UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CENTER FOR FOOD SAFETY and CENTER FOR BIOLOGICAL DIVERSITY, *Petitioners*, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, and MICHAEL S. REGAN, in his official capacity as Administrator, *Respondents*.	**Case No.** **PETITION FOR REVIEW**

PETITION FOR REVIEW

Pursuant to Section 16(b) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. § 136n(b), and Rule 15(a) of the Federal Rules of Appellate Procedure, Petitioners Center for Food

Safety and Center for Biological Diversity hereby petition this Court to review and set aside the order of the United States Environmental Protection Agency (EPA) granting the unconditional registration of the new pesticide active ingredient trifludimoxazin and the herbicide Tirexor. *See* Exhibits A-B (collectively, the Registration Decision).

EPA signed the Registration Decision for trifludimoxazin on May 12, 2021, EPA Docket No. EPA-HQ-OPP-2018-0762. *See* Exhibit A. EPA published its Memorandum in support of its Registration Decision for trifludimoxazin on the regulations.gov website on May 16, 2021.

Petitioners allege that EPA violated its duties under FIFRA in approving the Registration, and that the Registration lacks support in substantial evidence. Petitioners further allege that the EPA violated its duties under the Endangered Species Act (ESA) 16 U.S.C. §§ 1533-44, failing to comply with ESA's Section 7 mandates as required to protect endangered species and their designated critical habitats, *see* 16 U.S.C. 1536(a)(2). As such, Petitioners respectfully petition this Court to: (1) declare that EPA violated FIFRA and the ESA in approving the Registration; (2) set aside the Registration Decision in whole or in part; (2) grant relief as may be necessary and appropriate to stop the use and

sale of pesticides authorized by the Registration after vacatur; and (3) grant any other relief as may be appropriate.

Respectfully submitted this 16th day of July, 2021.

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Exhibit A

Memorandum Supporting Decision to Approve Registration for the New Active Ingredient, Trifludimoxazin

Approved by: Ed Messina Digitally signed by EDWARD MESSINA Date: 2021.05.12 17:35:56 -04'00'

Ed Messina, Esq., Acting Director
Office of Pesticide Programs
US Environmental Protection Agency

Date: May 12, 2021

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I. SUMMARY

This memorandum presents the rationale to support the decisions of the U.S. Environmental Protection Agency (referred hereafter as EPA or the Agency) to register under section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the new active ingredient (ai), trifludimoxazin, for use on legume vegetable group 6, foliage of legume vegetable group 7, citrus fruit group 10-10, pome fruit group 11-10, tree nuts group 14-12, cereal grain group 15 (except rice), forage, fodder, and straw of cereal grain group 16 (except rice), peanut, and non-food use sites (christmas trees plantations, conifer and hardwood plantations, industrial landscaping, and native grass openings).

Trifludimoxazin, 1,5-dimethyl-6-thioxo-3-[2,2,7-trifluoro-3-oxo-4-(prop-2-yn-1-yl)-3,4-dihydro-2-1,4-benzoazin-6-yl]-1,3,5-triazinane-2,4-dione, CAS Number 1258836-72-4, is a new oxazine contact herbicide that can be used to control broadleaf and grass weed species. Since trifludimoxazin is a protoporphyrinogen oxidase (PPO) inhibitor, both the Herbicide Resistance Action Committee (HRAC) and the Weed Science Society of America (WSSA) classify trifludimoxazin as a Group 14 (PPO inhibition) herbicide. The herbicidal action of trifludimoxazin is based on its ability to inhibit PPO, an important component of biosynthesis of chlorophyll in plants. The PPO inhibition ultimately causes the cell membranes to leak, rapidly dry and disintegrate. Trifludimoxazin is mainly used as a contact herbicide and is rapidly absorbed by roots, and foliage. Susceptible emerging weed seedlings treated with trifludimoxazin will usually die as they reach the soil surface or shortly after emergence. Trifludimoxazin presents a new tool for weed control of waterhemp and palmer amaranth in agricultural field crops such as corn and soybean where PPO-inhibitor-resistant weeds are present. This registration decision grants the registration of one technical product, Tirexor Herbicide Technical (99.2% trifludimoxazin) and one end-use product, Tirexor Herbicide (41.53% trifludimoxazin). Tirexor herbicide is a soluble concentrate liquid herbicide containing 4.17 pounds ai per gallon that may be applied by ground (broadcast, banded or spot) or air.

II. REQUESTED ACTION

On September 25, 2018, the EPA received an application from BASF Corporation to register one technical and one end use product containing trifludimoxazin for use on legume vegetable group 6, foliage of legume vegetable group 7, citrus fruit group 10-10, pome fruit group 11-10, tree nuts group 14-12, cereal grain group 15, forage, fodder, and straw of cereal grain group 16, peanut, and non-food use sites (christmas trees plantations, conifer and hardwood plantations, industrial landscaping, and native grass openings). The Pest Management Regulatory Agency (PMRA) of Canada and Comisión Federal para la Protección contra Riesgos Sanitarios (COFEPRIS**)** of Mexico also received a technical and two end-use product applications containing trifludimoxazin, for simultaneous review. The EPA and PMRA combined scientific and regulatory expertise to conduct a joint review, while COFEPRIS remained a regulatory observer. Each country's team of scientists' peer-reviewed the primary reviews of their counterparts while continuing to develop human health and ecological risk assessments for their respective country.

The EPA is required to notify the public when a request for registering a new active ingredient is made and allow a 30-day comment period. The EPA published a notice of receipt in the Federal Register for an application requesting the registration of trifludimoxazin on April 15, 2019. In addition, on April 15, 2019, the EPA published a notice of filing in the Federal Register announcing the receipt of the initial filing of the trifludimoxazin petition by BASF Corporation under the Federal Food, Drug, and Cosmetic Act (FFDCA) requesting the establishment of tolerance regulations for residues of trifludimoxazin on various commodities. No comments were received on the notice of receipt whereas one generic comment (not specific to trifludimoxazin) was received in response to the notice of filing.

III. USE PROFILE

Table 1 provides an outline of the use patterns being registered on trifludimoxazin labels. The trifludimoxazin end-use product Tirexor is formulated as a soluble concentrate. Trifludimoxazin may be applied by ground equipment (banded, broadcast, or spot) or aircraft for pre- or post-emergent control of broadleaf and grass weeds. Additionally, trifludimoxazin may be impregnated on and applied with dry bulk fertilizers. The trifludimoxazin label stipulates applicators and other handlers must wear a long-sleeved shirt and long pants, chemical resistant gloves, shoes plus socks, and protective eye wear (including face shield, goggles, or safety glasses). Depending on the use site, maximum single application rates range from 0.034 to 0.134 lb ai/A. The minimum re-treatment interval is 14 days, and the pre-harvest intervals for applicable use sites/patterns range from 0 to 7 days. The restricted entry interval (REI) is 12 hours. The product label prohibits use on residential turf or in other residential settings. Spot treatments and applications with bulk fertilizers must not exceed the maximum labeled rate for the crop and are not expected to be a significant contributor to aquatic or terrestrial exposure. This is based, in part, on their limited spatial extent of use compared to aerial and ground applications. Furthermore, incorporation of dry bulk fertilizer limits drift exposure and reduces the chemical availability to foraging birds and mammals. Non-agricultural use sites mentioned below includes native grass and natural use sites (wildlife management areas, wildlife openings, wildlife food plots, and wildlife habitats). Applications of trifludimoxazin to areas where domestic animals graze is prohibited. Based on insufficient environmental fate data on rice, the Agency has determined that the use on cereal grains crop groups 15 and 16 must be revised to exclude rice commodities.

Table 1. Uses of Trifludimoxazin

Crop Group/ Use Group	Application Method[1]	Max Single Use Rate (lbs ai/A)	Max # Applications /Year[2]	Max Annual Application Rate (lbs ai/A/yr)	Minimum Retreatment Interval (d)	Application Restrictions
Tree Nut[3]	Ground	0.089	4	0.089	14	--
Pome Fruit[4]	Ground	0.089	4	0.089	14	--
Legume[5] Vegetable Soybean	Aerial, Ground	0.034	2	0.034	14	DO NOT apply when crops have reached the cracking stage or after emergence.
Citrus[6]	Ground	0.134	4	0.134	14	--
Cereal Grain[7]	Aerial, Ground	0.034	2	0.034	14	DO NOT apply after crop emergence or severe crop injury will occur.
Peanuts	Aerial, Ground	0.034	2	0.034	14	
Non-Agricultural[8]	Aerial, Ground	0.134	3	0.134	14	DO NOT plant tree seedlings within 2 months after application of rates up to 0.045 lb ai/A.
Postharvest and Fallow	Aerial, Ground	0.034	2	0.034	14	--

[1] Ground applications included banded, broadcast, or spot treatments. Applicators are required to use a medium to ultra-coarse spray droplet size. Trifludimoxazin may also be impregnated or coated and applied with dry bulk fertilizers. Aerial applications are not applicable to orchard uses.
[2] Trifludimoxazin may applied as split applications or a single maximum application but it must not exceed the maximum labeled annual application rate for the crop.
[3]Tree nuts include cashew, chestnut, coconut, macadamia, pecan, almond, and walnut (black/English).
[4] Pome fruits include apple, pear, and quince.
[5] Legume vegetable types include edible beans, edible peas, and field peas.
[6] Citrus includes grapefruit, kumquat, lemon, lime, orange, and tangerine.
[7] Cereal grains (crop groups 15 and 16) exclude rice and include sorghum, corn and small grains. Corn in the label refers to field corn (grain, seed, or silage), popcorn (grain, seed), and sweet corn (processing, fresh market, seed). Small grains in the label refers to barley, millet, oats, rye, triticale, and wheat (including durum, spring and winter).
[8] Non-agricultural uses include Christmas tree plantations, conifer and hardwood plantations, industrial landscaping, vegetative control and management in noncropland areas, and native grass openings.

IV. EVALUATION

In evaluating a pesticide registration application, the EPA assesses a wide variety of exposure information (i.e., where and how the pesticide is used) and environmental-fate (i.e., how the chemical will move in the environment) and toxicity studies (i.e., effects on humans and other non-target organisms) to determine the likelihood of adverse effects (i.e., risk) from exposures associated with the use of the product. Risk assessments are developed to evaluate the environmental fate of the compound as well as how it might affect a wide range of non-target organisms including humans, terrestrial, and aquatic wildlife (plants and animals). In addition, a biological and economic analysis assessment was conducted to evaluate the benefits of trifludimoxazin products. On the basis of these assessments, the EPA evaluates the risks and benefits as part of the registration decision and approves language for each pesticide label to ensure the directions for use and safety measures are appropriate to mitigate any potential risk. In this way, the pesticide label communicates essential limitations and mitigations that are necessary for public safety. It is a FIFRA violation to use a pesticide in a manner inconsistent with its labeling.

The EPA requires a wide range of studies in order to assess a pesticide use scenario. For the uses of trifludimoxazin on legume vegetable group 6, foliage of legume vegetable group 7, citrus fruit group 10-10, pome fruit group 11-10, tree nuts group 14-12, cereal grain group 15 (except rice), forage, fodder, and straw of cereal grain group 16 (except rice), peanut, and non-agricultural use sites (christmas trees plantations, conifer and hardwood plantations, industrial landscaping, and native grass openings), the database of studies required to support the assessment of risk to human health, ecological effects and environmental fate is adequate.

A. Assessment of Risks to Human Health

This section, *Assessment of Risks to Human Health,* is a summary of the standard assessment that the agency conducts; the full Human Health Risk Assessment can be found in docket ID number EPA-HQ-OPP-2018-0762 at www.regulations.gov.

