bark or root zone helps to preserve nearby crops and other desirable vegetation. By applying a herbicide such as Capstone directly to the plant, the desirable species are kept intact while broadleaf plants, including noxious and invasive species, are eliminated.

### Low profile.

When applying in a high-visibility area, using a low-profile treatment can be your best bet. These individual plant treatments can be made by one- and two-person crews and attract minimal attention. By using a selective or nonselective herbicide in a selective method, brownout can be minimized or avoided while preserving desirable plant species; thus improving the aesthetics of a treated site.

### Economic advantage.

Applying an individual plant treatment with a herbicide from Dow AgroSciences is both time- and cost-efficient. Because methods like basal, cut-surface and soil-applied treatments get to the root of the plant, resprouting becomes virtually a nonissue. In turn, rights-of-way remain essentially self-maintained to fit within your maintenance cycle before a repeat application is needed. Your initial investment is stretched even further, making budgeting and long-term planning much easier.

### Flexible crew scheduling.

Since individual plant treatments can be applied during any season, application times can vary to make the most out of work crews' schedules. Dormant-stem applications are particularly suited to low-profile use, since they can be applied anytime after plant foliage has dropped in the fall, and until spring, before leaves emerge.

### Desirable plants flourish.

As the attention to high-visibility rights-of-way increases, so does the importance of keeping these areas aesthetically pleasing. Thus, greater effort has been made to encourage grasses, low-growing ground cover and wildflowers to flourish on these rights-of-way. Individual plant treatments using selective herbicides control broadleaf weeds, along with broadleaf noxious and invasive plant species that compete with these desirable plants for sunlight, moisture and nutrients.

### Improved nesting and foraging.

In addition to creating an aesthetically pleasing environment along rights-of-way, individual plant treatments can have a profound effect on wildlife. In fact, the 58-year Bramble and Byrnes research project, which was conducted on a transmission right-of-way in Pennsylvania, showed that individual plant treatments actually improved biodiversity and promoted desirable forage and nesting sites for wildlife like deer and songbirds.



## Basal treatments.

### Low-volume basal application.

This method uses a low rate of herbicide to control trees with ideal effectiveness, occurring when stems are less than 6 inches in diameter. As stem diameters increase, a low-volume basal treatment becomes less effective. This treatment method is highly efficient for treating long stretches of low-density brush on rights-of-way with fewer fill-ups. And in some cases, an applicator can spray all day with 4 to 5 gallons of herbicide solution with very low plant densities. In addition, low-volume basal treatments are more effective at selectively removing the undesired vegetation and maintaining desirable plants, as opposed to mechanical removal methods, which are nonselective.

### When to use.

Basal bark treatments can be used year-round except when snow, ice or water prevents spraying to the ground line. Basal bark treatments work best when trees are greater than 6 feet in height and for trees that are less than 6 inches in diameter in areas with low to medium stem density (less than 2,000 stems per acre). Spray the lower 12 to 15 inches of bark circumference until wet, but not to the point of runoff, using a solid- or adjustable-cone nozzle.

### Application basics.

- Apply spray to the lower 12 to 15 inches of bark around the entire stem
- Spray until bark is wet, but not to the point of runoff
- Old or rough bark requires more spray than smooth, young bark
- Do not apply to bark that is wet or saturated from heavy dews and rain
- If the herbicide/penetrating oil mix turns white when applied to bark, it's an indicator that the bark is too wet and the application will be less effective

### Basal treatments at a glance.

- For sites requiring routine but not intensive maintenance
- For trees that are less than 6 inches in diameter and at a low spray volume
- Use year-round except when snow, ice or water prevents spraying to the ground line
- Low profile so you can maintain desired surrounding vegetation

- For sites that are inaccessible to heavy equipment
- Common when following a mechanical clearing or reclamation treatment
- For urban and suburban areas requiring a low-profile application

### The right herbicide for basal applications.



### Garlon® 4 Ultra specialty herbicide.

The Garlon® name has long been the proven standard in basal bark applications. Garlon 4 Ultra specialty herbicide uses a new, plant-derived, methylated seed oil (MSO) formulation for a cleaner environmental profile as well as increased efficacy on multiple woody species, including mesquite, sweetgum, Scotch broom, red oak and more. And because Garlon 4 Ultra can be applied using a variety of methods, it provides additional flexibility to meet special needs.



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## Additional individual plant treatments.

### Combination mowing.

Vegetation managers have long valued an integrated approach to right-of-way vegetation control. Because chemical and mechanical management methods play major roles in controlling brush and weeds, the technology combining mowing and herbicide applications continues to evolve. Combination mowing systems have emerged as the definitive solution to mow and treat with herbicides in a one-pass application.

### Combination mowing and herbicide application systems at a glance.

- Shielded application chamber reduces effects of wind drift
- Reduce stem densities and extend management cycles
- Direct applicator contact with remaining cut stubble reduces amount of herbicide used
- Applications can be made during growing or dormant seasons

### Soil-applied treatments.

Soil-applied treatments are ideal when an application takes place next to sensitive areas, such as cropland. Treatments are simply hand-applied by using a granular formulation, such as Spike® 20P specialty herbicide or by backpack using Spike 80DF specialty herbicide. These treatments are easy to use and deliver long-term residual control of more than 110 woody plant species.

