February 15, 2022

Ms. Jennifer Teerlink
California Department of Pesticide Regulation
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Sacramento, CA 95812-4015
TreatedSeeds@cdpr.ca.gov

RE: CALIFORNIA NOTICE 2021-15: PESTICIDE-TREATED SEEDS

Dear Ms. Teerlink:

On behalf of the undersigned organizations, we are submitting these comments in response to the California Department of Pesticide Regulation (DPR) request for information related to pesticide-treated seeds. We thank DPR for your consideration of our comments. The undersigned represent a cross-section of organizations whose memberships would be impacted by actions surrounding pesticide-treated seeds. Our organizations conducted interviews with retailers, seed treatment facility managers, and farmers to develop use and trend information for this comment letter.

Why Farmers Use Treated Seeds

Seed treatments serve as an effective method to deliver multiple benefits to a plant prior to planting. As well as protection against pests and disease, seed treatments can include microbial inoculants and plant nutrients to improve early-stage plant growth and provide protection from abiotic stress that can be deleterious to germination and stand establishment. By treating seed, farmers are increasing the likelihood of improved yields, while also providing environmental

benefits such as a reduced carbon footprint from fewer tractor passes and reduced post-emergent pesticide or fertilizer applications.

Pesticide-treated seeds protect against soil borne pests and disease. Additional benefits include increased adoption of cover crops since seeds are protected against soil pests that may be enhanced with cover cropping practices. In some cases, pesticide-treated seeds have allowed for reduced planting density which also provides environmental benefits including reduced energy use for seed production. They also reduce the need for additional applications of foliar and soil applied pesticides, which again reduces a farm's carbon footprint and can reduce potential exposure to workers and neighbors. For these and the reasons outlined below, we urge DPR to consider the implications of taking adverse action with respect to pesticide-treated seeds.

DPR has undertaken an initiative to help move farmers to more sustainable pest control systems via the Sustainable Pest Management Work Group. As farmers move toward this goal, an important tool will be the use of treated seeds. To maintain their sustainable pest management programs, farmers protect their seeds with pesticide-treated seeds thereby reducing pesticides applied for post-emergence conditions. With fewer tools available to maintain sustainable Integrated Pest Management (IPM) programs, systems like treated seeds become more important to sustainability initiatives.

Pests and Crop Use Trends

Farmers use pesticide-treated seeds for multiple reasons, with protection against soil borne pests and disease being a primary need. Pesticide-treated seeds can protect against numerous pests including but not limited to, cutworms, wireworms, maggots, thrips, beetles, and fungal plant pathogens like pythium, fusarium, rhizoctonia, and penicillium. Seed treatments used by farmers to address these devastating pests and diseases include fungicides, biopesticides and insecticides. Most seeds treated with pesticides are treated with a biopesticide or fungicide to address soil borne pathogens and disease, interviews with retailers and seed treatment managers suggest that depending on plant species, less than 20% utilize an insecticide treatment.

California's diverse soils and Mediterranean climate results in complex pest and disease pressures. By utilizing seed treatments designed for the pressures they face in their growing region, farmers can help assure the seed germinates and a strong, uniform plant stand is established. Because of California's highly diversified cropping system, we believe that it is impractical to evaluate of the use of pesticide-treated seeds based on crop specific applications. There are areas of the state where it is impossible to grow any crops without protecting the seed from cutworms or wireworms. Other areas of the state may have significant thrip pressures. As a result, it would be a mistake to try to categorize the use of pesticide-treated seeds based on crops, as may be done in the Midwest where crop types and pest pressures are more uniform.

In addition, with California's highly diversified cropping system, the role of transplants must be considered when evaluating environmental exposures. Unlike the Midwest which is predominantly field seeded grain commodities, California crops are primarily fresh commodities. In fact, according to the California Department of Food and Agriculture crop census (California Agricultural Statistics Review 2019-2020) grain crops are not included in California's top ten commodities, which demonstrates the inappropriateness of utilizing Midwest seed usage as a direct surrogate for prevalence of pesticide-treated seed in California. However, it is important to note that the safety data studies (e.g., soil persistence, mobility, etc.) are applicable to both the Midwest and California conditions.