1. Toxicology Profile

The available database of guideline studies for trifludimoxazin indicates that the primary target organs in mammals are the thyroid and liver. Trifludimoxazin is a PPO inhibitor. PPO is a key enzyme in biosynthesis of chlorophyll and cytochrome pigments, as well as in heme. However, the hematological effects associated with this class of chemicals were observed but not considered adverse at the selected lowest-observable adverse-effects levels (LOAELs). Effects on the thyroid occurred in rats and consisted primarily of follicular cell hypertrophy/hyperplasia and altered colloid of the thyroid after subchronic and chronic exposure durations. Increased relative thyroid weights were also observed in male rats; however, thyroid hormones were not adversely affected after subchronic exposure for males and females. Liver effects (increased alanine aminotransferase (ALT) and alkaline phosphatase (ALP), organ weight, and histopathology) were also observed at the same dose as thyroid effects in male rats after subchronic exposure. In mice, increased liver weight, increased γ-glutamyl transferase (GGT), and hypertrophy were observed after subchronic exposures. Increased liver weight, foci of (eosinophilic) cellular alteration, centrilobular hypertrophy, macro vesicular fatty change and centrilobular pigment storage was observed in male mice and oval cell hyperplasia and (multi)focal necrosis was observed in female mice after chronic exposure. After chronic exposure to the rat, increased pigment, multinucleated hepatocytes, and bile duct hyperplasia in the liver was observed at the same dose as thyroid effects. Effects on the reproductive system were observed as evidence of increased abnormal sperm in male rats in the extended one generation reproductive toxicity study (EOGRTS), and as effects to the epididymis in rats after subchronic and chronic exposure.

Trifludimoxazin did not demonstrate neurotoxic potential in either acute or subchronic neurotoxicity studies in rats. However, in the 90-day subchronic study in dogs, observations suggestive of neurotoxicity evidenced by functional observational battery (FOB) deficits (insecure gait, hindlimbs buckle under strong pressure, weak or no resistance when moving limbs, and hopping movements in females) as well as histopathological findings in the spinal cord (degeneration of myelin sheaths, axons, and oligodendrocytes) and medulla oblongata (degeneration of fasciculus gracilis and white matter). These effects were not observed in the chronic dog toxicity study, but the dosing was lower compared to the subchronic study and

neurotoxicity may have occurred at higher doses than what were assessed. Additionally, similar effects were not found in the 28-day dog study where the highest dose tested was greater than 3 times the LOAEL of the 90-day study.

There were no adverse maternal or developmental effects observed in the rat developmental toxicity study at the limit dose. However, in the rabbit developmental study, decreased fetal body weight was observed at a lower dose than maternal toxicity (increased incidence of late abortions); thus, increased quantitative susceptibility was observed. The EOGRTS study demonstrated no increase in susceptibility as no effects were observed in the offspring while increased incidence and severity of follicular cell hypertrophy/hyperplasia and altered colloid in the thyroid was observed in the parental animals. Immunotoxicity was not observed throughout the toxicity database. Additionally, there were no effects in the dermal toxicity study.

Trifludimoxazin was categorized as having low acute toxicity via the oral (toxicity category III), dermal (toxicity category IV), and inhalation (toxicity category IV) routes of exposure. It is non-irritating to the eye and skin and is not a dermal sensitizer. The signal word assigned for all routes of exposure is "Caution."

A summary of the points of departure (POD) selected for human health risk assessments can be found in Tables 2 and 3.

Table 2. Summary of Toxicological Doses and Endpoints for Trifludimoxazin for Use in Dietary and Non-Occupational Human Health Risk Assessments.

Exposure/ Scenario	POD	Uncertainty/FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary (General Population, including Infants and Children)	Not selected; no effects attributable to a single dose were observed in the database			
Chronic Dietary (All Populations)	NOAEL = 10.7 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF = 1X	Chronic RfD = 0.11 mg/kg/day cPAD = 0.11 mg/kg/day	**Combined Chronic/Carcinogenicity study (Rat)** LOAEL = 33 mg/kg/day based on increased incidence of spermatogenic granuloma, altered colloid and follicular cell hyperplasia in the thyroid, and increased pigment, multinucleated hepatocytes and bile duct hyperplasia in the liver

Table 2. Summary of Toxicological Doses and Endpoints for Trifludimoxazin for Use in Dietary and Non-Occupational Human Health Risk Assessments.

Exposure/ Scenario	POD	Uncertainty/FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Incidental Oral (Children 1-2 yrs) Short-term	NOAEL = 15 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF = 1X	LOC for MOE = 100	**Co-critical 90-day and 1 year (Dog)** LOAEL = 50 mg/kg/day based on abnormal gait, paralysis, degeneration of the fasciculus gracilis and white material in the cervical cord, thoracic cord, medulla oblongata, and lumbar cord
Adult Oral Short- and Intermediate-Term	Parental NOAEL = 6.4 mg/kg/day	UF_A = 3X UF_H = 10X FQPA SF = 1X	LOC for MOE = 30	**EOGRTS** Parental LOAEL = 22 mg/kg/day based on increased incidence and severity of follicular cell hypertrophy/hyperplasia and altered colloid in the thyroid
Dermal Short- and Intermediate-Term (1-30 days)	No Hazard Identified			
Inhalation Short- and Intermediate-Term (1-30 days)	Parental NOAEL = 6.4 mg/kg/day Oral toxicity assumed equal to inhalation toxicity	UF_A = 3X UF_H = 10X FQPA SF = 1X	LOC for MOE = 30	**EOGRTS** Parental LOAEL = 22 mg/kg/day based on increased incidence and severity of follicular cell hypertrophy/hyperplasia and altered colloid in the thyroid
Cancer (oral, dermal, inhalation)	Classification: "Suggestive evidence of carcinogenic potential". The RfD approach is considered protective.			

Point of departure (POD) = A data point or an estimated point that is derived from observed dose-response data and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no-observed adverse-effect level. LOAEL = lowest-observed adverse-effect level. UF = uncertainty factor. UF_A = extrapolation from animal to human (interspecies). UF_H = potential variation in sensitivity among members of the human population (intraspecies). FQPA SF = Food Quality Protection Act Safety Factor. PAD = population-adjusted dose (a = acute, c = chronic). RfD = reference dose. MOE = margin of exposure. LOC = level of concern.

Table 3. Summary of Toxicological Doses and Endpoints for Trifludimoxazin for Use in Occupational Human Health Risk Assessments.

Exposure/ Scenario	POD	Uncertainty Factors	Level of Concern for Risk Assessment	Study and Toxicological Effects
Dermal Short- and Intermediate-Term (1-30 days)	No hazard identified.			

Table 3. Summary of Toxicological Doses and Endpoints for Trifludimoxazin for Use in Occupational Human Health Risk Assessments.				
Exposure/ Scenario	**POD**	**Uncertainty Factors**	**Level of Concern for Risk Assessment**	**Study and Toxicological Effects**
Inhalation Short- and Intermediate-Term (1-30 days)	Parental NOAEL = 6.4 mg/kg/day Oral toxicity assumed equal to inhalation toxicity	UF_A = 3X UF_H = 10X	LOC for MOE = 30	**EOGRTS** Parental LOAEL = 22 mg/kg/day based on increased incidence and severity of follicular cell hypertrophy/hyperplasia and altered colloid in the thyroid
Cancer (oral, dermal, inhalation)	Classification: "Suggestive evidence of carcinogenic potential". The RfD approach is considered protective.			

Point of departure (POD) = A data point or an estimated point that is derived from observed dose-response data and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no-observed adverse-effect level. LOAEL = lowest-observed adverse-effect level. UF = uncertainty factor. UF_A = extrapolation from animal to human (interspecies). UF_H = potential variation in sensitivity among members of the human population (intraspecies). RfD = reference dose. MOE = margin of exposure. LOC = level of concern.

2. Dietary (Food + Water) Risks

An acute dietary exposure analysis was not conducted for trifludimoxazin because no appropriate endpoint attributable to a single exposure was identified for the general U.S. population or any population subgroups. The chronic risk estimates of food and drinking water found for trifludimoxazin are below the Agency's LOC at < 1% of the chronic population-adjusted dose (cPAD) for the U.S. population and all population subgroups.

The Agency has determined that quantification of risk using a non-linear approach (i.e., reference dose (RfD)) will adequately account for all chronic toxicity, including carcinogenicity, that could result from exposure to trifludimoxazin. Therefore, a separate cancer dietary risk assessment is not required, and the non-cancer chronic dietary assessment is protective of any dietary cancer risks.

3. Occupational Handlers Risks

Based on the use patterns and current labeling, types of equipment and techniques that can potentially be used, short- and intermediate-term occupational and post application handler exposure is expected from the uses of trifludimoxazin. Since no endpoints were identified for the dermal route of exposure, only inhalation exposures and risk estimates were calculated for occupational and post application handlers. None of the short or intermediate-term occupational handler inhalation scenarios risk estimates resulted in margin of exposures (MOEs) that are of concern (MOEs range from 480 to 13,000,000 (LOC = 30)) with baseline attire (long sleeve shirt, long pants, and shoes plus socks).

It should be noted for aerial applications that only engineering control unit exposures (UEs) are available, representative of an enclosed cockpit. Therefore, risks to pilots are assessed using the engineering control (enclosed cockpits) and baseline attire (long-sleeved shirt, long pants, shoes,

and socks). With this level of protection, there are no risk estimates of concern for aerial applicators.

In accordance with the Agency's current practices, a quantitative non-cancer occupational post-application inhalation exposure assessment was not performed for trifludimoxazin. Any residues which become inhalable during post-application activities are expected to be lower in concentration than the residues assessed in the handler scenarios. Therefore, it is expected that these handler inhalation exposure estimates would be protective of most occupational post-application inhalation exposure scenarios.

4. Residential Handler and Post-Application Risks

Trifludimoxazin is not expected to result in any residential exposures, either for residential handlers, or residential post-application scenarios, since there are no residential uses for it and no endpoints identified for the dermal route of exposure. Therefore, there are no residential MOEs for consideration in the aggregate risk assessment for trifludimoxazin.

5. Aggregate Risk

The aggregate risk assessments are equivalent to the dietary exposure assessment conclusions (food and drinking water only) because there are no residential exposures anticipated from trifludimoxazin uses. The risk estimates are below the LOC for all dietary routes of exposure.

6. Cumulative Risk

Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, EPA has not made a common mechanism of toxicity finding as to trifludimoxazin and any other substances and trifludimoxazin does not appear to produce a toxic metabolite produced by other substances. For the purposes of this action, therefore, EPA has not assumed that trifludimoxazin has a common mechanism of toxicity with other substances. In 2016, EPA's Office of Pesticide Programs released a guidance document entitled, Pesticide Cumulative Risk Assessment: Framework for Screening Analysis. This document provides guidance on how to screen groups of pesticides for cumulative evaluation using a two-step approach beginning with the evaluation of available toxicological information and if necessary, followed by a risk-based screening approach. This framework supplements the existing guidance documents for establishing common mechanism groups (CMGs)[1] and conducting cumulative risk assessments (CRA)[2]. During Registration Review, the Agency will utilize this framework to determine if the available toxicological data for trifludimoxazin suggests a candidate CMG may be established with other pesticides. If a CMG is established, a screening-level toxicology and exposure analysis may be conducted to provide an initial screen for multiple pesticide exposure.

[1] *Guidance for Identifying Pesticide Chemicals and Other Substances that have a Common Mechanism of Toxicity* (USEPA, 1999)
[2] *Guidance on Cumulative Risk Assessment of Pesticide Chemicals That Have a Common Mechanism of Toxicity* (USEPA, 2002)

B. Assessment of Environmental and Ecological Risks

Ecological risk characterization integrates the results of the exposure and ecotoxicity data to evaluate the likelihood of adverse ecological effects. The means of integrating the results of exposure and ecotoxicity data is called the risk quotient (RQ) method. For this method, RQs are calculated by dividing exposure estimates by ecotoxicity values, both acute and chronic (RQ = Exposure/Toxicity). RQs are then compared to the EPA's levels of concern (LOCs). The LOCs are criteria used by the EPA to indicate potential risk to non-target organisms.

There are no additional data requirements to evaluate the environmental fate and ecological effects of trifludimoxazin. This section, *Assessment of Environmental and Ecological Risks*, is a summary of the standard assessment that the agency conducts; the full Environmental and Ecological Risk Assessment can be found in docket ID number EPA-HQ-OPP-2018-0762 at www.regulations.gov.

