

The Value of Branded Products

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The Chemical Company

What Do You Expect From a Herbicide?

- Efficacy
- Control weed species as labeled
- Tolerance to non-target species as labeled
- Environmentally sound
- Consistent performance
- Cost effective

What is Expected of You, when using a herbicide?

- Responsible use
- Pick appropriate herbicide
- Utilize Best Management Practice
- Targeted application
- Minimize risk
- Use proven chemistry
- Find best value

What Do You Expect From a Herbicide Company?

- Manufacturing expertise
- Market Commitment
 - Further product development
 - Solve new problems
 - Support organizations
- Product support
 - Species control and tolerance information
 - Product use recommendations and expertise
 - Experience with product
- Toxicology expertise
- Fair Price

Overview of Differences: Basic versus Generic

Basic Manufacturer

- Experience
17+ years of manufacturer, development and field research.
- Develop & Pay for review of EPA data package.
- Service and support:
Application/rate recommendations based on site, needs, experience
- Proven products.
- Market commitment

Generic Producers

- Conduct some studies for formulated product.
- Typically cite basic manufacturer EPA data package for active ingredient.
 - Do not have right to review or otherwise have knowledge of the information actually contained within the data on file at EPA or held by the innovator registrant.

Difference in Formulation

- Just as spray adjuvants differ in quality and ingredients, herbicides with the same active differ in formulation.

- Example

- Inert



Expected of You

Responsible use
Use proven chemistry

You expect of herbicide

Control as labeled
Consistent performance

Differences in Formulation



■ Inert

- Both products 72.4% inert
 - Imazapyr E-Pro 2E inert equivalent to MSO
 - **CHOPPER** inert contains proprietary emulsifiers and penetrating agents

CHOPPER[®]
herbicide
For control of vegetation on forestry sites

Imazapyr E-Pro 2E
Site Prep & Basal Herbicide

ACTIVE INGREDIENT:
Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)* 27.6%

OTHER INGREDIENTS: 72.4%

TOTAL: 100.0%

*Equivalent to 22.6% (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) or 2 pounds acid per gallon.

**KEEP OUT OF REACH OF CHILDREN
CAUTION PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

EPA Reg. No. 81559-7
EPA Est. No. 92414-CHV-001
Product of China

Manufactured for:
Etriga, LLC
2214 Hwy 44 West
Inverness, FL 34453
REV 0306-450076

ETIGRA[®]

**REACH OF CHILDREN.
/PRECAUCIÓN**

Si alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

ingering life or property involving this product,
ht 1-800-832-HELP (4357).

First Aid, Precautionary Statements,
onditions of Sale and Warranty, and
rop and/or use site restrictions.

pyr (2-[4,5-dihydro-4- yridinecarboxylic acid)*	27.6%
.....	72.4%
-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) or 2 pounds acid per gallon.	100.0%

ht No. 4,708,610 EPA Est. No. _____

Differences in Formulation

- % active ingredient
- % inert

Difference indicates formulations are not equivalent, which can translate to a difference in activity

ALLIGARE PANORAMIC 2SL
HERBICIDE
Specimen Label

For use on Conservation Reserve Program (CRP) land, pasture, rangeland, and pasture and cropland.

ACTIVE INGREDIENT:	% BY WT.
Ammonium salt of imazapic (±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid*	23.3%
OTHER INGREDIENTS:	76.7%
TOTAL:	100.0%

*Equivalent to 21.996g (0.773 oz) of active ingredient per 94.67 g (3.34 oz) of product.

1 gallon contains 2.3 pounds of active ingredient per five acid.

EPA Reg. No. 68220-141-09427

KEEP OUT OF REACH OF CHILDREN
CAUTION

See inside label booklet for Directions for Use and Storage and Disposal Instructions.
Distributed By: Alligare, LLC • 13 N. 9th Street • Opelika, AL 36801

FIRST AID:

IF IN EYES:	• Flush eyes open and close with clean water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Do not induce vomiting. • If person is still breathing and not unconscious, then give artificial respiration if breathing is shallow or stopped. • Call a poison control center or doctor for further treatment advice.
IF ON SKIN OR CLOTHING:	• Wash all contaminated clothing. • Remove shoes immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	• Call a poison control center or doctor immediately for treatment advice. • Move person to a place of fresh air if able to breathe.