Most California soils do not benefit from "cold periods" where pests die-off or go dormant. As a result, farmers face higher concentrations of pests in the soil, and must take additional steps to protect seeds more crucial. In addition to regionally based pest pressures, the range of California weather conditions result in higher risks from disease, especially fungal diseases. Warmer soils and later season rains over the past decade require use of biologicals and fungicides to protect seeds from these diseases. Discussions with our members have confirmed that this is an agricultural industry-wide need that is not limited to specific crops or geographic location.

Farmers are utilizing pesticide-treated seeds as they continue to lose other pesticide tools and the lack of effective replacements. Farmers are working to maintain their sustainable pest management programs by pro-actively protecting the seed, as previously available for post-emergence conditions have been systematically removed from their sustainable IPM toolboxes.

With improvements in technologies over the past decade, fresh commodities have moved to transplant systems. In vegetable crops, many have moved to or are at almost 100% transplant. Seeds germinate in sterile soil under controlled greenhouse environments and are not planted in fields until after germination and establishment of a root system, thus eliminating the need for treatment. Our members indicate that their experience is demonstrating that the overall trend over the next few years, will be that the overall trend is for an increasing amount of vegetable crops will be grown from transplants.

Benefits of Pesticide-Treated Seeds

The primary benefit of pesticide-treated seeds is the ability to protect seeds from pest and disease pressures in order to realize homogenous stand establishment. Without this technology, farmers would have to apply more pesticides to the soil or post-emergence crop foliage, and utilize more tractor passes to apply pesticides after the seed has germinated. This in turn, could increase the risk of worker exposure or inadvertent offsite movement. In some cases, the pest or disease damage may be significant enough that a grower must re-plant a field resulting in increased

carbon releases, soil degradation and compaction resulting from those additional tractor passes. Alternatively, to achieve economically sustainable yields, farmers would have to increase cropped land, which diminish the economic and environmental sustainability of farming operations.

Pesticide-treated seeds can reduce the total amount of pesticide used throughout the life of a crop. Without the availability of pesticide treated seeds, it is estimated that for every pound of an insecticide utilized via a seed treatment, up to five pounds would be required via traditional application techniques. This translates to a 375% increase in insecticide application rates per acre (AgInfomatics.com).

Pesticide-treated seeds selectively target pests feeding on the seed or plant, while helping minimize potential exposure to applicators, workers, surrounding communities, and protect beneficial insects. This is especially important for insect species, like pollinators, that California has a particular interest in protecting. In turn, beneficial insects assist in managing other pests. Without treated seeds, farmers' fields could experience pest shifts (i.e., flea beetle transmission of viruses), as well as reduced scouting windows to make foliar applications for high pest pressures including thrips, beetles or cutworms. Insecticide-treated seeds help growers manage sucking and chewing pests that transmit other plant pathogens and diseases. Seed treatments can be a vital component of a sustainable IPM system. Since there are no rescue treatments once a seed has been damaged, farmers view fungicide, insecticide and increasingly biopesticide seed treatments as an important part of their IPM plan.

Farmers continue to support the use of innovative technologies that provide economic benefits and avoid converting more natural lands to working lands. Stronger crop stands that result in higher yields eliminate the need for farmers to convert natural lands as a mechanism to cover increased production, regulatory, and environmental costs. The 2020 Krupke and Tooker (Krupke) study on corn, which has been cited by DPR reported that the use of the treated seeds resulted in a 5 – 8% increase yield benefit. Other studies have demonstrated up to a 17.4% yield benefit (AgInfomatics.com).

Farm workers and communities can also benefit from the use of treated seeds. As the pesticide is placed below ground, the potential for worker or bystander exposure from inadvertent offsite movement is reduced. Also, since pesticide-treated seeds reduce the amount of pesticide needed over the course of the life of a crop, the risk of an accidental exposure to a pesticide from an application is reduced.

Average California field acreage is much smaller than a Midwest field, limiting the total amount of seed utilized at any one time for the same crop. In addition, new innovations in seed coatings

and planting equipment (ISO 17962:2015) have reduced dust-off. Seeds are fed directly from the seed bag to an enclosed hopper bin and then planted under the soil so there is reduced exposure to workers during planting. As well, the seed tag, which is present at planting, must include any Personal Protective Equipment (PPE) requirements so applicators are protected from any potential exposure. Long-term, as explained earlier the need for supplemental traditional pesticide applications is reduced further limiting potential exposures to workers.

Pesticide-Treated Seeds and the Environment

Pesticide-treated seeds can provide benefits to the environment in a variety of ways. Treated seeds are designed to selectively control pests and minimize off-target exposure of pesticides to non-target organisms.