1. Environmental Fate Profile

Based on laboratory studies, trifludimoxazin is non-persistent to moderately persistent in soils, with microbial degradation half-lives ranging from 12-383 days (at 20°C). In aquatic environments, trifludimoxazin degradation is pH-dependent, with rapid degradation observed in alkaline systems. The primary route of degradation is alkaline hydrolysis. Trifludimoxazin hydrolyzes rapidly under alkaline conditions (half-life = 0.33 day at pH 9), slowly under neutral conditions, and is stable at pH 4 and 5. Trifludimoxazin has a low vapor pressure and Henry's law constant; therefore, it is unlikely to volatilize into the atmosphere. The compound photolyzes in soil and in water with half-lives of 5 days and 32 days, respectively. Trifludimoxazin is moderately mobile in soils. Initial off-target transport is expected to be through moderate leaching to groundwater and movement to surface water through runoff/eroded materials and spray drift. The Log K_{ow} (octanol-water partition coefficient) of 3.3 suggests trifludimoxazin has a moderate potential for bioaccumulation. Measured bioconcentration factors in whole fish tissues ranged from 28 – 44 L/kg lipid. Overall, field dissipation study results were consistent with those of laboratory studies. Trifludimoxazin aquatic aerobic degradation is pH dependent and rapid degradation was observed in the alkaline system. The major transformation products (degradates) were M850H001 and M850H004. The parent compound as well as M850H004 slowly partitioned into the sediment phase, while M850H001 remained mainly in the water phase.

The major trifludimoxazin transformation products (> 10% of applied radioactivity (AR)) that formed in environmentally relevant media are M850H001, M850H002, M850H003, M850H004, M850H033, M850H0035 and M850H042. Empirical data were available for M850H001, M850H002, and M850H004 and suggest that these degradates are over an order of magnitude less toxic to algae compared to the parent compound toxicity. Due to the greater structural similarity of these degradates to the parent compound than that of other major degradates, all degradates are assumed to be much less toxic than trifludimoxazin to algae. This pattern is also observed in vascular plants including Lemna gibba. Therefore, the residues of concern (ROC) for aquatic plants is trifludimoxazin only and exposure and risk to aquatic plants (both vascular and non-vascular) will be evaluated for trifludimoxazin only. However, there are no laboratory studies nor reliable quantitative structure activity relationship (QSAR) predictions with which to

evaluate the toxicity of any degradates to fish and aquatic invertebrates. Based on this limited toxicity dataset, and the structural similarities between the degradates and trifludimoxazin the ROC for fish and aquatic invertebrates include the parent compound plus M850H001, M850H002, M850H003, M850H004, M850H033, M850H0035 and M850H042.

2. Ecological Effects and Risks

The primary method used to assess risk in this screening-level assessment is the calculation of the RQ as mentioned above. The RQ is the risk value for the screening-level assessment and is the result of comparing measures of exposure to measures of effect. A commonly used measure of exposure is the estimated exposure concentration (EEC) and commonly used measures of effect include toxicity values such as the median lethal dose to 50% of the organisms tested (LD_{50}), medial lethal concentration to 50% of tested organisms (LC_{50}), the no observed adverse effect level (NOAEL), and the no observed adverse effect concentration (NOAEC). The resulting ratio of the point estimate of exposure and the point estimate of toxicity, *i.e.*, the RQ, is then compared to a specified level of concern (LOC), which represents a threshold for concern; if the RQ exceeds the LOC, risks concerns are triggered.

The risks for acute and chronic exposure scenarios for different taxa are described below. Table 4 summarizes the RQ for taxonomic groups based on the uses of trifludimoxazin.

2.1 Effects Description

The trifludimoxazin new active ingredient risk assessment followed a taxa-based review. The methods used for this risk assessment are consistent with the Agency's review of other new chemicals.

Fish: Trifludimoxazin exhibits low acute toxicity to both freshwater and estuarine/marine fish. On an acute basis, all freshwater and estuarine /marine fish toxicity studies resulted in non-definitive endpoints. On a chronic basis, there were effects on percent of live larvae at hatch in freshwater fish (11% reduction). Due to the potential for light dependent peroxidizing herbicides (LDPH), such as trifludimoxazin, to cause enhanced toxicity to fish, chronic endpoints were adjusted to account for increased toxicity in shallow, clear, unshaded water.

Aquatic Invertebrates: Trifludimoxazin is practically non-toxic to aquatic invertebrates on acute exposure basis. On a chronic basis, there were effects on parental survival and reproduction in the freshwater invertebrate, *Daphnia magna*. There were also effects observed on freshwater benthic invertebrates on a subchronic and chronic basis including reductions in survival and dry weight.

Aquatic plants: Trifludimoxazin is highly toxic to both vascular and non-vascular plants. The most sensitive aquatic vascular plant was *Lemna gibba* and the most sensitive non-vascular plant was *Navicula pelliculosa*. The degradates M850H001, M850H002, and M850H004 were 24 to over 150 times less toxic to aquatic plants (both vascular and non-vascular) compared to the parent compound.

Birds and Mammals: Trifludimoxazin is practically non-toxic to birds, its surrogate taxa (*i.e.*, reptiles and terrestrial-phase amphibians) and mammals on an acute basis. However, for birds, on a subacute dietary basis, effects on mortality and food consumption were observed. Chronic effects in avian studies included reductions in numbers of eggs and hatchlings in bobwhite quail. No effects to apical endpoints were reported in mammals in chronic studies. Several sub lethal effects were reported in mammals; however, they have not been quantitatively linked to apical endpoints used in ecological risk assessment.

Terrestrial Invertebrates: Trifludimoxazin is practically non-toxic to honeybees on both an acute contact (LC_{50} > 100 µg a.i./bee) and acute oral basis (LD_{50}>10 µg a.i./bee). There were significant effects on emergence in the 22-day larval toxicity test (NOAEC=2.9 µg a.i./bee-day), but for adults, no effects were reported (NOAEC=9.6 µg a.i./bee-day).

Terrestrial Plants: Trifludimoxazin is highly toxic to terrestrial plants. Seedling emergence studies were conducted with the TEP (Typical End-use Product) and with the M850H001 and M850H002 degradates. In the seedling emergence study conducted with TEP, the most sensitive plant species was tomato with an IC_{25} (Inhibition Concentration 25%) of 0.00075 lbs a.i./A based on dry weight. The most sensitive species to M850H001 was tomato with an IC_{25} of 0.00034 lbs a.i./A based on survival. The most sensitive species to the M850H002 degradate, was lettuce based on survival with an IC_{25} of 0.0075 lbs a.i./A. A single vegetative vigor study was submitted. Based on the results, the most sensitive species was soybean, based on dry weight with an IC_{25} of 0.0000438 lbs a.i./A. Overall, trifludimoxazin affected survival, dry weight, and height across the breadth of monocots and dicots tested. Compared to the TEP, M850H001 was generally less toxic, except for a few species which were more sensitive than parent. The M850H002 degradate was not as toxic compared to TEP and M850H001.

2.2 Risk Description

Fish: There were no LOC exceedances for fish on an acute and chronic basis (in the absence of UV light). However, trifludimoxazin falls into the category of the LDPHs. In the presence of UV light, protoporphyrin IX can activate oxygen causing rapid loss of turgidity and foliar burns; this mechanism allows for the control of weeds and can cause enhanced chronic toxicity to fish. Since, trifludimoxazin falls into the category of the LDPHs, the adjusted chronic fish NOAEC was compared to the 60-day EECs. In the presence of sunlight (*i.e.*, in shallow, clear, unshaded waters), RQs ranged from 0.3-2.6 (exceeding the LOC of 1.0) and there was evidence of LDPH-enhanced risk for a suite of uses including citrus, corn, rangeland, pecans and soybeans (**Table 4**) for both freshwater and estuarine/marine fish.

Aquatic Invertebrates: There were no LOC exceedances for aquatic invertebrates on an acute and chronic basis.

Aquatic Plants: RQs for vascular aquatic plants (*Lemna gibba*) exceeded the LOC for all application rates and scenarios (RQs ranged from 1.8-14). In a similar manner, non-vascular plant EECs exceeded (up to 8 times greater) the most sensitive endpoints for the freshwater diatom (*Navicula pelliculosa*) (RQs ranged from 1.0-8.1). Exceedances were up to three times greater than the maximum 1-day average EEC of 1.6 µg a.i./L (native grasses, aerial application at 0.134 lbs a.i./A) across other non-vascular plant freshwater algae species including

Pseudokirchneriella subcapitata for effects endpoints including yield, growth rate and area under the curve for ecotoxicity tests with both the technical grade active ingredient (TGAI) and BAS 850 00H (41.7% a.i.) formulation. Effects studies available with the trifludimoxazin formulation and the TGAI indicated that both are similar in toxicity to each other and there would be no difference in the risk picture.

Birds and Mammals: There is low potential for effects to birds and mammals on an acute oral or chronic dose and dietary exposure basis. No risk concerns were identified for piscivorous birds and mammals via the aquatic food web (all RQs < 0.002).

Terrestrial Invertebrates: Use of trifludimoxazin as a contact herbicide up to four times a year on pollinator attractive crops (*e.g.*, tree nuts and citrus) can result in potential exposure to pollinators; however, at the single highest application rate (0.134 lbs a.i./A), there were no acute or chronic LOC exceedances for both adult and larval honey bees.

Terrestrial Plants: RQs exceeded the terrestrial plant LOC (1.0) for monocot and dicot species at single application rates for ground and aerial applications of TEP based on both seedling emergence and vegetative vigor effects endpoints. Drift distances from the edge of the use site at which the LOC is no longer exceeded, for the most sensitive monocot and dicot species from vegetative vigor and seedling emergence studies, ranged from 13 feet (0.034 lbs a.i./A; low boom fine to medium/coarse droplets) to >1000 feet (0.134 lbs a.i./A; aerial application fine to medium droplets). Results for fine/medium coarse droplets are conservative due to restrictions on the label requiring use of a medium to ultra-coarse spray droplet size.

Seedling emergence ecotoxicity data were also available for two degradates M850H001 and M850H002. At the maximum application rate, the M850H001 degradate RQs exceeded the LOC for runoff (RQs ranged from <0.1-60). Drift was not considered an exposure pathway for degradates. Trifludimoxazin degrades into M850H001 up to 11% within 6 days of application under aerobic soil conditions with 62% of the parent compound remaining. M850H001 degradate forms up to 13% after 90 days in anaerobic soil conditions with 50% of the parent compound remaining. The primary exposure pathway of terrestrial and wetland plants to trifludimoxazin degradates is via run-off only. Given that these degradates are formed within the soil, run-off exposure is considered substantially lower risk than the direct spray deposition or run-off of trifludimoxazin as identified in the day of application risk assessment provided above.

Table 4. Summary of Risk Quotients (RQ) for Taxonomic Groups Based on the Uses of Trifludimoxazin

Taxa	Exposure Duration	Risk Quotient (RQ) Range[1]	RQ Exceeding the LOC for Non-listed Species[2]	Additional Information/ Lines of Evidence
Freshwater Fish	Acute	Not calculable	Not applicable	Endpoint was non-definitive; EECs were orders of magnitude lower than the highest tested concentration.
	Chronic	<0.17	No	--

Table 4. Summary of Risk Quotients (RQ) for Taxonomic Groups Based on the Uses of Trifludimoxazin				
Taxa	**Exposure Duration**	**Risk Quotient (RQ) Range[1]**	**RQ Exceeding the LOC for Non-listed Species[2]**	**Additional Information/ Lines of Evidence**
Estuarine/ Marine Fish	Acute	Not calculable	Not applicable	Endpoint was non-definitive; EECs were orders of magnitude lower than the highest tested concentration.
	Chronic	<0.78	No	--
Fish	LDPH-Chronic	0.3-2.6	**Yes**	Evidence of LDPH enhanced toxicity. RQs exceeded LOCs for FL Citrus (ground boom, 0.134 lbs a.i./A), IN, KS, MS, NE and OH Corn (aerial, 0.034 lbs a.i./A), CA Rangeland (aerial, 0.134 lbs a.i./A), GA Pecans (ground boom, 0.089 lbs a.i./A) and MS Soybean (aerial, 0.034 lbs a.i./A).
Freshwater Invertebrates (Water-Column Exposure)	Acute	Not calculable	Not applicable	Endpoint was non-definitive; EECs were orders of magnitude lower than the highest tested concentration.
	Chronic	<0.22	No	--
Estuarine/ Marine Invertebrates (Water-Column)	Acute	<0.01	No	--
	Chronic	Not calculable	Not applicable	Endpoint was non-definitive; EECs were orders of magnitude lower than the highest tested concentration
Freshwater and Estuarine/Marine Benthic Invertebrates	Acute	<0.01	No	No LOC exceedances for pore water or sediment-based EECs.
	Chronic	<0.01	No	
Mammals	Acute	Not calculable	Not applicable	RQs not calculated due to non-definitive endpoint – no effects in study. EECs were over 50 times lower than the non-definitive endpoint.
	Chronic	≤0.21	No	NOAEC was equal to the highest tested concentration and no apical effects were reported. Clinical effects were observed at the sub-individual level and included incidences of abnormal sperm, and other celluar abnormalities. These have not been linked to apical endpoints for ecological risk assessment.
Birds[3]	Acute Oral	Not calculable	Not applicable	--
	Subacute Dietary	<0.01	No	--
	Chronic	≤0.22	No	--
Terrestrial Invertebrates[4]	Acute Adult	Not calculable	Not applicable	RQs not calculated due to non-definitive endpoint – no effects in

