

NOT REVISIONED
To Amend 40 CFR Part 155, Notice 155-42.
Based on Draft Labeling Dated 10/15/97

ELANCO ID 5030

Herbicide

Paarlan®

E. C.

TM

Net Contents 1 Quart

**A selective herbicide for the
preemergence control of annual
grasses and broadleaf weeds**

Active Ingredient
isopropalin (2,6-dinitro-N,N-dipropylpicumidine) 68.6%
Inert Ingredients 31.4%
Contains 1/2 pounds active ingredient per quart
*Paarlan®—the registered trademark for Elanco Products isopropalin

Keep Out of Reach of Children.

CAUTION

See back of can for additional precautionary statements

EPA Reg. No. 1471-79
EPA Est. 1471-IN-2

FN 0529

Directions for Use: Read All Directions Carefully Before Applying.

See literature on top of can for complete directions for use. It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Precautionary Statements

Hazards to Humans and Domestic Animals
CAUTION

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. In case of contact, flush with water. Do not contaminate foodstuffs or feeds.

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. Do not induce vomiting or give anything by mouth to an unconscious person. If on skin: Wash with plenty of soap and water. If in eyes: Flush with plenty of water. Get medical attention.

Environmental Hazards

Direct contamination of any body of water with this erpusifiable concentrate may kill fish. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

Storage: Do not store near heat or open flame. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

The manufacturer makes no warranties, express or implied, concerning this product or its use which extend beyond the description on the label. All statements made concerning this product apply only when used as directed.

Elanco Products Company • A Division of Eli Lilly and Company
Indianapolis, IN 46285, U.S.A.

TC 0034 AMB

PI 1613 AMP

ID 5030



Paarlan® E.C.
Herbicide for Tobacco

Directions for Use

Paarlan is a preemergence herbicide which is soil incorporated to provide season long control of many annual grasses and broadleaf weeds. Incorporation of Paarlan helps assure effective weed control. Paarlan controls weeds as they germinate.

Soil Texture Guide

The amount of Paarlan to be applied will vary with the soil texture. A fine textured soil generally requires more Paarlan than a coarse textured soil. Paarlan is not recommended for use on muck or other soils containing more than 10% organic matter. Refer to the following table to determine soil texture grouping.

Soil Texture	Soil Classification	Soil Texture	Soil Classification
Coarse	Sand	Fine	Clay
	Loamy sand		Clay loam
Sandy loam	Silty clay loam*		
Medium	Loam		Silty clay
	Silty clay loam*		Sandy clay
	Silt loam	Sandy clay loam*	
	Silt		
	Sandy clay loam*		

*Silty clay loam and sandy clay loam soils are transitional soils and may be classified as either medium or fine textured soils. If silty clay loam or sandy clay loams are predominately sand or silt, they are usually classified as medium textured soils; if predominately clay, they are usually classified as fine textured soils.

Soil Preparation

Destroy existing weeds before a Paarlan application. Chop and thoroughly mix crop residues into the soil to a depth of 4 to 6 inches by deep plowing or disking before a Paarlan application. Use machinery that breaks up large clods before a Paarlan application.

General Mixing Directions

Use the following instructions for mixing Paarlan E.C. alone in water and tank mixed in water.

General Mixing Instructions in Water Alone:

Start with a clean sprayer. Fill the spray tank 1/2 to 3/4 full with clean water. Start agitation. Add the correct quantity of Paarlan E.C., continue agitation, and finish filling the tank.

General Tank Mix Instructions:

Vigorous, continuous agitation is required for all tank mixes. (Spiral pipe agitators generally provide the best agitation in spray tanks). During filling, to prevent foaming, avoid stirring or splashing air into the mixture by placing the end of the fill pipe below the surface of the water in the spray tank. Do not allow the mixture to siphon back into the water source.

