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U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

NOTICE OF PESTICIDE:
x Registration
Reregistration

(under FIFRA, as amended)

EPA Reg. Number:	Date of Issuance: SEP 30 2002
7969-186	Date of Expiration: September 30, 2007
Term of Issuance:	Unconditional
Name of Pesticide Product:	Headline EC Fungicide

Name and Address of Registrant (include ZIP Code):

BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is registered for a period of five (5) years from the date of this letter, in accordance with FIFRA section 3(c)(5), provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data.

2. Make the changes to the label that are listed below before you release the product for shipment:

a. Revise the EPA Registration Number to read "EPA Reg. No. 7969-186".

3. Satisfy the data requirements listed below by the due date(s) included with each item.

a. Annually, by December 31 of each year and beginning in 2003, report percent crop treated data for pyraclostrobin for each crop pyraclostrobin is sold for use on.

Signature of Approving Official: /S/	Date: SEP 30 2002

EPA Form 8570-6

b. Annually submit, by November 15, production information (pounds or gallons produced) for the subject product for the preceding fiscal year in which the uses are conditionally registered, in accordance with FIFRA section 29. The fiscal year begins October 1 and ends September 30 of each calendar year. This information must be submitted to:

U.S. Environmental Protection Agency
Office of Pesticide Programs
Registration Support Branch
Registration Division (7505C)
Washington, D.C. 20460

c. A satisfactory 2-Year Chronic Toxicology Study in rats study must be submitted for female rats by September 30, 2006. The primary deficiency in the results for female rats in the study previously submitted is that the highest administered dose was well below the sub-chronic maximum dose and there were no significant treatment-related toxicological effects.

d. A satisfactory 18-Month Carcinogenicity Study in mice must be submitted for female mice by September 30, 2006. The primary deficiency in the results for female mice in the study previously submitted is that the highest administered dose was well below the subchronic maximum tolerated dose and there were no significant systemic treatment-related toxicological effects of the dosing.

e. A satisfactory 2-Generation Multigeneration Reproduction Study in rats must be submitted by September 30, 2005. The primary deficiencies in the study previously submitted are that there were no adverse, treatment-related maternal, reproductive, or offspring effects at the highest dose tested, and the limit dose was not approached.

f. A satisfactory 28-Day Dermal Toxicity Study in rats must be submitted by September 30, 2004. The primary deficiencies in the study previously submitted is that there were no treatment-related systemic effects noted at the highest dose tested, and the limit dose was not approached.

g. A satisfactory 28-Day Inhalation Toxicity Study in Rats must be submitted by September 30, 2004. This study is required due to the potential for inhalation occupational/residential exposure, which we cannot currently assess. This study must be performed using: a) the same form of pyraclostrobin to which workers will be exposed and b) the protocol for the 90-Day Inhalation Toxicity Study, but over a 28-day exposure period.

h. A satisfactory Aerobic Aquatic Metabolism (Guideline Requirement Number (GRN) 162-4) study must be submitted by September 30, 2005. One of the two studies submitted previously was judged to be Supplementary, the other Unacceptable.

i. A satisfactory study of the acute aquatic toxicity of the major pyraclostrobin degradates, BF 500-3 and BF 500-6, to freshwater fish (rainbow trout) must be submitted by September 30, 2005.

j. A satisfactory study of the acute aquatic toxicity of the major pyraclostrobin degradates, BF 500-3 and BF 500-6, to freshwater invertebrates (daphnia) must be submitted by September 30, 2005.

k. A satisfactory study of the acute aquatic toxicity of the major pyraclostrobin degradates, BF 500-3 and BF 500-6, to freshwater green algae must be submitted by September 30, 2005.

l. A satisfactory study of the acute aquatic toxicity of pyraclostrobin to sediment-dwelling organisms (chironomids and amphipods) must be submitted by September 30, 2005.

m. A satisfactory Mysid Life-cycle Study of pyraclostrobin must be submitted by September 30, 2005.

n. A satisfactory avian acute toxicity study using the formulated product Headline EC must be submitted by September 30, 2005.

o. A satisfactory fish acute toxicity study using the formulated product Headline EC must be submitted by September 30, 2005.

p. BASF must modify, within three (3) months of BASF's receipt of them from the Agency, the two tolerance enforcement methods for determination of the residues of pyraclostrobin and its desmethoxy metabolite in or on plant commodities, 1) the LC/MS/MS method D9808 and 2) the HPLC/UV method D9904, to include any modifications made by the EPA laboratory during the Agency laboratory validation.

