

Applicator's field guide

Resources for vegetation management professionals

OVU[®] Industrial Vegetation Management



Contact your Envu rep today

Applicator's field guide

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I. Introduction

I. Introduction

IVM expertise from a trusted partner

At Envu, we're more than a supplier – we are your partners in progress. We're with you season after season to keep weeds under control and make our environments safer. Our experts have the knowledge you need to deliver better, long-term environmental solutions to your customers.

"I'm most excited about the freedom we have because we are so focused on vegetation management. I'm able to meet the customer on a specific need, give them solutions that are accurate, and then, when questions arise, I'm a resource they can depend on."

- Gabe Ludwig, Area Sales Manager, New Mexico, North Texas and Oklahoma

CONT Industrial Vegetation Management

What you'll find inside

It takes a lot of know-how to deliver IVM treatments that result in strong weed control. That's what this field guide is all about. You'll find information to help you select the right herbicide for the job, pick the right application method for the situation, and more.

If you have any questions about the information in this guide, or if we can help in any way, just get in touch.



Scan to find a rep.

"I always tell my customers if they have any specific questions regarding application, mixing techniques, things like that, to just give me a call. And if I can't answer it, I've got the group from Envu to back us all up."

- Scott Ohnoutka, Area Sales Manager, Upper Midwest





I. Introduction

Four great reasons to use herbicides

A purely mechanical vegetation control program delivers temporary results because it allows continuous spreading of seeds, and most perennial plants will regrow by the next season. Adding a selective herbicide program delivers multiple benefits and results that last.

Cost and time efficiencies

A combined approach for controlling roadside weeds can reduce the need for mowing from five to six times per season to one to two for lower labor costs and better efficiency.

Increased worker safety

Being proactive and using herbicides selectively helps reduce the need to mow and trim, which keeps roadside workers and motorists safer. This approach also keeps trees and vegetation from becoming dangerous in forested utility rights-of-way and helps maintain clear, safe lines of sight at railway crossings and industrial bareground sites.

Peace of mind

A proactive, long-term combined approach means you get better results, so you don't have to constantly check on the status of your areas.

Positive environmental impact

Managing industrial sites with herbicides helps reduce the risk of wildfires and reduces your carbon footprint thanks to less mowing. Also, a 70-year study by Pennsylvania State University has proven that managing utility rights-of-way and similar areas with herbicides boosts wildlife diversity.











II. Identifying invasive vegetation

II. Identifying invasive vegetation

Invasive species guide

Knowing what weeds you're dealing with is key to fighting them effectively. We've put together a list of a few common and difficult-to-control species.

Understanding the different weed life cycles will improve your success in controlling them. Here's a brief guide to the three main types.

Annual: One-year life span, with germination ranging from spring to early fall.

Biennial: Two-year life span, with germination in spring or fall.

Perennial: Indefinite life span, emerging every growing cycle.



For another weed identification resource, download the PictureThis app, created by Glority.

Labeling system for the following pages

Name of species (common names)

(other types or species) Scientific name Family name

See charts on pages 34-35 and 42-43 for product suggestions or contact your Envu rep for assistance and tank-mix options.

SUNFLOWER FAMILY

Common groundsel

Senecio vulgaris L. Asteraceae (sunflower family)

Life cycle: Summer or winter annual.

Description: Young plants grow in a rosette pattern of oblong leaves with smooth to wayy

outlines, and mature plants reach up to 2 feet tall. Mature leaves have irregular toothed edges and deep lobes. Yellow, cylindrical flower heads that resemble tiny dandelions appear almost year-round in clusters at stem ends and form puffballs of seeds.

Challenge: Capable of multiple generations per year, and puffball seeds boost invasiveness.

Dandelion

Taraxacum officinale Asteraceae (sunflower family)

Life cycle: Perennial.

Description: Initially low-growing plants can reach up to 2 feet tall, with deep taproots and toothy, lobed leaves growing in a rosette. Bright-yellow flowers appear year-round and turn into puffballs of seeds.