Mixing order: Fill the tank 1/4 to 1/2 full with clean water. Start the agitation. Add dry flowables, wettable powders (WP), aqueous suspensions (AS), flowables (F), and liquids (L) to the water and agitate until the products are completely dispersed in the water. Allow additional mixing and dispersion time when using dry flowable products. Continue agitation and fill the tank to 3/4 full. Add the Paarlan E.C. mix thoroughly, then add any solution (S) products, agitate and finish filling. Maintain agitation during filling through application. If spraying and agitation must be stopped before the tank is empty, the materials may settle to the bottom. In this case, it is important to resuspend all of the material in the bottom of the tank before continuing the spray application. Sometimes it is more difficult to resuspend settled material than it is to suspend them originally. A sparger agitator is particularly useful for this purpose.

Read and carefully follow all label instructions for each material added to the tank. Pre-mixing dry and flowable formulations with water (stirring) and pouring the slurry through a 20 or 35 mesh warning screen in the top of the tank will help assure good initial dispersion in the tank water. Fine screens in the tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

If a buildup of material is seen on the walls of the spray tank, wash the tank with soapy water between fillings, rinse and continue the spraying operation. Clean tank, lines, and screens thoroughly after use.

Application Directions

Add the recommended amount of Paalan to clean water in the spray tank during the filling operation. (See General Mixing Instructions). Apply in 20 to 40 gallons of spray volume per acre (broadcast basis). Use any properly calibrated low pressure herbicide sprayer that will apply the spray uniformly. As the amount of spray volume decreases, the importance of accurate calibration and uniform application increases. Check the sprayer daily to insure proper calibration and uniform application. Apply Paalan to the soil surface and incorporate within the recommended time. Paalan should not be applied to soils which are wet or are subject to prolonged periods of flooding as poor weed control may result. Do not apply Paalan E.C. through any type of irrigation system.

Incorporation Directions

Before planting, Paalan must be incorporated one time within 8 hours after application. A second incorporation is required with most equipment (see Incorporation Equipment below for specific instructions). If Paalan is applied to a wet, warm soil surface or if the wind velocity is 10 mph or higher, variable weed control may result from delaying the first incorporation beyond 8 hours. Incorporation should place the Paalan into the top 2 to 3 inches of the final seedbed. Generally, incorporation equipment will mix Paalan approximately half as deep as the equipment is run. For example, a disc running 4 inches deep will incorporate Paalan into approximately the top 2 inches.

Bedded Culture

For effective weed control, Paalan should be incorporated into the top 2 to 3 inches of the final seedbed. Knock off beds to planting height before application of Paalan and incorporation of bedded ground. Avoid removal of treated soil from the seedbed before or during the planting operation.

Incorporation Equipment

Use machinery that mixes Paalan thoroughly with the soil. Shallow incorporation with implements set to mix Paalan less than 2 inches deep in the final seedbed may result in erratic weed control. Use of incorporation equipment not listed below may result in poor or erratic weed control and/or crop injury.

Recommended equipment includes:

Disc set to cut 4 to 6 inches deep and operated in 2 different directions at 4 to 6 mph. A tandem or double disc operated one time does not provide adequate incorporation. Power take off driven equipment (bikers, cultivators, hoers) set to incorporate Paalan in the top 2 to 3 inches of the final seedbed. P.T.O. driven equipment should be operated one time at a speed not greater than 4 mph.

Cultivation After Planting

Soil treated with Paalan may be shallowly cultivated or rotary hoed without reducing the weed control activity of Paalan. Do not cultivate deeper than the Paalan treated layer of soil. This may bring untreated soil to the surface and poor weed control may result. In areas of bedded culture, weeds may germinate in the bottom of the furrow due to the removal of Paalan treated soil. These weeds should be controlled by cultivation. Shallow cultivation, rotary hoeing and hand hoeing do not reduce the weed control activity of Paalan.

Weeds and Grasses Controlled

Paalan will not control established weeds.

