

**BEFORE THE DIRECTOR OF THE
DEPARTMENT OF PESTICIDE REGULATION
STATE OF CALIFORNIA**

**In the Matter of Application for
Certificate of Emergency Pursuant to
Food and Agricultural Code section 12833 for Transform CA
(EPA Reg. No. 62719-727)**

Emergency Registration Tracking No. 311530

California Cotton Ginners and Growers Association

**Director's Decision and Order; Certificate of Emergency Registration and Establishment
of Use Limitations**

SUMMARY

On May 16, 2025, the California Cotton Ginners and Growers Association (CCGGA) submitted a complete application for a Certificate of Emergency Registration for Transform CA, containing the active ingredient sulfoxaflor, pursuant to Food and Agricultural Code (FAC) section 12833 to treat the target pest, tarnished plant bug (*Lygus lineolaris*) and western tarnished plant bug (*Lygus hesperus*), hereafter referred to as *Lygus*, on certain California cotton fields (DPR Tracking ID 311530).

After reviewing the application, DPR determined that an emergency pest control problem exists for which no feasible pest control method is available that is a reasonable alternative to the use of Transform CA for *Lygus* on cotton. *Lygus* is a pest that annually appears in cotton fields in California in early June and can threaten a cotton crop from earliest fruit set through flowering and final boll set. *Lygus* infestation in California cotton has been present in the past two years and according to the CCGGA, has become increasingly unmanageable with some growers reporting up to 50% losses in some fields. *Lygus* have become increasingly resistant to currently registered pesticides, and non-chemical alternatives, while complementary to chemical pesticides, are not effective on their own to mitigate *Lygus* infestation. Due to *Lygus*' increasing resistance to available pesticides, recent regulatory changes eliminating or otherwise limiting the use of other pesticide options, and the limited utility of other currently registered pesticides, in the absence of the ability to use sulfoxaflor, California cotton growers in counties within San

Joaquin and Imperial Valleys are likely to experience significant economic harm and plant losses. In 2023, the *Lygus* infestation resulted in an approximately 13.6% decrease in cotton yield and an approximately \$40 million economic loss. *Lygus* infestation has been present in California over the past two years for which no reasonable alternatives are available, and if *Lygus* exceeds the applicable use restriction thresholds outlined below, use of Transform CA will be necessary to prevent or mitigate significant economic losses.

The Department of Pesticide Regulation (DPR) is authorized to issue a Certificate of Emergency Registration and to establish any necessary use limitations when a federally registered pesticide is pending registration in California, and an emergency exists that cannot await California registration. (*See* Food and Agr. Code, § 12833.) For the reasons set forth below, the director, by this Decision and Order, issues a Certificate of Emergency Registration for Transform CA pursuant to the attached DPR-stamped accepted label (Attachment A) and establishes the following use limitations to prevent a potential significant risk to human health or the environment:

- The product, Transform CA Insecticide (EPA Reg. No. 62719-727, containing 50% sulfoxaflor), manufactured by Corteva Agriscience, LLC, may only be applied in accordance with the Certificate of Emergency Registration. All applicable directions for use, restrictions, precautions, and Worker Protection Standards on the DPR-stamped accepted label for cotton must be followed, in addition to any restrictions or conditions listed in this Director's Decision and Order; Certificate of Emergency Registration and Establishment of Use Limitations.
- Prior to use, a restricted materials permit must be obtained from the associated local County Agricultural Commissioner. The permit shall state the maximum number of acres to be treated, maximum amount of product that may be applied, and dealer from which the product may be purchased. The purchaser (permittee) or purchaser's (permittee's) agent must provide the seller, or person delivering the product, a copy of the permit on the date the product is delivered. The dealer shall maintain a record of each sale, which shall be made available to representatives of DPR or the County Agricultural Commissioner upon request. Such records shall include the dates of sale and delivery, permit number, identity and amount of product purchased, and the name of the purchaser.
- All applications of this material shall be made by or under the supervision of a certified applicator certified for this category of pest control. Agricultural pest control businesses shall submit a pesticide use report to the County Agricultural Commissioner within seven days of each treatment. Growers who apply this material shall submit a pesticide use report to the County Agricultural Commissioner by the 10th day of the month following the month in which the applications were made.
- Prior to applying Transform CA on a particular cotton field, a Notice of Intent must be submitted to the appropriate County Agricultural Commissioner.
- Prior to applying Transform CA on a particular cotton field, the following applicable use restriction threshold must be met, as consistent with suggested economic thresholds in the University of California Integrated Pest Management's (UC IPM) Cotton Pest Management Guidelines:

- Early Squaring (before 1st flower): 1-2 *Lygus*/50 sweeps
- Mid-Squaring (1st flower - 1st mature boll): 7-10 *Lygus*/50 sweeps, including 1 or more nymph. If retention is higher than expected, you may be able to wait and monitor again that week before making a treatment decision. If retention is lower than expected and *Lygus* are present, consider treating.
- Late Squaring (after 1st mature boll): 10 *Lygus*/50 sweeps, including 1 or more nymph.

The applicable use restriction threshold must be documented on the Notice of Intent.

- The applicator must have the following documents in their possession at the time of the pesticide application:
 - a. DPR issued cover letter, June 13, 2025,
 - b. Transform CA Label (EPA Reg No. 62719-727), specific to this Certificate of Emergency Registration
 - c. Restricted Materials Permit
- Buffer Requirements for any aerial or ground application in California:
 - When applying via aerial application methods, use a 200 foot on-field downwind buffer.
 - When applying via ground application methods, use a 65 foot on-field downwind buffer.

The specified permissible uses and additional use limitations set forth in this Certificate of Emergency Registration establish the only allowed use of sulfoxaflor in California. It is probable that Transform CA will receive Section 3 registration within a year of the date of this Decision. This emergency registration expires October 31, 2025, unless renewed or revoked.

BACKGROUND AND DECISION

Legal Authority

DPR protects human health and the environment by fostering sustainable pest management and regulating pesticide sales and use in California. In addition to federal registration by the United States Environmental Protection Agency (U.S. EPA), pesticides must be registered with DPR before they can be sold or used in California. During DPR's registration process, DPR conducts an extensive review of scientific studies on potential human health and environmental impacts, as well as the overall efficacy of the pesticide.

When a pesticide has been registered by U.S. EPA, but is not yet registered for use in California, pursuant to FAC section 12833, DPR may, notwithstanding any other requirement for the registration of a pesticide, issue a Certificate of Emergency Registration to allow use of the product to address an emergency pest control problem while the California registration is pending. An emergency pest control problem exists if the director finds that a pest infestation is present in the state for which no feasible pest control method is available that is a reasonable

alternative to the use of the pesticide for which the emergency registration is requested. Prior to issuing a Certificate of Emergency Registration, the director must find that the emergency use will not pose a potential significant risk to public health or safety or to the environment and that the emergency registration is necessary to effectively respond to an emergency pest control problem. A Certificate of Emergency Registration only authorizes use of the product for the purposes articulated in the emergency registration certificate and, if necessary, the director shall establish limitations on the use of the product to prevent a potential significant risk to human health or safety or the environment. The emergency registration may not exceed one year, unless renewed, and the director shall immediately revoke the emergency registration if U.S. EPA suspends or cancels the registration of the pesticide or the director subsequently determines that the emergency use of the pesticide will pose a potential significant risk to public health or safety or to the environment.

DPR's registration program is a certified regulatory program (CRP) under the California Environmental Quality Act (CEQA) and exempt from Chapters 3 and 4 and section 21167 of CEQA. DPR's CRP was established by Assembly Bill 3765 in 1979, and includes this Certificate of Emergency Registration, which is a sub-certificate within the regular registration program process, as a complete application for registration must be filed with DPR in order to be eligible for a Certificate of Emergency Registration. The Director's Decision and Order and the Certificate of Registration are exempt from other provisions of DPR's CRP as well as portions of CEQA applicable to DPR's CRP because it is an action necessary to prevent or mitigate an emergency pursuant to Public Resources Code section 21080(b)(4) and California Code of Regulations, title 14 (CEQA Guidelines), section 15269(c).

In an abundance of caution and for maximum transparency, DPR is filing, along with this Director's Decision and Order, a CEQA Notice of Exemption under Public Resources Code section 21080(b)(4) and CEQA Guidelines, section 15269(c) with the Governor's Office of Land Use and Climate Innovation (formerly the Office of Planning and Research).

The requirements for DPR to issue a Certificate of Emergency Registration set forth in FAC section 12833(a), are:

1. The pesticide is currently registered with U.S. EPA pursuant to Section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for the use that is the subject of the emergency.
2. The active ingredient was previously registered under Section 18¹ of FIFRA in order to respond to an emergency pest control problem.

¹ Section 18 of the FIFRA authorizes the U.S. EPA to allow DPR to authorize a time-limited use of a pesticide product (not registered or not registered for a certain use) to address an emergency condition. Section 18 emergency registration exemptions may not exceed one year, except for quarantine purposes.

3. The applicant demonstrates that the pesticide qualifies for registration pursuant to FAC section 12815 and the director determines that it is probable that the pesticide will receive registration by DPR within one year.
4. The applicant for emergency registration submits all data to DPR that is required for registration.
5. The director makes both of the following findings based on substantial evidence:
 - a. The use of the pesticide during the period of emergency registration will not pose a potential significant risk to public health or safety or the environment; and
 - b. The emergency registration of the pesticide is necessary in order to effectively respond to an emergency pest control problem, which is a pest infestation in the state for which no feasible pest control method is available that is a reasonable alternative to the use of the pesticide for which the emergency registration is requested.

