



May 6, 2024
Revised May 14, 2024

Subject: Information on EPA’s Notice of Serious, Permanent and Irreversible Health Risks Associated with DCPA

On April 1, 2024, the United States Environmental Protection Agency (US EPA) issued a press release warning people of the significant health risks to pregnant individuals and their developing babies exposed to dimethyl tetrachloroterephthalate (DCPA, chlorthal dimethyl, or dacthal). US EPA also advised that it will be pursuing action as quickly as possible to address what it described as the “serious, permanent, and irreversible health risks associated with the pesticide.”

The Department of Pesticide Regulation (DPR) has been and remains in close communication with US EPA as they work to address DCPA risks nationwide. In light of US EPA’s announcement DPR would like to provide the following information to growers and pest control advisors to support decision making around weed management:

- 1) US EPA’s warning about the serious health risks associated with DCPA exposure,
- 2) Information on where DCPA is used in California,
- 3) Information about currently available alternative pest control methods, and
- 4) Registration pathways for additional lower-risk alternatives.

The University of California Integrated Pest Management Program (UC IPM) provides detailed commodity specific information of weed susceptibility to herbicide control and use timing, which is available in the links below.

- [Cole Crop Pest Management Strategies](#)
- [Onion and Garlic Pest Management Strategies](#)

Additional information on currently available alternative pest control methods is provided later in this document.

Excerpts from US EPA announcement

“DCPA is currently undergoing registration review, a process that requires reevaluating registered pesticides every 15 years to ensure they cause no unreasonable adverse effects on human health or the environment. In May 2023, EPA released its assessment on the risks of occupational and residential exposure to products containing DCPA, after

the agency reviewed data that it compelled AMVAC to submit, which had been overdue for almost 10 years. The assessment found concerning evidence of health risks associated with DCPA use and application, even when personal protective equipment and engineering controls are used. The most serious risks extend to the developing babies of pregnant individuals. EPA estimates that some pregnant individuals handling DCPA products could be subjected to exposures from four to 20 times greater than what current DCPA product label use instructions indicate is considered safe. EPA is concerned that pregnant women exposed to DCPA could experience changes to fetal thyroid hormone levels, and these changes are generally linked to low birth weight, impaired brain development, decreased IQ, and impaired motor skills later in life.”

“Also of concern are risks to developing babies of pregnant individuals entering or working in areas where DCPA has already been applied (especially post-application workers involved in tasks such as transplanting, weeding and harvesting). Current product labels specify that entry into treated fields must be restricted for 12 hours after application. However, the evidence indicates that for many crops and tasks, levels of DCPA in the previously treated fields remained at unsafe levels for 25 days or more. EPA also identified potential risks for individuals using golf courses and athletic fields after DCPA was applied. Spray drift from pesticide application could also put developing babies at risk for pregnant individuals living near areas where DCPA is used.”

“Since the release of EPA’s 2023 assessment, [AMVAC has proposed several changes](#) to the DCPA registrations, including the recent cancelation of all DCPA products registered for use on turf. Those cancelations eliminate exposures to DCPA from recreational activities on and around turf. However, according to EPA’s analysis, other proposals submitted by AMVAC do not adequately address the serious health risks for people who work with and around DCPA. EPA is therefore preparing to take further action under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as quickly as possible to protect people from the risks of DCPA.”

US EPA’s press release with links to the technical documentation can be found at: <https://www.epa.gov/newsreleases/epa-warns-farmworkers-about-risks-dacthal>

DCPA Use in California

DCPA is a selective pre-emergence herbicide used for weeds primarily in brassica and onion crops in California. There were 192.9 and 188.2 thousand pounds of DCPA applied in California in 2021 and 2022 respectively. Use in broccoli and onion make up more than half the use in the state based on 2021 and 2022 Pesticide Use Reporting (PUR) data (Table 1). The top 10 counties that rely on DCPA for weed control are presented in Table 2.