<table>
<tr><th colspan="5">Table 4. Summary of Risk Quotients (RQ) for Taxonomic Groups Based on the Uses of Trifludimoxazin</th></tr>
<tr><th>Taxa</th><th>Exposure Duration</th><th>Risk Quotient (RQ) Range[1]</th><th>RQ Exceeding the LOC for Non-listed Species[2]</th><th>Additional Information/ Lines of Evidence</th></tr>
<tr><td rowspan="4"></td><td>Adult Contact</td><td>Not calculable</td><td>Not applicable</td><td rowspan="2">study. EECs were over 25 times lower than the non-definitive endpoint.</td></tr>
<tr><td>Acute Larval</td><td>Not calculable</td><td>Not applicable</td></tr>
<tr><td>Chronic Adult</td><td>0.45</td><td>No</td><td rowspan="2">--</td></tr>
<tr><td>Chronic Larval</td><td>0.63</td><td>No</td></tr>
<tr><td rowspan="2">Aquatic Plants</td><td rowspan="2">Not applicable</td><td>Vascular:
Parent Only EECs: 1.8-14</td><td rowspan="2">Yes</td><td rowspan="2">Risk concerns for all uses based on parent-only EECs at and the IC_{25} across several species of vascular and non-vascular plants.</td></tr>
<tr><td>Non-Vascular:
Parent Only EECs: 1.0- 8.1</td></tr>
<tr><td rowspan="3">Terrestrial Plants</td><td rowspan="3">Not applicable</td><td colspan="2">Seedling Emergence</td><td rowspan="3">Yes</td><td>RQs exceeded LOC. The greatest concerns are for run-off plus drift-based scenarios. Drift distances to the LOC extended from 13 feet (low boom fine to medium/coarse droplets; 0.034 lbs a.i./A) to >1000 feet (0.134 lbs a.i./A; aerial application fine to medium droplets).</td></tr>
<tr><td>0.034 lbs a.i./A
TEP:
<0.1-6.8
M850H001:
<0.1-15
M850H002
< 0.4</td><td>0.134 lbs a.i./A
TEP:
<0.1-27
M850H001:
<0.1-60
M850H002:
<0.1-2.7</td></tr>
<tr><td colspan="2">Vegetative Vigor (TEP Only)
0.034 lbs a.i./A: 0.2-116
0.134 lbs a.i./A: 0.6-459</td><td>RQs exceeded LOCs at minimum and maximum application rates. Drift distances to the LOC extended from 468.2 (0.034 lbs a.i./A; low boom fine to medium/coarse droplets) to > 1000 feet (all other modeled scenarios).</td></tr>
</table>

[1]For aquatic taxa (fish and invertebrates), EECs (estimated exposure concentration) and RQs (Risk Quotient) were based on TRs (Total Residues), aquatic plant EECs were based on parent only.
[2]Level of Concern (LOC) Definitions: Terrestrial Animals: Acute=0.5; Chronic=1.0; Terrestrial invertebrates=0.4; Aquatic Animals: Acute=0.5; Chronic=1.0; Terrestrial Plants: 1.0
[3]RQs for birds are used as a surrogate for toxicity to terrestrial-phase amphibians and reptiles.
[4]RQs for terrestrial invertebrates are applicable to honeybees, which are also a surrogate for other species of bees. Risks to other terrestrial invertebrates (*e.g.*, earthworms, beneficial arthropods) are only characterized when toxicity data are available.
LDPH= Light Dependent Peroxidizing Herbicides, TEP= Typical End-use Product, NOAEC= No Observed Adverse Effect Concentration, IC_{25}= Inhibition Concentration 25%
FL= Florida, IN= Indiana, KS= Kansas, MS= Mississippi, NE= Nebraska, OH= Ohio, CA= California, GA= Georgia

C. Alternative Chemistries and Benefits Assessment

Trifludimoxazin is a PPO inhibitor, classified by the Weed Science Society of America (WSSA) as Group 14 herbicide, which provides preemergence and/or postemergence (burndown) control

of a variety of problematic annual broadleaf weed species and some annual grass weed species. Based on use and usage information, for agricultural use sites, the five most commonly used herbicides in terms of acres treated for control of trifludimoxazin target weeds are glyphosate, atrazine, mesotrione, S-metolachlor, and fomesafen. The most commonly used herbicide for trifludimoxazin target weeds in non-agricultural use sites is 2,4-D.

Field trials indicate that trifludimoxazin, has the potential to provide a new PPO-inhibitor-resistance management option and tool that controls PPO-inhibitor-resistant weed biotypes. Trifludimoxazin would be an additional rotation or tank-mix PPO-inhibitor partner with other compounds with a non-PPO mode of action (MOA), for resisting the spread of PPO resistant weed populations in crop production fields. The repeated use of the above-mentioned herbicides or other PPO inhibitors to control target pests in the past have led to selection of resistant weed types. Trifludimoxazin, is expected to be a new tool in controlling such troublesome and economically important resistant weed types like waterhemp and palmer amaranth in agricultural crops like corn and soybean. The need for additional tools such as trifludimoxazin to manage these resistant weeds is growing, as herbicide resistance presents a significant financial, production and pest management issue for growers throughout the nation. It is anticipated that trifludimoxazin would be an additional rotation or tank-mix partner with other compounds with different MOAs as a resistance management tool. For more detailed information on benefits for trifludimoxazin refer to the following document in the docket EPA-HQ-OPP-2018-0762 - “Benefits Review for a New Active Ingredient Registration of Trifludimoxazin for Preemergence and/or Postemergence Control of Annual Broadleaf and Grass Weeds in Various Agricultural and Non-Agricultural Use Sites”.

D. Synergy

Some chemical companies have made claims in patents that certain combined mixtures of pesticides elicit synergistic effects, meaning that when the chemicals are mixed the combined effect is greater than the sum of the individual effects of each chemical. But upon inspection of these patents for trifludimoxazin, the underlying raw data of three patents are cumulative of data disclosed in the patent specification and are not replicated; therefore, they are relevant but not suitable for quantitative use in the ecological risk assessment. More details on the synergy patent search review are in the document entitled Trifludimoxazin: Review of U.S. Patent Search Submission in docket ID number EPA-HQ-OPP-2018-0762.

V. PUBLIC COMMENTS

On April 15, 2019, the EPA published a Notice of Receipt (NOR) in the Federal Register notifying that EPA was in receipt of an application to register pesticide products containing an active ingredient not included in any currently registered pesticide products (trifludimoxazin) and announced a public comment period of 30 days. No comments were received on the NOR. The EPA also published a Notice of Filing (NOF) on April 19, 2019 for a 30-day comment period. One generic comment was received on the NOF and can be found in docket ID number EPA-HQ-OPP-2018-0762 at www.regulations.gov.

The proposed decision was available for 30-day public comment on December 11, 2020, closing on January 11, 2021. The Agency received ten comments on the proposed decision document. The Agency's response to comments on the proposed decision document can be found in docket ID number EPA-HQ-OPP-2018-0762 at www.regulations.gov. None of the comments received changed the Agency's final regulatory decision; however, a couple of language changes were made on the label accordingly. The United States Department of Agriculture (USDA) commented on the proposed spray drift label language and, in response, the Agency is accepting USDA's proposed alternative label language, which is consistent with recently published interim decisions under registration review (e.g., Metolachlor/S-metolachlor, December 2020) for aerial and ground application. The final label will have the following language for ground boom application. *"Applicators must select nozzles and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE §572)."* The Agency will use the following statement for aerial application on end use label "*Applicators must select nozzle and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 641 (ASABE §641)."* The Agency also agrees with the comment from Center for Food Safety to delete the "unique binding properties" language from the final stamped label.

VI. FINAL REGULATORY DECISION

In accordance with FIFRA, the EPA only registers a pesticide when it determines that it will not cause unreasonable adverse effects on humans or the environment, while taking into account the economic, social, and environmental costs and benefits of the use of the pesticide. Under FIFRA, the EPA is charged with balancing risks posed by the use of a pesticide against its benefits. The EPA must determine if the benefits in light of its use outweigh the risks in order for the EPA to register a pesticide.

In consideration of the potential risks posed by uses of trifludimoxazin, the Agency has not identified any dietary, aggregate, or occupational risk concerns for potential human health exposure from the use of trifludimoxazin. Furthermore, trifludimoxazin is not likely to result in risks of concern to non-target animals including aquatic invertebrates, birds, reptiles, terrestrial-phase amphibians, mammals, and bees. Although the Agency has determined chronic risk to fish based on enhanced LDPH toxicity under certain environmental conditions and some risk of concern for aquatic and terrestrial plants, the likelihood of trifludimoxazin residues reaching aquatic environments or non-target terrestrial plants would be the result of drift and/or runoff. The risk mitigation on the final stamped label as described below intended to mitigate off-site transport from drift and runoff.

As discussed above in the Benefits Assessment section and in the supporting Benefits Review document, PPO-inhibitor-resistant weeds are already having a financial impact on growers. Trifludimoxazin is a new tool for weed control of waterhemp and palmer amaranth in agricultural field crops such as corn and soybean where PPO-inhibitor-resistant weeds are present. This chemical's unique binding properties to the PPO enzyme, may further help with resistance management to PPO-inhibitor-resistant weeds. Hence, the Agency has determined that trifludimoxazin will benefit the agriculture industry, as an additional tool to combat pest

management issues, thereby helping the growers throughout the nation to increase production and prevent significant financial loss.

A. Risk Mitigation and Label Requirements

The database is considered complete for assessment of risks to human health and the environment, and there are no data gaps. Considering the assessed risk to human health and the environment, the Agency concludes that trifludimoxazin meets the regulatory standard under FIFRA. Acute toxicity reviews have determined trifludimoxazin to be a moderate eye irritant. Accordingly, on trifludimoxazin labels, the Personal Protect Equipment (PPE) statement must include protective eye wear (specific eye wear may be mandated). Human health risk estimates for trifludimoxazin are low and are not of concern for all potential routes of exposure, including dietary (food and drinking water), occupational, and aggregate. No mitigation, other than the precautionary statements, is needed to address human health risks.

To reduce the potential for herbicide resistance issues, the final stamped trifludimoxazin label includes resistance management language from PRN 2017-1 and PRN 2017-2. The end use label for trifludimoxazin also includes advisory language to prevent off-site movement to non-target terrestrial or aquatic areas due to runoff, environmental hazards statement, ground water and surface water advisory statements that warn of the potential for runoff after treatment, as well as descriptions of conditions that may be susceptible to leaching into ground water. Additionally, to limit off-site movement due to spray drift, the mandatory spray drift language on the end use label indicates that the applicators must use a medium to ultra-coarse spray droplet size for both aerial and ground applications and that applications are not permitted when windspeed exceeds 10 mph at the application site.

The Agency determined that trifludimoxazin can be used as a resistance managment tool. It can be used as an additional rotation or tank-mix PPO partner with other compounds with a non-PPO MOA. Tank-mix statement on the end use label ensure that the users follow restrictive directions of tank mix partner products.

Furthermore, the following restrictions are implemented on the trifludimoxazin end-use product label:

1) Precautionary statements were revised to include “Causes moderate eye irritation. Wear protective eyewear (may be specified)”.
2) Spray drift management: The final label will have the following language for ground boom application. *“Applicators must select nozzles and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE §572).”* The Agency will use the following statement for aerial application on end use label “*Applicators must select nozzle and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 641 (ASABE §641).”*
3) Tank-mix Statement: *“It is the pesticide user’s responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users*

must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture."

In summary, based on data and the Agency's risk conclusions and mitigation measures included on the label, as determined for trifludimoxazin, EPA concludes that the benefits of the trifludimoxazin registrations outweigh the risks. The Agency therefore, concludes that its use on legume vegetable group 6, foliage of legume vegetable group 7, citrus fruit group 10-10, pome fruit group 11-10, tree nuts group 14-12, cereal grain group 15 (except rice), forage, fodder, and straw of cereal grain group 16 (except rice), peanut, and non-agricultural use sites (christmas trees plantations, conifer and hardwood plantations, industrial landscaping, and native grass openings) will not cause unreasonable adverse effects on the environment and meets the criteria for registration under FIFRA section 3(c)(5). Hence, the EPA is issuing unconditional registrations for Tirexor Herbicide Technical (99.2%) and the end use product Tirexor Herbicide (41.53%).