Challenge: Can also reproduce by sending shoots off the taproot or from fragments of the taproot.



Dogfennel

Eupatorium capillifolium Asteraceae (sunflower family)

Life cycle: Annual or short-lived perennial.



Description: Fine, feathery leaves grow from

a hairy central stem that's soft when young but woody when mature. Leaves and stems smell sour, pungent and musty when crushed. Mature height ranges from under 6 inches to over 3 feet tall. Greenish-white flowers appear from midsummer until the first frost.

Challenge: The fibrous root system can resprout from partial roots.

Giant ragweed

Ambrosia trifida L. Asteraceae (sunflower family)



Life cycle: Summer annual.

Description: Leaves with three to five deep

lobes grow on upright plants that can reach 12 feet tall. Stems are covered in white hairs, and leaves can be up to 12 inches long and 8 inches wide. Emerges early in summer and can emerge from up to 6 inches deep. Some types have extended emergence. Small, yellow-green flowers appear in late summer or early fall on small, droopy spikes.

Challenge: Can be resistant to Group 2 and Group 9 herbicides.

Horseweed (marestail)

Conyza canadensis (L.) Cronq. Asteraceae (sunflower family)

Life cycle: Winter or summer annual.

Description: Young plants resemble a horse's

tail, with hairy, oblong leaves growing from a central stem. Mature plants can be up to 10 feet tall and resemble a horse's tail formed of lance-shaped leaves growing from an erect, hairy central stem. Clusters of small white flowers with yellow centers emerge from short branches from June to September.

Challenge: Long and multiple germination windows and windborne seeds.

Knapweeds

(diffuse, meadow, spotted) Asteraceae (sunflower family)



Life cycle: Biennial or short-lived perennial.

Description: Mature plants of the various species are anywhere from 20 inches to 6

feet tall with multiple upright, reddish, ridged stems. Flowers resemble thistles and appear from midsummer to fall. Meadow knapweed leaves are green and less deeply lobed than spotted knapweed, which has gray-green leaves. Black knapweed has pale-green leaves.

Challenge: Seed pods attach to people and animals, and plants can reproduce from crown and roots.

Prickly lettuce Lactuca serriola Asteraceae (sunflower family)

Life cycle: Winter annual but can be biennial.

Description: Young plants have light-green oval leaves with wavy edges and grow in



rosettes. Prickly mature leaves grow directly from the stem and are 2 to 10 inches long with a twisted base and deep lobes. Central stalk grows up to 5 feet tall. Small, yellow, daisy-like flowers bloom from July through September, and seeds germinate immediately.

Challenge: Drought-tolerant and produces up to 10,000 seeds per plant that can remain viable in soil for three years.

Rush skeletonweed

Chondrilla juncea Asteraceae (sunflower family)

Life cycle: Perennial.

Description: Adult plants can be up to 5 feet tall. Plants begin as a basal rosette of leaves and then develop up to 6 branching flowering stems. Plants will produce a latex sap from injured surfaces.

Challenge: Long, slender taproot can be up to 7 feet deep.



Thistles

(bull, Canada, musk) Asteraceae (sunflower family)

Life cycle: Annual, biennial and perennial.

Description: Smooth, elongated, deeply lobed leaves with spines around the edges and stems.

Creeping or clumping growth habit and an extensive or deep root system produce plants from 1-6 feet tall depending on species. Purple or pink flower clusters appear from June to August.

Challenge: Some species have a thick taproot that can resprout, and musk thistle seeds can remain viable in soil for 10 years. A single plant can produce 10,000 seeds.

Yellow starthistle

Centaurea solstitialis Asteraceae (sunflower family)

Life cycle: Winter annual.

Description: Young plants resemble large dandelions with leaves up to 8 inches long.

Woody, ridged, gray-green or blue-green stems are up to 5 feet tall and topped with dandelion-like yellow flowers.

Challenge: Extremely aggressive with a deep taproot and produces 150,000 seeds per plant. Seeds remain viable for 10 years in soil and can survive fires.