Grasses Controlled

Barnyardgrass (Watergrass)	<i>Echinochloa</i> sp.
Crabgrass (Large crabgrass) (Small crabgrass) (Smooth crabgrass)	<i>Digitaria</i> spp.
Crowfootgrass Foxtail (Giant foxtail) (Green foxtail) (Yellow foxtail) (Bottlegrass) (Robust whorl) (Giant robust green)	<i>Dactyloctenium aegyptium</i> <i>Setaria</i> spp.
Goosegrass (Silver crabgrass) (Silvergrass) (Weedgrass) (Yardgrass)	<i>Eriosema indica</i>
Johnsongrass (Seeding only)	<i>Sorghum halepense</i>
Ryegrass annual (Italian ryegrass) (Ryegrass)	<i>Lolium multiflorum</i>
Fern sandbar Fall panicum Texas panicum (Buffalograss) (Colorado grass)	<i>Cenchrus incertus</i> <i>Amaranthus alachuanus</i> <i>Panicum termitum</i>

Broadleaf Weeds Controlled

Carpetweed	<i>Mollugo verticillata</i>
Florida pusley (Florida burstone) (Mexican clover) (Pushy)	<i>Richardia scabra</i>
Common lambsquarters	<i>Chenopodium album</i>
Common purslane	<i>Portulaca oleracea</i>
Pigweed	
Redroot pigweed (Carelessweed) (Rough pigweed)	
Prostrate pigweed	
Spiny amaranth	
Poona	<i>Diodia teres</i>

These recommendations are given as broadcast rates for Paanan. For band application use proportionately less. Apply Paanan up to 5 weeks before planting or transplanting. No waiting period is necessary. Planting or transplanting may be done the same day as a Paanan application.

Transient Tobacco

Air-cured (Burley, Maryland, Dark)-
Paanan Alone: Apply and incorporate Paanan before transplanting at a broadcast rate per acre of 2 pints on all soil textures. Do not apply Paanan after transplanting.

Paanan Tank Mix with insecticides/nematicides: Paanan at 2 pints per acre can be tank mixed with Dasanit[®], Diazifon[®], Furadan[®], Mo-Cap[®] and Mo-Cap Plus for effective weed, insect and/or nematode control.

Flue-cured-
Paanan Alone: Apply and incorporate Paanan before transplanting at a broadcast rate per acre of 2 pints on coarse and medium soils and 2 1/2 pints on fine soils.

Paanan Tank Mix with insecticides/nematicides: Paanan at 2 pints per acre can be tank mixed with Dasanit + Di-Syston, Mo-Cap, Mo-Cap Plus, Diazifon, Di-Syston, Dasanit, and Furadan for effective weed, insect and/or nematode control.

Paanan is usually compatible with Ridomil[®]. To assure the compatibility of Paanan with Ridomil, pour the products into a small container of water in the correct proportion. After thorough mixing, let stand for five minutes. If the combination remains mixed or can be remixed readily, the mixture is compatible.

Precaution

Read all product labels carefully before using. Note all directions, cautions, precautions and special precautions. Note application time before transplanting varies with different products. Read all labels carefully for this information.

**Application with Dry Fertilizers
Impregnation/Rates**

Paanan may be impregnated on most dry fertilizers. Individual state regulations relating to dry fertilizer mixing, registration, labeling and applications are the responsibility of the individual and/or company selling the fertilizer and Paanan mixture. Use any closed drum, pan, ribbon or other commonly used dry bulk fertilizer blender. The nozzle or nozzles used to spray the Paanan on to the fertilizer should be placed to provide uniform spray coverage. If less than 6 pints of Paanan are mixed per ton of fertilizer, add water to the Paanan to give a total volume of at least 6 pints per ton. See the following table for amounts of Paanan and water to be premixed based on the amount of fertilizer to be applied per acre.

Paanan Impregnation Volume - For Paanan at 2 Pints/Acre						
Fertilizer Rate (Pounds/Acre)	1000	1200	1400	1600	1800	2000
Paanan Rate (Pints/Acre)	2	2	2	2	2	2
Pints of Water to be Premixed with Paanan	1	1 1/2	2 1/2	2 3/4	3 1/2	4
Total Volume Paanan + Water (Pints)	3	3 1/2	4 1/2	4 3/4	5 1/2	6

Paartan Impregnation Volume - For Paartan at 2 1/2 Pints/Acre

Fertilizer Rate (Pounds/Acre)	1000	1200	1400	1600	1800	2000
Paartan Rate (Pints/Acre)	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Pints of Water to be Premixed with Paartan	1 1/2	1	1 1/2	2	2 1/2	3 1/2
Total Volume Paartan + Water (Pints)	3	3 1/2	4 1/2	4 1/2	5 1/2	6

Check the crop section to determine the rate of Paartan per acre. If the table above does not include the desired amount of fertilizer per acre, use the following calculation to determine the quarts of Paartan to be impregnated per ton of dry fertilizer.

$$\frac{\text{Pints of Paartan Per Acre} \times 2000}{\text{Lbs. Fertilizer Per Acre}} = \frac{\text{Pints of Paartan Per Ton of Fertilizer}}$$

Application

Spread the fertilizer/Paartan mixture with a properly calibrated applicator. Be certain the material is applied uniformly to the soil surface.

