



HYVAR® X-L

herbicide

ACCEPTED

AUG 1 1999

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 352-346

Water Soluble Liquid

Active Ingredient	By Weight
*Lithium salt of bromacil (5-bromo-3-sec-butyl-6-methyluracil)	21.9%
Inert Ingredients	78.1%
TOTAL	100%

* Equivalent to 21.4% Bromacil. 1 Gallon Contains 2 Pounds Bromacil

EPA Reg. No. 352-346

Net Contents: _____

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF SWALLOWED: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger, or if available by administering syrup of ipecac. If person is unconscious, do not give anything by mouth and do not induce vomiting.

IF IN EYES: Flush eyes with plenty of water. Call a physician if irritation persists.

IF ON SKIN: Wash with plenty of soap and water. Get medical attention if irritation persists.

For medical emergencies involving this product, call toll free 1-800-441-3637.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS

AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.

Shoes plus socks.

Waterproof gloves.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

PHYSICAL OR CHEMICAL HAZARDS

Combustible. Do not use or store near heat or open flame. Keep container closed when not in use.

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GENERAL INFORMATION

DuPont HYVAR® X-L Herbicide is a water soluble liquid to be mixed in water and applied as a spray for weed control on noncrop areas and industrial sites. It may also be applied either undiluted or diluted with water for the control of various species of brush on industrial sites. HYVAR® X-L is not to be used in any recreational areas or in or around homes.

HYVAR® X-L is an effective general herbicide providing residual control of many annual weeds at low rates and perennial weeds and brush at higher rates. It is particularly useful for control of perennial grasses.

After mixing with water HYVAR® X-L is non-flammable, non-volatile and non-corrosive to metals, except aluminum. Use with aluminum spray nozzles or equipment is not recommended.

ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

HYVAR® X-L is absorbed through the roots. Moisture is required to activate HYVAR® X-L in the soil. Best results are obtained when the soil is moist at the time of application and rainfall occurs after application. Effects are generally slow to appear and may not become apparent until the chemical has been carried into the root zone of weeds by moisture. The degree of control and duration of effect will vary with the amount of herbicide applied, soil texture, rainfall and other conditions.

Where a rate range is shown, use the higher levels of the dosage range on hard-to-control species, fine textured soils and on soils high in organic matter or carbon. Use the lower rates on annuals and other susceptible species, coarse textured soils and on soils low in organic matter or carbon. Refer to the specific uses for rate ranges.

WEED RESISTANCE MANAGEMENT

When herbicides with the same mode of action are used repeatedly over several years to control the same weed species in the same field or site, naturally-occurring resistant weed biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field or site. These resistant weed biotypes may not be adequately controlled. Cultural practices such as tillage, preventing weed escapes from going to seed, and/or using herbicides with different modes of action can aid in delaying the proliferation and possible dominance of herbicide resistant weed biotypes.

INTEGRATED PEST MANAGEMENT

DuPont recommends the use of Integrated Pest Management (IPM) programs to control pests. This product may be used as part of an Integrated Pest Management (IPM) program which can include biological, cultural, and genetic practices aimed at preventing economic pest damage. Application of this product should be based on IPM principles and practices including field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop or site systems in your area.

APPLICATION INFORMATION

HYVAR® X-L may be applied by ground equipment. Use rates and other application information are described for the various uses.

MIXING

Before spraying, calibrate equipment to determine the quantity of water necessary to uniformly and thoroughly cover the vegetation and soil in a measured area to be treated.

Add the proper amount of HYVAR® X-L into a spray tank as it is being filled with the amount of water to be used.

Continue filling the tank and agitate. After HYVAR® X-L has been thoroughly mixed within the spray tank, agitation of the spray solution is not required. Where applicable, add surfactant and/or anti-foam agent as the last ingredient in the tank.

APPLICATION EQUIPMENT

Apply with a fixed-boom or boomless power sprayer properly calibrated to a constant speed and rate of delivery. Use sufficient water (a minimum of 30 gal per acre) to provide thorough and uniform coverage of the ground. Spray booms should be shut off while starting, turning, slowing or stopping to avoid exceeding the prescribed application rates.

Applications may also be made with a handgun sprayer using enough water to insure uniform coverage. For small areas, a hand or backpack sprayer may be used.

For brush control, dilute applications may be made with a hand gun applicator or backpack. An exact delivery hand gun applicator may be used for undiluted applications. This equipment delivers a thin stream of predetermined volume when triggered.

