

# When we develop a perennial ryegrass, we mean *business*

**Fiesta**  
TURF-TYPE  
PERENNIAL RYEGRASS

THRIVES UNDER  
LOW MOWING HEIGHTS

GOOD WEAR  
TOLERANCE

EXCELLENT  
MOWABILITY

DARK GREEN  
COLOR

RAPID ESTABLISHMENT &  
HIGH SEED COUNT, PRODUCES  
THICKER STAND... FAST!

Quality doesn't just happen... it is the product of years of careful research and extensive evaluation. That's what it took for researchers to develop Fiesta, the outstanding turf-type perennial ryegrass that meets the demands of today's turf manager.

#### The results:

- Dense, dark green turf
- Fine leaf texture
- Thrives under low cutting heights
- Excellent resistance to leaf spot, brown patch and many other diseases
- Outstanding winter hardiness combined with tolerance to summer stress
- High seed count—up to 330,000 seeds per pound—20-25% higher than most other varieties

***Fiesta* – for permanent turf or overseeding – rapidly becoming the first choice of turf professionals.**

Pickseed also produces



and other fine turf grasses, available nationwide from quality seed suppliers.

Circle No. 158 on Reader Inquiry Card

Produced by:

**PICKSEED®**  
PICKSEED WEST Inc.

P.O. BOX 888 • TANGENT, OR 97389  
(503) 926-8886



# RIGHT-OF-WAY WEED CONTROL

by R. W. Bovey, USDA-ARS, College Station, Tex.

**M**any areas around buildings, ditches, billboards, poles, factories, shops, golf courses, parking areas, parks, industrial plant sites, vacant lots, schools, airports, roadsides, fences, lawns, pipelines, and other public or non-cropland areas may harbor unwanted trees and brush.

If these undesirable woody plants re-sprout after top removal, they may be difficult to kill and remove and cause unsightly appearance or interfere with the intended use of the property. The landscape manager has

many options at his disposal to control and remove undesirable woody vegetation and replace it with desirable cover.

Woody plants can be removed by two primary methods or combinations of these methods which include mechanical or chemical means. The selection of the method depends upon:

- size of the area to be cleared;
- size of the brush;
- difficulty of control and kind of brush;
- proximity to valuable vegeta-

tion, water sources, and population centers; and

- use to be made of the area following brush removal.

## Control methods

It is essential that problem plants be accurately identified so the proper control methods can be used. If the species cannot be identified, consult the local county agent, extension specialists, or personnel from the State Agricultural Experiment Station or U.S. Department of Agriculture. Some well-illustrated circulars, bulletins, and books are also available.

**Mechanical Control.** Hand methods of brush control, although effective, are slow, costly, and laborious. They are practical on small areas or in scattered stands.

Hand methods include grubbing, cutting, girdling, and burning.

Grubbing consists of using a grubbing hoe, shovel, or similar tool to dig enough of the root system out of the soil to kill the plants. The operation is difficult and time consuming, but effective if properly done.

Cutting down brush with axes or saws is most effective on woody species that are killed when the top growth is removed, such as eastern red cedar and blueberry juniper. Species that re-sprout can be treated with herbicides to prevent re-sprouting.

Girdling is cutting a ring through the bark and cambium layer to prevent movement of water and nutrients to top growth. Girdling is practical in scattered stands of large trees six inches in diameter or greater. It is most effective during the summer months. Herbicides can be applied to the cut ring for improved kill.

Portable chain or power saws and girdlers are available for brush control. They reduce labor, time, and cost in brush removal but have limited use in dense stands or large areas.

Dozing is one of the more widely-used methods of brush control. Much clearing is done with straight dozer blades; however, many modifications and attachments are available for specialized clearing jobs.

Ideally, dozing removes brush and



Workmen clear brush from right-of-way area.



**New Lower Price!**  
Ask your distributor for details

*Spot Renovation*

*Tree Rings*

# SO MUCH WEED CONTROL NEVER COST SO LITTLE.

*Planted Beds*

*Parking Lot*

*Cart Paths*

*Entranceway*

All around the golf course, Roundup® herbicide is as versatile as it is affordable. Just one application can take the place of six string trimmings over the course of a season. Even turf renovation is an inexpensive project with Roundup.

