

MAY 17 1990

T.R. Nelson, Ph.D.  
Registration Scientist  
BASF Corporation  
Agricultural Chemicals  
P.O. Box 13528  
Research Triangle Park  
North Carolina 27709-3528

Dear Dr. Nelson:

Subject: Laddock Herbicide  
EPA Reg. No. 7969-54  
Re: Atrazine Voluntary Exposure Reductions Measures  
Your Amendment Resubmission Dated May 14, 1990

The labeling referred to above, submitted in connection with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable with the following comment:

On page 8 under sections entitled "Corn, Canada Thistle, and Corn, Field Bindweed, specify which "plants" apply (Canada Thistle, ect..) when specifying height guidelines. Also on page 3, add the phrase, "Postemergence application to corn and sorghum must be made before corn and sorghum reaches 12 inches in height". This phrase may remain on page 9 as well.

Please submit five (5) copies of your final printed labeling incorporating this amendment and above mentioned comments before you release the product for shipment. All technical and end-use products released for shipment must have amended labels after September 1, 1990.

Sincerely yours,



Robert J. Taylor  
Product Manager (25)  
Fungicide-Herbicide Branch  
Registration Division (H7505C)

CONCURRENCES

SYMBOL	H7505C						
SURNAME	Moss						
DATE	5/15/90						

PA 11 23

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

Revised

May 7, 1990

LADDOK<sup>R</sup>

7969-54

POSTEMERGENCE FLOWABLE HERBICIDE

For Selective Postemergence Broadleaf Weed Control in Field Corn, Seed  
Corn, Silage Corn, Sweet Corn and Popcorn; and in Sorghum

Active Ingredients:

Sodium salt of bentazon* (3-(Isopropyl)-1H-2,1,3- benzothiadiazin-4(3H)-one, 2,2-dioxide.....	18.52%
Atrazine* (2-chloro-4-ethylamino-6-isopropylamino- s-triazine).....	16.96%

Inert Ingredients.....64.52%

\*Equivalent to 1.66 pounds per gallon each of  
bentazon and atrazine.

EPA REGISTRATION NO. 7969-54

KEEP OUT OF REACH OF CHILDREN

RESTRICTED USE PESTICIDE  
(GROUND WATER CONCERNS)

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR  
PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY FOR THOSE  
USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

THIS PRODUCT IS A RESTRICTED USE HERBICIDE DUE TO GROUND WATER  
CONCERNS. USERS MUST READ AND FOLLOW ALL PRECAUTIONARY  
STATEMENTS AND INSTRUCTIONS FOR USE IN ORDER TO MINIMIZE  
POTENTIAL FOR ATRAZINE TO REACH GROUND WATER.

DANGER/PELIGRO

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este  
producto hasta que la etiqueta haya sido explicada ampliamente.

Corrosive. Causes eye damage and skin irritation. Do not get in  
eyes, on skin or on clothing. Wear goggles or face shield and  
rubber gloves when handling. Harmful if swallowed.

If in eyes, immediately flush eyes with plenty of water. Get  
medical attention. If on skin, immediately flush skin with  
plenty of water. Get medical attention if irritation persists.

SHAKE WELL BEFORE USING  
NET CONTENT - 2 1/2 Gallons

BASF CORPORATION Research Triangle Park, NC 27709-35284  
Not Intended For Use  
in California

#### ENVIRONMENTAL HAZARDS

Atrazine, which is present in this product, can travel (seep or leach) through soil and can enter ground water which may be used as drinking water. Atrazine has been found in ground water. Users are advised not to apply LADDOK to sand and loamy sand soils where the water table (ground water) is close to the surface and where these soils are very permeable, i.e., well-drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of ground water.

This pesticide is toxic to aquatic invertebrates. Do not apply directly to water or wetlands. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by cleaning of equipment or disposal of wastes.

#### Reentry and Workers' Protection Statements

Users are required to wear long sleeve shirts and long pants or equivalent, chemical resistant gloves, and boots (waterproofed). In addition, persons involved in mixing/loading operations are required to use chemical resistant rubber or neoprene gloves and a face shield or goggles.