Kochia Bassia scoparia, Kochia scoparia Chenopodiaceae (goosefoot family)

Life cycle: Summer annual.

GOOSEFOOT FAMILY -



Description: Narrow leaves are 1-2 inches long and covered in soft hairs. Mature plants are 1-6 feet tall and pyramid-shaped with red, red-striped or purple stems. Tiny, leaflike green flowers without petals appear in clusters from July to October and can produce 15,000 seeds per plant.

Challenge: Plants turn into tumbleweeds in dry conditions. Resistance to PSII inhibitors, ALS inhibitors and glyphosate has been observed.

Russian thistle (tumbleweed)

Salsola tragus, Salsola kali Chenopodiaceae (goosefoot family)

Life cycle: Summer annual.

Description: Seedlings have soft, fleshy, needle-like leaves that become short, scale-

like and spine-tipped. Stems are densely branched and curve upward to form a bushy ball shape up to 4 feet tall. Very small flowers without petals appear in summer.

Challenge: Seeds can germinate with little water and are scattered for miles as plants roll.



Bindweed

Convolvulus arvensis, Convolvulus sepium Convolvulaceae (morning glory family)

Life cycle: Perennial.

Description: A vine with twisted stems that overtakes nearby plants. Leaves are

arrowhead-shaped, up to 2 inches long and placed alternately. Individual stems are 4-6 feet long. White-pink, trumpet-shaped flowers appear from June to September, open each morning and close each afternoon.

Challenge: Reproduces from both seed and creeping roots.

Buckhorn plantain

Plantago lanceolata Plantaainaceae (plantain family)

Life cycle: Annual, biennial and perennial.

Description: Elongated leaves are up to 10 inches long with several prominent veins and grow into a low mound shape. Long hairs may be visible at the bases of leaves. White flowers appear from April to October in cylindrical clusters at the ends of tall stalks.

Challenge: Tolerates mowing and high pH soil.

Curly dock Rumex crispus Polygonaceae (buckwheat family)

Life cycle: Perennial.

Description: Early leaves are egg-shaped, while mature leaves are 6-8 inches long and

oblong with wavy to curly edges. Plants reach 2-5 feet tall, and greenish flowers appear on tall stalks in late summer. Foliage turns purple or a rusty brown as temperatures drop.

Challenge: Will regenerate from fragments of taproot, and seeds present in soil will emerge when disturbed. Thrives in both wet and dry soils.

Leafy spurge

Euphorbia esula Euphorbiaceae (spurge family)

Life cycle: Perennial.

Description: Narrow leaves up to 4 inches long that produce toxic, milky sap when broken.

Stems are woody at the base and reach a height of 2.5-4 feet. Heart-shaped, yellow-green flowers form in clusters from June to September. Roots can be up to 20 feet deep and send up new shoots to form colonies.

Challenge: Exploding seed pods send seeds up to 20 feet. Seeds can remain viable in soil for over 15 years. Toxic to cattle, horses and humans (the milky sap can cause skin irritation and blindness).









Mustards

(wild mustard, garlic mustard, black mustard) Brassicaceae (mustard family)



Description: Plants begin as a basal rosette. Leaves have irregular lobes and are toothed

and become smaller toward the top of the plant. Mature plants are up to 3 feet tall with stems that have bristly hairs at the base. Bright-yellow flowers form in summer and can continue until the first frost.

Challenge: Plants can produce up to 7,500 seeds and emit compounds that suppress the growth of other species.

Pigweeds

(Palmer, redroot, smooth, waterhemp) Amaranthus (pigweed family)

Life cycle: Summer annual.

Description: Leaves can be smooth or hairy depending on the species, but almost all have noticeably long leaf stalks. Seedheads form on upright spikes on waterhemp and Palmer species and on clusters on redroot and smooth varieties. Mature plants can reach over 10 feet.

Challenge: Very fast growth rate with a long growing season, and each plant can produce over 250,000 seeds.