q. BASF must modify, within three (3) months of BASF's receipt of them from the Agency, the two tolerance enforcement methods for determination of the residues of pyraclostrobin in or on ruminant commodities, 1) the HPLC/UV method 439/0 and 2) the HPLC/UV method 446 (consisting of GC/MS method 446/0 and LC/MS/MS method 446/1), to include any modifications made by the EPA laboratory during the Agency laboratory validation.

r. The geographic distribution in the U.S. of the residue data for the dried shelled pea and bean (except soybean) subgroup is not adequate to allow establishment of a dried pea tolerance and inclusion of dried peas on the label. If BASF still desires the dried pea use you must submit five (5) additional dry pea seed trials from Region 11. These trials must reflect the application of the 2 lb./gallon WDG formulation according to the maximum proposed use rate and must report the results for the food commodity and also for the feed commodities field pea vines and field pea hay. The Canadian trials that were conducted in Zone 14 cannot be used to support the U.S. registration because this zone does not border Region 11.

s. If BASF still desires addition of the foliage of legume vegetables (except soybeans) subgroup, you must submit a satisfactory study reporting the residue results of three (3) field trials on field peas and of three (3) field trials on a cultivar of bean (cowpea is the preferred commodity), all of which reflect the maximum proposed use pattern of the 2 lb./gallon WDG formulation. This study must be submitted by September 30, 2005.

t. A satisfactory storage stability study, adequate to support the storage conditions and intervals of the milk fat and tissue samples from the ruminant feeding study, must be submitted by September 30, 2004.

u. A satisfactory study containing additional information confirming that rotational crop samples were analyzed within the interval represented by the storage stability study must be submitted by September 30, 2004.

v. A satisfactory study of the subject product's flash point must be submitted by September 30, 2004. If the flash point determined in this study differs from that on the Confidential Statement(s) of Formula (CSF), a new CSF(s) reflecting the revised flash point value must be submitted at the same time. The flash point study found was considered to not be applicable to the subject product.

4. Submit one copy of your final printed label before you release this product for shipment. Refer to the A-79 Enclosure for a further description of final printed labeling.

The registration of the subject product shall terminate automatically on September 30, 2007 unless the Agency, prior to that date and in writing, amends this term and condition to alter or eliminate this termination date. Your release for shipment of the product constitutes acceptance of all preceding conditions.

Attachments: Product label, stamped "Accepted with Comments"
A-79 Enclosure

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BASF

GROUP 11 FUNGICIDE

ACCEPTED
with COMMENTS
In EPA Letter Dated:
SEP 30 2002

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 7969-186

Headline®
fungicide

For use in citrus, dry beans, grass grown for seed, peanuts, sugar beets, tuberous and corm vegetables, barley, rye, and wheat

Active Ingredient:*

Pyraclostrobin (carbamic acid, [2-[[[1-(4-chlorophenyl)-1H-pyrazol-3 yl]oxy]methyl]phenyl]methoxy-, methyl ester)	23.6%
Other ingredients:**	76.4%
Total	100.0%

* Equivalent to 2.09 pounds of pyraclostrobin per gallon

** Contains petroleum distillates

EPA Reg. No. 7969-RIA **EPA Est. No. 51036-GA-01**

KEEP OUT OF REACH OF CHILDREN.

WARNING/AVISO

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

See inside booklet for complete **First Aid, Precautionary Statements**, **Directions For Use**, and **Conditions of Sale and Warranty**.

Net contents:

BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

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FIRST AID	
If in eyes	•Hold eye open and rinse slowly and gently with water for 15-20 minutes. •Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. •Call a poison control center or doctor for treatment advice.
If swallowed	•Call a poison control center or doctor immediately for treatment advice. •Have person sip a glass of water if able to swallow. •Do not induce vomiting unless told to do so by a poison control center or doctor. •Do not give anything by mouth to an unconscious person.
If on skin or clothing	•Take off contaminated clothing. •Rinse skin immediately with plenty of water for 15-20 minutes. •Call a poison control center or doctor for treatment advice.
If inhaled	•Move person to fresh air. •If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. •Call a poison control center or doctor for further treatment advice.
Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.	
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

WARNING: May be fatal if swallowed. Causes skin irritation. Harmful if absorbed through skin or inhaled. Avoid breathing vapors.