Do not apply this product in such a manner as to directly or through drift, expose workers or other persons. The area being treated must be vacated by unprotected persons. Do not enter treated areas without protective clothing until sprays have dried. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

#### DIRECTIONS FOR USE

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

#### GENERAL INFORMATION

Laddok selective herbicide is intended for the postemergence control of a broad spectrum of broadleaf weeds. Laddok does not control grasses. Laddok is effective mainly through contact action; therefore, weeds must be thoroughly covered with spray. Large crop-and-weed-leaf canopies shelter smaller weeds and prevent adequate spray coverage.

Corn and sorghum are tolerant to Laddok at all stages of growth. Very slight leaf speckling of corn or sorghum may occur but plants generally outgrow this condition within 10 days.

Corn types included are field, sweet and popcorn; and corn grown for seed or silage. Sorghum types include grain and forage.

Always add UAN solution, oil concentrate or Dash™ spray adjuvant according to the section entitled "Additive Information".

#### TIMING OF APPLICATIONS

Apply Laddok early postemergence when weeds are small and actively growing and before weeds reach the maximum size listed in the Application Rate Table For Laddok in Corn and Sorghum. Such applications generally correspond to the crop growth stages of one to seven leaves.

Early application to weeds produces the most beneficial effect on weed control, allows use of the lower rate (depending on weed species), and makes it easier to obtain thorough spray coverage. Delay in application which permits weeds to exceed the maximum size stated will result in inadequate control.

Do not cultivate within 5 days before or after application of Laddok in the following states: AZ, CO, CT, ID, IL, IN, IA, KS, KY, ME, MA, MI, MN, MO, MT, NE, NV, NH, NJ, NY, ND, OH, OR, PA, RI, SD, UT, VT, WA, WV, WI, WY. A cultivation 5 or more days after application may be necessary if all weeds are not controlled or if a second flush of weeds occurs.

#### WATER VOLUME AND SPRAY PRESSURE

Apply recommended rates of Laddok as follows:

Ground equipment: Use a minimum of 20 gals. of water per broadcast acre and a minimum of 40 psi pressure (measured at the boom, not at the pump or in the line). When crop and weed foliage is dense use up to 50 gals. of water and up to 80 psi pressure. Use standard high pressure pesticide hollow cone or flat fan nozzles spaced 20 inches apart. Do not use flood or whirl chamber nozzles.

Air equipment: Use a minimum of 5 gals. of water per acre and a maximum of 40 psi pressure. Use only diaphragm-type nozzles producing cone or fan spray patterns.

**AERIAL APPLICATION-SPECIAL DIRECTIONS**

To obtain uniform coverage and to avoid drift hazards, the following application equipment and practices should be used:

Nozzle height: Maximum of 10 feet above crop.

Nozzle orientation: Nozzles must be oriented so as to discharge straight back with the air stream (opposite the direction of travel of the aircraft) or at some angle between straight back and straight down.

Nozzles must be located no farther out than three-fourths the distance from the center of the aircraft to the end of the wing or rotor.

Water volume and spray pressure: See Air equipment.

Do not apply Laddok by aircraft when wind is blowing at a velocity above 10 mph. Coarse sprays (larger droplets) are less likely to drift.

Do not apply Laddok by air within 200 feet upwind of ornamental or sensitive nontarget crops such as soybeans, peanuts, cotton, sugarbeets, sunflowers or okra.

Applicator must follow the most restrictive use cautions to avoid drift hazards, including those found in this labeling as well as applicable state and local regulations and ordinances.

**SPECIAL INFORMATION FOR IRRIGATED AREAS**

In irrigated areas, it may be necessary to irrigate prior to treatment with Laddok to ensure weeds are growing actively. Weeds growing under drought conditions usually are not satisfactorily controlled.