Puncturevine

Tribulus terrestris L. *Zygophyllaceae* (caltrop family)

Life cycle: Sumer annual.



Description: Low-growing, mat-forming plant with hairy stems up to 5 feet long. Leaves are

composed of four to eight pairs of oval leaflets up to half an inch long. Yellow flowers appear in July, and mature fruit breaks into spiny sections that attach to animals, clothing, shoes and tires (which they can puncture).

Challenge: Each fruit section has up to four seeds that can stay dormant in soil for up to five years.



Grassy weeds

Barnyardgrass

Echinochloa crus-galli (L.) Beauv. Poaceae (grass family)

Life cycle: Summer annual.



Description: Rough leaves are rolled in the shoot stage, then grow up to 20 inches long and are hairless with a distinct midvein. Grows up to 5 feet tall with

seedheads up to 8 inches long that are usually purple to brown.

Challenge: Very fast grower that quickly removes nitrogen and other nutrients, and seeds are easily spread by mowing.

Cheatgrass (downy brome) Bromus tectorum

Poaceae (grass family)



Life cycle: Winter annual, can be biennial.

Description: Grows in clusters of plants up to

2.5 feet tall with drooping seedheads. Roots are fibrous and extensive, and seedlings overwinter to emerge in early spring.

Challenge: Germinates in winter, produces many seeds through the growing season and matures early, making dried plants a fire hazard.

Crabgrasses

(large, smooth) Digitaria sanguinalis, Digitaria ischaemum Poaceae (grass family)



Life cycle: Summer annual.

Description: Leaves grow in all directions from

a central point. Large crabgrass plants are up to 2.5 feet tall, while smooth crabgrass is smaller. Large crabgrass is darker green with hairy leaves, whereas smooth crabgrass is lighter green with smooth leaves.

Challenge: Thrives in heat, even in poor-quality, dry soil, and seeds remain viable in soil for several years.

Fall panicum

Panicum dichotomiflorum Poaceae (grass family)

Life cycle: Summer annual.



Description: Mature leaves are hairless and up to 20 inches long with a distinct white midvein. Erect stems grow in a zigzag pattern to form plants up to 7 feet tall.

Challenge: Fibrous root systems are capable of sprouting at the nodes and can respond poorly to glyphosate.

Grassy weeds

Foxtails

(foxtail millet, giant, green, yellow) Setaria faberi, Setaria viridis, Setaria pumila Poaceae (grass family)



Life cycle: Summer annual and some perennial species.

Description: Clumping growth habit that begins similarly to crabgrass. Mature plants reach 1 to 4 feet depending on species, with nodding seedheads resembling foxtails. Flowering beains in July.

Challenge: Produces thousands of seeds a year and is very difficult to control after seed production.

Goosegrass

Fleusine indica Poaceae (grass family)

Life cvcle: Summer annual.

Description: Young plants emerge in a flat radius with whitish stems. Seedheads with flat spikes germinate two weeks after crabgrass.

Challenge: Tolerates heavy traffic, compacted soil and low mowing heights.



Johnsongrass Sorghum halepense Poaceae (arass family)

Life cvcle: Perennial.



Description: Tall and upright growth habit with an extensive system of rhizomes. Mature plants reach 3 to 10 feet. Produces hydrocyanic acid, which is toxic to livestock, when under stress.

Challenge: Reproduces by both seed and rhizomes, which can resprout from dormant buds.

Medusahead

Taeniatherum caput-medusae Poaceae (grass family)

Life cvcle: Winter annual.

Description: Mature plants are up to 2 feet tall and bloom in spring. Dead plants are slow to decay, forming a thick thatch that prevents germination of other species. Seedheads are covered in small barbs.

Challenge: Roots grow continuously from winter through spring, and seedlings emerge early and grow fast.

Grassy weeds

Annual ryegrass

Lolium multiflorum Poaceae (grass family)



Life cycle: Winter annual or biennial.

Description: Stems are often red-tinged at the base and leaves are up to 8 inches long. Mature plants are up to 3 feet tall with seedhead spikes up to 16 inches long.