Personal Protective Equipment (PPE)

Some materials that are chemically resistant to this product are listed below. For more options, refer to category **A** on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Socks
- Chemical-resistant footwear
- Chemical-resistant gloves made of any waterproof material (such as Nitrile, Butyl, Neoprene and/or Barrier Laminate)
- Chemical resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing and loading.

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls Statement

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4 - 6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This product may contaminate water through drift of spray in wind. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

This pesticide is toxic to fish and aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply directly to water, areas where surface water is present, or intertidal areas below the mean

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high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. 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. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), notification to workers, and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours.**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves, made of any waterproof material (such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate)
- Shoes plus socks

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to label.

Pesticide Disposal: Wastes resulting from using this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representatives at the nearest EPA Regional Office for guidance.

Container Disposal: Triple rinse (or equivalent). 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 Spill

In case of large-scale spillage regarding this product, call:

CHEMTREC	800-424-9300
BASF Corporation	800-932-HELP (4357)

Steps to be taken in case material is released or spilled:

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

I. General Information

This package contains **Headline® fungicide**, an emulsifiable concentrate (EC). The active ingredient in **Headline**, pyraclostrobin, is a member of the **strobilurin class of chemistry** and is derived from a natural antifungal substance. Optimum disease control is achieved when **Headline** is applied in a regularly scheduled protective spray program and is used in a rotation program with other fungicides. Because of its high specific activity, **Headline** has good residual activity against target fungi.

Headline is not for use in greenhouse or transplant production.

Mode of Action:

Pyraclostrobin, the active ingredient of **Headline** belongs to the group of respiration inhibitors classified by the U.S. EPA and Canada PMRA as Quinone Outside Inhibitors (QoI), or Target Site of Action **Group 11** Fungicides.

Resistance Management

Headline contains pyraclostrobin, a **group 11** fungicide, and is effective against pathogens resistant to fungicides with modes of action different from those of QoI fungicides (Target site **group 11**), such as for example, dicarboximides, sterol inhibitors, benzimidazoles, or phenylamides. Fungal isolates resistant to **group 11** fungicides, such as pyraclostrobin, azoxystrobin, trifloxystrobin, and kresoxim-methyl, may eventually dominate the fungal population if **group 11** fungicides are used predominantly and repeatedly in the same field in successive years as the primary method of control for the targeted pathogen species. This may result in reduction of disease control by **Headline** or other **group 11** fungicides.

To maintain the performance of **Headline® fungicide**

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in the field, do not exceed the total number of sequential applications of **Headline** and the total number of applications of **Headline** per season stated in Sections V. and VI. Adhere to the label instructions regarding the consecutive use of **Headline** or other target site of action **group 11** fungicides that have a similar site of action on the same pathogens.

The following recommendations may be considered to delay the development of fungicide resistance:

1. Tank mixtures: Use tank mixtures with fungicides from different target site of action Groups that are registered/permitted for the same use and that are effective against the pathogens of concern. BASF recommends using at least the minimum labeled rates of each fungicide in the tank mix.

2. IPM: **Headline** should be integrated into an overall disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/or BASF representative for additional IPM strategies established for your area. **Headline** may be used in Agricultural Extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favorable for disease development.

3. Monitoring: Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development. If a **group 11** target site fungicide, such as **Headline**, appears to be less effective against a pathogen that it previously controlled or suppressed, contact a BASF representative, local extension specialist, or certified crop advisor for further investigation.

Cleaning Spray Equipment
Spraying equipment must be cleaned thoroughly before and after applying this product, particularly if a product with the potential to injure crops was used prior to **Headline**.

II. Application Instructions

Apply recommended rates of **Headline** as instructed by **Section VI. Crop-Specific Recommendations.** Apply **Headline** with ground sprayer, aerial equipment or through sprinkler irrigation equipment. Equipment should be checked frequently for calibration. Under low-level disease conditions, the minimum application rates can be used while maximum application rates and shortened spray schedules are recommended for severe or threatening disease conditions.
Do not apply when conditions favor drift from target area or when wind speed is greater than 6 mph.

Ground Application: Apply **Headline** in sufficient water to ensure thorough coverage of foliage, bloom, and fruit. Thorough coverage is required for optimum disease control.

Aerial Application: Use no less than 5 gallons of spray solution per acre. For Aerial application to citrus orchards, use no less than 10 gallons of spray solution per acre.