ENVIRONMENTAL HAZARDS:
Do not apply directly to water or to areas where surface water is present, or to areas that may drain to surface water.

Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinses.

This chemical demonstrates the properties and characteristics associated with chemicals classified as ground water. The use of this chemical in areas where such are permitted, particularly where the water table is near the application site, may cause contamination.

PRECAUTIONS:
Do not apply this product to a wet surface or to crops, ornamentals, or lawns.
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RECOMMENDATIONS:
Use this product only as described on the label. Do not use this product in areas where it is not registered for use. Do not use this product in areas where it is not registered for use. Do not use this product in areas where it is not registered for use.

ADDITIONAL INFORMATION:
This material is to be used only on the crops and areas listed on the label. Do not use this material on any other crops or areas.
Do not use this material on any other crops or areas.

SPRAY DIRECTIONS:
Spray this material on the crops and areas listed on the label. Do not use this material on any other crops or areas.

PLATEAU
herbicide

FOR WEED CONTROL, NATIVE GRASS ESTABLISHMENT AND TURF GROWTH SUPPRESSION ON PASTURES, RANGELAND AND NONCROP AREAS

ACTIVE INGREDIENT:
Ammonium salt of imazapic (±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid* 23.6%

INERT INGREDIENTS 76.4%

TOTAL 100.0%

*Equivalent to 22.95% (1.1-2.14 L/5.4lb/oz) of active ingredient.

ACTIVE INGREDIENT: Ammonium salt of imazapic (±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid*	23.6%
INERT INGREDIENTS	76.4%
TOTAL	100.0%

ACTIVE INGREDIENT: Ammonium salt of imazapic (±)-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid*	% BY WT.
.....	23.3%
OTHER INGREDIENTS:	76.7%
TOTAL	100.0%

See inside booklet for complete First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions.

Differences in Formulation

- Inerts in the formulation can dramatically affect mixing and compatibility with other tank mixture additives
 - other herbicides
 - adjuvants
 - basal bark / penetrating oils
 - fertilizer carriers



Differences in Formulation

■ Example

- % active ingredient
- % inert
- Type of inert

ARSENAL POWERLine herbicide

For the control of undesirable vegetation in grass pasture, rangeland and industrial noncropland areas including railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, storage areas, fence rows, nonirrigation ditchbanks and for the establishment and maintenance of wildlife openings.

Active Ingredient:
Isopropylamine salt of imazapyr(2-[4,5-dihydro-4-methyl-4-(1-methylthyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) 28.7%

Inert Ingredients 73.3%

Total **100.0%**

Equivalent to 21.8% 2-[4,5-dihydro-4-methyl-4-(1-methylthyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

EPA Reg. No. 241-431 U.S. Patent No. 4,706,619 EPA Est. No.

KEEP OUT OF REACH OF CHILDREN, CAUTION/PRECAUCIÓN

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See inside for complete First Aid, Precautionary Statements, Directions For Use.

ARSENAL POWERLine herbicide

For the control of undesirable vegetation in grass pasture, rangeland and noncropland areas such as railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, nonirrigation ditchbanks and other sites.

ACTIVE INGREDIENT:
Isopropylamine salt of imazapyr(2-[4,5-dihydro-4-methyl-4-(1-methylthyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) 28.7%

INERT INGREDIENTS 71.3%

Total **100.0%**

Equivalent to 21.8% 2-[4,5-dihydro-4-methyl-4-(1-methylthyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

EPA Reg. No. 241-431 U.S. Patent No. 4,706,619 EPA Est. No.

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Differences in Formulation



***Arsenal ½% v/v 1YAT Como, MS
American Elm***



***Arsenal Powerline ½% v/v 1YAT Como, MS
American Elm***

Manufacturing Expertise

- 10 years + to develop manufacturing plant to assure a consistent, quality product.
- 7 additional years, before generic, to improve process and product.