Challenge: Very competitive and resistant to some herbicides.

Sprangletop

Leptochloa mucronata (Michx.) Poaceae (grass family)

Life cycle: Annual.

Description: Silvery leaves and fine, spindly stems with spiky seedheads. Mature plants are 2-3 feet tall.

Challenge: Can germinate twice per season to produce a second crop of plants.



Vaseygrass Paspalum Poaceae (grass family)

Life cycle: Perennial.

Description: Bunching growth habit produces plants up to 6 feet tall. Leaves can be wavy at



the edges, with many hairs where they join the stem. Seedheads are sparse and sit well above the leaves. Prefers loamy, moist to wet soil.

Challenge: Produces large numbers of seeds and is capable of spreading over large areas in a single season.

Ventenata Ventenata dubia

Poaceae (grass family)

Life cycle: Winter annual.



inches long and pyramidal with spikelets of 3 florets, which can be bent and twisted.

Challenge: Seeds can self-bury into soil and persist in the seedbank for up to 3 years.

Trees and brush

Eastern baccharis

Baccharis halimifolia L. Asteraceae (sunflower family)

Life cycle: Perennial.



Description: Deciduous shrub up to 10 feet tall with thick egg-shaped leaves up to 2.5 inches long. Small white flowers produce cottony seeds. Does well in sandy soil and is resistant to salt spray and flooding.

Challenge: Leaves and seeds are toxic to livestock.

Callery pear

Life cycle: Perennial.

Pyrus calleryana Rosaceae (rose family)

Description: Deciduous tree grows up to 40 feet in a pyramid shape with showy white flowers. Tolerates a wide range of soil types and conditions.

Challenge: Aggressively invasive with a weak branch structure that is highly susceptible to ice damage.

Loblolly pine

(oldfield pine) Pinus taeda Pinaceae (pine family)

Life cycle: Perennial.



Description: Coniferous pine tree can reach

125 feet with a trunk up to 4 feet in diameter. Trunks of mature trees are bare and topped with a dense, rounded, blue-green crown of foliage. Bark is thick with deep fissures and ranges from dark red-brown to black.

Challenge: Fast grower that can quickly overtake abandoned fields.

Box elder (ashleaf maple) Acer negundo Aceraceae (maple family)



Life cycle: Perennial.

Description: Mature trees are 40-70 feet tall

with an uneven crown. Leaves grow opposite each other with 3-5 leaflets arranged in a feather pattern. Leaflets are 2-4 inches long and up to 3 inches wide with coarsely toothed margins. Bark of young trees is smooth and green, and older trees have pale gray or brown bark with long, thin ridges and shallow grooves.

Challenge: Can be heavy seed producers, and mature trees are susceptible to storm damage.

Trees and brush

Yellow poplar

(tulip tree, tulip magnolia, whitewood) Liriodendron tulipifera Magnoliaceae (magnolia family)



Life cycle: Perennial.

Description: Mature trees are 50 to 100 feet tall and grow in a narrow to rounded shape. Shiny leaves are 4 to 6 inches wide with a unique, four-pointed square shape. Flowers have 6 greenish-yellow tepals around an orange base and become elongated fruits that remain on branches.

Challenge: Fast growth rate.

Eastern red cedar

Juniperus virginiana Cupressaceae (cypress family)

Life cycle: Perennial.

Description: Small- to medium-size evergreen tree with a dense pyramid-shaped crown. Leaves are scaly and needlelike, and female trees produce small, purpleish, berrylike cones.

Challenge: Known to invade grassy areas due to fire suppression policies.







Essential information for great results

Getting the most out of a herbicide application takes attention to detail, from product selection to timing to application method. You'll find what you need to achieve strong control of invasive vegetation in this section.

"It really comes down to helping our customers be successful in their businesses while being good stewards of the land and the tools we provide. I think our customers appreciate the support we provide while helping them to solve problems or investigate new opportunities."