DIRECTIONS FOR USE THROUGH SPRINKLER IRRIGATION SYSTEMS

Sprayer Preparation: Chemical tank and injector system should be thoroughly cleaned. Flush system with clean water.

Application Instructions: Apply **Headline** at rates and timings as described in this label.

Use Precautions for Sprinkler Irrigation Applications:
- Apply this product only through sprinkler irrigation systems including center pivot, lateral move, end tow, side [wheel] roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system.
- Add this product to the pesticide supply tank containing sufficient water to maintain a continuous flow by the injection equipment. In continuous moving systems, inject this product-water mixture continuously, applying the labeled rate per acre for that crop. Do not exceed 1/2 inch (13,577 gallons) per acre. In stationary or non-continuous moving systems, inject the product-water mixture in the last 15-30 minutes of each set allowing sufficient time for all of the required pesticide to be applied by all the sprinkler heads and applying the labeled rate per acre for that crop. Do not apply when wind speed favors drift beyond the area intended for treatment. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. Thorough coverage of foliage is required for good control. Good agitation should be maintained during the entire application period.
- If you have questions about calibration you should contact State Extension Service specialist, equipment manufacturers or other experts.
- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

- The pesticide injection pipeline must also contain a

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functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation, or under supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

Specific Instructions for Public Water Systems:

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back-flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump when the water pressure decreases to the point where pesticide distribution is adversely affected
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

III. Additives and General Tank Mixing Information

Headline® fungicide can be tank mixed with most recommended fungicides, insecticides, herbicides, liquid fertilizers, biological control products, adjuvants, and additives as specified in **Section VI. Crop Specific Recommendations.**

Under some conditions, the use of additives or adjuvants may improve the performance of **Headline**. However, all varieties and cultivars have not been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Physical incompatibility, reduced disease control, or crop injury may result from mixing **Headline** with other products. Therefore, before using any tank mix (fungicides, insecticides, herbicides, liquid fertilizers, biological control products, adjuvants and additives), test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application.

Consult a BASF representative or local agricultural authorities for more information concerning additives.

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IV. Mixing Order

1) **Water**. Begin by agitating a thoroughly clean sprayer tank three-quarters full of clean water.
2) **Agitation**. Maintain constant agitation throughout mixing and application.
3) **Inductor**. If an inductor is used, rinse it thoroughly after each component has been added.
4) **Products in PVA bags**. Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
5) **Water-dispersible products** (such as dry flowables, wettable powders, suspension concentrates, or suspo-emulsions).
6) **Water-soluble products**.
7) **Emulsifiable concentrates** (such as **Headline® fungicide**, or oil concentrates when applicable).
8) **Water-soluble additives** (such as AMS or UAN when applicable).
9) **Remaining quantity of water**.

Make sure that each component is thoroughly mixed and suspended before adding tank mix partners. Maintain constant agitation during application. See **Section VI. Crop-Specific Recommendations** for more details.

V. General Restrictions and Limitations- All Crops

- **Maximum seasonal use rate:** Do not apply more than the maximum rate per acre per season as listed in **Table A. Crop-Specific Restrictions and Limitations** and **Section VI. Crop-Specific Recommendations.**
- **Maximum rate per application:** Do not apply more than the maximum rate per acre per application as listed in **Table A. Crop-Specific Restrictions and Limitations** and **Section VI. Crop-Specific Recommendations.**
- Do not make more than the total number of applications of **Headline** per season, as listed in **Table A. Crop-Specific Restrictions** and **Limitations** and not exceeding the maximum seasonal use rate. Also see **Section VI. Crop-Specific Recommendations.**
- **Pre-harvest Interval (PHI):** See **Table A. Crop-Specific Restrictions and Limitations** and **Section VI. Crop-Specific Recommendations.**
- **Headline** is not for use in greenhouse or transplant production.

Crop Rotation Restriction: Crops listed on the **Headline® fungicide** and **Cabrio™ EG fungicide** labels may be planted immediately following the last application.

All other crops can be planted 14 days after the last application.