Table 1. DCPA use for top 10 commodities in California in 2021 and 2022 based on PUR data (ranked by lbs. applied in 2022).

| Commodity | 2021 Use (lbs) | % 2021 Use | 2022 Use (lbs) | % 2022 Use |
|--|-----------------------|-------------------|-----------------------|-------------------|
| BROCCOLI | 75,885 | 39% | 65,427 | 35% |
| ONION (DRY, SPANISH, WHITE, YELLOW, RED, ETC.) | 40,065 | 21% | 39,101 | 21% |
| CABBAGE | 7,529 | 4% | 13,583 | 7% |
| BRUSSELS SPROUTS | 14,506 | 8% | 11,925 | 6% |
| BROCCOLI RAAB (RAPA, ITALIAN TURNIP, RAPINI) | 9,751 | 5% | 10,428 | 6% |
| BOK CHOY (CHOY SUM, PAK CHOI) | 5,973 | 3% | 8,076 | 4% |
| RADISH | 8,371 | 4% | 7,839 | 4% |
| CHINESE CABBAGE (NAPA, WONG BOK, CELERY CABBAGE) | 7,811 | 4% | 7,022 | 4% |
| CAULIFLOWER | 7,365 | 4% | 4,749 | 3% |
| KALE | 2,729 | 1% | 3,297 | 2% |
| Total | | 93% | | 91% |

Table 2. Top 10 counties for DCPA use for weed control in 2021 and 2022 based on Pesticide Use Reporting data (ranked by lbs applied in 2022).

| County | 2021 | 2022 |
|-----------------|-------------|-------------|
| MONTEREY | 84,167 | 79,316 |
| IMPERIAL | 34,871 | 26,047 |
| FRESNO | 7,168 | 16,184 |
| RIVERSIDE | 12,433 | 15,412 |
| SANTA BARBARA | 7,833 | 10,955 |
| SAN LUIS OBISPO | 13,624 | 10,435 |
| KERN | 8,924 | 9,195 |
| VENTURA | 10,737 | 7,043 |
| SAN BENITO | 8,136 | 5,768 |
| STANISLAUS | 1,329 | 5,095 |

DCPA Alternatives

Detailed information on DCPA use and a discussion of alternatives is presented in a report prepared by UC Davis Department of Agricultural and Resource Economics for the California Department of Food and Agriculture in 2018: ["An Economic and Pest Management Evaluation of the Herbicide Dacthal in California Agriculture"](#).

DPR supports an Integrated Pest Management (IPM) approach to managing weeds, consistent with the Sustainable Pest Management Roadmap and the transition to lower-risk pest management.

There are a variety of non-chemical methods for managing weeds, including hand weeding, cultivation, mulch, field sanitation, and cover crops. In cases where those are not feasible or sufficient as a replacement for DCPA, DPR is providing information on chemical alternatives.

Tables 3 and 4 list DPR-registered alternative active ingredients (AIs) for the top 10 commodities that rely on DCPA for weed control.

The following more detailed descriptions of weed susceptibility to herbicide control and use timing for alternatives has been developed by University of California Integrated Pest Management Program:

- [Cole Crop Pest Management Strategies](#)
- [Onion and Garlic Pest Management Strategies](#)

Alternatives referenced in this document are provided for informational purposes only, do not constitute a recommendation, and should not be construed as an endorsement or disparagement of any product. Please contact a DPR-licensed pest control advisor or UC Cooperative Extension advisors for recommendations regarding any specific agricultural pest control situation.

Registration Pathways

DPR is working to support the availability of effective, lower-risk alternatives for pest management for controlling weeds in brassica, allium, and root and tuber crops and will prioritize applications for full registration of alternative products. Further, DPR will provide assistance to stakeholders to explore near-term options for making alternatives available such as through Federal Insecticide, Fungicide, and Rodenticide Act's Section 18 Emergency Exemption and Special Local Needs.

For assistance on determining the best steps forward, please contact the Pesticide Registration Ombudsman, Mr. Aron Lindgren at <Registration.Ombudsman@cdpr.ca.gov> or at 916-324-3563.