### Soil-applied treatments at a glance.

- Rain activates granular or banded herbicides
- No abrupt, highly visible brownout
- Target applications to soil near base of target vegetation
- Applications can be made year-round, except when the ground is frozen or water-saturated
- Most effective when made during seasons with heavy moisture

*Soil-applied herbicides are, by nature, soil-active. Most of all, these herbicides (including Spike 20P) will kill trees when applied in the vicinity of the tree root systems. Read the label carefully and avoid use near desirable trees.*



## Cut-surface treatments (continued).

### The right herbicide for cut-surface applications.



#### Garlon® 3A specialty herbicide.

Garlon® 3A specialty herbicide offers an excellent water-based solution for applications on freshly cut trees or stumps. Its nonvolatile amine formulation is selective to warm- and cool-season grasses. Garlon 3A controls a broad spectrum of woody brush and broadleaf weeds by translocating through the entire plant. Plus, it's the product of choice for sensitive areas or near water.



#### Pathfinder® II specialty herbicide.

For an oil-based RTU application, Pathfinder® II specialty herbicide offers a convenient, effective, ready-to-use solution for cut-surface treatments. Because it eliminates the need for mixing, Pathfinder II greatly reduces operator exposure during handling. It also saves time and aids in the use of proper rates for optimum effectiveness. Pathfinder II delivers excellent control of more than 80 woody plant species, including ash, oak and other tough hardwoods.

## Dormant-stem treatments.

### Dormant-stem application.

For late-fall and winter effectiveness, dormant-stem treatments are ideal for controlling woody plants that are numerous and small (less than 3 inches in diameter), offering flexibility to adjust rates accordingly to target undesirable plant species. With dormant-stem applications, the herbicide penetrates the thin bark layer on the branches and trunk.

#### When to use.

Dormant-stem applications can extend the treatment season, keeping crews and equipment busy during traditionally slow work periods. Applications can be made in late fall after the leaves have dropped or during winter.



### Application basics.

- Delivered through a powered hydraulic spray system or handgun
- Use 70 to 100 gallons of spray per acre based on stem density to ensure coverage
- Work best when stems are less than 3 inches in diameter
- Most effective in areas with high stem densities to intercept spray mixture
- Backpack sprayers can be used under some conditions for spot treatments

### Dormant-stem treatments at a glance.

- Window of application more narrow than basal bark timing
- Allows crews to control brush throughout the winter season
- Closely resembles a foliar treatment and extends the window of application to late fall or winter
- Ideal for controlling woody species that are numerous and have a small diameter
- Flexibility to adjust rates according to target species
- Applications occur after foliage has dropped, so brownout and off-target drift are of little concern

### The right herbicide for dormant-stem applications.



#### Garlon® 4 Ultra specialty herbicide.

Garlon® 4 Ultra specialty herbicide is an excellent choice for dormant-stem applications. Garlon 4 Ultra uses a new, plant-derived, methylated seed oil (MSO) formulation for a cleaner

## Foliar treatments.

### Low-volume foliar application.

Individual foliar treatments are limited by stem density and height, and are ideal for maintaining a site after an initial reclamation treatment and ongoing maintenance, as shrubs and saplings begin to repopulate the area. An individual low-volume foliar treatment is appropriate for stem densities of 1,500 or less, and stem heights shorter than 7 feet. High-volume broadcast treatments, usually done with powered sprayers, hose and handguns, can treat stem densities of more than 1,500 and heights greater than 7 feet. Use a high-volume handgun treatment to knock back high-density areas of brush and a follow-up low-volume individual foliar treatment to eliminate undesirables after the initial reclamation.

#### When to use.

Make individual low-volume foliar applications during periods of active growth. Early season applications work best after full leaf-out of target brush, while late-season applications work best before leaves turn and fall colors appear on target brush. Read the label for recommended application timing.

### Application basics.

- Spray herbicide directly onto foliage of individual plants or clumps
- Use spray pressures and techniques that minimize spray drift
- Get good coverage on the growing tips and terminal bud
- Spray all sides of the target plant to ensure adequate coverage
- Apply the herbicide solution at a volume that wets the foliage, but not to the point of runoff
- Always read and follow the product label for specifics

### Foliar treatments at a glance.

- Keeps shrubs and saplings from resprouting after initial mechanical clearing or reclamation
- Densities less than 1,500 stems (low-volume individual) or above (high-volume broadcast)
- Close-range application helps minimize drift
- Coverage is quick and easy
- Requires minimal equipment

### The right herbicide for foliar applications.



#### Capstone™ specialty herbicide.

Capstone™ specialty herbicide allows applicators to treat foliar applications with a nonester formulation that provides increased efficacy on a broader spectrum of annual, biennial and perennial weeds and brush. Plus, it delivers fast knockdown with long-lasting residual control that's effective at multiple stages of growth.