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Table A. Crop-Specific Restrictions and Limitations						
Crop[1]	**Minimum Time from Application to Harvest (PHI) (days)**	**Maximum Rate per Acre per Application (fl. oz.)**	**Maximum Number of Sequential Applications**	**Maximum Number of Applications per Season**	**Maximum Rate per Acre per Season (oz.)**	**Livestock Grazing or Feeding**
Barley	Apply no later than 50% head emergence (Feekes 10.3, Zadok's 55)	9	2	2	18	Do not harvest barley hay within 14 days of last application
Citrus Fruit Crop Group: Orange, Grapefruit, Lemon, Lime, Tangerine, and Tangelo	14	15	2	4	49[2]	Yes (dried pulp)
Dry Beans	30	8	2	2	16	N/A
Grass grown for Seed	14	12	2	2	24	Do not feed forage or hay to livestock within 27 days of last application
Peanut	14	15	2	5	75	Peanut meal may be fed. Do no graze or harvest for forage use.
Rye	Apply no later than 50% head emergence (Feekes 10.3, Zadok's 55)	9	2	2	18	Yes
Sugar beet (roots and tops)	7	12	2	4	48	Yes
Tuberous and Corm Vegetables Subgroup: Potato Sweet potato, Yam	3	12	2	6	72	NA
Wheat	Apply no later than end of flowering (Feekes 10.53, Zadok's 69)	9	2	2	18	Do not harvest wheat hay within 14 days of last application

[1] For a complete list of crops within a crop group, see **Section VI. Crop-Specific Recommendations**.

[2] For specific information on maximum use rates and maximum rates per season, see **Section VI. Crop-Specific Recommendations, Citrus Fruit.**

[3] NA = not applicable

Aerial Application is permitted for all labeled crop uses.

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VI. Crop-Specific Recommendations

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Barley	Black point (Kernel blight) *(Cochliobolus sativus*	6 to 9 fl. oz. per acre	2	18 fl. oz per acre	Apply no later than 50% head emergence (Feekes 10.3 or Zadok's 55)
	Leaf rust *(Puccinia hordei, P. recondita)*				
	Net blotch *(Pyrenophora teres)*				
	Powdery mildew *(Erysiphe graminis* f. sp. *hordei)*				
	Scald *(Rhynchosporium secalis)*				
	Septoria leaf and glume blotch *(Stagonospora avenae, S. nodorum)*				
	Spot bloch *(Cochliobolus sativus)*				
	Stem rust *(Puccinia graminis* f. sp. *tritici)*				
	Stripe rust *(Puccinia striiformis)*				
	Yellow stem spot (Tan spot) *(Pyrenophora trichostoma)*				

Application Directions: Headline® fungicide may be applied at the onset of disease. To maximize yields in cereals it is important to protect the flag leaf. Apply **Headline** immediately after flag leaf emergence for optimum results. Reapply 10 to 14 days later if disease persists or weather conditions are favorable for disease development.

Headline may be combined with the lowest labeled rate of an adjuvant to enhance disease control.

Resistance Management: To limit the potential for development of resistance, do not make more than two (2) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Do not harvest barley hay within 14 days of last application.

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Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Citrus Fruit Calamondin Citrus citron Citrus hybrids Chironja Grapefruit Kumquat Lemon Lime Mandarin Orange, (sour and sweet) Pummelo Satsuma Tangelo Tangerine Tangor	Greasy spot *(Mycosphaerella citri)* *Scab* *(Elsinoe fawcettii)*	9 to 12 fl. oz. per acre	4	49 fl. oz. per acre	14 days
	Alternaria brown spot *(Alternaria citri)* Anthracnose *(Colletotrichum acutatum, C. gloeosporioides)* Black spot *(Guignardia citricarpa)* Melanose *(Diaporthe citri)* Post bloom fruit drop *(Colletotrichum acutatum)*	12 to 15 fl. oz. per acre			

Application Directions: For optimal disease control, begin applications of **Headline® fungicide** prior to disease development and continue on a 10 to 21-day interval.

For control of diseases other than greasy spot, integrate 1 to 2 applications of **Headline** into the fungicide program during the early season (March - May). For greasy spot control, integrate 1 to 2 applications of **Headline** into the fungicide program during the mid to late season.

Use the higher rate when disease pressure is high.

For aerial application to citrus orchards, use no less than 10 gallons of spray solution per acre.

Resistance Management: To limit the potential for development of resistance, do not make more than four (4) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Do not make more than two (2) sequential applications of **Headline** before alternating to a labeled non-strobilurin (non-QoI) fungicide with a different mode of action.