(Tables 3 and 4 on following pages)

Table 3. California registered alternative AIs for Brassica crops within the top 10 commodities that rely on DCPA for weed control. Current registration as of April 15, 2024. We recommend cross-checking registered alternatives with the UC IPM's detailed description of weed susceptibility to herbicide control and use timing linked above.

| CA Registered Active Ingredient (AI) | Broccoli | Brussels Sprouts | Cabbage | Chinese (Napa) Cabbage | Cauliflower | Broccoli Raab/Rapini | Bok Choy | Kale |
|--------------------------------------|----------|------------------|---------|------------------------|-------------|----------------------|----------|------|
| ACETIC ACID | ✓ | | ✓ | ✓ | ✓ | ✓ | | |
| AMMONIUM NONANOATE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| BENSULIDE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BENTAZON, SODIUM SALT | | | ✓ | | | | | |
| CAPRIC ACID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| CAPRYLIC ACID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| CARFENTRAZONE-ETHYL | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| *CHLOROPICRIN | | | | | ✓ | ✓ | | |
| CLETHODIM | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| CLOPYRALID ¹ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| EPTC | | | ✓ | ✓ | | | | |
| GLYPHOSATE ² | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| HALOSULFURON-METHYL | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| NAPROPAMIDE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| NONANOIC ACID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| OXYFLUORFEN | ✓ | | ✓ | ✓ | ✓ | ✓ | | |
| *PARAQUAT DICHLORIDE | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| PENDIMETHALIN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| *POTASSIUM N-METHYLDITHIOCARBAMATE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| PYMETROZINE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| PYRAFLUFEN-ETHYL | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| SETHOXYDIM | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| SULFENTRAZONE | | | ✓ | ✓ | ✓ | | | |
| TRIFLURALIN | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |

* Permit required from county agricultural commissioner for purchase or use.

¹Includes monoethanolamine salt

²Includes diammonium salt, dimethylamine salt, isopropylamine salt, monoammonium salt, and potassium salt.

Table 4. California registered AIs for Crop Group 1 (Root and Tuber Vegetables) and 3 (Bulb Vegetable) commodities that were in the top 10 of commodities that rely on DCPA for Weed Control. Current registration as of April 15, 2024. We recommend cross-checking registered alternatives with the UC IPM’s detailed description of weed susceptibility to herbicide control and use timing linked above.

| CA Registered Active Ingredient (AI) | Radish | Onion (Dry) |
|--------------------------------------|--------|-------------|
| ACETIC ACID | ✓ | ✓ |
| AMMONIUM NONANOATE | ✓ | ✓ |
| BENSULIDE | | ✓ |
| BROMOXYNIL HEPTANOATE | | ✓ |
| BROMOXYNIL OCTANOATE | | ✓ |
| CAPRIC ACID | ✓ | ✓ |
| CAPRYLIC ACID | ✓ | ✓ |
| CARFENTRAZONE-ETHYL | ✓ | ✓ |
| CLETHODIM | ✓ | ✓ |
| DIMETHENAMID-P | | ✓ |
| ETHOFUMESATE | | ✓ |
| FLUAZIFOP-P-BUTYL | | ✓ |
| FLUMIOXAZIN | | ✓ |
| GLYPHOSATE ¹ | ✓ | ✓ |
| HALOSUFURON-METHYL | ✓ | |
| NONANOIC ACID | ✓ | ✓ |
| OXYFLUORFEN | | ✓ |
| *PARAQUAT DICHLORIDE | | ✓ |
| PENDIMETHALIN | | ✓ |
| *POTASSIUM N-METHYLDITHIOCARBAMATE | ✓ | ✓ |
| PRODIAMINE | | ✓ |
| PYRAFLUFEN-ETHYL | ✓ | ✓ |
| SETHOXYDIM | | ✓ |
| S-METOLACHLOR | ✓ | ✓ |
| TRIFLURALIN | ✓ | ✓ |

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¹Includes diammonium salt, dimethylamine salt, isopropylamine salt, monoammonium salt, and potassium salt.