- David Spak, VM Stewardship and Development Manager

III. Controlling invasive vegetation

Key products for IVM

This chart is intended to provide general guidance on when to use Derigo® herbicide, Method® 240SL herbicide, Escort® XP herbicide, Esplanade® 200 SC herbicide or Plainview® SC herbicide. Always consult the product label and/or your Envu rep for any questions.



Product					
Railroad		x	x	x	х
Roadside	x	x	x	x	х
Utility ROW		х		x	
Bareground			x	x	х
Broadleaf Weeds	x	x	х	х	х
Grassy Weeds	x		x		х
Brush/Vines		x		x	
Formula Type	Dry	Dry	Liquid	Liquid	Liquid
Preemergence			x	x	х
Postemergence	x	x		x	х
Key Benefits	Controls invasive grasses and broadleaf weeds in warm-season grasses	Strong control of broadleaf weeds and brush with a low use rate	Long-lasting soil residual, broad-spectrum control of broadleaf weeds and grasses	Strong foundational product for broadleaf weed and brush control	Three modes of action for built-in resistance management

Lean on the label for the details that make a difference

Envu products are highly effective, but correct application is your key to success. Reading the label for key information like application rate, PPE and possible pH issues will help you get the best results.

And of course, if you have questions, contact a rep.



Scan to find current product labels on CDMS.

"At Envu, the stewardship team develops the best management practices to steward our products in the various markets. In short, the boots on the ground are able to impact the labeling and overall use of our products."

- Case Medlin, Stewardship Manager, Great Plains Region



Maximize your vegetation management program with custom blends

By combining two or more herbicides into one custom mix, you get the different modes of action we recommend to combat resistance. You'll also see more effective control with fewer applications and eliminate the need to triple-rinse containers, which saves time and labor costs.

You'll get ready-to-use mixes of Envu herbicides prepared to meet your exact needs, whether it's bareground weeds on industrial sites or brush and trees on utility rights-of-way.

"Our efficiency has improved since we've moved to blending, and staff members no longer have to mix and load materials. This system reduces the risk of exposure by eliminating the mixing process. The blended drums eliminate time we used to spend triple-rinsing and carrying around multiple jugs of concentrated material. We love working with the closed-loop system!"

- Jerad and Julie Hamilton, Hamilton Land Services

Typical custom blend mix





Bareground control: Esplanade® 200 SC herbicide + Method® 240SL herbicide



Brush control: Method® 240SL herbicide + Escort® XP herbicide

Herbicides for forest management

Our science-based solutions are designed to protect the health of trees and forests, from ensuring a strong start to helping them thrive through all the years that follow. Foresters trust our well-known products and rely on us for new innovations that deliver great results on hardwood and conifer plantations.

Whether your objective is rapid stand establishment, improved forest health or ecosystem restoration, Envu can help.

Our science-based solutions are supported by our knowledgeable sales and stewardship team.



Scan to visit our forest management solutions page.



Key products for forest management

This chart is intended to provide general guidance on which products are helpful for forest management. Always read and follow label directions, use proper tank-mix procedures and clean water, and consult your Envu rep for any questions.



Product					
Broadleaf Weeds	×	x	x	x	х
Grassy Weeds		x	x	x	x
Brush/Vines	x		x		x
Formula Type	Dry	Liquid	Dry	Dry	Dry
Preemergence		x	x	x	x
Postemergence	x		x	x	x
Key Benefit	Strong control of broadleaf weeds and brush with a low use rate	Selective control of annual grasses and broadleaf weeds in conifer and hardwood production areas	Long-residual, broad-spectrum control in conifer plantations and non-crop sites	Controls tough annual and perennial grasses and broadleaf weeds with a low use rate	Broad-spectrum residual control of weeds and brush



IV. Application methods

IV. Application methods

Application timing, success factors and methods

Choosing the right herbicide for your situation is only part of what leads to great results. When and how you apply a product can be as important as what you apply, and weather and soil conditions play a part too. We'll walk you through the basics in this section.