CHEMISTRY	Syn/prod.	Laboratory			Process/Develop				Manufacture		
	Formulation		Laboratory		Development				EPA Review		
Year		1	2	3	4	5	6	7	8	9	10

Difference in Formulation

This is a specimen label, intended for use only as a guide in providing general information regarding use of this product. As labels are subject to revision, always carefully read and follow the label on the product container.

**Imazapyr E-Pro 2E**
Site Prep & Basal Herbicide

ACTIVE INGREDIENT:

Isopropylamine salt of Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)*. 27.6%

OTHER INGREDIENTS: 72.4%

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KEEP OUT OF REACH OF CHILDREN
CAUTION PRECAUCION

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EPA Reg. No. 81959-7
EPA Est. No. 82414-CHN-001
Product of China

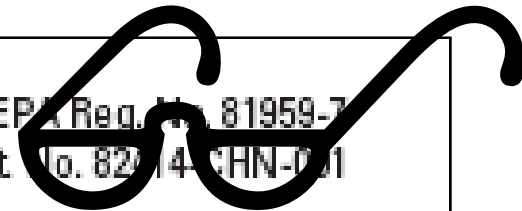
Manufactured for:
Etigra, LLC
2214 Hwy 44 West
Inverness, FL 34453
REV 0306-450078

**ETIGRA™**

■ Quality Control

EPA Reg. No. 81959-7
EPA Est. No. 82414-CHN-001

Product of China



Market Commitment: Product Support



- Basic manufacturers take pride in product support.
- A sound reputation for quality products and service are corner stones to success.
- Priority is put on keeping a pulse on customer needs and addressing those needs

Expected of You

Pick appropriate herbicide
Utilize BMP

You expect of Manufacturer

Expertise, Support
Problem solving

Product Support

- Site specific recommendations



- Application Training



Product Support

■ Application Demonstration



■ Solving new and unique problems



Product Support

- Conduct field tours



- Support University, county, CWMA, etc., training and field tours



Product Support



- Offer support programs
- QVM Program = Training, support, promotion
 - Applicator program
- Produce literature and information pieces for non-managers that influence programs



Market Commitment



BASIC MANUFACTURERS:

GIVE BACK FOR THE
BETTERMENT OF THE
INDUSTRY

- Legal support for the industry
- Pursue funding, legislation
- Support, Contribute and Participate in local, state, regional and national associations and organizations
- Specific to Chemical Industry examples:
 - Responsible Industry for a Sound Environment
 - Started Aquatic Ecosystem Restoration Foundation
 - Started Invasive Weed Awareness Coalition

Toxicology Expertise

DO YOU HAVE ALL
THE PESTICIDE
CHEMISTRY YOU
WILL EVER NEED?

- Basic Manufacturer reinvest back in to the company to support product development

Expected of You

Minimize risk

You expect of Herbicide

Evaluated for toxicity and environmental fate

Market Commitment: Product development



- Basic manufacturers, like BASF, invest \$150M to \$185M in research and development to commercialize a new herbicide that is beneficial to the professional weed management industry.
- Example:
 - a basic manufacturer works with ~100,000 compounds but only one will be found to be beneficial and significant enough to the consumer to warrant production costs.

Toxicology Expertise



CHEMISTRY	Syn/prod.	Laboratory			Process/Develop				Manufacture		\$50M		
	Formulation		Laboratory		Development				EPA Review				
BIOLOGY	Research	Greenhouse											
				Small Plot									
	Development					Field Trials/Demo							
TOXIC- OLOGY	Mammals	Acute, Subacute, Subcron. & Cron.											
	Environment				F,B, Micros, & Arthro.								
ENVIRON. CHEMISTRY	Degradation		Plant, Ani., Soil, H2O										
	Residue					Plant, Ani, Soil, H2O							
~120 tests		Year	1	2	3	4	5	6	7	8	9	10	\$150M