VII. SUPPORTING DOCUMENTS

All supporting documents listed below can be found in docket ID number EPA-HQ-OPP-2018-0762 at regulations.gov.

USEPA 20201130 *New Active Ingredient Human Health Risk Assessment for Registrations on Legume Vegetable Group 6, Foliage of Legume Vegetable Group 7, Citrus Fruit Group 10-10, Pome Fruit Group 11-10, Tree Nut Group 14-12, Cereal Grain Group 15 (except rice), Forage Fodder and Straw of Cereal Grain Group 16 (except rice), Peanut and Peanut Hay.* DP449674

USEPA 20201130 *Trifludimoxazin: Ecological Risk Assessment for the Proposed Section 3 New Chemical Registration.* DP449672

USEPA 20201001 *Benefits Review for a New Active Ingredient Registration of Trifludimoxazin for Preemergence and/or Postemergence Control of Annual Broadleaf and Grass Weeds in Various Agricultural and Non-Agricultural Use Sites.* DP449676

USEPA 20200513 *Trifludimoxazin: Review of U.S. Patent Search Submission* DP456766

Exhibit B

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (7505P)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

NOTICE OF PESTICIDE:
_X_ Registration
___ Reregistration
(under FIFRA, as amended)

EPA Reg. Number:	**Date of Issuance:**
7969-432	5/25/21

Term of Issuance:
Unconditional

Name of Pesticide Product:
Tirexor™ Herbicide

Name and Address of Registrant (include ZIP Code):

BASF Corporation
26 Davis Drive, PO Box 13528
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 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 unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:	**Date:**
Rachel C. Holloman Rachel Holloman, Chief Fungicide Herbicide Branch, Registration Division (7505P)	5/25/21

EPA Form 8570-6

2. Make the following label changes before you release the product for shipment:

    - Revise the EPA Registration Number to read, "EPA Reg. No. 7969-432."

3. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 09/15/2018

If you have any questions, please contact Manjula Unnikrishnan by phone at 703-347-8520, or via email at unnikrishnan.manjula@epa.gov

Enclosure

BASF

We create chemistry

Trifludimoxazin	Group	14	Herbicide

Tirexor™ Herbicide

Alternate brand name: Vulcarus™ Herbicide

For use in field and row agricultural crops, bearing and nonbearing tree crops, and in non-agricultural areas

Active Ingredient:

trifludimoxazin: 1,5-dimethyl-6-thioxo-3-[2,2,7-trifluoro-3-oxo-4-(prop-2-yn-1-yl)-3, 4-dihydro-2H-1,4-benzoxazin-6-yl]-1,3,5-triazinane-2,4-dione:	41.53%
Other Ingredients:	58.47%
Total:	100.00%

Contains 4.17 pounds active ingredient trifludimoxazin per gallon product formulated as a water-based suspension concentrate.

EPA Reg. No. 7969-XXX **EPA Est. No.**

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.)

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

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

BASF Corporation, Agricultural Solutions, 26 Davis Drive, Research Triangle Park, NC 27709

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • **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. • Have a person sip a glass of water if able to swallow.
If in eyes	• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes. • Call a poison control center for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 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.
HOTLINE 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 at 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves
- Protective eyewear (such as face shield, goggles, or safety glasses)

User Safety Requirements

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

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.

IMPORTANT: **When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, including a spill or equipment breakdown.**

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE 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

For terrestrial uses, **DO NOT** apply directly to water, or to areas where surface water is present or to intertidal areas below the mean highwater mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate.

Groundwater Advisory. Trifludimoxazin has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

Surface Water Advisory. Trifludimoxazin may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having high potential for reaching surface water via runoff for several weeks after application. A level, well-maintained buffer strip between areas to which this product is applied and surface water features including ponds, streams, and springs will reduce the potential loading of this chemical from runoff water and sediment. Runoff of this product will be reduced by avoiding application when rainfall is forecast to occur within 48 hours.

Non-Target Organism Advisory: This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and habitat of non-target organisms by minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the **Spray Drift Management** section of this label.

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at time of herbicide application.

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 the label about personal protective equipment (PPE) 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**.

EXCEPTION: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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, including plants, soil, or water, is:

- Coveralls
- Waterproof or Chemical-resistant gloves
- Shoes plus socks

NONAGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses".

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage

DO NOT use or store near heat or open flame. Store in original container in a well-ventilated area separately from fertilizer, feed, or foodstuffs. Avoid cross-contamination with other pesticides. Prevent from freezing, however if product freezes allow to thaw at room temperature for 24 hours and agitate well prior to use.

Pesticide Disposal

Wastes resulting from this product may be disposed of on-site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

In Case of Emergency

In case of large-scale spill of this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Steps to take if 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 reuse.
- Keep the spill out of all sewers and open bodies of water.

Product Information

*Alternate text for EPA review purposes only: Refer to **Table 1** for use rate equivalency between herbicide active ingredient (AI, Trifludimoxazin) and formulated typical end use product (TEP, **TIREXOR** herbicide).*

Table 1. Use rate equivalency (AI vs. TEP)

Trifludimoxazin Rate (g ai/ha)	**Trifludimoxazin Rate** (lb ai/A)	**TIREXOR Rate** (fl oz/A)
9	0.008	0.25
12	0.011	0.33
18	0.016	0.50
25	0.022	0.68
30	0.027	0.82
38	0.034	1.0
50	0.045	1.37
100	0.089	2.74
150	0.134	4.11

TIREXOR provides both rate-dependent residual preemergence control of germinating broadleaf and grass weeds and postemergence control (i.e., foliar contact burndown) of emerged broadleaf and grass weeds. Refer to **Table 2** and **Table 3** for list of weeds controlled by residual preemergence and postemergence applications, respectively.

TIREXOR can be used in select field and row crops, bearing and nonbearing fruit and nut trees, fallow and postharvest croplands, and in non-agricultural areas. See **Agricultural Crop Uses – Specific Information** and **Non-Agricultural Uses – Specific Information** sections for specific use directions.

Table 2. Broadleaf and Grass Weeds Controlled with a Residual Preemergence Application of TIREXOR in Crop-specific Use Patterns

Common Name	**Scientific Name**	**TIREXOR Use Rate** (fl oz/A)	
		0.68	**1.0**
Broadleaf Weeds			
Amaranth, Palmer	*Amaranthus palmeri*	C	C
Beggarweed, Florida	*Desmodium tortuosum*	C	C
Canola, volunteer (rapeseed)	*Brassica* spp.	S	C
Carpetweed	*Mollugo verticillata*	C	C
Henbit	*Lamium amplexicaule*	C	C
Lambsquarters, common	*Chenopodium album*	C	C
Morningglory	*Ipomoea* spp.	S	C
Pigweed, prostrate	*Amaranthus blitoides*	C	C
Pigweed, redroot	*Amaranthus retroflexus*	C	C
Ragweed, common	*Ambrosia artemisiifolia*	S	S
Sunflower, common	*Helianthus annuus*	S	S

Common Name	Scientific Name	TIREXOR Use Rate (fl oz/A)	
		0.68	1.0
Velvetleaf	*Abutilon theophrasti*	C	C
Waterhemp	*Amaranthus tuberculatus*	C	C
Grass Weeds			
Crabgrass. large	*Digitaria sanguinalis*	S	C
Crowfootgrass	*Dactyloctenium aegyptium*	S	C
Foxtail, giant	*Seteria faberi*	S	C
Goosegrass	*Eleusine indica*	C	C
Panicum, Texas	*Panicum texanum*	S	C
Ryegrass, Italian	*Lolium multiflorum*	S	S
Signalgrass, broadleaf	*Brachiaria platyphylla*	S	C

C = Control, S = Suppression

Table 3. Broadleaf and Grass Weeds Controlled with a Postemergence Application of TIREXOR in Crop-specific Use Patterns

Common Name	Scientific Name	TIREXOR Use Rate (fl oz/A)		
		0.33	0.50	0.68
Broadleaf Weeds		**Maximum Weed Height or Diameter** (4 inches)		
Amaranth, Palmer	*Amaranthus palmeri*	C	C	C
Bedstraw, catchweed	*Galium aparine*	S	S	S
Buckwheat, wild	*Polygonum convulvulus*	S	S	S
Canola, volunteer (rapeseed)	*Brassica* spp.	S	S	C
Chickweed, common	*Stellaria media*	C	C	C
Chickweed, field	*Ceraqstium arvense*	C	C	C
Eveningprimrose, cutleaf	*Oenothera laciniata*	--	--	S
Henbit	*Lamium amplexicaule*	C	C	C
Kochia	*Kochia scoparia*	--	--	S
Pennycress, field	*Thlaspi arvense*	S	S	C
Purslane	*Portulaca* spp.	C	C	C
Sheperdspurse	*Capsella burse-pastoris*	C	C	C
Swinecress, lesser	*Coronopus didymus*	S	S	S
Velvetleaf	*Abutilon theophrasti*	C	C	C
Waterhemp	*Amaranthus tuberculatus*	S	S	C

Common Name	Scientific Name	TIREXOR Use Rate (fl oz/A)		
		0.33	0.50	0.68
Grass Weeds		**Maximum Weed Size** (2-3 leaves)		
Bluegrass, annual	*Poa annua*	S	S	C
Foxtail, giant	*Setaria faberi*	S	S	S
Ryegrass, Italian	*Lolium multiflorum*	S	S	C

C = Control, S = Suppression

Mode of Action

Trifludimoxazin, the active ingredient in **TIREXOR**, is a potent inhibitor of protoporphyrinogen-oxidase (PPO) belonging to herbicide mode of action **Group 14** (WSSA). **TIREXOR** is rapidly absorbed by roots and foliage. Following inhibition of protoporphyrinogen-oxidase, plant death is the result of membrane damage. Under active growing conditions, susceptible emerged weeds usually develop chlorotic and necrotic injury symptoms within hours and die within a few days. Susceptible emerging weed seedlings will usually die as they reach the soil surface or shortly after emergence.

Herbicide Resistance Management

Any weed population may contain or develop plants naturally resistant to **TIREXOR** and other **Group 14** herbicides. Weed species with resistance to **Group 14** may dominate the weed population if **Group 14** herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by **TIREXOR** or other **Group 14** herbicides.

To delay herbicide resistance consider:

- Resistance management should be part of a diversified weed control strategy that integrates chemical, cultural, and mechanical (tillage) control tactics. Cultural control tactics include crop rotation, proper fertilizer placement, and optimum seeding rate/row spacing. Start with clean fields using tillage or an effective burndown herbicide program. These practices encourage crop growth and improve competitiveness against weeds.
- Clean equipment before moving to a different field to avoid spread of resistant weeds.
- Scout fields prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective.
- Always follow labeled application rate and weed growth stage specifications.
- Use sequential programs with preemergence herbicides that provide soil residual control of weeds to reduce early season weed competition and allow for timely in-crop postemergence herbicide applications.
- **DO NOT** rely on a single herbicide site of action for weed control during the growing season.
- Avoid application of herbicides with the same site of action more than twice a season.
- Use tank mixes or premixes with other herbicides possessing different sites of action that are also effective on the target weeds.
- Scout fields after herbicide application to identify areas where weed control was ineffective.
- Control weed escapes with herbicides possessing a different site of action or use a mechanical control measure. Weed escapes should not be allowed to reproduce by seed or to proliferate vegetatively.
- Contact your **TIREXOR** supplier and/or your local BASF representative to report weed escapes.
- Consult your local BASF representative, local or state cooperative extension service, professional consultants or crop advisors, or other qualified authority to determine appropriate actions if you suspect resistant weeds.
- Suspected herbicide-resistance weeds may be identified by these indicators:
  - failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
  - a spreading patch on non-controlled plants of a particular weed species; and
  - surviving plants mixed with controlled individuals of the same species.

Application Instructions

Application Rate

Refer to the **Agricultural Crop Uses – Specific Information** and **Non-Agricultural Uses – Specific Information** sections for specific application use rate directions and the restrictions by agricultural/non-agricultural use pattern.