**ROUNDUP WILL SAVE YOU TIME AND MONEY  
ALL AROUND THE COURSE.**

Dollar for dollar, Roundup can give you better weed control—with less labor—than time-consuming mechanical or hand weeding. In one shot, you can control over 110 broadleaf weeds and grasses, more than 35 brush and hardwood species—even poison oak

and kudzu. Roundup controls them roots and all, so they won't grow back.

This season, give Roundup more of the dirty work, wherever weeds appear. And give your men more time to keep the greens, fairways and other high-visibility areas looking their best.

\*Based on cost of one gallon of 2% spray solution of Roundup alone to treat low growing vegetation.

**FOR A FREE ROUNDUP TRIMMING &  
EDGING GUIDE, CALL TOLL-FREE  
1-800-621-5800.  
IN ILLINOIS, 1-800-972-5858**

ALWAYS READ AND FOLLOW THE LABEL FOR  
ROUNDUP HERBICIDE. Roundup® is a registered trademark of  
Monsanto Agricultural Company  
© Monsanto Agricultural Company 1986. RNC-6-108B



**AFFORDABLE**



**EFFECTIVE**

**Monsanto**





The Virginia Department of Highways and Transportation was conducting comparison applications of two new Du Pont herbicides, Telar and Escort, when this photo was taken.

large trees by pushing or pulling the plants out with as much of the roots intact as possible. Special attachments to the straight blade include teeth or U-shaped "stingers" to allow cutting the plant off below the ground line and lifting out the roots.

Dozing is most commonly practiced in open stands of large trees and brush or on rocky soils where other mechanical control methods are limited. It is not desirable in dense stands of brush that sprout from the roots after top removal.

Dozed trees can be windrowed or stacked so the brush can be burned or left to decay. The equipment and fuel required for dozing are costly. Dozing heavily damages the turf and grounds.

Mowing and shredding are temporary control methods for weeds and small brush in landscape management. Repeated mowing, once or twice a year, is needed for maintenance on most weed-infested areas.

Mower types vary, but most consist of sharp rotary blades. Heavy duty shredders can be used on large brush and small trees, three to four inches in diameter.

Disking. Large disk plows or tandem disks will destroy stands of small brush. They may also destroy the grass stand. Disking is limited to tillable soils. Disking prepares a good seedbed, although compaction by a cultipacker, roller, or other implement may be desired. The operation is expensive.

Cost of mechanical treatments is

usually closely correlated with degree of soil disturbance and size and density of brush to be removed. Dozing, disking, and grubbing are among the most effective mechanical brush control treatments, but are the most costly to perform, while mowing is less expensive. Hand methods, such as sawing, axing or grubbing, are sometimes effective, but are slow, costly, and laborious.

**Chemical Control.** Herbicides are an important means of weed and brush control. Compared to mechanical practices, herbicides are usually less expensive, less damaging to the environment, and often more effective.

Herbicide sprays, however, are subject to drift and may damage susceptible crops or valuable vegetation on nearby areas if improperly applied.

A variety of herbicides and herbicide combinations are commercially available. It is necessary to understand the properties and effects of herbicides in order to safely and effectively use them.

Individual herbicides and combinations of herbicides are used for weed and woody plant control. After manufacturing, technical (pure) herbicide must be formulated with other ingredients to prepare usable products for ease of handling and to obtain the desired effects.

Since very small amounts are sometimes required per unit of land, uniform application is essential. Herbicides are formulated as liquid con-

centrates, wettable powders, and granules or pellets. It is important to know the characteristics and precautions to be taken when using herbicides.

## Characteristics of herbicides

Phenoxy herbicides, such as 2,4-D, 2,4-DB, dichlorprop, and MCPA have been used for over 30 years and are effective for the control of many weed and brush species. They are used to produce changes and shifts in plant cover for crops, pastures, lawns, or wildlife habitat.

The phenoxy herbicides are not toxic to livestock or man at dosages labelled for weed control and disappear rapidly from the soil, vegetation, and water. They do not accumulate in the food chain.

Susceptible vegetation, especially broadleaf plants, may be damaged from spray drift or from volatilization. Following label instructions and making applications during favorable weather should prevent drift and volatilization problems.

Phenoxy herbicides selectively control broadleaf weeds in grasslands or grass crops. Rates of 0.25 to 2 pounds per acre effectively control many broadleaf plants.