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application To Harvest (PHI)
Dry Beans Broad bean Chickpea Guar Lablab bean <u>*Lupinus* spp.</u> Grain lupin Sweet lupin <u>*Phaseolus* spp.</u> Field bean Kidney bean Pink bean Lima bean Navy bean Pinto bean Tepary bean <u>*Vigna* spp.</u> Adzuki bean Blackeyed pea Catjang Crowder pea Moth bean Mung bean Rice bean Southern pea Urd bean	Anthracnose (*Colletotrichum* spp.) Ascochyta blight (*Ascochyta* spp.) Mycosphaerella blight (*Mycosphaerella* spp.) Powdery mildew (*Erysiphe* spp.) Rust (*Uromyces* spp.)	5.5 to 8 fl. oz. per acre	2	16 fl. oz. per acre	30 days

Application Directions: Apply **Headline® fungicide** at the beginning of flowering or at the onset of disease.

Use the higher rate for extended protection and maximum yield benefit. Apply a second time 10 to 14 days later if conditions are favorable for disease development or if heavy disease has already set in. Later applications work best to control powdery mildew as it often invades late in the flowering period. Ascochyta blight in chickpeas develops quickly once established so early detection and application is essential to reduce losses.

Resistance management: To limit the potential for development of resistance, do not make more than two (2) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Grasses grown for seed	Powdery mildew *(Erysiphe graminis)* Rust *(Puccinia recondita, P. graminis)*	6 to 12 fl. oz. per acre	2	24 fl. oz. per acre	14 days
	Application Directions: For optimal disease control, begin applications of **Headline® fungicide** prior to disease development. Apply again 14- to 21-days later. Use the higher rate and shorter interval when disease pressure is high. Do not graze or feed forage or hay to livestock within 27 days of last application. **Headline** may be combined with the lowest labeled rate of an adjuvant to enhance disease control. **Resistance management:** To limit the potential for development of resistance, do not make more than two (2) applications of **Headline** or other strobilurin (QoI) fungicides per season.				

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Peanut	Early leaf spot *(Cercospora arachidicola)* Late leaf spot *(Cercosporidium personatum)*	6 to 15 fl. oz. per acre (See details below)	5	75 fl. oz. per acre	14 days
	Pepperspot *(Leptosphaerulina crassiasca)* Rust *(Puccinia arachidis)* Web blotch *(Phoma arachidicola)*	6 to 12 fl. oz. per acre			
	Rhizoctonia limb rot, peg rot, and pod rot *(Rhizoctonia solani)* Sclerotium rot - Southern stem rot, Southern blight, and white mold *(Sclerotium rolfsii)*	9 to 15 fl. oz. per acre			

Application Directions: For control of pepperspot, rust, and web blotch, begin applications of **Headline® fungicide** prior to disease development and continue on a 14- to 21-day interval.

For control of early and late leaf spot, begin applications of **Headline** prior to disease development and continue on a 14- to 21-day interval. When using a 14 -day spray interval, apply **Headline** at 6 to 12 fluid ounces per acre. At spray intervals between 14 and 21 days, apply **Headline** at 9 to 15 fluid ounces per acre.

For control of Rhizoctonia and Sclerotium, begin applications of **Headline** prior to disease development and continue on a 14-day interval.

Use the higher rate and/or shorter spray interval when disease pressure is high or in fields with a history of disease.

Do not mix **Headline** with silicone-based adjuvants.

Peanut meal may be fed. Do not graze or harvest for forage use.

Resistance Management: To limit the potential for development of resistance, do not make more than five (5) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Do not make more than two (2) sequential applications of **Headline** before alternating to a labeled non-strobilurin (non-QoI) fungicide with a different mode of action.

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Potato	See **Tuberous and corm vegetables subgroup** (page 16)				

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Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Rye	Leaf rust *(Puccinia recondita)* Leaf spot *(Pyrenophora* spp.) Powdery mildew *(Erysiphe graminis)* Septoria leaf and glume blotch *(Septoria secalis, S. tritici, Stagonospora nodorum)* Stem rust *(Puccinia graminis)* Stripe rust *(Puccinia striiformis)*	6 to 9 fl oz. per acre	2	18 fl. oz. per acre	Apply no later than 50% head emergence (Feekes 10.3 or Zadok's 55)

Application Directions: Headline® fungicide may be applied at the onset of disease. To maximize yields in cereals it is important to protect the flag leaf. Apply **Headline** immediately after flag leaf emergence for optimum results. Reapply 10 to 14 days later if disease persists or weather conditions are favorable for disease development.

Headline may be combined with the lowest labeled rate of an adjuvant to enhance disease control.