Application

On May 16, 2025, CCGGA submitted a complete application for a Certificate of Emergency Registration for Transform CA, containing sulfoxaflor, for use on *Lygus* on cotton. The request is for use of Transform CA as follows:

- Sites to be Treated: Cotton fields in Merced, Madera, Fresno, Tulare, Kings, Kern, Imperial, and Riverside counties.
- Method(s) of Application: Foliar applications made by air or ground
- Rate of Application: Application rates as set forth in the federally registered U.S. EPA label for Transform CA (EPA Reg. Number 62719-727).
- Frequency and Timing of Application:
 - Suggested thresholds are sliding thresholds (Anon, 2015.) This refers to UC IPM Pest Management Guidelines.
 - Early Squaring (before 1st flower, until early June): >1 lygus bug/50 sweeps
 - Until June 15: <2 lygus bugs/50 sweeps
 - June 15-June 30: >2 lygus bugs/50 sweeps
 - Mid-Squaring (1st flower - 1st mature boll, beginning of July): 7-10 lygus bugs (at least 1 nymph) per 50 sweeps and expected or better fruit retention. If retention is higher than expected, you may be able to wait and monitor again that week before making a treatment decision. If retention is lower than expected and lygus bugs are present, consider treating.
 - Late Squaring (after 1st mature boll): 10 lygus bugs/50 sweeps, including the presence of nymphs.

- Maximum Number of Applications: No more than four applications per acre per year, no more than two applications during bloom, and no more than one application of this product during bloom between the period of 6:00 am to 7:00 pm (daytime).
- Anticipated Total Acreage to be Treated: 108,000 acres
- Use Season: The anticipated use of this application would occur as soon as an approval has been granted through October 31, 2025.
- Restricted Entry Interval (REI): No entry into treated areas during the REI for 24 hours.
- Preharvest Interval (PHI): Not to be applied within 14 days of harvest
- Earliest Harvest Date: October 1, 2025
- Additional Restrictions, User Precautions and Requirements, Qualifications of Applicators, etc.:
 - Mandatory notification to all beekeepers registered with the local County Agricultural Commissioner pursuant to 3 CCR 6982 located within 1 mile of treatment area must be sent at least 48 hours in advance of the application in accordance with standard beekeeper notification procedures.
 - Risks to managed and native pollinators from contact with pesticide spray or residues can be minimized when applications are made one hour after sunset to two hours before sunrise or when temperature is below 50 degrees Fahrenheit.

Analysis and Findings

The director has determined that the requirements of FAC section 12833 have been established by substantial evidence submitted by the applicant, evidence previously submitted by Corteva Agriscience (Corteva) in its application for registration of Transform CA, and other evidence as referenced and set forth herein.

1. FAC 12833(a)(1) – Transform CA is currently registered with U.S. EPA for use on cotton

U.S. EPA registered Transform CA (EPA Reg. Number 62719-727), containing the active ingredient sulfoxaflor, for use on cotton on October 7, 2024. This letter is publicly available on U.S. EPA’s Pesticide Product Label System (U.S. EPA 2024a). Therefore, the director finds Transform CA is currently registered by U.S. EPA for use on cotton.

2. FAC 12833(a)(2) – Sulfoxaflor was previously registered under Section 18 of FIFRA

On July 21, 2017, DPR approved the FIFRA Section 18 Crisis request to use sulfoxaflor in California to address *Lygus* on cotton and forwarded the submission to U.S. EPA for review and approval. When U.S. EPA grants a crisis exemption, it is for a limited time period with the ability

to extend the time with a specific exemption. U.S. EPA requires the applicants to submit a specific exemption with additional information. The Section 18 emergency exemption (CA No. 17-02) ultimately expired on October 31, 2017.

On July 21, 2017, DPR approved the FIFRA Section 18 Specific request to use sulfoxaflor in California to address *Lygus* on cotton and forwarded the submission to U.S. EPA for review and approval. The Section 18 emergency exemption (CA No. 17-05) expired on October 31, 2017.

On May 15, 2018, DPR approved the FIFRA Section 18 Specific request to use sulfoxaflor in California to address *Lygus* on cotton and forwarded the submission to U.S. EPA for review and approval. The Section 18 emergency exemption (CA No. 18-02) expired on October 31, 2018.

On May 16, 2019, DPR approved the FIFRA Section 18 Specific request to use sulfoxaflor in California to address *Lygus* on cotton and forwarded the submission to U.S. EPA for review and approval. The Section 18 emergency exemption (CA No. 19-03) expired on October 31, 2019.

The director finds, based on DPR's records, that the active ingredient in Transform CA was previously registered for use in California under FIFRA Section 18.

3. FAC 12833(a)(3) – Transform CA qualifies for registration, and it is probable Transform CA will receive registration within one year

DPR received a complete Section 3 new product registration application for Transform CA (DPR Tracking ID 311002), including all relevant data for the department's determination under applicable statutes and regulations, as of June 7, 2024. Based on initial review of this data, Transform CA appears to qualify for registration, and DPR expects to be able to issue a registration decision for Transform CA within one year of the date of this emergency registration decision. Therefore, based on DPR records, the director finds it is probable that Transform CA will be registered within one year of the issuance of the Order approving this emergency registration. The final determination regarding registration remains pending at this time.

4. FAC 12833(a)(4) – All data to support registration has been submitted

Corteva Agriscience submitted an application to DPR for a section 3 registration of Transform CA, including data to support the section 3 registration, on June 7, 2024. DPR has reviewed the submission and is unaware of data gaps at this time. The director finds that all data to support the Section 3 registration of Transform CA have been received by DPR.

5. FAC 12833(a)(5)(A) The use of Transform CA during the period of emergency registration will not pose a potential significant risk to public health or safety or the environment

The director finds the record contains substantial evidence supporting the conclusion that the use of Transform CA to control *Lygus* on cotton during the limited period of the emergency registration does not pose a significant risk to public health or safety or the environment.

Human Health

The data show Transform CA does not pose a significant risk to public health or safety. All required human health studies for the pending registration of the end-use product Transform CA have been reviewed by DPR pursuant to FAC sections 12824 and 13121–13135 including acute toxicity, primary eye irritation, and dermal sensitization studies for the technical grade active ingredient and the end use product as well as; subchronic and chronic toxicity studies, genotoxicity, reproductive toxicity, developmental toxicity, neurotoxicity, metabolism and endocrine disruptor studies on technical grade sulfoxaflor. In addition, numerous supplemental and non-guideline studies were submitted for sulfoxaflor and its metabolites. All studies were evaluated according to DPR’s Guidance for Toxicity Study and Data Acceptability in Registration Review and Risk Assessment (DPR, 2023). Studies show no mutagenic or genotoxic effects. Potentially significant toxicological effects were noted in animal studies. However, doses used to determine in vivo effects were higher than what would be expected for occupational or post-application exposures when the product is used according to the proposed label. No risks of concern were identified (DPR, 2025a).

Based on the data reviewed, the label specific to the Certificate of Emergency Registration adequately identifies the acute toxicity hazards. The precautionary statements on the label provide the user of the product with information on the toxicity, irritation, and dermal sensitization hazards associated with the use of the product, as well as medical treatment instructions and information to reduce potential exposure to the product. Specifically, the label includes precautionary statements that warn a person this product is corrosive, can cause irreversible eye damage, and is harmful if swallowed. The product label requires users to wear a long-sleeved shirt, long pants, shoes plus socks, and protective eyewear. In addition, the label only allows protected handlers in the area during application. Users are prohibited from making applications that will contact workers or other persons either directly or through drift. To avoid injury, the product label states “do not get in eyes or on clothing.” Furthermore, first aid statements for this pesticide product include brief, simple, and straightforward language so that in an emergency an individual can quickly and easily understand instructions if this product were to get in a person’s eyes or if a person were to swallow this product. DPR found the first aid statements and personal protective equipment requirements adequate to maintain worker safety for the indicated acute toxicity hazards (DPR, 2025b).

In September 2012, U.S. EPA concluded all occupational handler scenarios evaluated to support the federal registration of end-use products containing sulfoxaflor, including use on cotton in its New Active Ingredient Human Health Risk Assessment for Sulfoxaflor (US EPA, 2012). These conclusions are consistent with DPR’s emergency use, which are below U.S. EPA’s level of concern (LOC). In addition, all of U.S. EPA’s post application exposure and risk estimates for use of sulfoxaflor on cotton during harvesting activities were below its LOC. U.S. EPA’s most recent sulfoxaflor human health risk assessment from June 2019 was consistent with earlier assessments and did not identify any occupational risk estimates of concern. Based on these data

and assessments, DPR finds that there is no significant risk to human health from occupational handler exposure associated with the use of Transform CA on cotton if done in accordance with the label instructions (DPR, 2025b) and with further limitations pursuant to this Certificate of Emergency Registration.

Also, in its 2012 Human Health Risk Assessment for use on cotton and the more recent 2019 Human Health Risk Assessment (U.S. EPA, 2019), despite using conservative assumptions, U.S. EPA did not identify any potential significant risks to human health, including all population subgroups, from dietary (food plus drinking water) exposure to sulfoxaflor. Based on U.S. EPA's assessments, DPR finds there is no significant risk to public health or safety from dietary exposure associated with the use of Transform CA on cotton in accordance with the label instructions and limitations pursuant to this Certificate of Emergency Registration (DPR, 2025b). Sulfoxaflor is not currently designated as a toxic air contaminant or regulated as a potential source of volatile organic compounds that may adversely impact the attainment of health-based air quality standards. In addition, the label specific to this Certificate of Emergency Registration contains several mitigation measures intended to reduce the likelihood of this product moving off-site via spray drift to nontarget areas. Specifically, the label contains a mandatory spray drift management requirements section and spray drift advisory language to address droplet size, wind speed, buffer zone, and temperature inversions. These buffer zones further reduce the probability that Transform CA will be present off-field. Therefore, the director finds the emergency registration of Transform CA does not pose a significant risk to human health.