SPRAYER CLEANUP

Thoroughly clean all mixing and spray equipment following applications of HYVAR® X-L as follows:

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water.
2. Fill the tank with clean water and 1 gal of household ammonia (contains 3% active) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank. Equivalent amounts of an alternate-strength ammonia solution or a commercial cleaner can be used in the cleanout procedure. If a commercial cleaner is used, carefully read and follow the individual cleaner instructions.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat step 2.
5. Rinse the tank, boom, and hoses with clean water.
6. Dispose of the rinsate on a labeled site or at an approved waste disposal facility. If a commercial cleaner is used follow the directions for rinsate disposal on the label.

Notes:

1. **Caution:** Do not use Chlorine bleach with ammonia as dangerous gases will form. Do not clean equipment in an enclosed area.
2. Steam-cleaning aerial spray tanks is recommended before performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When DuPont HYVAR® X-L is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

HYVAR® X-L should be used only in accordance with recommendations on this label, or in supplemental DuPont publications.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Entry Restrictions - Do not enter or allow others to enter the treated area until sprays have dried.

NON-CROP (INDUSTRIAL) SITES

APPLICATION INFORMATION

HYVAR® X-L is recommended for use for general weed control on noncrop industrial sites such as railroad, highway and pipeline rights-of-way, petroleum tank farms, lumber yards, storage areas and industrial plant sites.

Application Timing

Apply as a preemergence or early postemergence spray when weeds are actively germinating or growing, or prior to this period. Rainfall following application is required to activate HYVAR® X-L.

Weeds Controlled

HYVAR® X-L effectively controls the following weeds and grasses when applied at the rates shown.

Application Rates

Apply HYVAR® X-L at the rates indicated in the following table. Use the lower rates recommended in the table for short-term control or in areas of less than 20" of annual rainfall. Use the higher rates recommended in the table for long-term control or in areas of greater than 20" annual rainfall. Where limited rainfall occurs during the period of active growth HYVAR® X-L usually will not provide satisfactory control of hard to kill, deep rooted perennial weeds such as Johnsongrass.

Application rates and the level and duration of weed control may vary with soil texture and organic matter content. Use the lower rates recommended in the table on course textured soils such as loamy sand and sandy loam; use the intermediate rates on medium textured soils such as loam, silt loam, silt, clay loam and sandy clay loam; use the higher rates on fine textured soils such as silty clay loam, clay loam, sandy clay, silty clay and clay. Use the lower rates recommended in the table on soils low in organic matter or carbon and the higher rates on soils high in organic matter or carbon.

Use the lower rates recommended in the table in areas where the weeds have been controlled with previous applications of residual herbicides and it is desirable to maintain control. Use the higher rates recommended in the table as an initial treatment in areas where weeds have not been controlled with previous herbicide applications or in areas where perennial pests have become established.

Annuals—3/4 to 3 gal. per acre

Bromegrass	Lambsquarters	Ryegrass
Cheatgrass	Orchard grass	Turkey mullein
Crabgrass	Puncturevine	Wild Oats
Foxtail	Ragweed	

Perennials—3 to 6 gal. per acre

Aster	Dog fennel	Redtop
Bahiagrass	Goldenrod	Smooth brome
Blue grass	Plantain	Wild carrot
Broomsedge	Purpletop	
Dandelion	Quackgrass	

In areas of high rainfall and lengthy growing seasons repeat applications of 3/4 to 3 gal per acre of HYVAR® X-L may be needed to maintain season-long control. Make the applications when weeds and grasses begin to reappear on the previously treated areas.

Do not apply more than 6 gal per acre of HYVAR® X-L per year to any treated site.

SPECIAL USE SITUATIONS

Application Information

In addition to the sites listed previously, HYVAR® X-L may also be applied under pond liners and under asphalt and concrete such as highway shoulders and median strips, except in California.

HYVAR® X-L should only be used in areas that have been prepared according to good construction practices. Use sufficient water to ensure uniform coverage, generally 100 gal per acre.

Pond liner application (10 to 12 gal/acre rates) workers may treat a maximum of 10 acres per day.

Application Timing

On moist soils, apply HYVAR® X-L after final grading and immediately before laying the surfacing material.

If moisture is not present, incorporation of HYVAR® X-L is needed for activation. Incorporate to a depth of 4 to 6 inches after application using a rotary tiller or disc. Rainfall or irrigation of 2 inches will also provide uniform incorporation.