Resistance Management: To limit the potential for development of resistance, do not make more than two (2) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Crop	Target Disease	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Sugar beet (roots and tops)	Cercospora leaf spot *(Cercospora beticola)* *Powdery mildew (Erysiphe betae)*	9 to 12 fl. oz. per acre	4	48 fl. oz. per acre	7 days

Application Directions: Begin applications prior to disease development. Apply **Headline® fungicide** at 14-day intervals. Use the higher rate when disease pressure is high.

The use of adjuvants is not necessary for disease control with **Headline**. BASF does not recommend the use of adjuvants with **Headline** when applied alone in sugarbeets.

Headline can be tank mixed with Poast® or Select® herbicides for postemergence control of grasses in sugarbeets. Do not use silicone-base adjuvants. Use the lowest recommended crop oil concentrate or methylated seed oil adjuvant rate, not to exceed 0.5% of the spray volume per acre. These tank mix combinations may result in a temporary crop response.

See **Section III. Additives and General Tank Mixing Information** for more details.

Resistance Management: To limit the potential for development of resistance, do not make more than four (4) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Do not make more than two (2) applications of **Headline** before alternating to a labeled non-strobilurin (non-QoI) fungicide with a different mode of action.

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Tuberous and Corm Vegetables Subgroup: Arracacha Arrowroot Chinese artichoke Jersusalem artichoke Edible canna Cassava (bitter and sweet) Chayote (root) Chufa Dasheen Ginger Leren Sweet potato Tanier Turmeric Yam bean True yam	Downy mildew *(Plasmopara* spp.*)* Leaf spot *(Cercospora* spp., *Alternaria* spp.*)* Powdery mildew *(Erysiphe* spp., *Leveillula taurica)* Rust *(Uromyces* spp. *Puccinia* spp.*)*	6 - 12 fl. oz. per acre	6	72 fl. oz. per acre	3 days
Potato	Early blight *(Alternaria solani)*	6 to 9 fl. oz. per acre			
	Late blight *(Phytophthora infestans)*	6 to 12 fl. oz. per acre			

Application Directions: Begin applications of **Headline® fungicide** at 7- to 14-day intervals prior to disease development. The low rate and longer interval can be used early season prior to the observance of symptoms and when disease pressure is low. For control of late blight in potatoes, follow application of **Headline** with the labeled non-strobilurin (non-QoI) fungicide 5 to 7 days later.

Use the higher rates and shorter intervals once disease has been confirmed in your area or if weather conditions are conducive to disease development.

Resistance Management: To limit the potential for development of resistance, do not make more than six (6) applications of **Headline** or other strobilurin (QoI) fungicides per season.

For control of late blight in potatoes, do not make more than one (1) application of **Headline** before alternating to a labeled non-strobilurin (non-QoI) fungicide with a different mode of action. For all other diseases, do not make more than two (2) applications of **Headline** before alternating to a labeled non-strobilurin (non-QoI) fungicide with a different mode of action.

Crop	Target Diseases	Use Rate per Application	Maximum Number of Applications per Season	Maximum Rate per Season	Minimum Time from Application to Harvest (PHI)
Wheat	Leaf rust *(Puccinia recondita)* Powdery mildew *(Erysiphe graminis* f. sp. *tritici)* Septoria leaf and glume blotch *(Stagonospora tritici, S. nodorum)* Spot blotch *(Cochliobolus sativus)* Stem rust *(Puccinia graminis* f. sp. *tritici)* Stripe rust *Puccinia striiformis)* *Tan Spot* (Yellow leaf spot) *(Pyrenophora trichostoma = P. tritici-repentis)*	6 to 9 fl. oz. per acre	2	18 fl. oz. per acre	Apply no later than end of flowering (Feekes 10.53 or Zadok s 69)

Application Directions: Headline® fungicide may be applied at the onset of disease. To maximize yields in cereals it is important to protect the flag leaf. Apply **Headline** immediately after flag leaf emergence for optimum results. Reapply 10 to 14 days later if disease persists or weather conditions are favorable for disease development.

Headline may be combined with the lowest labeled rate of an adjuvant to enhance disease control.

Resistance Management: To limit the potential for development of resistance, do not make more than two (2) applications of **Headline** or other strobilurin (QoI) fungicides per season.

Do not harvest wheat hay within 14 days after last application.

Conditions of Sale and Warranty

The **Directions For Use** of this product reflects 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.

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