Toxicology Expertise

Pasture & Rangeland*	Biology	Small Plots		Demo		EPA Review			
	Residue Chemistry			Lactating cow, Grass forage, Hay					
Aquatics*	Biology		Lab	Meso	Demo		EPA Review		
	Toxicology			Non-target					
	EnviroChem			Residue irrigated crop	Water dissipation				
Year		6	7	8	9	10	11	12+	\$185M+

Patent Protection

- The US government recognizes the risks and investments that registrants take in investing in new innovations by granting patent protection to novel discoveries.
- Patent life (prior 1996): 17 yrs
- Discovery and development time: 7 yrs
- Years to recoup costs 10 yrs

*Patent life after 1996 is 20 years

After Patent Expiration:

- me-too version of the herbicide can be registered.
- Generic producers can conduct required EPA studies or negotiate compensation with data package owner to cite the data on record at EPA.
 - Generally choose to cite a majority of the studies.
 - Must conduct formulation studies
- The generic does not receive the right to the physical ownership of the data or the right to review or otherwise have knowledge to the information actually contained within the data on file at EPA or held by the innovator registrant.

Toxicology Expertise

- Customer support can help address concerns about:
 - non-target injury
 - residual activity
 - environmental fate
 - ecotoxicology
 - mammalian toxicology
- depends largely upon knowledge gained from conducting and reviewing the required EPA registration studies.
- If a generic producer has simply paid for the right to cite data then they may lack the necessary basic knowledge about the product and are limited when needed to provide meaningful support involving the areas of concern listed

Fair Price

■ What's the best value?

- Generic price based on:
 - Low overhead
 - No development cost
 - Short-term product commitment

- Manufacturer price based on:
 - Value
 - quality control, expertise
 - Services
 - Long-term Industry support, Product support, Market commitment
 - Address Performance issues
 - Development costs (past, future)

Expected of You

Find best value

You expect of Herbicide

Cost effective

Selecting a Generic Product

- Buy from a reputable distributor, one that has your business in mind.
- Read the label to insure the product may be used for your needs. The generic product label may be written differently than the proprietary product label. (Such as limited registration uses or applications)
- Take the time to test the generic products performance compared to the proprietary product.
- Or gain testimonial information from others that have used the generic brand.

When is it Appropriate to use a Basic Manufacturer Product?

- You have little or no experience with product
- You need product support to address NEPA, community, or applicator questions and environmental concerns
- You rely on manufacturer organization support
- Product Performance is paramount
- You only have one time funding (no dollars for re-treatment)
- You will not recognize a product performance issue

Selecting a Product

- Price per gallon or lb. should not be the only consideration.
- Compare the percent A.I. per gallon or lb.
 - Is it similar to what has proven successful in the past?
- Compare mixing properties, solubility, application properties.
- Compare company willingness to aid in addressing performance issues.
- Compare customer support.

Bid Language

- If Basic manufacturer product purchase is intended, bid language can specify:
 - EPA registration number
 - Trade name – *‘no substitute’*
 - Specify *‘Expert product support required from manufacturer’*
 - Include *‘address performance issues’*
 - State the % active ingredient

Product Label Expansions

- All terrestrial language from the Arsenal 2NS label has been added to the Habitat
- Benefits
 - Full aquatic label
 - Flexibility
 - Fewer products required
 - BASF support

Recent Product Introductions

- ❑ Clearcast
 - ❑ Full aquatic registration for emerged, floating and submerged weeds
 - ❑ Terrestrial invasive species
 - ❑ Chinese tallow
 - ❑ Japanese stiltgrass
 - ❑ Garlic mustard
 - ❑ Development work for Chinese privet control
- ❑ Frequency
 - ❑ Resistance management in bareground, roadsides and conifer plantations
 - ❑ Excellent control of Russian thistle, mareetail, pigweed, water hemp

ProVM Pipeline

- ❑ 2011 product launches
 - ❑ Clearcast 2.7G
 - ❑ Heat
 - ❑ OneStepXL
 - ❑ Passport
- ❑ 2012 product launches
 - ❑ Oasis
 - ❑ Frequency higher rates