Application Timing

TIREXOR may be applied after previous crop harvest, during a fallow period, preceding crop planting as preplant surface or preplant incorporated treatments, or after crop planting as preemergence treatment in field and row agricultural crops. **TIREXOR** may be applied postemergence-directed in tree crops. Refer to the **Crop-specific Information** section for specific application instructions (timings, rates, restrictions and precautions) by crop.

Post-harvest Application

Apply **TIREXOR** as a broadcast spray after previous crop harvest and before the ground freezes for burndown control of existing weeds. Tillage operations may be conducted before or after applying **TIREXOR**. If tillage is used following an application, tillage must be no more than 2-inches deep to uniformly incorporate the herbicide into the upper soil surface.

Fallow Application

Apply **TIREXOR** as a broadcast spray during a fallow period for burndown control of existing weeds and/or residual control of germinating weeds during the fallow period.

Preplant Surface Application

Apply **TIREXOR** as broadcast spray within 45 days of planting for (early) preplant burndown control of existing weeds and/or residual control of germinating weeds up to and through crop planting.

Preplant Incorporated Applications

Apply **TIREXOR** as a broadcast spray to the soil surface up to 14 days before planting and incorporate into the upper soil surface (1 to 2 inches) using a harrow, rolling cultivator, field cultivator, or other implement capable of providing uniform shallow incorporation. Avoid deeper incorporation or reduced weed control may result.

Preemergence Surface Application

Apply **TIREXOR** as a broadcast spray to the soil surface after planting and before crop emergence. **TIREXOR** must be applied before crop emergence or injury will occur.

Split Applications

Preplant surface applications may be applied as the initial part of a split application program where the sequential applications (preplant incorporated, preemergence) are made near, at, or after crop planting time. However, the cumulative use rate total from the split application program must not exceed the maximum labeled rate for the crop.

Application Methods and Equipment

TIREXOR may be applied by ground (banded, broadcast, or spot) or air. Thorough spray coverage is required for optimum broadleaf and grass weed control and can be improved with proper adjuvant, nozzle and spray volume selection.

Use and configure application equipment for spray volume, accurate and uniform distribution of spray droplets over the treated area, and to avoid spray drift to nontarget areas. Adjust equipment to maintain continuous agitation during spraying with mechanical or bypass agitation. Avoid overlaps that will increase rates above use rates specified in this label.

TIREXOR may be applied using water or sprayable fluid nitrogen fertilizer solutions as the spray carrier. Additionally, **TIREXOR** may be impregnated on and applied with dry bulk fertilizer.

Mandatory Spray Drift Management

Aerial Application Requirements - Helicopter

Water Volume. Use 15 or more gallons of water per acre.

Applicators must follow these requirements to reduce the potential of spray drift to nontarget areas from aerial applications with helicopter:

1. **DO NOT** release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
2. Applicators must select nozzles and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 641 (ASABE §641).
3. **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
4. The boom length must not exceed 75% of rotor blade diameter for helicopters.
5. Nozzles must be oriented so the spray is directed toward back of the helicopter.
6. Applicators must use ½ swath displacement upwind at the downwind edge of the field.
7. **DO NOT** apply during periods of temperature inversions.

Aerial Application Requirements – Fixed-wing Aircraft

Water Volume. Use 5 or more gallons of water per acre.

Applicators must follow these requirements to reduce the potential of spray drift to nontarget areas from aerial applications:

1. **DO NOT** release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
2. Applicators must select nozzles and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 641 (ASABE §641).
3. **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
4. The boom length must not exceed 65% of the wingspan for aircraft.
5. Nozzles must be oriented so the spray is directed toward back of the aircraft.
6. Applicators must use ½ swath displacement upwind at the downwind edge of the field.
7. **DO NOT** apply during periods of temperature inversions.

Ground Application Requirements

Spray Carrier Volume. Use 10 or more gallons of water per treated acre or 20 or more gallons of sprayable fluid nitrogen fertilizer per treated acre.

Applicators must follow these requirements to reduce the potential of spray drift to nontarget areas from ground applications:

1. Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
2. Applicators must select nozzles and pressure that deliver medium to ultra-coarse droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE §572).
3. **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
4. **DO NOT** apply during temperature inversions.

Spray Drift Advisories

The applicator is responsible for avoiding off-site spray drift. Be aware of nearby non-target sites and environmental conditions.

Importance of Droplet Size

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

Volume. Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.

Pressure. Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.

Spray Nozzle. Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

Adjust Nozzles. Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

Boom Height – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

Release Height – Aircraft

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

Shielded Sprayers

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

Temperature and Humidity

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

Temperature Inversion

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

Wind

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS**. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

Cleaning Spray Equipment

Clean application equipment thoroughly by using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions, followed by triple rinsing the equipment before and after applying this product.

Ground Application (dry bulk fertilizer)

TIREXOR may be impregnated or coated onto dry bulk granular fertilizer carriers for residual soil surface application. Impregnation or coating may be conducted by in-plant bulk or on-board systems. Perform the mixing operation in well-ventilated areas.

Addition of a drying agent may be necessary if the fertilizer and herbicide blend is too wet for uniform application because of high humidity, high urea concentration, or low fertilizer use rate. Slowly add the drying agent to the blend until a flowable mixture is obtained. Drying agents are not intended for use with on-board impregnation systems.

Under some conditions, fertilizer impregnated with **TIREXOR** may clog air tubes or deflector plates on pneumatic application systems. Mineral oil may be added to **TIREXOR** before blending with fertilizer to reduce plugging. **DO NOT** use drying agents when mineral oil is used. To avoid separation of **TIREXOR** and mineral oil mixes in cold temperatures, keep mixture heated or agitate before blending with fertilizer. Mineral oil may be used with in-plant blending stations or on-board injection systems.

Generally, fertilizer application rates of at least 200 lbs to 700 lbs per acre of herbicide and fertilizer blend provide adequate distribution or coverage of **TIREXOR** across the soil surface. Application must be made uniformly to the soil to prevent possible crop injury and offer satisfactory weed control. Impregnated fertilizer spread at half rate and overlapped for a full rate offers a more uniform distribution. A shallow (less than 2 inches) incorporation is desirable for improved weed control. Deeper incorporation dilutes the herbicide layer near the soil surface and may result in unsatisfactory weed control.

To calculate the herbicide rate when using dry bulk fertilizer application:
fl ozs herbicide per acre/pounds fertilizer per acre X 2000 = fl ozs herbicide per ton of fertilizer

Additives

For optimum burndown activity with **TIREXOR**, an adjuvant system must be used that includes the following:

Adjuvant	Rate
Methylated seed oil (MSO)[1]	1 gal/100 gals (1% v/v)[2]
PLUS	**PLUS**
Ammonium sulfate (AMS) **or** Urea ammonium nitrate (UAN)	8.5 to 17 lbs/100 gals (1% to 2% w/v) **or** 1.25 to 2.5 gals/100 gals (1.25% to 2.5% v/v)

[1] MSO-based adjuvant **MUST** contain at least 60% methylated seed oil. Poor performance may occur with adjuvants containing less than 60% methylated seed oil.

[2] **DO NOT** use less than 1 pint/A of MSO with low-volume (< 12.5 gallons per acre) aerial or ground applications.

Tank Mixing Information

TIREXOR may be tank mixed with one or more registered herbicide products according to the specific tank mixing instructions in this label and respective product labels. Refer to **Agricultural Crop Uses - Specific Information** and **Non- Agricultural Uses – Specific Information** sections for tank mixing details.

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.
1. For 20 gallons per acre spray volume, use 3.3 cups (800 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
2. Add components in the sequence indicated in **Mixing Order** using 2 teaspoons for each pound or 1 teaspoon for each pint of label rate per acre.
3. Always cap the jar and invert 10 cycles between component additions.
4. When the components have all been added to the jar, let the solution stand for 15 minutes.
5. Evaluate the solution for uniformity and stability. The spray solution shall not have free oil on the surface, or fine particles that precipitate to the bottom, or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, **DO NOT** mix the ingredients in the same tank.

Mixing Order

Maintain agitation throughout mixing and application until spraying is completed. Except when mixing products in PVA bags, maintain constant agitation during mixing and application.
1. **Water** - Fill tank to 1/2 to 3/4 full with clean water and start agitation.
2. **Inductor** - If an inductor is used, rinse it thoroughly after each component has been added.
3. **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.
4. **Water-soluble additives** (including dry and liquid fertilizers AMS or UAN)
5. **Water-dispersible products** (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. **Water-soluble products**
7. **Emulsifiable concentrates** (including MSO adjuvants)
8. **Remaining quantity of water**

If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

Use Restrictions

- **Maximum annual use rate:** Refer to **Agricultural Crop Uses** - **Specific Information** section or **Non-Agricultural Uses – Specific Information** section for maximum application use rates per year.
- **Maximum cropping seasonal application rate:** Refer to **Agricultural Crop Uses** - **Specific Information** section for maximum application use rates per cropping season for a crop use pattern.
- **Minimum Re-Treatment Interval for all applications:** 14 days
- **DO NOT** apply **TIREXOR** after crop emergence or over-the-top of desirable crops / plants as severe crop/plant injury will occur.
- **DO NOT** contaminate irrigation ditches or water used for domestic purposes.
- **DO NOT** feed or allow domestic animals to graze areas or crops not included in the use directions of this label treated within 365 days of **TIREXOR** application.
- **DO NOT** apply to residential or recreational maintained turfgrass.
- **DO NOT** apply **TIREXOR** in any residential setting.
- **TIREXOR** is not for sale, distribution, or use in Nassau and Suffolk counties in New York State.

Use Precautions

- **Rainfastness - TIREXOR** is rainfast 1 hour after application. Burndown activity may be reduced if rain or irrigation occurs within 1 hour of application.

Crop Rotation and Emergency Replanting Intervals

Refer to **Table 4** for the proper interval between **TIREXOR** application and planting of rotational crops or replanting after crop failure (because of environmental factors including drought, frost, or hail, etc.). Determine the rotational crop interval for tank mix products and use the most restrictive interval of all products applied.

Table 4. Rotational Crop and Emergency Replanting Intervals by TIREXOR Application Rate

Crop	**TIREXOR Rate** (fl ozs/A)					
	0.33	0.68	1.0	1.37	2.74	4.11
	Rotational Crop Interval (months after application)[1]					
Corn	0	0	0	4	6	9
Corn, pop	0	0	0	4	6	9
Corn, sweet	0	0	0	4	6	9
Sorghum	0	0	0	4	6	9
Small grains[2]	0	0	0	4	6	9
Chickpea	0	0	0	4	6	9
Edible pea	0	0	0	4	6	9
Edamame	0	0	0	4	6	9
Edible bean	0	0	0	4	6	9
Field pea	0	0	0	4	6	9
Lentil	0	0	0	4	6	9
Peanut	0	0	0	4	6	9
Soybean	0	0	0	4	6	9
Citrus fruit trees	1	1	1	4	6	9
Nut trees	3	3	4	4	6	9
Pome fruit trees	3	3	4	4	6	9
Other fruit trees	4	5	6	7	8	9
Cotton	4	5	6	7	8	9
Rice	4	5	6	7	8	9
Sugar beet	4	5	6	7	8	9
Sugarcane	4	5	6	7	8	9
Sunflower	4	5	6	7	8	9
Cover crops (winter, spring)[3]	1	2	2	4	4	4
Other crops	4	5	6	7	8	9

[1] **DO NOT** include time when the soil is frozen, or months when less than 1 inch of precipitation or irrigation occurred.
[2] Small grains are defined in **Crop-specific Information** section of this label. For other small grains, use the rotational crop interval for Other Crops.
[3] Cover crops (winter, spring) may be planted after application of **TIREXOR**, either inter-seeded into the current crop before harvest or after harvest of the current crop. Depending on the sensitivity of the sown cover crop to **TIREXOR**, stand establishment may be reduced. If cover crops were sown less than 4 months after **TIREXOR** application, **DO NOT** harvest cover crops as a food or feed crop and **DO NOT** allow livestock to graze cover crops.

Agricultural Crop Uses – Specific Information

This section provides use directions for **TIREXOR** in specific crops. Read product information, mixing, application, weeds controlled, and adjuvant instructions in preceding sections of the label. Read and follow tank mix product labels for restrictions, precautions, instructions, and rotational crop restrictions.

For all crop-specific uses in this section, refer to **Table 4** for emergency re-planting and crop rotation intervals.