As stated earlier, pesticide-treated seeds can reduce the total amount of pesticide used throughout the life of a crop. Again, it has been estimated that for every pound of an insecticide utilized via a seed treatment, up to five pounds would be required via traditional application techniques in order to maintain crop output (AgInfomatics.com).

Pesticide-treated seeds allow for more sustainable beneficial planting techniques like no-till/ reduced-till planting and use of cover crops by effectively controlling soil pests which benefit from the soil conditions promoted by these beneficial planting techniques. Reduced tillage systems allow for less disruption to soils, promoting of overall soil health, protecting insect and animal life, and as previously stated, limit the number of tractor passes needed to apply foliar or soil applied pesticides, which in turn reduces a farmer's carbon footprint.

An important benefit of treated seeds is their contribution to an overall healthier environment, including plant vigor and health. Seeds protected from pests and disease a seed treatment demonstrate increased and uniform germination which results in increased, healthier, and stronger crop stands. The use of insecticides in this manner can increase stands by more than 8% (Afifi, Lee, Lukens, and Swanton, 2015). These healthier stands can also sequester more carbon dioxide.

It has been alleged by groups citing the Krupke study that almost all the insecticides on treated corn seeds are lost to soil, water, or air during and after planting. However, third-party scientific reviews of this study have found that the effects are misrepresented. Studies on corn, on which the Krupke results are based on, have demonstrated that unlike the 2 – 3% dust loss reported in the Krupke study, dust loss is less than .5% (Lang, 2014). The Krupke report also speculates that over 90% of the insecticides lost in soil or water are absorbed by aquatic invertebrates and plants. Yet independent research has demonstrated that these insecticides in fact degrade in soil and do not accumulate in the environment or other organisms. (Finnegan, Baxter, Maul, Hanson,

and Hoekstra, 2018), (Lobson, Luong, Seburn, White, Hann, Prosser, Wong, and Hanson, 2018), (Pickford, Finnegan, Baxter, Böhmer, Hanson, Stegger, Hommen, Hoekstra, and Hamer, 2018). The Krupke study focused on seed treatment use involving the neonicotinoid insecticide class. The US-EPA (EPA-HQ-OPP-2008-0844-1619) and Canadian Pest management Regulatory Agency (H113-28/2021-5-PDF) have recently completed the most thorough evaluation of neonicotinoid seed treatment risk to date and concluded acceptable risk, including to aquatic invertebrates, of most seed treatments uses.

The publicly available data associated with the "California Case Study" (slides 44-47, DPR November 15, 2021, presentation) on transport from romaine lettuce seed treatment indicated an increase of the insecticidal compounds in the soil post planting as desired for control of soil bound pests. The soil monitoring provides further evidence that the compounds do not leach through the vertical soil profile and are not a concern for ground water contamination. Further, the information shared during DPR's presentation demonstrates less material is detected in irrigation water sampled on the field surface when applied via seed treatment as compared to other soil application methods.

Unfortunately, information key to fully understanding the data presented as part of this study is missing or requires confirmation. Specifically:

1.) It is referenced in the presentation that the Admire® Pro label was used as the basis for the seed treatment rate. Admire® Pro does not have seed treatment uses. Did the study rely on a legal application and if so, what product was used and how was the rate determined?
2.) The slides presented by DPR indicate the drench treatment is at four times the rate of application. Confirmation of this is required and if correct an explanation provided why a non-legal rate was applied.
3.) Lettuce seed is pelleted and planted with commercial equipment, information is not provided on how the seed was prepared or planted in this study. Unless treated by a commercial facility utilizing the latest technologies, the seed utilized is not representative of common practices and could result in detects outside of contemporary norms.
4.) Residues of imidacloprid, clothianidin, and azoxystrobin were detected in water samples from irrigation collected between rows, yet no information is provided on the volume of water applied.
5.) Further to assume detections from irrigation water collected on the field is representative of potential levels contaminating an aquatic environment assumes that the field is representative of the aquatic environment, ignores dilution, runoff mitigations the grower may have in place, and ignores the label that requires a vegetative filter strip.