## Cut-surface treatments.

### Cut-stump application.

Cut-stump applications are efficient and can be made quickly and easily. They are effective for selective control of individual trees that have been removed along distribution lines, and can extend maintenance cycles. Using the cut-stump method on a site that is being mechanically cleared allows the herbicide to prevent resprouting. This is an excellent application technique when treating highly visible areas — there is no unsightly brownout when foliage dies, since only the remaining stumps are treated after the rest of the plant is removed.

### When to use.

For traditional, water-based methods, applications can be made at any time of the year but should be done immediately after cutting. Focus treatment on the cambium and outer 2 inches of sap wood (xylem) inside the bark around the entire circumference. It's critical that the freshly cut surface is treated with the herbicide mix to

ensure penetration. If the bark has ripped off the stump, then treat around the ripped area as well as the top of the stump. Avoid treating during heavy sap flow (usually in early spring), since this can reduce herbicide effectiveness.

More common, oil-based application methods can be made any time after cutting, including winter months. However, do not make applications when snow, ice or water prevents spraying to ground level. Optimum timing for oil-based methods is as soon as possible after cutting, to avoid skips, but before resprouting can occur. Treatment should be made to the cambium and outer 2 inches of the xylem around the entire circumference, while also treating the bark of the remaining stump to the ground line and any exposed roots.

### Cut-stubble application.

Another treatment that can be made to freshly cut brush is cut-stubble. This is best-suited where very high density necessitates mowing the brush. These applications provide a low-profile management program that can actually make a single mechanical cutting or clearing last for eight to 10 years. By combining with mowing operations, cut-stubble treatments minimize the need to go back and mechanically clear the same rights-of-way every two or three years, and subsequent treatments can be made to much lower-density brush. Using this treatment method prevents brownout, and its residual activity prevents weed and brush reseeding.

### When to use.

Performing cut-stubble applications can be done soon after cutting or mowing, and before resprouting can occur. For the best brush control, the sooner the application the better. This technique is effective at almost any time of the year. Control may be improved when treatment occurs during active growth, which allows the herbicide to enter the plant systems. Cut-stubble treatments are not recommended when the ground is frozen, or covered by snow or standing water. The herbicide is applied as a dilute solution in water and broadcast over the right-of-way. Uptake of the herbicide occurs via cut surfaces and root uptake through the soil.

### Hack-and-squirt application.

Hack-and-squirt treatments generally use a hatchet or machete to hack downward through the bark, creating a cut or pocket in which the herbicide mix or ready-to-use (RTU) herbicide can be applied

and worked into the cambium. Cuts need to penetrate the bark and expose sapwood inside the bark (xylem). Only enough herbicide mix is applied to partially fill the cut but not to the point of running out of the cut. Usually a small 1 quart squirt bottle is used to dispense the herbicide. Read the label for specifics about placement of the cuts. This method is an excellent choice to control large, unwanted trees in rights-of-way and forested areas, without cutting them down. It also works in sensitive areas for selective control of a single species.

### When to use.

Apply to unwanted woody trees that are large enough to make hacks (cuts), usually 3 inches in diameter at breast height or larger. Since the herbicide is applied to the open wound, it is not necessary to cut the tree down. Do not hack and squirt during periods of heavy sap flow (especially maples) because the herbicide will be pushed out the plant in the sap stream. While this treatment is extremely effective, it can take longer to completely control the tree.

### Injection application.

Another form of cut-surface application is tree injection. This application takes a measured amount of herbicide and is delivered to the cambium/xylem area through use of a tree injector designed specifically for this purpose. Injections should surround the tree at intervals of 2 inches between edges. A continuous cut application is more effective with hard-to-control species. This treatment is also extremely effective but, like a hack-and-squirt application, can take time to eliminate the tree.

### When to use.

The use of injection treatments in combination with a basal or directed foliar application can be a very effective management strategy in which both large and small undesirable stems are selected for treatment. Heavy sap-flowing species should not be treated during spring sap rise, as the sap may push the herbicide out of the injection points. When using injection treatments, increased herbicide rates are usually required for damaged trees, and trees 10 inches in diameter at breast height or larger.

### Application basics.

Water-based cut-stump method:

- Treat the stump as soon as possible after cutting
- If more than one hour elapses after cutting, switch to an oil-based herbicide application



- Treat only the cambium and outer 2 inches of sap wood (xylem) inside the bark around the entire circumference
- Exercise caution on soil-active herbicides to prevent off-site plant damage

### Oil-based:

- Can be applied anytime after cutting, including winter months
- Do not make applications when snow or water prevents spraying to ground level
- Treat the cambium and outer 2 inches of sap wood (xylem) inside the bark around the entire circumference and the exposed bark as well as any exposed roots around the stump to ground level, but not to the point of runoff
- Treat the entire circumference of the tree, including around and down rips in the bark
- To ensure effectiveness, treat exposed roots around the stump

### Cut-surface treatments at a glance.

- Versatile methods can be applied to a variety of situations
- Should be performed every time a tree is cut down to prevent resprouting
- Leaves no brush “skeletons”
- Helps protect cost investment with the use of mechanical cutting methods
- Year-round use in most instances
- Low profile for sustained desirable vegetation and grasses
- Limits potential for erosion from mechanical clearing on steep slopes because only targeted species are affected