**ADDIDITIVE INFORMATION**

UAN Solution:

In corn and sorghum, UAN (Urea Ammonium Nitrate) solution may be added to Laddok in the place of oil concentrate or Dash for most weeds; consult the Application Rate Table for Corn and Sorghum. UAN solution is commonly referred to as 28, 30 or 32% N. With the addition of UAN solution to Laddok on corn or sorghum, a slight leaf tip burn or yellowing and speckling may occur. New growth is normal and vigor is not reduced. Do not use brass or aluminum nozzles when spraying Laddok with UAN solution. Do not use UAN solution in combination with oil concentrate or Dash.

**Rate of UAN Solution**

Ground application - 1 gallon per acre.

Air application - 1/2 gallon per acre.

**Oil concentrate or Dash:**

If UAN solution is not used, a nonphytotoxic oil concentrate (commonly referred to as oil concentrate) or Dash should be added to the spray tank. Use oil concentrate if Canada thistle, yellow nutsedge or field bindweed are to be controlled. The oil concentrate must contain either a petroleum or vegetable oil base and must meet the following criteria: 1) be nonphytotoxic, 2) contain only EPA-exempt ingredients, 3) provide good mixing quality in the jar test (see below), and 4) be successful in local experience.

The exact composition of suitable oil products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers which provide good mixing quality. For vegetable oil concentrates, it has been observed that highly refined vegetable oils are more satisfactory than unrefined vegetable oils. For additional information see "Jar Test for Estimating Suitability of Mixes" at the end of this section.

**Rate of Oil Concentrate or Dash:**

Ground application-2 pints/acre (maximum)

Air application-1 pint/acre (maximum)

**Jar Test for Estimating Suitability of Mixes:**

1. Water supply: Use only water from intended source and at the source temperature
2. Amount of water in jar:
  - Ground Application-For 20 gal/A spray volume use 3 1/3 cups (800 ml) of water.
  - Air Application- For 5 gal/A spray volume use 5/6 cup (200 ml) of water, or
  - For 10 gal/A spray volume use 1 2/3 cups (400 ml) of water.

For other spray volumes, adjust proportionately to above.
3. Amount of herbicide and oil concentrate or UAN solution to add: Add herbicide and oil concentrate or UAN solution at the rate of 1 teaspoon (5 ml) for each pint of recommended label rate.

4. Add components in following sequence, gently mixing between component additions:
  1. UAN solution (if used)
  2. Laddok
  3. Other products (if used)
  4. Oil concentrate or Dash (if used)
5. Cap jar, invert 10 cycles, let stand for 15 minutes, evaluate.
6. Evaluation: An ideal tank mix combination will be uniform; thus, the suitability of the oil concentrate is questionable if any of the following are observed:

Free oil at the surface - film or globules.

Flocculation - fine particles which may be suspended in the liquid or found as a precipitated layer at the bottom of the jar.

Clabbering - thickening texture (coagulated) resembling yogurt or a curd-like texture as with cottage cheese.

#### MIXING/SPRAYING

Fill tank of a thoroughly clean sprayer half to two-thirds full with clean water. Start agitation; add UAN solution then add Laddok; allow to mix thoroughly. If UAN solution is not used add oil concentrate or Dash and remaining volume of water. Maintain constant agitation during application. Avoid allowing the mixture to stand overnight. Always clean sprayer thoroughly immediately after use by flushing the system with water and a strong detergent. Do not allow cleaning water to contaminate wells, streams or ponds.