Incorporation

Follow normal Paartan incorporation procedures.

Application with Liquid Fertilizers

Paartan may be mixed with most liquid fertilizer materials. Individual state regulations relating to liquid fertilizer mixing, registration, labeling and applications are the responsibility of the individual and/or company selling the fertilizer and Paartan mixture.

Liquid Fertilizer Mixing Instructions

Paartan E.C. in Liquid Fertilizer: Emulsifiable concentrates, such as Paartan E.C., can be mixed with most liquid fertilizers. In all cases, continuous agitation is required to prevent the Paartan from rising to the surface as an oily layer. When necessary, (see Liquid Fertilizer Compatibility Test below) a compatibility agent can be used to cause the Paartan E.C. to emulsify properly (i.e. have a milky appearance rather than oily layer). The use of compatibility agents is especially important when liquid mixing emulsifiable concentrates (E.C.) with dry flowables, wettable powders (WP), aqueous suspensions (AS), flowables (F), liquids (L), or solutions (S) in liquid fertilizer.

If the emulsion is not properly formed, and the E.C. rises to the surface of the fertilizer as an oil floats out, the oil may combine with the wettable powder, flowable, or suspension to form oily curds (viscous phase) which is difficult to redispense. Any one of the compatibility agents listed below is helpful in causing emulsifiable concentrates to form non-oiling mixtures with liquid fertilizers. These compatibility agents can be used at rates as low as 1 1/4 to 2 pints per ton of liquid fertilizer and should be mixed well with the fertilizer before adding the emulsifiable concentrate. Read the label on the compatibility agent and follow the directions.

- 1 Sponto 1680 (Witco Chemicals Co., Chicago, IL)
- 2 Comcoat (Farm Chemicals, Inc., Aberdeen, NC)
- 3 Unite (Hopkins Ag Chemical, Madison, WI)
- 4 T-Mulz 734-2 (Thompson-Hayward Chemical Co.)
- 5 Rigo Compatibility Agent (Rigo Company, Buckner, KY)
- 6 Amoco Spray Mate (Amoco Oil Co., Chicago, IL)
- 7 Kem-Lite (Universal Corp., Minneapolis, MN)

Each of the above is a phosphate ester type surfactant designed to be used with liquid fertilizers. They usually do not work well as compatibility agents in tank mixtures in plain water.

Testing for Tank Mix Compatibility in Liquid Fertilizers

Emulsifiable concentrates alone or in tank mixture with dry flowables, wettable powders (WP), aqueous suspensions (AS), flowables (F), liquids (L), or solutions (S) may not combine properly with some liquid fertilizer materials. Small quantities should always be tested before full-scale mixing. This will determine whether a compatibility agent is needed, and which agent does the best job. The seven agents listed above have been thoroughly tested. There are many other surfactants on the market which were not designed for use with liquid fertilizers. Use the following test to select the correct agent for your mixture.

1. Put 1 pint of the liquid fertilizer in a quart jar.
2. Add 1 to 4 teaspoonfuls of the dry flowable, WP, AS, F, or L formulation (depending on the recommended rate per acre) to the liquid fertilizer. Close jar and agitate until dispersed evenly in the fertilizer. If the materials do not disperse well, it may be necessary to stir the chemicals in water before adding to the fertilizer.
3. After dispersing the materials (see 2), add 3 to 4 teaspoonfuls of the Paanan to the jar and shake well. Add solution herbicides to the mixture last and agitate. Observe the jar for about 10 minutes. If the materials rise to the surface and form a thick layer (or curds) which will not redispense when agitated, a compatibility agent is needed; if the mixture is easily redispersed to its original state with slight agitation, no agent is needed, but good agitation must be provided in the fertilizer spray tank.
4. If the need for a compatibility agent is shown in Step 3, using a clean quart jar, start at Step 1 above, add 1/2 teaspoonful of the compatibility agent to the liquid fertilizer, mix well, then repeat steps 2 and 3.

