



WHAT YOU SHOULD KNOW ABOUT PATHFINDER II HERBICIDE

Vegetation managers and foresters use Pathfinder* II herbicide to control unwanted weeds, brush and trees beneath electrical powerlines, along railroad beds, roadsides, pipelines, in commercial forestry and wildlife openings including grazed areas on these sites. Pathfinder II is a trademark of Dow AgroSciences for herbicides containing triclopyr as the active ingredient.

The following information provides specifics on Pathfinder II, and explores questions commonly asked by people concerning its use.

Why do you need to control vegetation in these areas?

For most rights-of-way uses, safety remains a major reason for managing vegetation. Trees, brush and weeds along these rights-of-way can create hazards.

For driver and passenger safety, vegetation must not be allowed to block traffic signs or roadside markers. It also must not conceal guardrails or overtake road shoulders. Vegetation must not obstruct driver vision at intersections or block the line of sight around curves. Excessive vegetation also prevents proper drainage, which can damage roadbeds by creating potholes and other hazards.

Trees growing into powerlines can cause electrical power outages and make maintenance difficult and dangerous. In addition, areas around utility substations and land beneath transmission towers require a vegetation-free zone to prevent fire hazards and ensure the transfer of electricity.

Railroad companies need to control weeds along their rights-of-way to maintain roadbeds. Weeds hold water around railroad

ties. This causes them to rot, increasing chances for derailment accidents. Sparks from the rails can also ignite weeds and brush growing too close to the roadbed, which can create a fire hazard for neighboring residents. Brush that obstructs motorists' views at railroad crossings is especially dangerous. Controlling it can help prevent car/train accidents.

Foresters control vegetation to maximize the amount of timber they can harvest resulting in more timber harvested on less land. Controlling brush also decreases the potential for forest fires and allows young stands to get started.

Invasive plants, that affect all of the areas we have talked about, threaten to create a monoculture where one plant type dominates an area. Invasive plants choke out native plant species and wildlife habitats. Soon native grasses, flowers and other plant species, along with native animals and birds, are driven out of the area.

Selective herbicides control these invasive plant species which promote native plants that in turn attract a wide range of wildlife. Nearly 50 years of research by Dr. William Bramble, a forest ecologist, and Dr. William Brynes, an ecologist specializing in forest soils, support the use of selective herbicides to increase biodiversity. (The Bramble and Brynes study was done in conjunction with Penn State University, Purdue University and the Pennsylvania Game Commission.)

Why do you need to use Pathfinder II? Can't you just cut the vegetation?

Mowing and trimming remain important parts of any vegetation maintenance program.

But mechanical means alone cannot protect these areas adequately. Besides being very labor intensive, mechanical methods can lead to soil erosion. And flailing blades and moving parts pose a danger to employees, livestock and wildlife. Flying debris from mowers can potentially damage your property.

Mowing creates multiple resprouts – the plant's natural defense to the cutting. This only worsens the vegetation problem.

In some cases, mechanical methods quite simply cannot be used. Steep terrain may limit access by mowers, and in the case of railroads and substations, their crushed-stone construction makes mechanical weed control impossible.

Pathfinder II controls unwanted brush and eliminates resprouting. Because of this improved control, crews and heavy machinery visit the area less frequently, meaning less impact on property near yours.

Who will be applying Pathfinder II?

A vegetation manager plans Pathfinder II herbicide treatments and oversees crew activities. Trained, professional applicators apply Pathfinder II in designated areas using approved application techniques.

Organizations may use on-staff crews or hire custom applicators. In either case, these applicators follow directions on the product label, which is reviewed by the Environmental Protection Agency.

How do I know these applicators are trained properly?

Most states enforce strict standards requiring applicators to be state certified. In addition, an experienced crew foreman oversees the application process to ensure all workers follow the specified vegetation-control plan outlined by the vegetation manager. It's in the best interest of any organization to hire

qualified people to handle applications – for the good of the organization itself and its standing in the community.

How will they apply Pathfinder II?