## APPLICATION RATE TABLE FOR CORN AND SORGHUM

Weeds Controlled	Application Rates For Laddok					
	2 Pints/A*		2 1/2 Pints/A*		3 1/2 Pints/A*	
	Leaf Stage	Max. Height	Leaf Stage	Max. Height	Leaf Stage	Max. Height
Cocklebur	2-4**	3"	2-10**	8"	2-10**	8"
Common Lambsquarters	--	--	Up to 8	3"	8-12	5"
Common Ragweed	--	--	Up to 5	2"	4-6	3"
Giant Ragweed	--	--	Up to 4	2"	4-6	6"
Jimsonweed	--	--	Up to 6	4"	6-10	8"
Ladysthumb	2-4	3"	Up to 10	9"	10-14	12"
Penna. Smartweed	2-6	4"	Up to 10	9"	10-14	12"
Redroot Pigweed	2-6	4"	Up to 10	6"	Up to 10	6"
Smooth Pigweed	--	--	Up to 10	6"	Up to 10	6"
Tall Waterhemp	--	--	Up to 8	2"	6-9	4"
Velvetleaf <sup>a</sup>	2-4	3"	Up to 6	5"	6-8	8"
Venice Mallow	--	--	Up to 8	4"	Up to 8	4"
Wild Buckwheat	--	--	Up to 4	3"	4-6	5"
Wild Mustard	--	--	Up to 6	4"	6-10	8"
Wild Sunflower	--	--	Up to 4	6"	4-6	8"
Beggarticks	--	--	--	--	Up to 6	6"
Bristly Starbur	--	--	--	--	Up to 4	2"
Dayflower	--	--	--	--	Up to 6	4"
Prickly Sida or Teaweed	--	--	Up to 4	2"	Up to 6	3"
Spurred Anoda	--	--	--	--	Up to 6	3"
Morningglory, Annual	--	--	Up to 4	4"	4-6	6"
Smallflower Morningglory	--	--	Up to 4	4"	4-6	6"
Yellow Nutsedge	See Special Directions Below					
Canada Thistle	See Special Directions Below					
Field Bindweed	See Special Directions Below					

- a. For velvetleaf, always add UAN solution instead of oil concentrate or Dash.
- \* Always add UAN solution or oil concentrate or Dash to Laddok. See section Additive information.
- \*\* Do not treat earlier than leaf stage shown and do not count cotyledon leaves.



SPECIAL DIRECTIONS FOR OTHER WEED PROBLEMS

CORN

Canada Thistle

For suppression of Canada thistle apply 3 1/2 pints of Laddok per acre when plants are from 8-10 inches tall to the bud stage. Add oil concentrate or Dash according to the sections "Additive Information" and "Mixing/Spraying".

*Also Add phrase of 12 inch plants to this section*

Yellow Nutsedge

A single application of Laddok at 3 1/2 pints per acre will provide suppression of yellow nutsedge. Add oil concentrate or Dash according to the sections "Additive Information" and "Mixing/Spraying".

Field Bindweed

For suppression of field bindweed apply 3 1/2 pints of Laddok per acre plants are 8 to 10 inches tall. Add oil concentrate or Dash according to sections "Additive Information" and "Mixing/Spraying".

SORGHUM

Canada Thistle

Yellow Nutsedge

Field Bindweed

For suppression of these weeds, apply 3 1/2 pints of Laddok per acre when Canada thistle plants are from 8-10 inches tall up to the bud stage, field bindweed vines are 8-10 inches long or yellow nutsedge is 1-4 inches tall. Add oil concentrate or Dash according to sections "Additive Information" and "Mixing/Spraying". For best results, cultivate 7-14 days after application.

### Mixing With Insecticides

It is permissible to tank mix an insecticide with Laddok if the proper application timing of the insecticide coincides with the Laddok application timing according to the recommendations on the label for Laddok. Insecticides that may be used are Pounce<sup>R</sup>, Pydrin<sup>R</sup>, Furadan<sup>R</sup> 4F, Asana<sup>R</sup>, dimethoate, malathion, and Lorsban<sup>TM</sup> 4E. The addition of an insecticide as a tank mix to Laddok may increase the potential for crop injury. Consult the respective labels for directions for use restrictions and limitations of each product. The most restrictive labeling applies in tank mixes.

Before a tank mix of Laddok plus an insecticide is mixed, a jar test should be conducted following the directions in the section "Jar Test For Estimating Suitability of Mixes".

### RESTRICTIONS AND LIMITATIONS

Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

This product may not be mixed/loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sink holes.

Do not apply this product through any type of irrigation system.

Postemergence application to corn and sorghum must be made before corn and sorghum reaches 12 inches in height.