CDFA's qualitative data set was used by DPR several times in the November 15, 2021, workshop presentation to draw conclusions regarding seed treatment in California. However, it

appears the same data set was not considered when developing hypothesis and calculations regarding the potential mass contributions from hypothetically pesticide-treated lettuce seed in Monterey County (slides 50 – 53). DPR's case study which is based on a hypothetical 100% maximum registered seed treatment of lettuce seed concluded that, "Our estimates demonstrate that pesticide-treated seeds may introduce a significant contribution of pesticide mass that remains unreported in PUR." Our preliminary review of CDFA's data set for lettuce seed sampling in Monterey County found that ZERO of the estimated 470 lettuce seed samples pulled over 12 years were reported treated with any pesticide product. Our conclusion, based on an actual negative data set and not a hypothetical is that the lettuce seed case study as designed cannot be used to demonstrate that pesticide-treated seed may contribute to pesticide mass, in fact the only conclusion that can be drawn with actual data is that lettuce seed planted in Monterey County does not contribute at all to an unreported pesticide mass in the PUR.

Accordingly, allegations of environmental harm from treated vegetable seeds should be set aside until studies based on accurate data is available.

Pesticide-Treated Seed Satisfy Rigorous Safety Standards

Pesticides used to coat seed products are regulated, just as foliar and soil-applied pesticides are, and must meet the same high standards of human health and environmental safety. All pesticides, irrespective of application method must clear a rigorous registration process via US-EPA and DPR, where application rates and delivery systems are analyzed prior to approval, and periodically thereafter. In addition, any worker safety requirements must be printed on the seed tag so workers can read them when planting. Anyone who treats, handles, transports, plants, recycles, re-uses, or disposes of treated seeds must manage them properly and in accordance with label instructions and state and federal law. Regulatory requirements that apply to pesticide-treated seeds include:

1.) When reviewing a pesticide, including those used as seed treatments, US-EPA and DPR undertake extensive risk assessments that consider how the product will be used. The regulating agencies examine both human health and environmental impacts of the product use, accounting for farm workers who may be planting the seed or harvesting the crops or consumers eating the harvested commodity. The associated science-based evaluation also considers the application rates, analysis of the quantity "planted per day," and typical seeding/planting rates per acre, among other factors. Insecticides that are used to coat treated seed must demonstrate that the insecticide will not remain in the plant system at a level injurious to pollinators.
2.) Pesticide regulations provide additional protections, as well. US-EPA approves all instructions on the pesticide label, including the instructions as to how the pesticidal coating must be applied to the seed. The US-EPA-approved labels for commercial seed treatment

products also include language that must be placed on the seed tags accompanying treated seed regarding permitted and prohibited practices. Additionally, like all pesticides, those used to coat treated seed are subject to periodic review to ensure that, as the science advances and/or policies and pesticide use practices change over time, the pesticides continue to meet the statutory standard of "no unreasonable adverse effects" on humans or the environment.

3.) Just like traditionally applied insecticides, insecticide-treated seeds must demonstrate that the pesticide product will not remain in the plant system at a level injurious to pollinators.
4.) Application of seed treatment products to seed must be performed strictly according to instructions on the pesticide label, approved by US-EPA.
5.) Labels for commercial seed treatment products carry language that must be placed on the seed tags accompanying treated seed packages specifying permitted and prohibited practices.
6.) Under 40 CFR §152.25(a), the seeds treated with pesticides are considered "treated articles" if, and only if:
    a. the article (i.e., the seed) contains or is treated with a pesticide; and
    b. the pesticide is intended to protect the article itself; and
    c. the pesticide itself is registered for this use, meaning the agency has already assessed whether a particular use, e.g., use as a seed treatment, meets FIFRA's registration standard.
7.) Without this 'Treated Article Exemption' designation by US-EPA for seed, US-EPA would be required to duplicate the effort and resources it invested in registering the seed treatment to also register the treated seed. Given US-EPA's comprehensive assessment of the seed treatment product, the duplicated review would provide no <u>additional</u> benefit to health, safety, or the environment.
8.) Federal seed laws (specifically the USDA Federal Seed Act) regulate the sale and movement of seeds in the U.S., and seed companies must abide by those regulations. The Federal Seed Act imposes requirements for labeling of treated seeds. The tags on a package of treated seed must include identify of what the seeds have been treated with, guidance for safe handling, and other applicable labeling requirements.

As outlined in the regulations above pesticide-treated seeds must be clearly labeled. Seed tags must identify what the seeds are treated with, as well as any corresponding PPE or worker safety requirements. Seed treatment facilities in California must report all pesticides applied to seeds to California Agricultural Commissioner's offices. While out-of-state facilities do not report to California, their tags must also contain complete ingredient lists according to Federal seed law. These tags are inspected by the CDFA Seed Division on a regular basis.