Environment

DPR evaluated the toxicity of Transform CA as well as the potential exposure on the environment anticipated to result from the proposed usage under this registration. Pursuant to FAC section 12824, Corteva previously submitted non-target organism toxicity studies for the pending Section 3 registration of Transform CA that comply with DPR data requirements in Title 3, California Code of Regulations sections 6159, 6187, and 6192. DPR received and reviewed all non-target organism toxicity studies for technical grade sulfoxaflor, as well as non-target organism toxicity studies for the two major metabolites: X-474 and X-061, and honeybee acute toxicity studies for the end-use formulation, Transform CA (DPR, 2025c). DPR also received and reviewed laboratory studies of environmental fate data and terrestrial field dissipation studies designed to represent transformation, transport, and fate of pesticides under actual use conditions in accordance with data requirements specified in FAC section 13143. These studies, in addition to whole plant/crop residue studies, were used to identify major metabolites that are likely to form when sulfoxaflor degrades or transforms in terrestrial and aquatic environments. The data support the conclusions of no significant risk to the categories of flora and fauna as set forth below (DPR, 2025d; DPR, 2025e).

Nontarget Terrestrial Vertebrates (Birds and Mammal Wildlife)

The data show sulfoxaflor is practically nontoxic to birds based on sub-acute dietary exposure, slightly toxic to moderately toxic to birds based on acute oral exposure, and slightly toxic to mammals based on acute oral exposure. The major metabolite X-474 is less toxic than the parent sulfoxaflor and is practically nontoxic to birds and mammals based on acute oral exposure. Metabolite X-061 forms at lower concentrations than sulfoxaflor in whole plant residue studies and it is not expected to be more toxic than sulfoxaflor based on the toxicity data for all metabolites across different taxa being consistently lower than for parent sulfoxaflor.

To evaluate potential exposure risks to terrestrial vertebrates associated with the proposed emergency use of Transform CA in cotton, DPR modeled applications of sulfoxaflor and metabolites X-474 and X-061 using U.S. EPA's Terrestrial Residue Exposure Model (T-REX) version 1.5.2 with conservative assumptions. The T-REX model considers product application directions and environmental fate data to generate on-field estimated environmental concentrations (EECs) of a pesticide on different feed items and then estimates acute and chronic risk quotients (RQs). These RQs are then compared to a level of concern (LOC), a policy tool used by U.S. EPA to interpret the RQ and analyze potential risk to nontarget organisms and the need to consider mitigation. After reviewing the modeling results and considering the conservative assumptions of the model, DPR finds there is no significant population level risks to birds and small mammals from use of Transform CA on cotton when Transform CA is used in accordance with the label instructions and limitations pursuant to this Certificate of Emergency Registration (DPR, 2025c). DPR also does not expect exposure to the metabolites X-061 and X-474 to result in any significant population level risks to non-target wild birds and mammals when Transform CA is applied to cotton. The director finds there is substantial evidence to support the conclusion that the emergency registration of Transform CA does not pose a potential significant risk to nontarget terrestrial vertebrates.

Nontarget Terrestrial Invertebrates – Bees and Other Pollinating Insects

DPR determined that there is not a significant colony-level risk to bees or other pollinating insects from any of these other potential exposure routes when Transform CA is used pursuant to this emergency registration decision and all other applicable laws and regulations. Honeybees and commercial pollinators are not endangered in California, and so the loss of individuals in a non-protected species would not be considered a potentially significant impact. However, a project that causes a species-wide impact that threatens the existence of a non-listed species could arise to the level of a significant impact. Potential impacts to these and other pollinators are evaluated by assessing the studies described in this section. DPR notes Transform CA's label advises users to notify known beekeepers within 1 mile of the treatment area 48 hours before the product is applied and has other pollinator avoidance conditions. These impacts are considered when evaluating whether the registration poses a potential significant risk to nontarget terrestrial invertebrates.

Toxicity to bees and other pollinators is characterized using honeybees (*Apis mellifera*) in acute contact and oral exposure laboratory studies where bees make physical contact with and consume specific doses of a test substance. Honeybees are used as a surrogate species for other *Apis* and non-*Apis* bees and other insect pollinators. Sulfoxaflor is highly toxic² to adult honeybees based on acute contact and oral exposure and moderately toxic to larval honeybees based on acute exposure. Based on acute oral exposure, the major metabolite X-474 and the plant metabolite X-061 are practically nontoxic to adult honeybees and are less toxic than sulfoxaflor. DPR conducted a more detailed assessment of risk to honeybees to evaluate potential impacts to honeybees.

To further evaluate the effects of Transform CA on bees outside of a laboratory and in an environment that more closely reflects real world exposures, DPR reviewed Tier II colony-level data including semi-field tunnel studies with honey bee colonies, colony feeding studies, and crop residue studies to evaluate the potential risks of the emergency use of Transform CA on cotton to honey bees. Tier II studies focus on evaluating the potential risks from what is considered the predominant routes of exposure, consumption of nectar and pollen, and direct contact with pesticide spray, via the target crops. DPR determined, based on its assessment of Tier II colony feeding studies, that the 10-day colony feeding no observed effect concentration (NOEC) is 0.47 milligram (mg) active ingredient (AI)/kilogram (kg). To evaluate potential risks to bees and other pollinating insects from consumption of sulfoxaflor in cotton nectar, DPR compared measurements from a crop residue study in cotton to the honeybee colony feeding NOEC. Cotton pollen is not bee-attractive (USDA, 2017); therefore, residue concentrations were only assessed in sampled nectar. After a single application at the maximum label rate of 0.07 lbs. AI/acre (A) in cotton, the data show there are no nectar residue exceedances of the colony feeding NOEC of 0.47 mg AI/kg except for one sample at eight days after the last application with a concentration of 0.54 mg AI/kg. Although the concentration measured in this single sample is above the colony feeding NOEC, colonies that were exposed to residues higher than 0.54 mg AI/kg of sulfoxaflor in pollen and nectar during a Tier II semi-field tunnel study showed no colony-level effects. Colonies in this semi-field tunnel study recovered after three days of higher oral exposure, indicating that the one day of exceedance in the cotton residue study is not expected to result in long term colony-level effects. Based on this substantial evidence, the director finds that there is no significant colony-level risk from oral exposure to sulfoxaflor concentrations in cotton nectar from use of Transform CA pursuant to this emergency registration.

Based on Tier II tunnel studies in which sulfoxaflor was applied while bees were actively foraging on blooming crops and exposed to direct contact spray, colony-level impacts are not expected after exposure to direct contact spray from the allowed applications during bloom of sulfoxaflor at 0.071 lbs. AI/A, which is the maximum single application rate for Transform CA

² An active ingredient is categorized as “highly toxic” to bees if the lethal environmental concentration that kills 50% of the test population is <2 µg /bee.

allowed on cotton pursuant to this emergency registration. In addition, Transform CA has an RT₂₅ (residual time to 25% mortality; the length of time over which field weathered foliar residues remain toxic to honeybees) of less than three hours on foliage to honeybees. Therefore, any applications made while bees or other pollinating insects are not actively foraging, as directed on the label, are not expected to result in colony-level effects. Label language does not allow more than two applications during bloom, and only one of those can be made during the daytime when bees are normally active. Accordingly, DPR determined that there is not a significant colony-level risk to bees and other pollinating insects from direct contact exposure with Transform CA when Transform CA is used on cotton pursuant to this emergency registration (DPR, 2025c). DPR also evaluated other potential exposure routes for pollinators, including through successive plantings of cotton crops on a previous treated field, exposure from drift if blooming weeds or wildflowers are present within areas adjacent to a treated field, exposure from foraging on blooming weeds present within a treated field, and exposure from contaminated drinking water sources such as surface water and guttation fluid. DPR determined that there is not a significant colony-level risk to bees or other pollinating insects from any of these other potential exposure routes when Transform CA is used pursuant to this emergency registration decision and all other applicable laws and regulations. The Tier I and Tier II studies on honeybees provide substantial evidence to conclude that none of the reasonably predictable pathways of exposure for terrestrial invertebrate pollinators from use of Transform CA pursuant to this emergency registration will pose a potential significant risk to pollinator terrestrial invertebrates (DPR, 2025c).

Nontarget Terrestrial Invertebrates – Beneficial Terrestrial Invertebrates

DPR evaluated studies relating to beneficial terrestrial invertebrate toxicity and exposure for sulfoxaflor and found that sulfoxaflor is toxic to parasitic wasps and ladybird beetles when sprayed at the application rates allowed for use on cotton. Beneficial terrestrial invertebrates include parasitic wasps and ladybird beetles, which are both commercially available and naturally present throughout California. However, no species of parasitic wasp or ladybird beetles are candidate or listed species protected under the federal or California Endangered Species Act. Harm to individuals of an abundant, non-threatened species is not considered a significant impact. Since these beneficial terrestrial invertebrates are not species identified by state or federal laws as endangered or threatened, the infrequent and short duration of impacts to individual members of these species would not pose a significant risk to these species' populations.

Earthworms may be exposed to sulfoxaflor and the soil metabolite X-474 in soil from foliar applications that are not intercepted by crop foliage. DPR received and evaluated data to assess acute risk to earthworms. The estimated soil concentration of sulfoxaflor after a single application at the maximum rates is 57 times smaller than the LC50 (concentration lethal to 50% of test subjects) for this earthworm. Additionally, sulfoxaflor is not persistent in soil and,

therefore, is not expected to accumulate in soil after multiple single applications. The soil metabolite X-474 is very persistent in soil; however, it is over 1000 times less toxic than the parent compound. As a result, DPR finds that exposure to sulfoxaflor or X-474 from the use of Transform CA on cotton during the period of emergency registration will not pose a potential significant risk to soil-dwelling earthworms or other beneficial terrestrial invertebrates.

Therefore, the director finds the evidence supports the conclusion that the emergency registration of Transform CA under the conditions established in this Decision will not pose a potential significant risk to non-target terrestrial invertebrates (DPR, 2025c).