Crews apply Pathfinder II to unwanted vegetation through the basal bark application technique. This technique applies Pathfinder II to the lower 15 inches of bark at the base of selected brush – not the plant's leaves. These popular individual plant treatments can be used to eliminate problem brush, while leaving nearby desirable vegetation unharmed. Crews can apply Pathfinder II year-round.

The vegetation manager assesses plant variety and size, and environmental conditions at each site before determining the correct application rate and technique for that location. The manager considers many factors, such as season, temperature, weather and terrain.

How do these applicators know they are applying the correct amount of Pathfinder II?

The label indicates the rates to be used. Before an application begins, crews test the application equipment and calibrate all spray nozzles to ensure they meet these label directions.

Will Pathfinder II harm my ornamentals or garden?

Pathfinder II has the potential to harm any woody or broadleaf plant that comes in direct contact with the spray solution. Therefore, applicators take care to apply Pathfinder II only to targeted vegetation specified by the vegetation manager. Pathfinder II will not harm grasses, like those in your lawn.

The basal application technique makes damage to ornamentals or gardens highly unlikely. Once crews apply Pathfinder II to the target vegetation's bark, it essentially "locks" into the plant. Proper application technique ensures that Pathfinder II should not contact desirable vegetation through spray drift or herbicide movement. Crews use extra caution to protect your ornamentals or garden, leaving untreated "buffer" zones that add an extra measure of protection.

Is Pathfinder II considered toxic?

Triclopyr, the active ingredient in Pathfinder II, has been classified as Category D – "not classifiable as to human carcinogenicity" by the EPA, and has been found to be "practically non-toxic" to mammals and insects. Toxicological studies show no evidence that the active ingredient in Pathfinder II, triclopyr, causes cancer, birth defects, genetic damage, genetic mutations, adverse effects on the immune system or nervous system in humans.

All pesticides sold in the U.S. must be registered by the EPA based on scientific studies showing that the pesticide will perform its intended function without unreasonable adverse effects on the environment. The EPA defines unreasonable adverse effects as any unreasonable risk to man or the environment, taking into account the economic, social and environmental costs and benefits of the use of the pesticide.

How do you know the amount of Pathfinder II applied won't hurt animals?

Pathfinder II affects plants only. The herbicide's active ingredient disrupts the growth process within the plant by affecting enzymes unique to plants. Pathfinder II does not have a similar effect on animals or insects.

Crews apply Pathfinder II only to the basal bark – not the leaves – of unwanted

brush, greatly reducing the likelihood wildlife would contact the product.

How does this relate to my protection?

The most likely way to be exposed to Pathfinder II is through contact with the treated bark at the base of brush. You can eliminate the possibility of exposure if you avoid the area until the bark has absorbed the solution completely.

Do I need to stay indoors during the application?

No. However, it's a good idea to stay away from the application site during treatment and shortly after.

What happens to plants after they've been treated?

The active ingredient in Pathfinder II works like a growth regulator found only in plants. It enters treated vegetation through the bark and stems, and uses the plant's own transportation system to move into the roots and leaves. It induces rapid growth, which disrupts food production and causes the plant to die from lack of nutrients.

Will Pathfinder II remain in the soil?

Pathfinder II is broken down by soil microorganisms (fungi and bacteria) and sunlight. Final breakdown products are carbon dioxide, water and other organic materials. The breakdown rate depends on rainfall, soil temperature and how these factors impact soil microorganism activity – the main cause of breakdown. The time required to break down 50 percent of the active ingredient ranges from 30 to 45 days.

Is it likely that Pathfinder II will seep into groundwater?

Dow AgroSciences strongly believes that it is highly unlikely that Pathfinder II will seep into groundwater. The application technique limits the amount of Pathfinder II introduced into the soil to extremely small amounts. Should any Pathfinder II enter the soil, it binds tightly to organic matter and clay particles. This will limit its downward movement and keep it from contaminating groundwater.

Who may I contact for more information?

Contact your Dow AgroSciences sales specialist or visit our Web site at www.dowagro.com/ivm. To receive printed materials, please fax your request to Dow AgroSciences at 1-800-905-7326. If you have further questions or require technical assistance, please contact our Customer Information Center via e-mail at info@dowagro.com or call 1-800-263-1196.