"Fall applications have been a benefit to us, not just because we've found we have greater control of the weed species that have been hard to control but it also helps us to balance our labor. By moving applications to the fall, we can balance our labor force and provide employment opportunities year-round while providing greater weed control."

- Layne Fields, VP Northern Region, Chemical Weed Control

Five key application methods to know

Choosing the right herbicide application method can help maximize your budget and achieve peak results.



Individual plant treatment (IPT)

- + For controlling specific species in utility rights-ofway and non-crop areas
- + Multiple methods depending on needs
- + Reduces risk of off-target herbicide movement
- + Protects wildlife habitats and encourages growth of native species



Backpack

- + For areas accessible by foot
- + Ideal for places where a boom isn't necessary



Boom spraying

- + For larger areas with smooth terrain
- + Great for larger areas like bareground sites or roadsides



Tank/truck spraying

+ For larger, easily accessible areas



Aerial spraying

+ For large, remote areas

Cinco métodos de aplicación clave que debe conocer

Elegir el método de aplicación de herbicidas adecuado puede ayudarle a maximizar su presupuesto y lograr resultados óptimos.



Tratamiento individual de plantas (IPT)

- Para controlar especies específicas en áreas despejadas para el mantenimiento de servicios públicos y no cultivadas
- + Múltiples métodos dependiendo de las necesidades
- + Reduce el riesgo de que los herbicidas se desplacen hacia áreas no deseadas
- Protege los hábitats de la vida silvestre y fomenta el crecimiento de especies nativas



Mochila

- + Para zonas a las que se puede acceder caminando
- + Ideal para lugares donde no se necesita un botalón



Pulverización con botalón

- Para áreas más grandes con terreno liso
- Ideal para áreas más grandes, como terrenos desnudos o bordes de carreteras



Pulverización con tanque/camión

 Para áreas más grandes y de fácil acceso



Fumigación aérea

+ Para áreas grandes y remotas

Backpack calibration guide

Making sure you apply herbicides at the correct rate is a key to great results. Use this guide to calibrate your backpack sprayer.

Step 1:

- + Determine application pressure and timing
- + Mark off an 18.5' x 18.5' area (1/128 acre)
- + Fill spray tank half-full with clean water
- + Pump to normal operating pressure
- + Walk at steady speed and maintain consistent pressure
- + Spray entire area uniformly
- + Record time (in seconds) to spray an 18.5' x 18.5' area

Step 2:

- + Measure nozzle output
- + Refill tank with water and operate sprayer at the desired pressure
- + Use a timer and fl. oz. measuring cup (128 fl. oz. = 1 gallon)
- + Collect water from the nozzle for the time determined in step 1 (e.g., 30 seconds)
- + Record the fl. oz. collected
- + Repeat process 2-3 times to get average nozzle output

Result: Since there are 128 fl. oz. in 1 gallon, and 18.5' x 18.5' equals 1/128 acre, then the number of fluid ounces collected equals gallons of solution per acre.



For example: It takes 30 seconds to spray this 18.5' x 18.5' area.

For example:

The average nozzle output is 25 fl. oz./30 seconds. Therefore, your sprayer is calibrated to deliver 25 gallons/acre.

Remember:

- 1. Never add pesticides to a sprayer until it is properly calibrated and ready for use.
- 2. Proper calibration depends on walking speed, pressure, spray swath width and spray tip selected. The spray tip determines the spray pattern and droplet size.
- 3. Changing any of these affects the amount of spray and thus requires recalibration from the beginning.

Source: Sports Turf Managers Association, www.stma.org.



IV. Application methods

Four best practices for herbicide application timing

Taking the right factors into consideration can **help optimize weed control success**. Planning the way ahead now will also help you stretch your budget in the long run.



As always, contact your Envu rep anytime to answer questions and get started on the best plan for your needs.

Seasonality

Variable spring weather is part of what makes fall the better choice to boost the effectiveness of preemergence products like Esplanade® 200 SC herbicide, Plainview® SC herbicide and Method® 240SL herbicide.