Nontarget Aquatic Organisms and Surface Water Quality

U.S. EPA's Biological Evaluation (BE), dated March 27, 2023, evaluated exposure pathways of Transform CA's active ingredient, sulfoxaflor, through water and air, and evaluated the impacts of the labeled use of Transform CA on water quality and air quality using scientifically relevant and verifiable tools including AgDRIFT and Pesticide in Water Calculator (PWC) (U.S. EPA, 2023). Based on the submitted data and these reliable modeling methods, U.S. EPA concluded that sulfoxaflor will not pose significant risks to water or air resources.

DPR agrees the use of Transform CA will not create a potential significant risk to water resources or the air in the counties where Transform CA use is permitted by this emergency registration. The product label directs users to "not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark." It also states "[d]o not contaminate water when disposing equipment washwaters."

Aquatic organisms may be exposed to sulfoxaflor through drift and runoff from applications of Transform CA on cotton. Additionally, aquatic organisms may be exposed to the major metabolite X-474 from field runoff or formation within the aquatic environment. Sulfoxaflor is practically nontoxic to fish and ranges from practically nontoxic to highly toxic to aquatic invertebrates based on acute exposure. The major soil and aquatic metabolite X-474 is less toxic than the parent compound and is practically nontoxic to fish and aquatic invertebrates based on acute exposure (DPR, 2025c). DPR used the Pesticide in Water Calculator (PWC) version 3.000 to model the potential for sulfoxaflor and the major metabolite X-474 to reach an aquatic environment and potentially pose risks to nontarget aquatic organisms from the use of Transform CA on cotton through these exposure routes.

The PWC simulates pesticide applications to land surfaces and the pesticide's subsequent transport to and fate in waterbodies, including surface water bodies and simple groundwater aquifers, to determine EECs. Using the simulated EECs from the PWC model and toxicity data from the most sensitive aquatic vertebrate and invertebrate species, DPR staff calculated RQs to screen for potential significant risks to nontarget aquatic organisms from use of Transform CA on cotton. The RQs are then compared to U.S. EPA's established LOC. For sulfoxaflor, RQs for fish, water column invertebrates, and benthic invertebrates were all below their respective acute and

chronic LOCs, indicating no significant adverse acute or chronic risks to aquatic organisms. For the major metabolite X-474, RQs for fish and water column invertebrates are below their respective acute and chronic LOCs. However, the chronic RQ for benthic invertebrates in sediment is 1.096, only slightly exceeding the chronic LOC of 1. Nonetheless, DPR determined this slight exceedance does not indicate potential significant risks from exposure to this metabolite because the chronic RQ for benthic invertebrates is based on multiple conservative inputs that overestimate exposure and toxicity. The director finds the use of Transform CA on cotton pursuant to the emergency registration will not pose a potential significant risk to nontarget aquatic organisms (DPR, 2025c). The director finds that substantial evidence, in the submitted data, the U.S. EPA assessment, and through reliable modeling, supports the conclusion that use of Transform CA in accordance with applicable label instructions and limitations pursuant to this Certificate of Emergency Registration will not pose a potential significant risk to surface water quality.

Groundwater

To analyze potential risk to groundwater, DPR assessed environmental fate data and the groundwater contamination potential of sulfoxaflor and major metabolite X-474 by reviewing terrestrial field dissipation (TFD) studies and performing numerical modeling exercises to estimate the potential for sulfoxaflor to leach into groundwater at a hypothetical well. TFD studies are designed to represent the transformation, transport, and fate of pesticides under actual use conditions. These field studies substantiate the physical-chemical and environmental properties observed in laboratory studies used to establish significant numerical values³ (SNVs). DPR's groundwater analysis focused on the fate and movement of sulfoxaflor and the major metabolite, X-474. DPR's Leaching Estimation and Chemistry Model (LEACHM) model simulated the fate and transport of sulfoxaflor and X-474 in the soil root zone. Using residue output from LEACHM to estimate concentrations in a hypothetical well, DPR predicted that sulfoxaflor and X-474 residues will not be detectable at significant levels in groundwater. DPR also used HYDRUS-1D, a Microsoft Windows-based modeling environment for analysis of water flow and solute transports, to simulate residue concentrations of both sulfoxaflor and X-474 in water samples over a period of time. DPR's modeling predicted there is no significant potential for sulfoxaflor to contaminate groundwater and that it is highly unlikely that concentrations of X-474 will be greater than DPR's reporting level of 0.05 microgram (μg)/ liter (L) (DPR, 2025e). The director finds, based on this substantial evidence, that use of Transform CA pursuant to the emergency registration will not pose a potential significant risk to groundwater quality.

³ DPR established threshold value for assessing groundwater leaching potential.

Endangered and Threatened Species

The U.S. EPA's BE fully analyzed the potential for Transform CA to impact any federally protected plant or animal species (U.S. EPA, 2023). The BE reviewed the data establishing toxicity endpoints, and other data describing the routes of potential exposure to non-target organisms, from direct spray, drift, and runoff. The BE relies on scientifically valid model-based evaluations using conservative assumptions, and additional exposure considerations to identify potential adverse effects to terrestrial and aquatic wildlife from sulfoxaflor and its major metabolites: X-474 (in soil and water) and X-061 (in plants). In U.S. EPA's September 2024 Endangered Species Act Section 7(d) Consistency Determination, U.S. EPA concluded that with implementation of buffer zones to mitigate potential offsite drift in 51 counties in California, all impacts to federally listed species from the labeled use of Transform CA on all approved crops, including cotton, would be less than significant (U.S. EPA, 2024b).

As stated earlier, DPR does not expect use of the product, Transform CA, on cotton in accordance with applicable label instructions and limitations pursuant to this Certificate of Emergency Registration, to pose a potential significant risk to nontarget fauna. In addition, the limited duration through October 31, 2025, of this emergency registration and acreage restrictions for use only on cotton fields within the counties of Merced, Madera, Fresno, Tulare, Kings, Kern, Imperial, and Riverside further reduce potential impacts to nontarget wildlife (U.S. EPA, 2024b). Moreover, DPR is imposing the same mandatory buffer zones that are imposed by the U.S. EPA to protect federal listed species in Imperial County, which is one of the counties not subject to U.S. EPA's imposed mandatory buffer zones, to further reduce any potential risk to any nontarget wildlife, including California listed species.

In summary, based on the evaluated scientific evidence described above, the director finds that the use of Transform CA on cotton in accordance with all applicable label instructions and use limitations during the period of this emergency registration will not pose a potential significant risk to the human health or safety or the environment.

6. FAC 12833(a)(5)(B) – An emergency registration of Transform CA is necessary to effectively respond to an emergency pest control problem

a) An Emergency Pest Control Problem Exists in Eight California Counties

Cotton is grown in Merced, Madera, Fresno, Tulare, Kings, Kern, Imperial, and Riverside counties, and amounts to roughly 120,000 cultivated acres. California's cotton industry has been facing ongoing *Lygus* infestations over the past two years. Due to *Lygus*' natural feeding behavior, young, sensitive cotton plants are often damaged and rendered economically unviable. Tolerance for damage from *Lygus* is very low in cotton. *Lygus* can threaten a cotton crop from earliest fruit set through flowering and final boll set by piercing squares, damaging anthers and other tissue, and feeding and destroying terminal meristems. Overwintering *Lygus* will lay eggs on host plants that typically hatch in spring. *Lygus* have a wide host range of over 200 plants,

including many crops and weeds that grow nearby cotton fields under typical winter temperatures. When weedy fields and orchards are located near cotton, *Lygus* will migrate into cotton fields as weeds begin to dry out in June, when cotton fruiting is most susceptible. In addition, as nearby crops are prepared for harvest, *Lygus* will migrate from neighboring crops into cotton fields. Therefore, California's cotton industry must be able to immediately apply Transform CA upon detection of *Lygus* at the economic threshold to prevent or mitigate significant cotton damage and losses.

When large *Lygus* populations are present, the repeated use of currently available pesticide products does not provide the levels of needed control to avoid significant crop damage and yield loss. This is, in part, due to the decreased effectiveness of many available pesticides, such as pyrethroids and organophosphates, on pesticide resistant populations. In addition, as a result of their repeated use, the likelihood of *Lygus* populations to further develop pesticide resistance increases, compounding these negative effects. Pesticide Use Report (PUR) data from the 2023 season, the most recent year in which DPR published its annual PUR, confirms a significant increase in use of broad-spectrum insecticides in cotton, presumably for control of *Lygus*. Yet, despite this increase in use, California cotton growers still saw significant yield reductions in 2023 suggesting available pesticide products do not effectively control *Lygus* infestations (California Department of Food and Agriculture (CDFA), 2025).

According to the CCGGA, *Lygus* population levels have become increasingly unmanageable in recent years, so much so that some growers have previously reported up to 50% of plant losses in some fields, leading to these areas of land being abandoned altogether. Pesticide use reports for 2023 reveal high pesticide use on cotton indicating a *Lygus* infestation. Data for the 2024 growing season is not yet available, but reliable anecdotal evidence indicates the *Lygus* infestation continued to be present in 2024 and DPR reasonably expects it to continue for the 2025 growing season. An emergency registration for use of Transform CA in these eight counties is necessary to avert significant economic losses by the California cotton industry when the *Lygus* infestation exceeds the economic threshold levels outlined by UC IPM, as stated above. According to the CCGGA, roughly 108,000 acres of cotton across the impacted counties covered in this emergency registration will need to be treated to control *Lygus* bugs, totaling around 90% of all planted cotton acreage.