Phenoxy compounds are relatively inexpensive and easy to apply. They are usually marketed as liquid concentrates as salts or esters.

Ester formulations are often more effective as foliar sprays on trees and brush than the salts. Amine formulations commonly available include dimethylamine, triethylamine, diethanolamine, trimethylamines, triethanolamine, and others.

Other inorganic salts of the phenoxy herbicides that have been sold include the ammonium, sodium, potassium, and lithium salts. Salts are sprayed in water carriers.

Esters are classified as high volatile or low volatile, depending upon how readily they vaporize. Low volatile esters should be used in areas where sensitive crops or vegetation are grown.

The concentration of the active ingredient, the "acid equivalent," is indicated on the label as pound-per-gallon. If a herbicide concentrate has an acid equivalent of 4 pounds per gallon, then 1 gallon of the concentrate contains 4 pounds by weight of the parent acid, regardless of formulation. Usually the most concentrated formulations cost less per pound and are more economical to use than weaker concentrates.

Phenoxy compounds are readily absorbed by leaves and are translo-



# CITATION II • BIRDIE II • MANHATTAN II FERRY-MORSE GOLD TAG BRAND COVERS THE 1986 ROSE BOWL



*The Rose Bowl at Pasadena, CA, January 1, 1986*

***New generation perennial ryegrasses provide 'near perfect' playing surface . . . prove older ryegrass varieties to be passé***

PASADENA, CA – When the field turf management team for the Rose Bowl specified the perennial ryegrass blend to

*The field still looked terrific the day after the game*



overseed the 1986 Classic, they chose Ferry-Morse Gold Tag Brand, a blend of Citation II, Birdie II and Manhattan II ryegrasses produced by Turf-Seed, Inc.

To meet demanding time and performance constraints, they opted to use this blend of genetically improved ryegrasses based on performance in prior testing against other varieties and combinations. Gold Tag Blend germinated and established quickly, producing a dark green, durable playing surface that enhanced the playing field graphics and the proud heritage of the Rose Bowl itself.

Based on comments and accolades bestowed in 1986, the turf management team anticipates the use of genetically improved ryegrasses like Citation II, Birdie II and Manhattan II, and Gold Tag Blend in the future.

And it looks like a very bright future, indeed.

Citation II, Birdie II and Manhattan II are products of



PO Box 250, Hubbard, OR 97032  
503/981-9571 TWX 510 590 0957

Gold Tag Brand is a product of



**Ferry-Morse Seed Co.**

PO Box 4938, Modesto, CA 97352  
In California, 1-800-572-SEED  
209/ 579-SEED

2120 Via Burton, Anaheim, CA 92806  
714/ 774-5460

600 Stephen Beale Dr., Fulton, KY 42041  
1-800-626-3392 502/ 472-3400

Circle No. 176 on Reader Inquiry Card



# Now! A Sprayable Turf Green-up

Let us send you a sample of FerROME<sup>++</sup>C™ so you can see with your own eyes how fast it changes weak-looking dull grass into vibrant, deep-green, healthy-looking grass.



**Everett Mealman**  
President  
PBI/Gordon Corporation

As a professional golf course superintendent or grounds-keeper, you will immediately recognize the significance of what I am about to say...

...We at PBI/Gordon have been quietly testing our patented Ferromec under a wide variety of growing conditions, and the results are conclusive!...

Ferromec will not only deliver rapid and dramatic color responses in turf as a result of foliar intake, but will also deliver a therapeutic dose of iron to the turf through root absorption.

It means that now you can have deep, vibrant, healthy green turf without an unwanted overdose of fertilizer which could lead to all sorts of problems and exposure to disease.

No wonder we are so eager to get a sample of Ferromec in your hands. But, meantime, we urge you to take a minute or so to better understand why iron is such an elusive material, and how



PBI/Gordon has managed to harness it for you.

## **Ferrous Iron is Very Fragile.**

As you know, the basic problem of supplying iron to turfgrass is its fragility in the Ferrous++ state. Only Ferrous iron can be utilized by a plant and, *ironically*, almost as soon as Ferrous Sulphate is applied it turns to the non-usable Ferric+++ state. Once oxidized, the reversal with organic matter acting as a reducing agent is so slow there is a question if it would ever occur.