Weeds Controlled

When applied as directed HYVAR® X-L effectively controls the weeds and grasses in the following table.

Annuals—2 1/2 to 4 gal per acre

Cheat	Lambsquarters	Turkey mullein
Crabgrass	Puncturevine	Wild oats
Downy brome	Ragweed	
Foxtail	Ryegrass	

Perennials—4 to 6 gal per acre

Bahiagrass	Goldenrod	Redtop
Broomsedge	Plantain	Smooth brome
Dandelion	Purpletop	Wild carrot
Dogfennel	Quackgrass	

Perennials—10 to 12 gal per acre*

Bermudagrass	Dogbane	Saltgrass
Bouncingbet	Horsetail	Vaseygrass
Bracken fern	Johnsongrass	
Dallisgrass	Nutsedge	

* This use rate is limited to application under pond liners.

BRUSH CONTROL

APPLICATION INFORMATION

DuPont HYVAR® X-L is recommended for the control of undesirable woody plants in noncrop areas such as railroad rights-of-way, storage areas, industrial plant sites and similar areas.

Application Timing

Apply HYVAR® X-L from late winter through summer during the period of active growth or prior to this period. Rainfall following application is required to activate HYVAR® X-L.

Woody Plants Controlled—Use Rate

2 3/4 to 6 gal per acre

Cottonwood	Maple	Red bud
Elms, (American, winged)	Oaks	Sumac
Hackberry	Pines	Sweetgum
	Poplar	Willow

Do not apply more than 6 gal of HYVAR® X-L per acre per year.

Spray Equipment and Application Techniques

Broadcast

Apply HYVAR® X-L as a course spray using ground equipment only. Use enough water for thorough coverage, usually a minimum of 25 gal per acre.

Basal (Soil)

Undiluted—Apply HYVAR® X-L undiluted with an exact delivery hand gun applicator. This equipment delivers a thin stream of a predetermined volume when triggered. Apply HYVAR® X-L at the rate of 5 to 10 milliliters for every 2 to 4 inches of basal stem diameter. Direct the treatment to the soil at the base of the brush. When treating large stems and more than one delivery of HYVAR® X-L is needed per stem, make applications on opposite sides of the stem.

Diluted—Mix 1 gal of HYVAR® X-L in 5 gals of water. Apply at the rate of 1 to 2 ounces of solution for every 2 to 4 inches of basal stem diameter.

SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

IMPORTANCE OF DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets (>150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS!** See **Wind, Temperature and Humidity, and Surface Temperature Inversions** sections of this label.

Controlling Droplet Size - General Techniques

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.**
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

Controlling Droplet Size - Aircraft

- **Number of Nozzles** - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type** - Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.

BOOM LENGTH AND HEIGHT

- **Boom Length (aircraft)** - The boom length should not exceed 3/4 of the wing length, using shorter booms decreases drift potential. For helicopters use a boom length and position that prevents droplets from entering the rotor vortices.
- **Boom Height (aircraft)** - Application more than 10 ft above the canopy increases the potential for spray drift.
- **Boom Height (ground)** Setting the boom at the lowest height which provides uniform coverage reduces the exposure of droplets to evaporation and wind. The boom should remain level with the crop and have minimal bounce.

WIND

Drift potential increases at wind speeds of less than 3 mph (due to variable direction and inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. **AVOID APPLICATIONS DURING GUSTY OR WINDLESS CONDITIONS.**

5 of 6

Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they effect spray drift.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

SURFACE TEMPERATURE INVERSIONS

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates a surface inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

USE PRECAUTIONS

—NONCROP AND BRUSH CONTROL

- Injury to or loss of desirable trees or other plants may result if DuPont HYVAR® X-L is applied or if equipment is drained or flushed on or near desirable trees or other plants, on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Do not use HYVAR® X-L on frozen soils.
- Do not use HYVAR® X-L on residential areas such as driveways, parking lots or lawns nor on recreational areas such as jogging or bike paths, tennis courts, or golf cart paths nor in areas where landscape plantings could be anticipated.
- Do not apply this product through any type of irrigation system.
- Do not use in Kern County, California.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Keep container closed when not in use.

PRODUCT DISPOSAL: Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

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**LIMITATION OF
WARRANTY AND LIABILITY**

NOTICE: Read This Limitation of Warranty and Liability Before Buying or Using This Product. If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.

It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont. These risks can cause: ineffectiveness of the product; crop injury, or; injury to non-target crops or plants.

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