Cotton growers have been unable to control, as recently as 2023, outbreaks of *Lygus* with available chemical and non-chemical pest control options, leading to significant cotton yield and economic losses. The financial impacts of these losses are illustrated in an economic analysis developed by CDFA that not only looked at recorded losses for Pima cotton yields in 2023, but also examined how the losses would have been reduced with the availability of sulfoxaflor. In CDFA's analysis it was reported that, "...despite increased use of broad-spectrum insecticides in 2023, average Pima cotton yields decreased from 1558 lb/acre in 2022 to 1346 lb/acre in 2023, representing a 13.6% yield reduction and demonstrating the current management strategies did not control *Lygus* in an outbreak year. Assuming that the registration of sulfoxaflor would have

fully prevented this yield loss from occurring and that prices for Pima cotton were at their peak of \$2.35/lb, the value of Pima cotton production in 2023 would have increased from \$259.3 million to \$300.2 million, a gain of \$40.9 million.” (CDFA, 2025).

PUR data from 2023 demonstrate high pesticide use on cotton indicating that *Lygus* continued to be present, and increasingly resistant to existing pesticides, necessitating more frequent and greater quantity of pesticide applications (CDFA, 2025). Additionally, due to the cancellation of the insecticide chlorpyrifos in 2020 and recent regulatory changes in California limiting the use of neonicotinoid insecticides in certain agricultural commodities, cotton growers have lost access to critical pesticide applications that have previously been relied upon to address *Lygus* infestations.

Testimonials provided from certified Pest Control Advisors (PCAs) who evaluate field-specific pest conditions regularly and advise growers on treatment strategies describe the growing need for additional pesticides to combat the *Lygus* infestations they have faced for the last two years. PCAs note that *Lygus* infestations were persistent and damaging despite use of available pesticides and that the available pesticides were unable to fully repress large populations of *Lygus*. This has led to pesticide applicators applying several applications of broad-spectrum, less effective pesticides that are available to treat *Lygus* to try to combat the infestations.

Additionally, their control efforts have also been further curtailed in that they need to reserve at least one application of several of the available products used on cotton (Sefina Inscalis, Carbine 50WG, and Sivanto) to treat whitefly and aphids later in the season. These reserved applications are critical in times of heavy *Lygus* infestations because whitefly and aphid populations tend to be higher when there is heavy reliance of broad-spectrum pesticides to control *Lygus*.

Additionally, cotton growers in several counties are beginning to report monitoring data showing *Lygus* counts are over the economic threshold for the 2025 growing season (CCGGA).

The director finds the evidence establishes that a *Lygus* infestation has been present in California for the past two years and is still present for the 2025 growing season based on evidence described by CDFA, testimonial evidence of pesticide usage in the two most recent growing years, and *Lygus*' ability to persist between growing seasons. If *Lygus* exceeds the earliest threshold levels outlined above, the immediate use of Transform CA will be necessary to prevent or mitigate significant economic losses.

b) Currently available pest control methods that are ineffective against the *Lygus* infestation in cotton or that are otherwise not reasonable alternatives

For purposes of establishing an emergency pest control problem under the Food and Agricultural Code, a pest infestation must exist in California for which no feasible pest control method is available that is a reasonable alternative to the use of Transform CA. (See Food & Agr. Code, § 12833, subd. (a)(5)(B).) Under California Code of Regulations, Title 3, §section 6000, a "feasible alternative" is defined as “other chemical or non-chemical procedures which can reasonably accomplish the same pest control function with comparable effectiveness and reliability, taking

into account economic, environmental, social, and technological factors and timeliness of control.”

Transform CA serves the pest control function of an additional pesticide that is effective against *Lygus* that can replace one to four applications of currently available pesticides to reduce the development of resistance and to reduce the amount of other pesticides that may have greater impacts to human health or the environment.

As described in detail below, neither chemical or non-chemical pesticides available for use on *Lygus* infestation in cotton will be as effective as Transform CA because Transform CA adds an additional product for use up to two times per growing season during bloom and does not have the reduced efficacy or application limits these other chemistries face.

Non-Chemical Alternatives

Non-chemical alternatives are either not effective to avert the infestation or not reasonable to mitigate and avoid the crop losses attributable to *Lygus* infestation. This is due to several factors outlined below in the following sections.

Weed Management:

Lygus migrate to cotton fields from other hosts; as a result, area wide weed management, when possible, may help mitigate *Lygus* before they move into cotton (Goodell et al, 2012; Carrière et al, 2012). The current UC IPM Cotton Pest Management Guidelines suggest checking weeds surrounding cotton fields, nearby alfalfa fields, and other nearby crops (Barlow et al, 2015).

However, weed management is not effective at keeping *Lygus* below economic thresholds, and instead serves only to prevent off-field population growth. Often the grower does not have control over weed management in the areas surrounding a cotton field. For example, areas surrounding cotton fields include right of ways, highways, or “natural areas” that are controlled by respective county, state, or federal agencies. Additionally, growers themselves may not have access to or the resources to manage the surrounding areas. Furthermore, even if a grower had access to the areas surrounding a cotton field, *Lygus* may reach winged adult stage and migrate before the weeds can be controlled. For these reasons, cultural practices, such as weed management, is not an effective method of treating *Lygus* infestation.

Biological Controls:

Biological control methods for *Lygus* include the use of natural predators, such as bigeyed bugs, minute pirate bugs, parasitic wasps, and other general predators. Biological control methods for *Lygus* are similarly ineffective at controlling *Lygus* above economic thresholds. While biological controls may be relied upon when *Lygus* populations are low, when there is a *Lygus* infestation, the repeated use of broad-spectrum insecticides (organophosphates, carbamates, pyrethroids, and neonicotinoids) necessary to control *Lygus* inadvertently impacts natural enemies to *Lygus* and

other pests. Therefore, when *Lygus* levels necessitate use of a broad-spectrum insecticides, biological controls are not effective alternatives.

Chemical Alternatives

In the past, routine populations of *Lygus* in cotton have been managed by the use of non-chemical practices and currently registered chemical pesticides, including organophosphate, carbamate, neonicotinoid, and pyrethroid insecticides.

However, when *Lygus* infestations occur, regular treatments with currently registered chemical pesticides have little impact on reducing *Lygus* infestations below the economic threshold described above. Even with multiple pesticide applications, growers have noted little success in mitigating *Lygus* damage that occurs in cotton, as seen in 2023.

Lygus are increasingly resistant to chemical pesticides, including organophosphate, carbamate, and pyrethroid insecticides, and the UC IPM recommends spraying as few times as possible and rotating between insecticides with a different mode-of-action group number to slow the development of resistance.

Moreover, while currently registered pesticides typically work under low to moderate pest pressure, currently registered pesticides are not effective against the *Lygus* infestations that have occurred in recent years. CDFA reported a roughly 20% decline in the total harvested acreage of cotton in the state despite significant increases in the use of available insecticides on cotton, indicating the limited and decreasing efficacy of currently registered pesticides on *Lygus*. Alternative currently registered pesticide active ingredients such as indoxacarb and novaluron suppress *Lygus* populations and are effective at low populations (5-10 *Lygus* per 50 sweeps) but are not effective in controlling adult *Lygus*. Flonicamid provides good control of *Lygus*, however, its use is limited to three applications. This restriction does not allow growers to have effective control for the entire growing season, which typically spans April to November. In addition, flonicamid is used to treat aphid populations that show up later in the season, and growers typically need to reserve at least one application for control of aphids. Afidopyropen is also effective at suppressing *Lygus* populations. However, afidopyropen has been found to be generally more effective on nymphs than adults (Grettenberger and Pierce, 2021). While it is not immediately lethal to nymphs, if they come in contact with the insecticide spray, they will stop feeding and eventually die, due to the mode of action of afidopyropen which disrupts the feeding behavior of sucking insects (Palumbo, 2024). By comparison, adults are not controlled very well by afidopyropen, as noted by Grettenberger and Pierce. This lack of efficacy on adults is likely because of their greater mobility and their ability to avoid contact with the spray and treated surfaces of the plant, allowing adult *Lygus* to persist. In addition, due to limitations on the allowable number of applications per season, reliance on afidopyropen earlier in the season to control nymphal stages makes the chemical unavailable later in the season for control of aphid and whitefly.

In summary, during the 2023 season, *Lygus* populations found in cotton during initial fruit development far exceeded economic thresholds for the grower to take effective, early action.

Regular treatments with existing chemical alternatives were not effective at controlling the *Lygus* infestation. Accordingly, growers made multiple re-applications of currently registered insecticides. Even with multiple applications throughout May to June of 2023, an affected grower noted minimal mitigation of *Lygus* following multiple pesticide applications of various products. The director finds, based on PUR data, CDFA's reasonable analysis (CDFA, 2025), and reliable anecdotal evidence of pesticide usage by individual growers and/or pesticide consultants for the past two growing seasons, as well as the usage and effectiveness of currently approved pesticides for *Lygus*, that, currently registered chemical pesticides are comparatively ineffective and/or not a reasonable alternative to Transform CA to effectively respond to the demonstrated, multi-year *Lygus* infestation.

An in-depth summary of why each available registered pesticide has been found to not be effective at managing *Lygus* infestations or otherwise not a reasonable alternative is included below.

Insect Growth Regulators (IGRs):

Novaluron: Novaluron works by disrupting the normal growth and development of immature insects and has no effect on adult *Lygus*. Novaluron is not as effective for *Lygus* infestations because it can only suppress *Lygus* populations by 60%. At normal populations levels, novaluron can be useful. However, after treatment with novaluron for recent *Lygus* infestations, *Lygus* population densities were still well above suggested economic thresholds in UC IPM's Cotton Pest Management Guidelines.

Neonicotinoids:

Neonicotinoids can pose risks to bee colony health. To mitigate this potential impact, DPR significantly restricts use of neonicotinoids through application method and rate restrictions, application timing restrictions, and seasonal application rate caps, including prohibiting use of neonicotinoids during bloom. (Cal. Code Regs., tit. 3, 6990.10.). In contrast, two applications of Transform CA may be made to cotton during bloom.

Imidacloprid + Beta-Cyfluthrin: Regulatory restrictions have significantly limited growers' use of products containing neonicotinoids such as imidacloprid. In addition, this pre-mix insecticide product has reduced efficacy on *Lygus* when repeated applications are made due to resistance development.