<u>Recommendations</u>

For the reasons set forth above, additional regulations that could impact the availability or cost of treated seeds to farmers are not appropriate at this time. However, we support DPR projects to

better identify pesticides used as seed treatments in California. These projects could help ensure that all applicable federal and California laws are being followed during the application and use of pesticide-treated seeds, and to accurately address public questions regarding their use.

We would recommend that DPR coordinate with other California agencies to ensure that the reported use of pesticides applied as seed treatments in California is shared with DPR. DPR will need to closely coordinate with these agencies to ensure that reporting is limited to pesticide-treated seeds that are planted in California, as farmers may have excess seeds after planting. DPR should not assume these seeds will be planted as part of a future planting. Excess seeds do not maintain extended self-life and remaining seeds are typically destroyed if not used in a planting. Moreover, as California is considered the vegetable basket of the world, many treatments may be applied at a California seed treatment facility and the pesticide-treated seed then exported to vegetable growers in other states or countries.

CDFA Seed Division personnel and agricultural commissioner biologists regularly inspect treated seed labels. We would recommend a coordinated effort between these departments be undertaken to better identify seeds treated out-of-state and what pesticide treatments were applied to those seeds. We requested the data and background information related to DPR's slide that reported widespread detections of unregistered products, which DPR provided. Unfortunately, the data was not sufficiently detailed to permit review for accuracy. We believe this information should be set aside until new information a focused information collection project can be undertaken, and all parties have access to accurate information to support informed decision making.

We are genuinely concerned about the potential economic impact to farmers from additional regulations or restrictions on use of pesticide-treated seeds in general, and seeds treated with insecticides specifically before a more accurate analysis of the use of pesticide-treated seed in California is performed. We request that as part of this process a study be conducted on what the resource costs to farmers and the environment would be if any actions were taken. CDFA's Office of Pesticide Consultation and Analysis (OPCA) is an appropriate state entity to undertake this kind of study. OPCA is positioned to facilitate the collection of the necessary information from multiple agencies and agriculture groups to better understand the potential costs and benefits. Members of this coalition are part of an advisory group to OPCA and are willing to collaborate with them to develop this information for stakeholders, CDFA and DPR to review.

We believe that CDFA is the appropriate agency to collect information on treated seeds because treated seeds so often contain multiple materials to improve or protect seed germination and plant stands. CDFA's Seed Division is already responsible for inspecting seed tags and collecting information from those tags. Retaining this role for purposes of the proposed study will eliminate redundant information gathering and improve interagency communication.

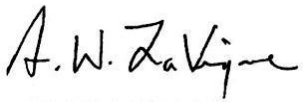
Conclusions

Pesticide-treated seeds are a crucial tool for farmers to protect seeds from pests that often cannot be scouted and for which recovery treatments may not exist. With the continuing loss of pesticide products for use in California and lack of effective replacement pest management tools, treated seeds have become a critical tool to support sustainable pest management practices. Treated seeds help farmers combat an increase in the number of pest species and increasing pest populations resulting from warmer temperatures while reducing agriculture's carbon footprint, and environmental and worker safety risks from traditional pesticide applications.

We believe there is a clear benefit to the use of pesticide-treated seeds, and the potential risks alleged by other stakeholders have not been substantiated. Nor does the use of insecticide-treated seeds appear to be as widespread as some have asserted. Simply doing a label search, cross referencing with crops that have approved seed treatments, and then doing a mathematical acreage calculation to determine the amount of possible insecticide used does not reflect current agricultural applications in California. We appreciate DPR's thoughtful information collection effort to better understand the use of pesticide treated seeds in California. We ask that DPR not move forward with any further regulatory actions, but instead support efforts to collect and understand the importance or alleged risks from their use.

Our recommendations constructively identify a process to accurately collect and collate information. Such a structured project would better assure seed coaters, distributors, and farmers that their information will be managed accurately and sensitively. Our coalition is committed to working with DPR and CDFA to develop this information and we offer our participation in working to create such a project. We look forward to continuing to work with DPR on this issue and we thank you for your consideration of our comments.

Sincerely,



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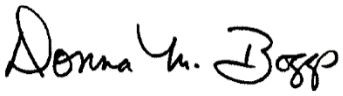

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