Bearing and Nonbearing Fruit and Nut Trees

TIREXOR may be applied in the following individual bearing or nonbearing crops within the fruit tree and tree nut crop groupings:

Citrus Fruits
Crop Group 10-10 including Australian desert lime, Australian finger lime, Australian round lime, Brown River finger lime, Calamondin, Citron, Citrus hybrids, Grapefruit, Japanese summer grapefruit, Kumquat, Lemon, Lime, Mediterranean mandarin, Mount White lime, New Guinea wild lime, Orange (sour), Orange (sweet), Pummelo, Russell River lime, Satsuma mandarin, Sweet lime, Tachibana orange, Tahiti lime, Tangelo, Tangerine (mandarin), Tangor, Trifoliate orange, Uniq fruit

Pome Fruits
Crop Group 11-10 including Apple, Azarole, Crabapple, Loquat, Mayhaw, Medlar, Pear, Asian pear, Quince, Chinese quince, Japanese quince, Tejocote

Tree Nuts
Crop Group 14-12 including African nut-tree, Almond, Beech nut, Brazil nut, Brazilian pine, Bunya, Bur oak, Butternut, Cajou nut, Candlenut, Cashew, Chestnut, Chinquapin, Coconut, Coquito nut, Dika nut, Ginkgo, Guiana chesnut, Hazelnut (filbert), Heartnut, Hickory nut, Japanese horse-chestnut, Macadamia nut, Mongongo nut, Monkey-pot, Monkey puzzle nut, Okari nut, Pachira nut, Peach palm nut, Pecan, Pequi, Pili nut, Pine nut, Pistachio, Sapucaia nut, Tropical almond, Walnut (black), Walnut (English), Yellowhorn

Application Rate, Method, and Timing

Apply **TIREXOR** up to 4.11 fl ozs/A in citrus fruit or up to 2.74 fl ozs/A in tree nuts and pome fruit plus the required adjuvants (refer to **Additives** section for details) as a postemergence-directed spray either as a uniform broadcast, banded, or spot application directed at the base of the tree trunks while targeting emerged broadleaf weeds and grasses (refer to **Table 2** and **Table 3** for weeds controlled). Rates higher than listed in **Table 2** and 3 provide additional length of residual control. Spray contact of tree foliage, flowers, buds, or fruit either directly via improper nozzle orientation or indirectly via physical drift will result in crop injury. The use of shielded sprayers is highly advised when applying in citrus trees with low hanging branches and fruit.

TIREXOR may be applied either in a single application or sequentially.

Applications can be made to newly planted or replacement citrus trees after irrigation or rainfall has settled the soil, while nut trees and pome fruit trees must be established for at least 12 months prior to application. Trunk shields must be used until adequate bark has formed to protect trees from potential herbicide injury (typically by 2 to 3 years after establishment).

Spot Treatment

Consult the chart following for the amount of **TIREXOR** for making various gallons of spray mix to be used for spot treatments applied to actively growing broadleaf and grass weeds and sizes referenced in **Table 3**. Coverage is important. Spray thoroughly to wet the weed foliage but not to point of runoff. To maximize performance, refer to the **Additives** section for the adjuvant and rate to be added to the spray

mix. Each spray mix is equivalent to applying **TIREXOR** at a use rate of 0.68 fl oz/A in a spray volume of 100 gallons per acre. Applications of a spot spray mix must not be made to an equivalent area less than what is shown in the chart or exceed the equivalent broadcast rate of 0.68 fl oz/A. Spot treatments may be applied with backpack sprayers or via an ATV-mounted (all-terrain vehicle-mounted) or tractor / truck mounted sprayers equipped for hand wand applications. Spot applications can be made sequentially and/or be combined with broadcast / banded applications, but the maximum cumulative amount applied must not exceed the total use rate for the crop per year (see **Crop-specific Restrictions**).

Gallons Spray Mix	**Spray Mix Treatment Area** (sq ft)	**AMOUNT of TIREXOR*** (fl oz)	**AMOUNT of TIREXOR*** (mL)
1.0	436	0.0068	0.2
2.5	1,089	0.017	0.5
5.0	2,178	0.034	1.0
10.0	4,356	0.07	2.0
25.0	10,890	0.17	5.0

*equivalent to 0.022 lb active trifludimoxazin/Acre

Crop-specific Restrictions:

- Citrus trees: **DO NOT** apply more than 4.11 fl oz/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Pome fruit trees and tree nuts: **DO NOT** apply more than 2.74 fl oz/A (0.089 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 4
- **TIREXOR** may be applied any time up to or on the day of citrus or pome fruit harvest.
- **Preharvest interval (PHI)** for tree nuts: 7 days.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Corn

TIREXOR may be applied prior to corn emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 3** for lists of weeds controlled). Corn in this label refers to field corn (grain, seed, or silage), popcorn (grain, seed), and sweet corn (processing, fresh market, seed). Before applying **TIREXOR** to seed corn, sweet corn, or popcorn, verify the selectivity of **TIREXOR** on your inbred line or hybrid with your local seed company (supplier) to help avoid potential injury to sensitive inbreds or hybrids.

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to corn emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in corn.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply after corn emergence or severe crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of corn.
- Corn forage and stover may be fed to or grazed by livestock.

Crop-specific Precautions

- **TIREXOR** use may result in delayed corn emergence and stunting under certain environmental conditions including cool temperatures, excessive rainfall/irrigation, and/or persistent wet soil conditions occurring after application.
- Ensure the corn seed row is closed. Soil conditions that cause poor seed furrow closure and coverage may result in delayed corn emergence or stunting.
- **TIREXOR** applied to sweet corn planted at depth of ½-inch or less may result in crop injury.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Postharvest and Fallow

TIREXOR may be applied to control broadleaf and grass weeds (refer to **Table 2** and **Table 3** for lists of weeds controlled) following crop harvest and/or at any time of the year during a fallow period.

Application Rate, Method, and Timing

Apply **TIREXOR** as a broadcast spray at up to 1.0 fl ozs/A plus the required adjuvants (refer to **Additives** section for details). For best burndown product performance, apply when broadleaf weeds and grasses are small and actively growing.

Use-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2.
- Specific rotational crop intervals must be observed between an application of **TIREXOR** and planting of the following crop (see **Table 4** for crop rotation intervals).

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Legume Vegetables

TIREXOR may be applied prior to legume vegetable emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 3** for lists of weeds controlled). Before applying **TIREXOR** to legume vegetables, verify the selectivity of **TIREXOR** on your variety with your seed company (supplier) to help avoid potential injury to sensitive varieties.

TIREXOR is for use on the following legume vegetable types included in Crop Group 6 and 7:

Chickpea (garbanzo bean)

Edible Beans

- Edible-podded *Phaseolus* beans (runner bean, snap bean, wax bean)
- Succulent *Phaseolus* beans (lima bean [green], broad bean)
- Dry *Phaseolus* beans (field bean, kidney bean, lima bean [dry], navy bean, pinto bean, tepary bean)
- Dry beans (broad, guar, lablab)
- Edible-podded *Vigna* beans (asparagus bean, Chinese longbean, moth bean, yardlong bean)
- Succulent *Vigna* beans (blackeyed pea, cowpea, Southern pea)
- Dry *Vigna* beans (adzuki bean, blackeyed pea, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea)
- Dry *Lupinus* beans (grain lupin, sweet lupin, white lupin, white sweet lupin)
- Dry and succulent *Vicia* beans (broad bean, faba bean, fava bean, field bean)

Edible Peas

- Edible-podded peas (dwarf pea, edible-pod pea, pigeon pea, snow pea, sugar snap pea)
- Succulent peas (English pea, garden pea, green pea, pigeon pea, marrowfat pea)

- Dry peas (pigeon pea)

Field Peas
- Dry field peas (including Austrian winter peas)

Lentils
Vegetable Soybean (edamame)

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to legume vegetable emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in legume vegetables.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply when legumes have reached the cracking stage or after emergence or severe crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of legumes.

Crop-specific Precautions

- Plant legumes at least ½-inch deep to reduce risk of crop injury from **TIREXOR** application.
- Ensure the seed row is closed. Soil conditions that cause poor seed furrow closure and coverage may result in delayed crop emergence or stunting.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Peanut

TIREXOR may be applied prior to peanut emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 3** for lists of weeds controlled). Before applying **TIREXOR** to peanut, verify the selectivity of

TIREXOR on your variety with your seed company (supplier) to help avoid potential injury to sensitive varieties.

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to peanut emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in peanut.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply after peanut emergence or crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of peanut.

Crop-specific Precautions

- Ensure the seed row is sufficiently covered with soil to avoid washing and concentration of the herbicide in the seed zone.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate

Small Grains

TIREXOR may be applied prior to small grain emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 3** for lists of weeds controlled). Small grains in this label refers to barley, millet (pearl and proso), oats, rye, triticale, and wheat (including durum, spring and winter). Before applying **TIREXOR** to small grains, verify the selectivity of **TIREXOR** on your variety with your seed company (supplier) to help avoid potential injury to sensitive varieties.

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to small grains emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in small grains.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply after small grain emergence or crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of small grains.

Crop-specific Precautions

- Ensure the seed row is sufficiently covered with soil to avoid washing and concentration of the herbicide in the seed zone.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Sorghum

TIREXOR may be applied prior to sorghum emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 3** for lists of weeds controlled). Before applying **TIREXOR** to sorghum, verify the selectivity of **TIREXOR** on your inbred line or hybrid with your local seed company (supplier) to help avoid potential injury to sensitive inbreds or hybrids.

TIREXOR is for use on the following sorghum types:

- **Grain sorghum** (milo, durra, kaffir-corn, Indian millet, great millet, grand millet, kaoliang, Chinese sorghum, shattercane, guineacorn, sorgo comun)
- **Sweet sorghum** (sorgo, sorgo duice, Zuckerhirse, sorgo doux)

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to sorghum emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in sorghum.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply after sorghum emergence or severe crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of sorghum.

Crop-specific Precautions

- **TIREXOR** use may result in delayed sorghum emergence and stunting under certain environmental conditions including cool temperatures, excessive rainfall/irrigation, and/or persistent wet soil conditions occurring after application.
- Ensure the sorghum seed row is closed. Soil conditions that cause poor seed furrow closure and coverage may result in delayed sorghum emergence or stunting.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Soybean

TIREXOR may be applied prior to soybean emergence for broadleaf weed and grass control (refer to **Table 2** and **Table 2** for lists of weeds controlled). An adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity. Before applying **TIREXOR** to soybean, verify the selectivity of **TIREXOR** on your variety with your seed company (supplier) to help avoid potential injury to sensitive varieties.

Application Rate, Method, and Timing

Apply **TIREXOR** up to 1.0 fl ozs/A as preplant surface, preplant incorporated, or preemergence for burndown and/or residual control of broadleaf and grass weeds. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf and grass burndown activity.

Sequential applications of **TIREXOR** may be made as needed prior to soybean emergence as part of a split application program.

Crop-specific Restrictions:

- **DO NOT** apply more than 1.0 fl ozs/A (0.034 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year in soybean.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 2
- **DO NOT** apply when soybean has reached the cracking stage or after emergence or severe crop injury will occur.
- There is no required (preharvest) interval between a preplant or preemergence application of **TIREXOR** and the harvest of soybean.

Crop-specific Precautions

- Use of **TIREXOR** may result in delayed soybean emergence and stunting under certain environmental conditions including cool temperatures, excessive rainfall/irrigation, and/or persistent wet soil conditions occurring after application.
- Ensure the seed row is sufficiently covered with soil to avoid washing and concentration of the herbicide in the seed zone.

Tank Mixes

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Non-Agricultural Uses – Specific Information

TIREXOR may be used for selective and nonselective burndown control of emerged broadleaf and grass weeds and/or residual control of germinating broadleaf and grass weeds (refer to **Table 2** and **Table 3** for lists of weeds controlled) in non-agricultural use sites. This section provides use directions for **TIREXOR** in various non-agricultural situations.

Application Rate for All Non-Agricultural Uses

Application rates for **TIREXOR** when applied alone, in tank mix, or sequentially for all non-agricultural uses are given in **Table 5**.

TIREXOR may be applied either in a single application or sequentially.