Clothianidin: Regulatory restrictions have significantly limited growers' ability to use products containing clothianidin. Unless the pesticide application is exempt from regulations in accordance with Cal. Code Regs., tit. 3, 6990 (c), the use of products containing the active ingredient clothianidin is prohibited on cotton.

Nicotinoamide Inhibitor:

Fonicamid: This active ingredient provides good control of *Lygus*, however, its use is limited to three applications. This restriction does not allow growers to have effective control for the entire season when there are *Lygus* infestations. In years where growers see *Lygus* populations over the

economic threshold, growers tend to use up two applications of flonicamid early in the season, as seen in 2023, without much success in reducing the *Lygus* population. Additionally, growers tend to reserve one application of flonicamid for later in the season to treat aphids because these pests also cause significant economic damage to cotton if not controlled (UC IPM).

Organophosphates and Carbamates:

Several notable organophosphates, including parathion and chlorpyrifos, have been discontinued for use based on their linkage to serious health risks and environmental concerns. Additionally, concerns regarding secondary pest outbreaks, pesticide resistance, and increasing regulatory restrictions have led to a growing interest in alternatives to organophosphates and carbamates.

Dimethoate: While effective against *Lygus*, dimethoate is a broad-spectrum pesticide that can negatively impact on non-target beneficial insects that can lead to spider mite outbreaks later in the growing season. Additionally, dimethoate is only available for two applications on cotton per growing season and is often tanked mixed with pyrethroids. Therefore, it may not be available later in the season to combat other pest outbreaks if all applications have been utilized early on to mitigate *Lygus*. Dimethoate also can have negative human health impacts on workers in neighboring fields and has a worker reentry interval of 48 hours. Moreover, use of dimethoate can lead to levels of the pesticide being detected in drinking water beyond what is considered appropriate by water quality standards.

Acephate: Acephate is a broad-spectrum insecticide that can also negatively impact non-target beneficial insects leading to spider mite outbreaks later in the season. It also is more effective on nymphs than on adult *Lygus*. Additionally, *Lygus* resistance to acephate has been reported in Arizona.

Oxamyl: Oxamyl is another broad-spectrum material that is used to target *Lygus*. It also does not conserve natural enemies, leading to outbreaks of other pests. In addition, oxamyl only controls resident *Lygus* nymph populations; it is not as effective against migratory *Lygus* adults.

Oxadiazines:

Indoxacarb: Indoxacarb only suppresses *Lygus* populations by 60-70%. At normal population levels indoxacarb is useful. However, after treatment with indoxacarb for recent *Lygus* infestations, growers were still reporting *Lygus* populations well above suggested economic thresholds in UC IPM's Cotton Pest Management Guidelines.

Pyrethroids:

Over reliance on pyrethroids to control pests can cause sediment contamination. In addition to having increased risks for the environment, pyrethroids have been losing their effectiveness on *Lygus* due to resistance development. Research done by the late Entomologist Dr. Larry Godfrey, University of California, Davis, has shown that multiple applications of pyrethroids increased *Lygus* resistance to pyrethroids.

Bifenthrin, Zeta-Cypermethrin, and Lambda-Cyhalothrin: PCAs are reporting that these three pyrethroids have reduced efficacy in controlling *Lygus* when a second application is made. Furthermore, use of these three pyrethroids is limited to three applications each per season and requires the highest application rate in arid environments and during heavy *Lygus* pressure. Pyrethroids are broad spectrum insecticides and multiple applications in individual fields have resulted in secondary outbreaks of aphids and spider mites due to a reduction in natural enemies. Pyrethroids also are continuously evaluated by DPR for sediment runoff into surface water and are currently under ecological review at the U.S. EPA.

Pyropenes:

Afidopyropen: Afidopyropen is effective on the nymphal stages of *Lygus*. However, it is not as effective against later instar nymphs, (4th and 5th instar) and adults. Moreover, because afidopyropen is not systemic throughout the cotton plant, new growth is not protected with an insecticidal barrier and is vulnerable to *Lygus*. In addition, due to limitations on the allowable number of applications per season, reliance on afidopyropen earlier in the season makes it unavailable for control of aphid and whitefly, which is critical later in the season.

c. Transform CA Is Efficacious Against the *Lygus* Infestation in Cotton

The active ingredient of Transform CA, sulfoxaflor, has a history of demonstrated efficacy against *Lygus* in cotton. California growers had several years of experience with sulfoxaflor under previous Section 18 applications that saw marked reduction in *Lygus* populations and associated crop damage. Collected PUR from previous expired Section 18 Emergency Exemptions spanning from 2017 to 2019 repeatedly garnered reports of excellent efficacy following the usage of sulfoxaflor to control *Lygus* infestations in California cotton fields. There have also been many years of recorded use in Arizona where sulfoxaflor, in conjunction with flonicamid, has been a critical and effective tool that has enabled cotton growers to effectively address *Lygus* infestations. In addition, sulfoxaflor's reported selectivity may help provide efficacy on *Lygus* mediated with the presence of natural enemies. Additional studies conducted at Washington State University in 2023 (Walsh, 2023) also show that of several pesticides available for the control of *Lygus* currently, sulfoxaflor was found to provide the greatest residual control in alfalfa plots, particularly in comparison to the insecticides afidopyropen and flonicamid that better address *Lygus* nymphs. This summary of evidence establishes that sulfoxaflor, the active ingredient in the pesticide Transform CA being registered under this emergency certification, is effective against *Lygus* on cotton.

7. FAC 12833(b) – Use limitations on Transform CA necessary to avoid potentially significant risk to human health or the environment

Consistent with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), section 24(a), pursuant to FAC section 12833(b), at the same time the director issues a certification of emergency registration, the director shall establish limitations on use of the pesticide that are determined necessary to prevent a potential significant risk to human health or safety or the

environment. By regulation, any pesticide used under an “emergency exemption” issued pursuant to Section 18 of FIFRA is designated as a restricted material. (Cal. Code Regs., tit. 3, § 6400, subd. (b).) Prior to use or possession of a restricted material, with limited exceptions, applicators are required to, among other things, obtain a permit from the local county agricultural commissioner. The purpose of this additional oversight by county agricultural commissioners is to ensure there is no misuse of a pesticide pending full evaluation of impacts even when the evidence likely establishes safe general use of a pesticide. Similarly, pending the full, anticipated registration of Transform CA under the registration application submitted by Corteva, the director has determined it is necessary, in order to prevent potential risks to public health or safety or the environment associated with misuse, to impose use limitations under this Certificate of Emergency Registration.

The director hereby establishes that the product, Transform CA, may only be applied in accordance with the Certificate of Emergency Registration. All applicable directions for use, restrictions, precautions, and Worker Protection Standards on the DPR-stamped accepted label for cotton must be followed, in addition to any restrictions or conditions listed in this Director’s Decision and Order; Certificate of Emergency Registration and Establishment of Use Limitations.

The director also establishes that a restricted material permit must be obtained from the associated local County Agricultural Commissioner prior to use of Transform CA. The permit shall state the maximum number of acres to be treated, maximum amount of product that may be applied, and dealer from which the product may be purchased. The purchaser (permittee) or purchaser’s (permittee’s) agent must provide the seller, or person delivering the product, a copy of the permit on the date the product is delivered. The dealer shall maintain a record of each sale, which shall be made available to representatives of DPR or County Agricultural Commissioner upon request. Such records shall include the date of sale or delivery, permit number, identity and amount of product purchased, and the name of the purchaser. The director further establishes that all applications of this product shall be made by or under the supervision of a certified applicator certified for this category of pest control. Agricultural pest control businesses shall submit a pesticide use report to the County Agricultural Commissioner within seven days of each treatment. Growers who apply this material shall submit a pesticide use report to the County Agricultural Commissioner by the 10th day of the month following the month in which the applications were made. These limitations will enable DPR to effectively track use of the product and ensure that impermissible use beyond the scope of this Certificate of Emergency Registration does not occur. These limitations are consistent with the requirements applicable to FIFRA Section 18 emergency exemptions which previously allowed for effective use of sulfoxaflor in California without significant environmental impact.

The director also establishes that prior to applying Transform CA on a particular field, a Notice of Intent must be submitted to the local County Agricultural Commissioner and the following applicable use restriction threshold as consistent with suggested economic thresholds in UC IPM's Cotton Pest Management Guidelines must be met:

- Early Squaring (before 1st flower): 1-2 *Lygus*/50 sweeps.
- Mid-Squaring (1st flower - 1st mature boll): 7-10 *Lygus* (at least 1 nymph) per 50 sweeps and expected or better fruit retention. If retention is higher than expected, you may be able to wait and monitor again that week before making a treatment decision. If retention is lower than expected and *Lygus* are present, consider treating.
- Late Squaring (after 1st mature boll): 10 *Lygus*/50 sweeps, including the presence of nymphs.

The applicable use restriction threshold must be documented on the Notice of Intent. This will ensure Transform CA is used only upon confirmation that the *Lygus* infestation is likely to result in severe economic harm.

The director also imposes the following buffer requirements for any aerial or ground application in Imperial County, California, which are consistent with the buffer requirements established by Transform CA's label for the other seven counties affected by this Order:

- When applying via aerial application methods, use a 200 foot on-field downwind buffer
- When applying via ground application methods, use a 65 foot on-field downwind buffer

U.S. EPA established these mandatory buffer zones only in Pesticide Use Limitation Areas to ensure that use of Transform CA would not adversely impact federally endangered or threatened species. The director is expanding this buffer zone requirement to any application of Transform CA to provide protection for California endangered, threatened and candidate species that may be near the use site.

Finally, the director establishes that the applicator must have the following documents in their possession at the time of the pesticide application:

- a. DPR-issued cover letter, June 13, 2025,
- b. Transform CA Label (EPA Reg No. 62719-727), specific to this Certificate of Emergency Registration
- c. Restricted Materials Permit

This will further promote use of Transform that is consistent with all applicable directions, restrictions, and limitations.