Location, location, location

Different areas of the country require different weed control approaches based on the timing of seasons and other factors.



Know your weed species

The life cycle of the weed species you're fighting is a big part of determining the best way to control it.



Root out herbicide resistance

If you notice certain weed species surviving application, we recommend contacting your Envu rep for help formulating a plan.



Boost summer weed control in unimproved warm-season grasses

Try a fall-based roadside program

A fall application of Esplanade[®] 200 SC herbicide and Method[®] 240SL herbicide delivers preemergence and postemergence action that suppresses summer weeds. Following up with a spring/summer herbicide application of Derigo[®] herbicide and Method 240SL herbicide keeps the strong control going. A fall-based roadside program puts the broadestspectrum, longest-lasting weed control on the market to work for you and:

- + Lowers labor and maintenance costs and increases profitability and efficiency
- + Improves sight lines to keep the public and crew safer
- + Maintains structural stability of infrastructure when weeds are not present
- + Reduces dead weeds, grass and brush hazards associated with wildfire
- + Fights resistance with multiple modes of action

When in doubt, consult the label for the details that make the difference between failure and success.





ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS

IV. Application methods

Work with the weather, not against it

A number of factors can reduce the effectiveness of an application:

- + Excessive dust on vegetation interferes with postemergence products and tank mixes that include glyphosate
- + Wind speed above 10 mph will increase the risk of nontarget, off-site movement
- + A temperature inversion (when the air near the ground is cooler than the air above it) will increase the potential for non-target, off-site movement
- + Drought results in stressed plants that don't respond well to herbicides

Check with reliable sources like the NOAA or NWS for reliable updates.



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Protect your crew with the right gear

All products highlighted in this guide require the use of personal protective equipment (PPE). Make sure your crew members wear the following:

- + Long-sleeve shirt and long pants in good condition
- + Closed-toe shoes and socks
- + Chemical-resistant gloves (refer to product label for specifications)
- + Eye protection

Proteja a su equipo con el equipo adecuado

Todos los productos destacados en esta guía requieren el uso de equipo de protección personal (EPP). Asegúrese de que los miembros de su equipo usen lo siguiente:

- + Camisa manga larga y pantalón largo en buen estado
- + Calzado cerrado y calcetines
- + Guantes resistentes a productos químicos (consulte la etiqueta del producto para conocer las especificaciones)
- + Protección para los ojos





V. About

V. About

Reach out — we're ready to help

Your Envu vegetation management sales team is always ready to answer questions, and they're backed by the expertise of our stewardship team. Contact us for help with your toughest weed control challenges.



Find your rep at us.envu.com or by scanning the QR code.

"I had an issue with some trees and I called [my rep] about it. He actually came out on the rightof-way with me to take a look at it and see what the problem was."

- Kevin Sipe, U.S. Applicators

Lean on Envu for weed control solutions

Envu offers smart solutions for controlling unwanted, invasive or noxious weeds, resulting in enhanced safety, productivity, appearance, habitat and value of land, forests, and infrastructure. Our approach puts a spotlight on effective, efficient products while being mindful of the land and infrastructure we all share.

We can help you create an industrial vegetation management program as unique as your needs. Whether in roadway, railway, bareground or utility corridor, Envu has products you can count on. Visit us anytime at **us.envu.com** for tips, articles and product information.

"We don't manage sites for a single day – we manage them for more than a decade. And we have to look at the solutions we recommend to customers that help them think about those activities and solutions over a longer period of time."

- Gueth Braddock, Area Sales Manager, Mississippi, West Tennessee, Arkansas and Southern Missouri



Still have questions? Visit our website.

You'll find more expert information on our Industrial Vegetation Management hub. It's where we share our knowledge of weed control for roadsides, utility rights-of-way, railways, bareground and forestry. No matter your problem, we hope you'll visit us soon to find the answer.



Scan to explore our Industrial Vegetation Management hub.

ONU Industrial Vegetation Management



V. About Key product portfolio









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