Table 5. Application Rates for Non-Agricultural Uses

Application	Application Target	**TIREXOR Application Rate** (fl ozs/A)
Postemergence	Weed size < 4 inches	0.68 to 1.37
	Weed size ≥ 4 inches and/or heavier weed infestations	1.37 to 4.11[a]
Postemergence + Residual	Burndown + Residual preemergence weed control	4.11[b]
Tank Mixes with Glyphosate		
Accelerated Burndown	Accelerated burndown of broadleaf and grass weeds and/or control of glyphosate-resistant species	0.68 to 1.37
Accelerated Burndown + Residual	Accelerated burndown of broadleaf and grass weeds plus control of glyphosate-resistant species with residual preemergence weed control	1.37 to 4.11[b]

[a] Partial control or suppression may result with applications to weeds > 4 inches.

[b] To provide effective residual control of labeled weed species, **TIREXOR** must be used at the maximum use rate of 4.11 fl ozs/A.

Use Restrictions for All Non-Agricultural Uses

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3

Weed Control for All Non-Agricultural Uses

In addition to weeds listed in **Table 2** and **3**, **TIREXOR** controls the following weed species in non-agricultural use sites:

Common Name	Scientific Name
Needles, Spanish	*Urtica urens*
Parthenium	*Parthenium hysterophorus*
Pine	*Pinus* spp.

Wildling Pine Control

Apply **TIREXOR** for rapid brownout of wilding (volunteer) pine, including loblolly pine *(Pinus taeda)* and Virginia pine *(P. virginiana)*. For best control, apply **TIREXOR** as a uniform broadcast spray with a labeled rate of a glyphosate-based product plus the required adjuvant (see **Additives** section for specifics) in

addition to other tank mix herbicides. Make foliar applications in the spring, summer, and early fall when wildling pine seedlings are actively growing. Mid-to-late fall applications to wildling pines when growth is slowing may not provide consistent control. Thorough spray coverage of broadcast foliar applications is essential for control. Use a spray volume of 15 gallons of water per acre or more for aerial application. Use a spray volume of 20 gallons of water per acre or more for ground application.

Tank Mixes for All Non-Agricultural Uses

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Broad-spectrum control of additional broadleaf and/or grass weeds requires a tank mix with another herbicide. Read and follow the applicable restrictions and precautions and directions for use on the other product label. The most restrictive labeling applies to tank mixes. **TIREXOR** may be tank mixed or applied sequentially with other herbicide products, including but not limited to:

- glyphosate
- saflufenacil

Spot Treatment for All Non-Agricultural Uses

Postemergence spot application may be made with **TIREXOR** using backpack sprayers or via an ATV-mounted (all-terrain vehicle-mounted) or tractor / truck mounted sprayers equipped for hand wand applications. Spray volumes must be sufficient to thoroughly wet target area and/or foliage but not to the point of runoff, i.e. a spray-to-wet basis. See the following chart for amount(s) of **TIREXOR** to prepare spray solutions for spot application.

To maximize performance, refer to the **Additives** section for the required adjuvant and rate to add to the spray mix.

Each spray mix is equivalent to applying **TIREXOR** at 4.11 fl ozs/A in a spray volume of 100 gallons per acre. Applications of a spot spray mix should not be made to an equivalent area less than what is shown in the chart or exceed the equivalent broadcast rate of 4.11 fl ozs/A.

Spray Solution to Prepare (gals)	**Area to Treat** (acre)	**Amount of TIREXOR** (fl ozs) **Required for Spot Application***
1	0.01	0.04
5	0.05	0.2
25	0.25	1.0
50	0.5	2.0
100	1	4.11

*equivalent to 0.13 lb active trifludimoxazin/Acre

Christmas Tree Plantations

Application Rate, Method, and Timing

TIREXOR may be used as a postemergence-directed application in Christmas tree plantations to control broadleaf and grass weeds. Apply **TIREXOR** plus the required adjuvant (refer to **Additives** section for details) as a postemergence-directed spray either as a uniform broadcast application or as a uniform banded application or as a spot application directed at the base of trees while targeting emerged weeds. Spray contact of needles or buds either directly via improper nozzle orientation or indirectly via physical drift will result in crop injury. Refer to **Table 2**, **Table 3**, and **Table 5** for lists of weeds controlled and application rates.

Use-specific Restrictions

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3
- Christmas trees must be established for at least 9 months prior to application.
- **DO NOT** plant tree seedlings within 2 months after **TIREXOR** application of rates up to 1.37 fl oz/A and within 4 months for rates greater than 1.37 fl oz/A.
- **DO NOT** make over-the-top applications to Christmas trees or severe injury will occur.

Conifer and Hardwood Plantations

Application Rate, Method, and Timing

Apply **TIREXOR** for the control of wildling pine and other undesirable plants during site preparation operations conducted before planting and establishment of conifer and hardwood plantations, or as an understory application below the tree canopy of established conifer and hardwood plantations. Refer to **Table 2**, **Table 3**, and **Table 5** for lists of weeds controlled and application rates.

Use-specific Restrictions

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3
- **DO NOT** apply **TIREXOR** as an over-the-top spray on desirable conifer or hardwood plantings or severe injury will occur.
- **DO NOT** plant tree seedlings within 2 months after **TIREXOR** application of rates up to 1.37 fl oz/A and within 4 months for rates greater than 1.37 fl oz/A.

Site Preparation Application

Apply **TIREXOR** with a labeled rate of a glyphosate-based product plus the required adjuvant (refer to **Additives** section for specifics) as a uniform broadcast application during preplant site preparation for control of wildling pine and other undesirable plants in plantations and for enhanced brownout with other site-preparation tank mixes.

Understory Application in Established Plantations

Apply **TIREXOR** with a labeled rate of a glyphosate-based product or other tank mix partner plus the

required adjuvant (refer to **Additives** section for specifics) as a postemergence-directed, uniform broadcast or uniform banded, or as a spot spray application below the canopy of established conifer or hardwood plantings for control of targeted emerged weeds and/or undesirable brush and other tree species.

Industrial Landscaping

TIREXOR may be used in industrial landscapes and landscaped highway medians, interchanges, embankments, and buffer areas where perennial plants are established.

Application Rate, Method, and Timing

Apply **TIREXOR** with a labeled rate of a glyphosate-based product plus the required adjuvant (refer to **Additives** section for specifics) for selective weed control as a postemergence-directed spray, uniform broadcast application, or as a spot application around established trees and/or woody shrubs while targeting emerged weeds. Spray contact of leaves, stems, green shoots, or buds directly via improper nozzle orientation or indirectly via physical drift will result in plant injury. Refer to **Table 2**, **Table 3**, and **Table 5** for lists of weeds controlled and application rates.

Desirable industrial landscape vegetation must be established for at least 9 months before application. Apply **TIREXOR** at least one dripline length away from desirable industrial landscape vegetation.

Use-specific Restrictions

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3
- **DO NOT** make over-the-top application to any desirable industrial landscape vegetation or severe plant injury will occur.

Native Grass Areas

TIREXOR may be used for establishment and maintenance of native grass and natural areas (including wildlife management areas, wildlife openings, wildlife food plots, and wildlife habitats).

Application Rate, Method, and Timing

Apply **TIREXOR** as a postemergence spray plus the required adjuvant (refer to **Additives** section for specifics) as a uniform broadcast application for selective broadleaf weed control in native grass areas and unimproved turf sites. Transitory injury may be observed on most grass species when applied over the top at higher use rates. Refer to **Table 2**, **Table 3**, and **Table 5** for lists of weeds controlled and application rates.

Use-specific Restrictions

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3
- **DO NOT** feed or allow domestic animals to graze areas of grass treated with **TIREXOR** within 365 days of application.

See **Table 4** for rotational crop requirements. Additional wildlife food crops may be sown after application of **TIREXOR.** Depending on the sensitivity of the sown crop to **TIREXOR**, stand establishment may be reduced.

Vegetation Control and Management in Noncropland Areas

TIREXOR may be applied in and/or around to the following noncropland areas where vegetation control and/or management is needed to maintain the site(s):

Airports
Barns
Barrier strips
Campgrounds
Commercial sites including retail centers, strip malls, shopping malls
Construction sites
Ditchbanks (dry irrigation or non-irrigation)
Educational facilities
Farmstead areas (barnyards, buildings, driveways, facilities, machinery or implement yards, windbreaks)
Fence lines, boarder fencing, fence rows
Fire breaks, fire rehabilitation areas
Government and military installations including bases, airports, ranges (all types)
Grain facilities
Hardscapes
Industrial sites
Landfill sites
Livestock facilities
Lumberyards
Manufacturing plants / sites
Mines (all types) and mine reclamation areas
Municipal sites
Natural areas including parks (national, state, county, city)
Nuclear plant sites
Office buildings
Parking lots
Petroleum tank farms
Pipelines
Power plants
Prairies
Prisons and correctional facilities
Private and public managed lands including Bureau of Land Management grounds, national parks and forests, public managed grounds
Pumping stations or installations
Railroads, rail yards
Roadways / highways including interstate highways (federal, state, city and county), expressways, tollways, county roads
Roadsides
Recreational areas and open spaces including parks, restoration areas, RV camping/parking areas, hunting grounds, off-road transportation paths/trails
Sewage disposal areas
Railroads
Rights-of-way (electrical, highway, pipeline, rail, utility)
Solar farms
Sports and motorsports complexes
Storage shed sites
Trails and trailheads
Transitional areas between upland and lowland sites (when dry)
Utility buildings, plant sites, substations
Waste disposal sites
Wetlands (seasonally dry with intermittingly flooded low lying areas (flood plains, deltas, marshes, swamps, bogs)
Wind farms, wind turbine stations

Application Rate, Method, and Timing

Bareground

Apply **TIREXOR** for contact burndown plus residual preemergence control of broadleaf and grass weeds. Apply **TIREXOR** with a labeled rate of a glyphosate-based product plus the required adjuvant (refer to **Additives** section for details) as a uniform broadcast application. To provide effective residual broadleaf weed and grass control, **TIREXOR** must be applied at the maximum use rate of 4.11 fl ozs/A. The actual length of residual control depends on factors including soil type, organic matter, weed pressure, and rainfall amounts after application. Precipitation is necessary to activate **TIREXOR**. Dry weather following application may reduce effectiveness.

Selective Weeding

Apply **TIREXOR** as a postemergence spray with a labeled rate of a glyphosate-based product plus the required adjuvant (refer to **Additives** section for details) as a uniform broadcast application for selective weed control.

Selective Stem Application

Apply **TIREXOR** in a tank mix with glyphosate and/or other tank mix herbicides plus the required adjuvant (refer to **Additives** section for specifics) for rapid brownout of woody species using a directed-foliar individual plant treatment. For enhanced brownout of pine species (including loblolly pine [*Pinus taeda*] and Virginia pine [*P. virginiana*]), tank mix with glyphosate or other pine control herbicides. Make selective stem applications of **TIREXOR** using backpack or hydraulic handgun equipment. For best results, apply **TIREXOR** at a rate of 4.11 fl ozs in a spray volume of 100 gallons per acre with a tank mix partner (refer to tank mix partner label for the use rate). The proper spray pattern for selective stem applications is to uniformly wet all foliage on the target plant without drenching target vegetation causing spray solution to run off. For best results, make selective stem applications with methylated seed oil at 1% v/v as the adjuvant. Apply **TIREXOR** up to 4.11 fl ozs/A with selective stem applications.

Use-specific Restrictions

- **DO NOT** apply more than 4.11 fl ozs/A (0.134 lb ai/A) of **TIREXOR** in a single application or as a maximum cumulative amount from sequential applications per year.
- Sequential applications must be separated by at least 14 days.
- Maximum number of applications per year: 3
- **DO NOT** feed or allow domestic animals to graze areas of grass treated with **TIREXOR** within 365 days of application.

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 must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the 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. To the extent consistent with applicable law, 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.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, 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. 1108

Note to PM/reviewer: Making the product more restrictive than Federally accepted, incorporating the optional statement "Not for Use in California" may be included on the container label for any use, weed, or crop as determined to be necessary to secure Ca-DPR registration.

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007969-00xxx.20180915h.**NVA 2018-04-609-0073**

BASF Corporation
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Research Triangle Park, NC 27709

[Optional Marketing Claims:
Powered by Tirexor™
Powered by Tirexor™ herbicide
Powered by Tirexor™ Active herbicide]

We create chemistry

CERTIFICATE OF SERVICE

I hereby certify that on July 16, 2021, I electronically filed the foregoing **Petition for Review**, **Exhibits A-B**, and this **Certificate of Service** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the CM/ECF system. I caused to be served one true and correct copy of the foregoing via certified mail on the following persons:

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