Director's Decision and Order

The director approves the emergency registration of Transform CA based on the following:

1. On May 16, 2025, DPR received a complete application for a Certificate of Emergency Registration for Transform CA for use on cotton to address the target pest *Lygus* within fields totaling 108,000 acres in the following counties: Merced, Madera, Fresno, Tulare, Kings, Kern, Imperial, and Riverside counties.
2. Transform CA (U.S. EPA Registration Number 62719-727) is currently registered with U.S. EPA pursuant to Section 3 of FIFRA for use on cotton.
3. Sulfoxaflor was previously approved for emergency use on cotton under Section 18 of FIFRA.
4. A complete application for new product registration of Transform CA was filed with DPR on June 7, 2024. DPR has determined it is probable that Transform CA will receive registration within a year of the date of this Decision. DPR received all data required by Division 7 and associated regulations to support a new product registration of Transform CA.
5. Based on substantial evidence, as outlined above, use of Transform CA during the period of emergency registration will not pose a potential significant risk to public health or safety or to the environment.
6. Based on substantial evidence, as outlined above, emergency registration of Transform CA is necessary to effectively respond to an emergency pest control problem. A multi-year *Lygus* infestation is continuing, other available pesticides have not been effective against the level of *Lygus* pressure demonstrated, and no alternative control methods have been identified that are reasonable alternatives to Transform CA. Transform CA has demonstrated efficacy against *Lygus*.
7. The following use limitations are necessary to prevent a potential significant risk to human health or safety or the environment:
 - a. The product, Transform CA Insecticide (EPA Reg. No. 62719-727, containing 50% sulfoxaflor), manufactured by Corteva Agriscience, LLC, may only be applied in accordance with the Certificate of Emergency Registration. All applicable directions for use, restrictions, precautions, and Worker Protection Standards on the DPR-stamped accepted label for cotton must be followed, in addition to any restrictions or conditions listed in the Director's Decision and Order; Certificate of Emergency Registration and Establishment of Use Limitations.
 - b. Prior to use, a restricted materials permit must be obtained from the associated local County Agricultural Commissioner. The permit shall state the maximum number of acres to be treated, maximum amount of product that may be applied, and dealer from which the product may be purchased. The purchaser (permittee) or purchaser's (permittee's) agent must provide the seller, or person delivering the product, a copy of the permit on the date the product is delivered. The dealer shall maintain a record of

- each sale, which shall be made available to representatives of DPR or County Agricultural Commissioner upon request. Such records shall include the date of sale or delivery, permit number, identity and amount of product purchased, and the name of the purchaser.
- c. All applications of this material shall be made by or under the supervision of a certified applicator certified for this category of pest control. Agricultural pest control businesses shall submit a pesticide use report to the County Agricultural Commissioner within seven days of each treatment. Growers who apply this material shall submit a pesticide use report to the County Agricultural Commissioner by the 10th day of the month following the month in which the applications were made.
 - d. Prior to applying Transform CA on a particular cotton field, a Notice of Intent must be submitted to the appropriate County Agricultural Commissioner.
 - e. Prior to applying Transform CA on a particular field, the following applicable use restriction threshold as consistent with suggested economic thresholds in UC IPM's Cotton Pest Management Guidelines must be met:
 - i. Early Squaring (before 1st flower): 1-2 *Lygus*/50 sweeps
 - ii. Mid-Squaring (1st flower - 1st mature boll): 7-10 *Lygus* (at least 1 nymph) per 50 sweeps and expected or better fruit retention. If retention is higher than expected, you may be able to wait and monitor again that week before making a treatment decision. If retention is lower than expected and lygus bugs are present, consider treating.
 - iii. Late Squaring (after 1st mature boll): 10 *Lygus*/50 sweeps, including the presence of nymphs. The applicable use restriction threshold must be documented on the Notice of Intent.
 - f. Buffer Requirements for any aerial or ground application in California:
 - i. When applying via aerial application methods, use a 200 foot on-field downwind buffer
 - ii. When applying via ground application methods, use a 65 foot on-field downwind buffer.
 - g. The applicator must have the following documents in their possession at the time of the pesticide application:
 - i. DPR-issued cover letter June 13, 2025
 - ii. Transform CA Label (EPA Reg No. 62719-727), specific to this Certificate of Emergency Registration
 - iii. Restricted Materials Permit

STATE OF CALIFORNIA

DEPARTMENT OF PESTICIDE REGULATION

A handwritten signature in black ink, appearing to read "K. Morrison", with a long, sweeping underline.

Dated: 6/13/2025

By:
Karen Morrison, Director

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Attachment A: DPR Stamped Approved Label for Transform CA

LABELING ACCEPTABLE
 STATE OF CALIFORNIA
 DEPARTMENT OF PESTICIDE REGULATION
 PESTICIDE REGISTRATION
 Date 6/13/25 Reviewer Rhodes
 Reg. No. 62719-727-ER



Transform[®] CA

with Isoclast™ active

INSECTICIDE

For control of plant bugs on cotton.

Only for use in California.

Active Ingredient:

sulfoxaflor	50%
Other Ingredients	50%
Total	100%

Contains 50% active ingredient on a weight basis.

Keep Out of Reach of Children

DANGER PELIGRO

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.)

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

SULFOXAFLOR	GROUP	4C	INSECTICIDE
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First Aid (Cont.)

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Directions for Use

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

Refer to inside of label booklet for additional precautionary information including Directions for Use.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-727

EPA Est. 67545-AZ-001
293498 2504

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**Produced for
 Corteva Agriscience LLC
 9330 Zionsville Road
 Indianapolis, IN 46268**

NET WEIGHT 8 LB

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Precautionary Statements

Hazard to Humans and Domestic Animals

DANGER. Corrosive. Causes Irreversible Eye Damage. Harmful If Swallowed.

Do not get in eyes or on clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear

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

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- 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

This product is toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees and other pollinating insects exposed to direct treatment or to residues in/on blooming crops

or weeds. Protect pollinating insects by following label directions intended to minimize drift and reduce pesticide risk to these organisms. Do not apply this product or allow it to drift to blooming crops or weeds while bees or other pollinating insects are actively foraging the treatment area. Risk to managed bees and native pollinators from contact with pesticide spray or residues can be minimized when applications are made before 6:00 am or after 7:00 pm local time or when the temperature is below 50°F at the site of application.

The RT₂₅ (Residual Time to 25% mortality; the length of time over which field weathered foliar residues remain toxic to honey bees) for this product is ≤ 3 hours.

Directions for Use

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the state or tribal agency responsible for pesticide regulation.

This product must be used in strict accordance with the Directions for Use.

Only for use in California:

ENDANGERED AND THREATENED SPECIES PROTECTION REQUIREMENTS

Before using this product, you must obtain any applicable Endangered Species Protection Bulletins ('Bulletins') within six months prior to or on the day of application. To obtain Bulletins, go to Bulletins Live! Two (BLT) at <https://www.epa.gov/pesticides/bulletins>. When using this product, you must follow all directions and restrictions contained in any applicable Bulletin(s) for the area where you are applying the product, including any restrictions on application timing if applicable. It is a violation of Federal law to use this product in a manner inconsistent with its labeling, including this labeling instruction to follow all directions and restrictions contained in any applicable Bulletin(s). For general questions or technical help, call 1-844-447-3813, or email ESPP@epa.gov.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), 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 24 hours.

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

- Coveralls
- Shoes plus socks

Storage and Disposal

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

Pesticide Storage: Store in original container only.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. 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.

Storage and Disposal (Cont.)

Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank. 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Product Information

Carefully read, understand and follow label use rates and restrictions. Apply the amount specified in the following tables with properly calibrated aerial or ground spray equipment suitable for conventional insecticide spraying. Aerial applications may be made using fixed wing aircraft or helicopter. Aerial application is permitted for the following crops: cotton.

Prepare only the amount of spray solution required to treat the measured acreage. The low rates within the specified rate range may be used for light infestations and the higher rates within the specified rate range for moderate to heavy infestations of the target pests. Transform[®] CA insecticide may be applied in either dilute or concentrate sprays so long as the application equipment is calibrated and adjusted to deliver thorough, uniform coverage. Use the specified amount of Transform CA per acre regardless of the spray volume used.

Integrated Pest Management (IPM) Programs

Transform CA is recommended for IPM programs in labeled crops. Apply Transform CA when field scouting indicates target pest densities have reached the economic threshold, i.e., the point at which the insect population must be reduced to avoid economic losses beyond the cost of control.

Resistance Management Recommendations

For resistance management, Transform CA contains a Group 4C insecticide. Any insect/mite population may contain individuals naturally resistant to Transform CA and other Group 4C insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of Transform CA or other Group 4C insecticides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
 - o Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
 - o Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
 - o When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
 - o Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
 - o The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.

- Adopt an integrated pest management program for insecticide use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact Corteva at 1-800-258-3033.

Mixing Directions

Application Rate Reference Table

Application Rate of Transform CA (oz/acre)	Active Ingredient Equivalent (lb ai/acre)
0.75	0.023
1.00	0.031
1.50	0.047
1.75	0.055
2.25	0.071
2.75	0.086

Transform CA – Alone

Fill the spray tank with water to about 1/2 of the required spray volume. Start agitation and add the required amount of Transform CA. Continue agitation while mixing and filling the spray tank to the required spray volume. Maintain sufficient agitation during

application to ensure uniformity of the spray mix. Do not allow water or spray mixture to back-siphon into the water source.

Transform CA – Tank Mix

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.

When tank mixing Transform CA with other materials, conduct compatibility test (jar test) using relative proportions of the tank mix ingredients prior to mixing ingredients in the spray tank. If foliar fertilizers are used, the jar test should be repeated with each batch of fertilizer utilizing the mixing water source. Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

Mixing Order for Tank Mixes: Fill the spray tank with water to 1/4 to 1/3 of the required spray volume. Start agitation. Add different formulation types in the order indicated below, allowing time for complete dispersion and mixing after addition of each product. Allow extra dispersion and mixing time for dry flowable products.