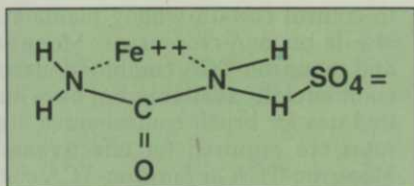
And thus it is that scientists devised chelating, which is intended to fix the iron molecule in the Ferrous state. If chelating is properly done, it is effective.

Half of this green at Hodge Park Golf Course in Kansas City was sprayed with Ferromec and, within 24 hours, the color change was dramatic. Under normal growing conditions, visual response usually occurs between 8 and 48 hours after application. However, if moisture and temperature extremes exist, the response may be slower. Ferromec is also effective on trees, shrubs and herbaceous plantings.





# Iron that Produces Within 24 Hours



This is the molecular structure of Ferromec. Note that ferrous sulphate is bonded to a urea molecule and will remain stable. Ferromec utilizes a recombinant urea process to achieve the unique composition. It is classified as an organometallic compound.

But it is very expensive and so slow to release that it could be many weeks before a treatment of chelated iron could produce a significant color change in the grass.

## Ferromec Works Right Now!

At PBI/Gordon we have a patented process of bonding a Ferrous iron molecule to a molecule of urea, which stabilizes the iron in a Ferrous state. Notice the diagram above of the Urea/Ferrous sulphate molecule which is called Ferromec.

Ferromec can be mixed with liquid fertilizer and Super Trimec® broadleaf herbicide, and it will not harm the equipment. The Ferromec is almost immediately assimilated so the color change occurs very rapidly. The Ferromec which reaches the

ground is taken up by the root system because the grass has such a voracious appetite for the nitrogen content of Ferromec.

## Neal Howell Can Answer Your Questions about Iron in Turf

Iron is definitely established as an essential micronutrient required by all plants. Yet, the amount required can vary dramatically depending on the pH of the soil, the composition of the fertilizer that is being used and the plant that is being fed.



To help you better understand how to use iron in your turf program, we have brought Neal Howell into the PBI/Gordon organization as Director of Technical Sales Services of Soil Supplements. He is a leading authority on iron and is as near as your telephone when you have questions.

You'll like Neal. He's a *real Iron-man* whose roots go back to the Iron Knights of the "Hell on Wheels" gang of the 2nd Armor Division from Fort Hood (that's General Patton's old bunch).



## Ask for Samples of these New Products from PBI/Gordon

Other new products that have been developed and thoroughly tested by PBI/Gordon are Bov-A-Mura®, a patented, natural organic activator that turns thatch into humus; and Transfilm®, a patented year-around plant protector that is up to five times more effective in reducing transpiration, and lasts up to twice as long as conventional plant protectors.

For your free samples of Ferromec, Bov-A-Mura, and Transfilm, write or call . . .

**Toll-free 1-800-821-7925**  
In Missouri 1-800-892-7281

Ask for Customer Service Department.

## Inform us of bids to be let.

We furnish detailed specs and names of distributors serving your area.

Trimec®, Bov-A-Mura®, and Transfilm® are registered trademarks of PBI/Gordon Corporation.

Ferromec™ is a trademark of PBI/Gordon Corporation.

© PBI/Gordon Corporation 1985



1217 WEST 12TH STREET  
P.O. BOX 4090  
KANSAS CITY, MISSOURI 64101  
816/421-4070

# Fe<sup>++</sup>RRROME<sup>TM</sup>EC

## IRON FROM THE TRIMEC<sup>®</sup> PEOPLE

TURF HERBICIDE

651-1185

cated throughout the plant along with the products of photosynthesis. Oil soluble formulations, usually esters, applied in kerosene or diesel oil will penetrate the bark of most woody plants, and can be used as basal sprays or foliar sprays to individual plants.

Phenoxy herbicides, however, are more commonly applied broadcast to large areas containing dense stands of brush. These herbicides are sprayed on above-ground parts and foliage since they are not effective at economical rates as soil-applied herbicides.

Organic arsenicals, available as liquid concentrates, include DSMA, MSMA, and cacodylic acid. These compounds have limited use for woody plant control as foliar sprays.

DSMA and MSMA are used for postemergence weed control in tolerant lawn grasses and non-crop areas. Cacodylic acid is used as a general desiccant and defoliant (contact) spray on many crop and non-crop areas.