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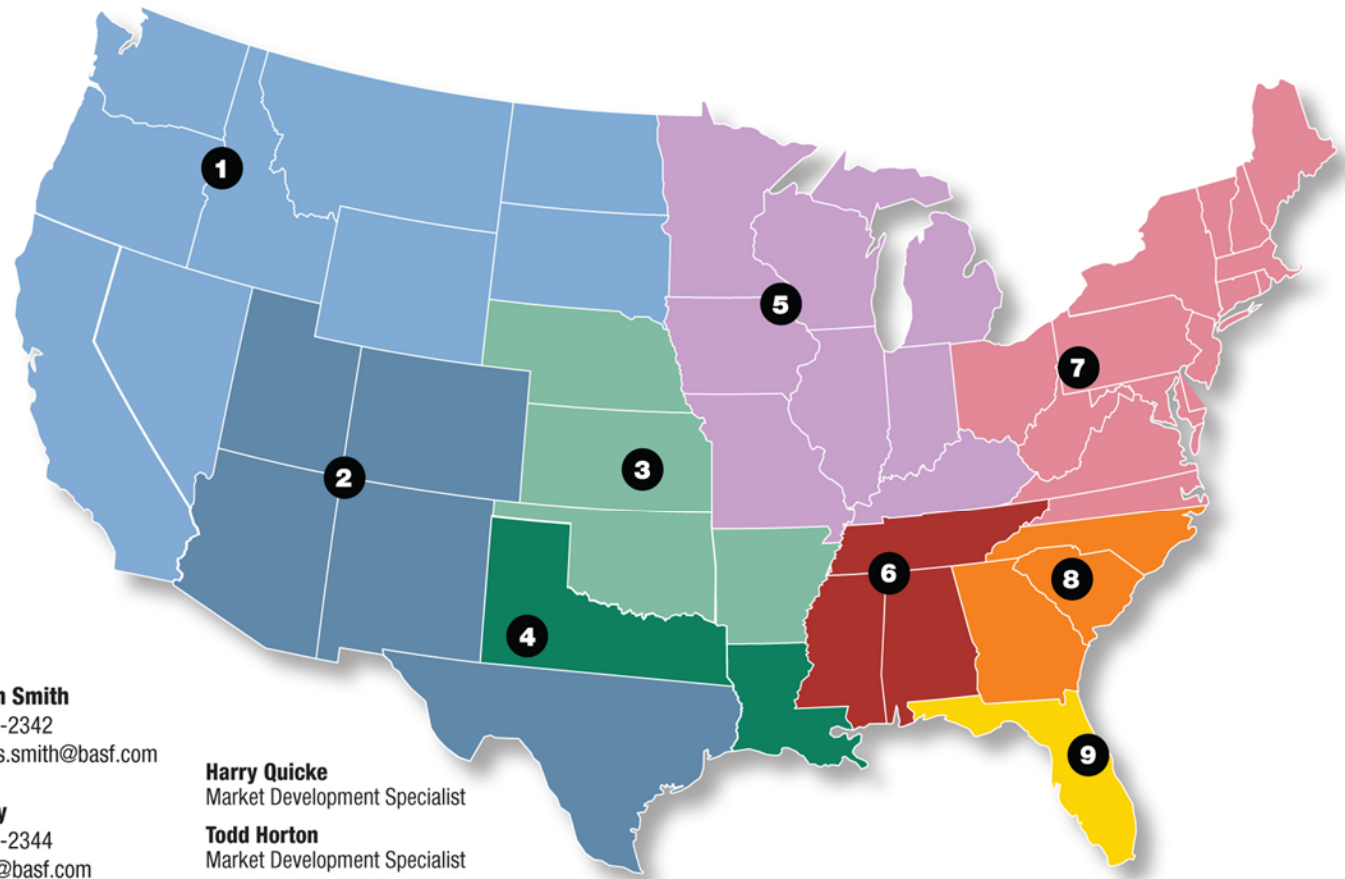
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Thank You



Questions?