The maximum application rate of atrazine for corn and sorghum is 3 lbs. a.i. per acre per calendar year.

Application rates to non crop land for industrial weed control cannot exceed a maximum of 10 lbs. active ingredient per acre per calendar year.

Do not make more than one application of Laddok per season.

Do not use Laddok when crop is under stress from prolonged cold, wet weather, poor fertility, or other factors or when crop is wet and succulent from recent rainfall, as crop injury may occur.

Do not apply Laddok if crop shows injury (leaf phytotoxicity and/or plant stunting) produced by any other prior herbicide applications, because this injury may be enhanced and/or prolonged.

Do not apply Laddok during prolonged periods of drought or during unseasonably cold weather, as unsatisfactory weed control may result.

Seed producers should consult the seed company regarding tolerance of seed population inbred lines to Laddok.

Do not apply to sorghum that is heading out or blooming.

Do not graze treated area or feed treated forage to livestock for 21 days following application.

Rainfall or overhead irrigation soon after application (within 8 hours) may nullify the effectiveness of Laddok.

Do not mix or apply Laddok with any other fertilizer except as specifically recommended on this labeling.

Do not plant sugar beets or sunflower the season following application.

Do not plant oats the season following the application of Laddok in soil having a calcareous surface layer.

In the intermountain region of the United States, do not plant any other crop the year following the application of Laddok except corn or sorghum.

#### STORAGE AND DISPOSAL

Store above 15 degrees F.

Do not contaminate water, food or feed by storage or disposal. Pesticide wastes are acutely hazardous. 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.

Triple rinse container (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.

**IN CASE OF EMERGENCY**

In Case of Large Scale Spillage Regarding This Product: Avoid contact, isolate area and keep out animals and unprotected persons. Confine spill and call:

Chemtrec 800-424-9300  
BASF 800-832-HELP

In Case of Medical Emergency Regarding This Product,  
Call:

1. Your Local Doctor for Immediate Treatment.
2. Your Local Poison Control Center (Hospital).
3. BASF 800-832-HELP.

**CONDITIONS OF SALE AND WARRANTY**

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. All such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use, subject to the inherent risks referred to above. BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASF OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

Basagran and Laddok are registered trademarks of BASF AG.  
Dash is a registered trademark of BASF Corporation.  
Asana and Pydrin are registered trademarks of E. I. Du Pont  
Nemours and Company, Inc.  
Lorsban is a trademark of the Dow Chemical Company.  
Furadan and Pounce are registered trademarks of FMC Corporation.

## APPENDIX - SCIENTIFIC NAMES

Beggarticks	<i>Bidens frondosa</i>
Bristly Starbur	<i>Acanthospermum hispidum</i>
Canada Thistle	<i>Cirsium arvense</i>
Cocklebur	<i>Xanthium strumarium</i>
Common Lambsquarters	<i>Chenopodium album</i>
Common Ragweed	<i>Ambrosia artemisiifolia</i>
Dayflower	<i>Commelina</i> spp.
Field Bindweed	<i>Convolvulus arvensis</i>
Giant Ragweed	<i>Ambrosia trifida</i>
Jimsonweed	<i>Datura stramonium</i>
Ladysthumb	<i>Polygonum persicaria</i>
Morningglory, Annual	<i>Ipomea</i> spp.
Pennsylvania Smartweed	<i>Polygonum pennsylvanicum</i>
Prickly Sida or Teaweed	<i>Sida spinosa</i>
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Smallflower Morningglory	<i>Jacquemontia tamnifolia</i>
Smooth Pigweed	<i>Amaranthus hybridis</i>
Spurred Anoda	<i>Anoda cristata</i>
Tall Waterhemp	<i>Amaranthus tuberculatus</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Venice Mallow	<i>Hibiscus trionum</i>
Wild Buckwheat	<i>Polygonum convolvulus</i>
Wild Mustard	<i>Sinapis arvensis</i>
Wild Sunflower	<i>Helianthus annuus</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>