Organic arsenicals can be used for quick dieback of woody species, but plants tend to recover. They can be injected into the trunk to kill unwanted trees. As foliar sprays, they are applied in water. Complete coverage by spray is required for best results. They are inactivated by soil contact.

Organic arsenicals may injure desirable plants. By directed spraying, desirable plants can be avoided. Organic arsenicals have a moderate to low mammalian toxicity but are highly toxic to insects such as honey bees. They are mildly corrosive to spray equipment.

**Bipyridyls.** Diquat and paraquat are desiccant (drying agents) and defoliant herbicides used for general contact activity against weeds and brush. In some situations, they are used as selective herbicides.

Paraquat is water soluble and is inactivated by soil contact. Woody species will usually re-sprout from foliar sprays of diquat and paraquat. Paraquat may be more effective as an injection treatment against some undesirable trees.

Paraquat is highly toxic when ingested. Extreme care must be taken to avoid breathing the spray mist or getting the concentrate on the skin. Use of protective clothing and respirators are recommended when making applications.

Get immediate medical care in the event of ingestion. If treated within 12 hours, chances of survival are excellent.

**Benzoics.** Dicamba is a selective

translocated herbicide. It controls many broadleaf weeds in pasture crops and turf and some woody plants.

Dicamba is similar to the phenoxy herbicides in activity and use. It is absorbed through roots, as well as foliage. It may be applied by either ground or aerial sprays or as granules, depending upon the weeds to be controlled and their proximity to susceptible crops.

Dicamba may be applied in mixtures with 2,4-D to broaden the spectrum of weed species controlled. It has a low order of toxicity to wildlife, fish, livestock, and humans. It rapidly degrades and does not accumulate in the environment. Dicamba has a low corrosion hazard to spray equipment.

It is formulated as a liquid as the dimethylamine or sodium salt and is sprayed in water carrier. It is also formu-

---

*It is essential that problem plants be accurately identified so the proper control methods can be used.*

---

lated in granular form as the acid.

Dicamba is highly water soluble. Care must be taken to prevent its movement into water sources. Spray drift of dicamba to sensitive crops, conifers, and certain woody plants should be prevented. Granular formulation may be preferred where drift of sprays would present a hazard to crops.

Dichlobenil is also a benzoic. It is a selective herbicide for control of annual and perennial grasses and weeds in non-crop areas. Dichlobenil inhibits weed seed germination and plant cell division at the growing points.

Because of its relatively high volatility, application when the temperature exceeds 70 degrees Fahrenheit must be followed by a quarter-inch irrigation or rainfall soon after. Downward movement of active ingredient does not exceed two inches, so deeper-rooted woody ornamentals will not be affected. The control is achieved from a chemical barrier in the top one to two inches of soil.

**Ureas and uracils.** These compounds include bromacil, diuron, fenuron, fenuron-TCA, monuron, monuron-TCA, tebuthiuron, and hexazinone.

Ureas and uracil-type herbicides can be selective at low rates and non-selective at high rates. They are usu-

ally formulated as wettable powders for water sprays or as granules or pellets for dry application.

Bromacil (a uracil) will control a wide variety of woody species. If rates above 5 pounds per acre are used, it will also kill many desirable grasses and forbs on grazing lands.

Fenuron is no longer produced commercially, but a fenuron-TCA combination is available and is used to control certain woody plants and weeds on non-crop areas. Monuron and monuron-TCA combinations are commercially available, but have limited use for brush control since high rates are required for effectiveness. Monuron-TCA or fenuron-TCA combinations are generally used for non-selective, temporary sterilization in non-crop areas.

Tebuthiuron provides excellent control of a variety of undesirable woody plants. Tebuthiuron is formulated as pellets and contains 20 percent active ingredient. "Brush bullets" containing 13.8 percent active ingredient are available for woody plant control. Several new formulations are available including an 80 percent wettable powder for total vegetation control.

Hexazinone is a relatively new compound showing promise for woody plant control and use on non-crop areas. Hexazinone is recommended for forestry site preparation and pine release where loblolly, long leaf and short leaf, slash, and Virginia pines are grown.

The pelletized product can be spread in a grid pattern for hardwood brush control. It also shows promise for total vegetation control including perennial grasses. It is highly water soluble. Hexazinone is also commercially available as a liquid that can be applied undiluted near the base of woody plants with a hand-grown applicator.