An effective compatibility agent will cause the mixture to remain uniformly mixed with little or no separating or oil rising to the surface for one half hour or longer. If slight separation does occur, 2 to 3 inversions of the jar should give a uniform remix. If any curds form which will not redispense, more agent or another agent should be tried. Use a clean jar for each test. The compatible mixture will have a uniform appearance and will be relatively easy to keep mixed with gentle agitation of the jar.

Application

Spread the Paanan/fertilizer with a properly calibrated applicator. Be certain the material is applied uniformly to the soil surface.

Incorporation

Follow recommended incorporation procedures for Paanan.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. In case of contact, flush with water. Do not contaminate foodstuffs or feeds. 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. Do not induce vomiting or give anything by mouth to an unconscious person. If on skin, wash with plenty of soap and water. If in eyes, flush with plenty of water. Get medical attention.

Environmental Hazards

Direct contamination of any body of water with this emulsifiable concentrate may kill fish. Do not contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

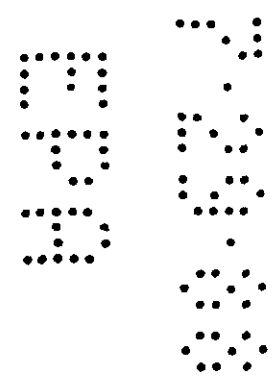
Storage: Do not store near heat or open flame. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

General Use Precautions

Applied according to directions and under normal growing conditions, Paanan will not harm the treated crop. Over application, uneven application or improper soil incorporation of Paanan can result in erratic weed control, crop injury, delayed emergence or soil residue, seedling disease, cold weather, deep planting, excessive moisture, high salt concentration or drought may weaken crop seedlings or transplants and increase the possibility of damage from Paanan. Under these conditions, delayed crop development or reduced yields may result.



**Paarian® E.C. Performance Guarantee
A Limited Warranty of Paarian
Weed and Grass Control**

Elanco Products Company warrants that Paarian E.C. will control the weeds and grasses as indicated on its current label when used according to label directions and subject to the following limitations:

1. Purchaser must notify Elanco promptly if a lack of commercially acceptable control occurs. Such notice must be given within forty-five (45) days after the first planting or application of Paarian E.C. to the treated crop, whichever occurs later.
2. An Elanco representative must be satisfied that Purchaser used Paarian E.C. according to the label directions.
3. The Purchaser must provide an Elanco representative with an invoice or other satisfactory record which shows the price and quantity of Paarian E.C. purchased.
4. Elanco's liability will be limited to a refund of the purchase price of the Paarian E.C. applied to the acreage on which weed control was not satisfactory.
5. Void outside the U.S.A.

Disclaimer of Warranties

The warranty printed above is the only warranty applicable to this product. All other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose are disclaimed. This disclaimer of warranties does not apply where prohibited by operation of law.

Limitation of Damages

Elanco's liability, whether in contract, warranty, tort, negligence, strict liability or otherwise shall not exceed the return of the amount of the purchase price of the Paarian E.C. and under no circumstances shall Elanco be liable for special, indirect or consequential damages. This limitation of damages does not apply where prohibited by operation of law.

Inherent Risks of Use

Failure to carefully follow the directions for use of Paarian E.C. may result in unsatisfactory weed control or crop injury. Factors such as plant disease, deep planting, cold weather, excessive moisture, high salt concentration, improper fertilizer placement, drought, or transplant quality may also result in unsatisfactory weed control or crop injury.

Paarian® (isopropalin, Elanco)
Dazomet® (bensulfuron, Bayer)
Diazinon® (diazinon, Ciba-Geigy)
Di-Syston® (sulfotolon, Bayer)
Furadan® (carbofuran, FMC)
Mo-Cap® (methoprop, Rhone-Poulenc)
Rodomit® (metazach, Ciba-Geigy)

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