Add different formulation types in the following order:

1. Transform CA and other water dispersible granules
2. Wettable powders
3. Suspension concentrates and other liquids

Maintain agitation and fill spray tank to 3/4 of total spray volume. Then add:

4. Emulsifiable concentrates and water-based solutions
5. Spray adjuvants, surfactants and oils
6. Foliar fertilizers

Finish filling the spray tank. Maintain continuous agitation during mixing, final filling and throughout application. If spraying and

agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose.

Premixing: Dry and flowable formulations may be premixed with water (slurried) and added to the spray tank through a 20 to 35 mesh screen. This procedure assures good initial dispersion of these formulation types.

Application Directions

Restrictions:

- This product must be used in strict accordance with the Directions for Use.
- Not for residential use.
- Only for use in California.
- Do not apply Transform CA in greenhouses or other enclosed structures used for growing food crops/edible plants.
- Do not treat seeding plants grown for transplant in greenhouses, shade houses, or field plots.
- Do not apply by air except for the following crops: cotton.

Proper application techniques help ensure thorough spray coverage and correct dosage for optimum insect control. Apply Transform CA as a foliar spray at the rate indicated for target pest. The following directions are provided for ground and aerial application of Transform CA. Attention should be given to sprayer speed and calibration, wind speed, and foliar canopy to ensure adequate spray coverage.

Spray Drift Management

Wind: To reduce off-target drift and achieve maximum performance, apply when wind velocity favors on-target product deposition (approximately 3-10 mph). Do not apply when wind speed exceeds 10 mph as uneven spray coverage and drift may result.

Temperature Inversions: Do not make ground or aerial applications during a temperature inversion. Temperature inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size: Use only medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASABE (S-572.1) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size except where indicated for specific crops.

Ground Application

To prevent drift from groundboom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy. Shut off the sprayer when turning at row ends. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind directions are toward the aquatic area.

Airblast Sprayer: When using an airblast sprayer, coverage is also improved by operation of the sprayer at ground speeds that assure that the air volume within the tree canopy is completely replaced by the output from the airblast sprayer. Making applications in an alternate row middle pattern may result in less than satisfactory coverage and poor performance in conditions of high pest infestation levels, extremely large trees and/or dense foliage. For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy

Row Crop Application

Use calibrated power-operated ground spray equipment capable of providing uniform coverage of the target crop. Orient the boom and nozzles to obtain uniform crop coverage. Use a minimum of

5 to 10 gallons per acre, increasing volume with crop size and/or pest pressure. Use hollow cone, twin jet flat fan nozzles or other atomizer suitable for insecticide spraying to provide a fine to coarse spray quality (per ASABE S-572.1, see nozzle catalogs). Under certain conditions, drop nozzles may be required to obtain complete coverage of plant surfaces. Follow manufacturer's specifications for ideal nozzle spacing and spray pressure. Minimize boom height to optimize uniformity of coverage and maximize deposition (optimize on-target deposition) to reduce drift.

Aerial Application

Apply in a minimum spray volume of 3 gallons per acre. Mount the spray boom on the aircraft so as to minimize drift caused by wing tip or rotor vortices. Use the minimum practical boom length and do not exceed 75% of the wing span or 80% of the rotor diameter. Flight speed and nozzle orientation must be considered in determining droplet size. Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind. Do not apply when wind speed exceeds 10 mph.

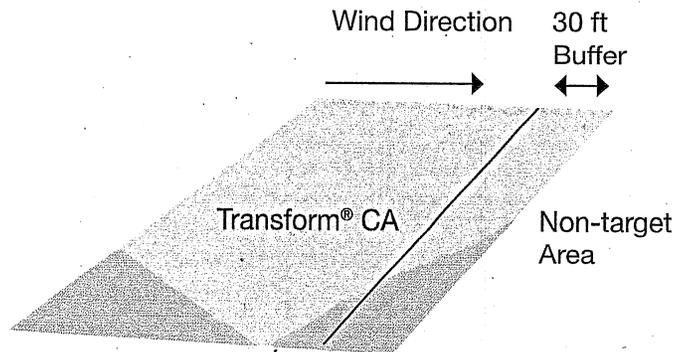
Buffer Zone

Applicator must maintain a 30 foot downwind buffer (in the direction in which the wind is blowing) from any non-target area except:

- Roads, paved or gravel surfaces.
- Planted agricultural fields.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and/or a roof.

To maintain the required downwind buffer zone:

- Measure wind direction prior to the start of any swath that is within 30 feet of a non-target area.
- No application swath can be initiated in, or into an area that is within 30 feet of a non-target area if the wind direction is towards the non-target area.



Spray Adjuvants: The addition of agricultural adjuvants to sprays of Transform CA may improve initial spray deposits, redistribution and weatherability. Select adjuvants that are recommended and registered for your specific use pattern and follow their use directions. When an adjuvant is to be used with this product, it is recommended to use a Chemical Producers and Distributors Association certified adjuvant. Always add adjuvants last in the mixing process.

Chemigation Application

Do not apply Transform CA by chemigation.

Rotational Crop Restrictions

The following rotational crops may be planted at intervals defined below following the final application of Transform CA at specified rates for a registered use.

Crop	Re-Planting Interval
Alfalfa, artichoke (globe), asparagus, avocado, barley, <i>Brassica</i> head and stem vegetables (crop group 5-16), <i>Brassica</i> leafy greens (subgroup 4-16B), bulb vegetables (crop group 3-07), bushberry (subgroup 13-07B), cacao, caneberry (subgroup 13-07A), canola (rapeseed) (subgroup 20A), celtnce, Christmas tree plantations, citrus fruit (crop group 10), commercial sod farms, corn (field, pop, sweet, grown for seed), cotton, cucurbit vegetables (crop group 9), Florence fennel, fruiting vegetables (crop group 8), kohlrabi, leafy greens (subgroup 4-16A), leafy petiole vegetables (subgroup 22B), millet, oats, okra, ornamentals (herbaceous and woody, in greenhouses and nurseries), pineapple, pistachio, pome fruits (crop group 11), rice, root and tuber vegetables (subgroup 1A), rye, small-fruit vine climbing (except fuzzy kiwifruit) (subgroup 13-07F) and low growing berries (subgroup 13-07G) (except strawberry), sorghum, soybean, stone fruits (crop group 12-12), strawberry, succulent, edible podded and dry beans, sunflower (subgroup 20B), teff, teosinte, tree nuts (crop group 14-12), triticale, tuberous and corm vegetables (subgroup 1C), and wheat.	no restrictions
all other crops grown for food or feed	30 days

Use Directions

Cotton

Pests and Application Rates:

Pests	Transform CA (oz/acre)
tarnished plant bug western tarnished plant bug	1.5 – 2.25 (0.047 – 0.071 lb ai/acre)

Advisory Pollinator Statement: Notifying known beekeepers within 1 mile of the treatment area 48 hours before the product is applied will allow them to take additional steps to protect their bees. Also, limiting application to times when managed bees and native pollinators are least active, e.g. 2 hours prior to sunset or when the temperature is below 50° F at the site of application will minimize risk to bees. The RT₂₅ for this product is less than or equal to 3 hours.

Application Timing: Treat in accordance with local economic thresholds. Consult your company representative, cooperative extension service, certified crop advisor or state agricultural experiment station for any additional local use recommendations for your area.

Application Rate: Use the higher rate in the rate range for heavy pest populations. Two applications may be required for optimum tarnished plant bug control under high pest pressure or heavy immigration of plant bugs from other crops.

Restrictions:

- **Preharvest Interval:** Do not apply within 14 days of harvest.
- **Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- Do not make more than two applications during bloom. Do not make more than one application of this product during bloom between the period of 6:00 am to 7:00 pm (daytime).
- Do not make more than four applications per acre per year.

- Do not make more than two consecutive applications per crop.
- The maximum single aerial application rate is 2.25 oz/acre of Transform CA (0.071 lb ai/acre sulfoxaflor).
- Do not apply more than a total of 8.5 oz of Transform CA (0.266 lb ai of sulfoxaflor) per acre per calendar year.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

Warranty Disclaimer

Corteva Agriscience warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Corteva Agriscience MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Corteva Agriscience or the seller. Corteva Agriscience will not be responsible for losses or damages resulting from the

use of this product in any manner not specifically directed by Corteva Agriscience. To the extent permitted by law, all such risks associated with non-directed use shall be assumed by buyer and/or user.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, tort, strict liability, or other legal theories), shall be limited to, at Corteva Agriscience's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

To the extent permitted by law, Corteva Agriscience shall not be liable for losses or damages resulting from handling or use of this product unless Corteva Agriscience is promptly notified of such loss

or damage in writing. To the extent permitted by law, in no case shall Corteva Agriscience be liable for consequential, incidental or special damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Corteva Agriscience or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or Limitation of Remedies in any manner.

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EPA accepted 10/07/2024

NOTES

NOTES



Transform[®] CA

with Isoclast[™] active

INSECTICIDE

For control of plant bugs on cotton.

Only for use in California.

Active Ingredient:

sulfoxaflor	50%
Other Ingredients.....	50%
Total	100%

Contains 50% active ingredient on a weight basis.

Keep Out of Reach of Children

DANGER PELIGRO

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.)

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

SULFOXAFLOR

GROUP

4C

INSECTICIDE

First Aid (Cont.)

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Directions for Use

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

Refer to inside of label booklet for additional precautionary information including Directions for Use.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-727

EPA Est. 67545-AZ-001
293498 2504

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Produced for
Corteva Agriscience LLC
9330 Zionsville Road
Indianapolis, IN 46268

NET WEIGHT 8 LB



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