The ureas and uracils mentioned are absorbed primarily through the roots of plants. They may be applied in spring or fall when weeds and brush are actively growing and when adequate rainfall leaches them into the soil.

Fall, winter, and early spring applications of tebuthiuron and hexazinone can be timed to reduce injury to forage plants and eliminate hazards of drift. These compounds may kill trees at a considerable distance from the point of application, depending upon the size of the root system and whether it extends into the treated areas. Therefore, extreme care should be taken near desirable trees.





# "NISSAN TRUCKS MAKE ME MONEY BY SAVING ME MONEY."

Leslie Fields, Owner, Tropical Plaza Nursery, Orange, CA

Profits. That's the bottom line of any business, and the more money you can save the more profits you can have. Which is why Leslie Fields relies on Nissan Trucks. In Leslie's words, "The reliability is excellent. Really excellent. We have twelve 1984 and 1985 Nissan Trucks and we're not easy on them. Our trucks get a real workout. Their average load is close to a ton. But no matter how hard we push them they just never complain. Wish I could say the same for my other employees."

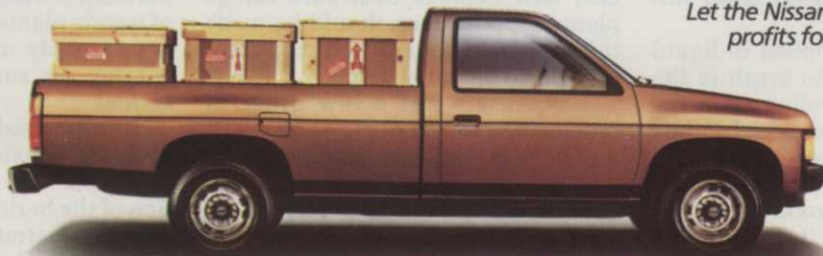
If you're looking for a truck that's long on reliability and savings, take a look at the Nissan E Long Bed 4x2. There's 88 inches of double-steel-wall bed, plus the largest cargo volume area of any leading standard compact. And to make loading and unloading the big loads easier, there's a standard removable tailgate with a new quick release feature. Plus, under

the hood, this Nissan features a fuel-injected, 2.4-liter, twin-spark hemi head that delivers all the power you need to get the tough jobs done.

Like all Nissan Trucks, the E Long Bed is backed by an outstanding 24-month/25,000-mile limited warranty on powertrain components. Ask your Nissan dealer for further details. And, participating Nissan dealers now offer Security Plus<sup>®</sup>, an extended service program with term options ranging up to 60 months/100,000 miles and no deductible.

For more fleet information see your local Nissan dealer today or contact our National Fleet Sales Department at Nissan Motor Corporation in U.S.A., 18501 South Figueroa, P.O. Box 191, Gardena, CA 90247.

Let the Nissan E Long Bed help build profits for you, just like it's been doing for thousands of business people like Leslie Fields. The quality is great. The name is Nissan.



NISSAN E LONG BED



# THE NAME IS NISSAN



Ureas and uracils are non-volatile and do not corrode equipment. Most urea and uracil herbicides can be injurious to some forage and turf species when applied broadcast, especially as sprays. Applying herbicides as pellets or balls to confine the herbicide to a few spots in the treated area reduces exposure to desirable forage or turf plants. Also, application of granules, pellets, or sprays to the soil surface or sprays applied subsurface in rows or bands spaced 6 to 10 feet apart may reduce injury to forage or turf and may increase kill of some woody plants.

Most of the ureas and uracils persist in the soil for several months at rates used for brush control. They are low in toxicity to warm-blooded animals.

## Other organic herbicides

**Arsenal** (AC 252,925) is a new broad spectrum herbicide with activity against herbaceous and woody plants. It controls sedges, grasses and broadleaf weeds applied either pre-emergence or postemergence.

Arsenal is readily absorbed through foliage and roots. Complete kill may take several weeks.

Most herbaceous weeds are susceptible to Arsenal at rates of 0.4 to 1 pound per acre whereas woody species may require higher rates of 0.75 to 3 pounds per acre depending upon species to be controlled.

Arsenal is being tried experimentally for conifer release and weed control in bermudagrass. Arsenal should be applied postemergence to perennial weeds when they are actively growing and the herbicide is readily translocated.

It has a low order of toxicity to warm-blooded animals. It persists for 3 to 12 months in the soil depending upon rate applied and soil moisture content.

**Picloram** is a selective, translocated herbicide that effectively controls many weed and brush species in grasslands. It can be applied to the soil or foliage and is effective as injection/cut-surface treatments on many undesirable trees.

Picloram can be applied in liquid sprays and as pellets to brush in the spring and fall, depending upon the species to be controlled. It is absorbed by both foliage and roots. Most perennial grasses are resistant. Its high activity against many woody plants at moderate rates makes it desirable for brush control. Care must be taken to prevent drift of picloram to desirable plants.

Picloram is relatively persistent in

soil, especially in cooler climates. Since it is water soluble, care must be taken to prevent its movement into water used for irrigation. It should not be applied where it can be leached or moved to sensitive plants by rainfall.

Picloram has a low mammalian toxicity and is only slightly corrosive to spray equipment.

**Triclopyr** (Garlon) is a relatively new selective postemergence herbicide for use on rights-of-way, industrial and forestry sites, and experimentally for rangeland brush control. It can also be used to kill trees and brush by injection/cut-surface treatments.

It is readily translocated in plants and is moderately toxic to warm-blooded animals. It degrades rapidly

---

*It is necessary to understand the properties and effects of herbicides in order to safely and effectively use them.*

---

in the soil.

Ester formulations are available.

**Glyphosate** is a non-selective herbicide effective against both grasses and broadleaf plants.

Glyphosate is readily translocated from leaf and stem tissue to roots, resulting in a high degree of kill on many weeds. It is inactivated by contact with the soil and should not injure newly-seeded plants in treated soil.

Glyphosate is sprayed in water carrier. It is presently registered for use for non-crop and pre-till weed control and as a directed spray for orchards, plantations, Christmas trees, and many other crops. It is corrosive to some equipment.

Broadcast sprays over woody species will damage desirable forage plants. Applications should be made to individual plants on non-crop areas or areas to be renovated.

Glyphosate has a low order of mammalian toxicity.

**Amitrole** is effective against poison ivy and poison oak. If amitrole is accidentally sprayed on desirable plants, they are less likely to be severely injured than sprays of phenoxys, dicamba, or picloram.

Amitrole is available as a powder containing 50% active ingredient or as

a liquid formulation. Another formulation, **Amitrole-T**, contains 2 pounds per gallon of ammonium thio-cyanate in addition to 2 pounds per gallon of amitrole.

Amitrole is effective through the roots and tops of plants. Amitrole cannot be used where there is any possibility of residues on food or feed crops.

**Fosamine** (Krenite) applied as foliar spray will kill or suppress several different woody species on non-crop land. If it is applied to trees or brush in late summer or early fall, susceptible species will fail to leaf out the following spring and subsequently die.

Rates of 1½ to 3 gallons of fosamine are applied per acre during the two month period before fall leaf coloration. If rainfall occurs within 24 hours of application, effectiveness may be decreased. Use only in accordance with recommendations on the label. Fosamine cannot be used on cultivated land or in pastures.

## Inorganic herbicides

**Ammonium sulfamate** (AMS, Am-mate) is a non-selective herbicide used extensively to kill all plants growing on rights-of-way.

AMS kills trees. It can be used as a foliage spray or in cuts through the bark. When applied to stumps, it prevents sprouting. AMS kills or suppresses herbaceous plants as readily as woody plants.

It is corrosive. Spray equipment should be cleaned immediately and coated with diesel oil or similar light oils after use.

**Oils** Diesel oil and kerosene are commonly used to control honey mesquite and huisache. One cup to 1 gallon of oil is used per tree, depending upon its size. The oil is applied around the base of the tree during dry weather when the soil is pulled away from the trunk. Application at this time enables the oil to penetrate to the lower buds on the stem.

Oils alone are not very effective herbicides when applied to the foliage of woody plants. However, diesel fuel is commonly used as a diluent and carrier for some oil soluble herbicides.

It is also used as a carrier in aircraft spraying, usually as a 1:4 oil-in-water emulsion. The oil reduces evaporation of the herbicide in arid areas and aids in penetrating stems and foliage of some woody plants. Water carrier, however, is equally as effective as oil carriers in some situations, such as use of 2,4-D on sagebrush. **WT&T**