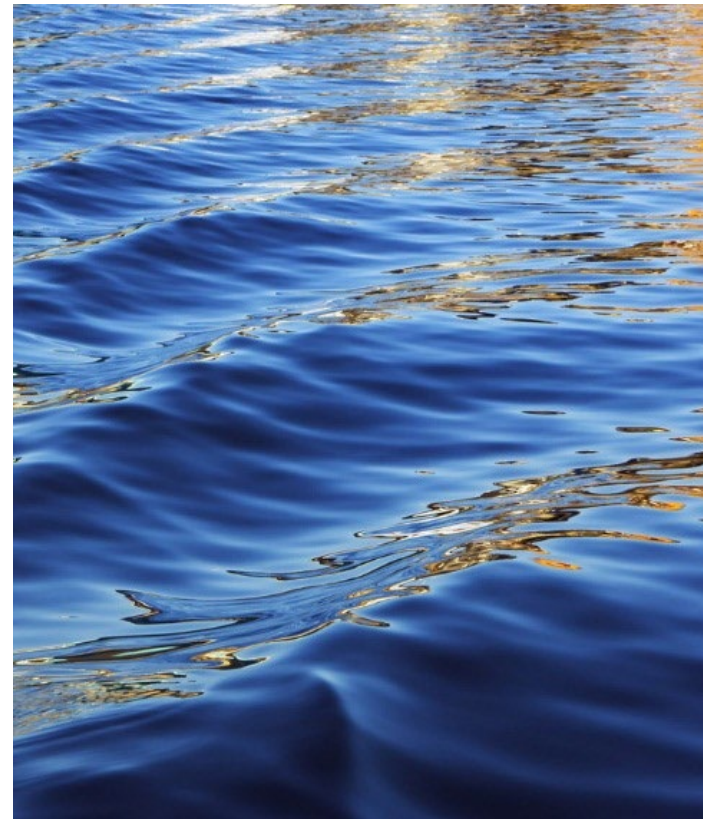




Pesticide Action Limits for Cannabis in California

Shelley DuTeaux, PhD MPH
Chief, Human Health Assessment





DPR's Mission

To protect human health and the environment by regulating pesticide sales and use, and by fostering reduced-risk pest management



DPR's Role Under MAUCRSA

Develop guidelines for use of pesticides in cultivation of cannabis

Develop guidelines for pesticide residue in harvested cannabis

DCC must consider DPR residue guidelines in establishing regulatory action levels

Pesticide Use in Production Agriculture

Regulated by US EPA

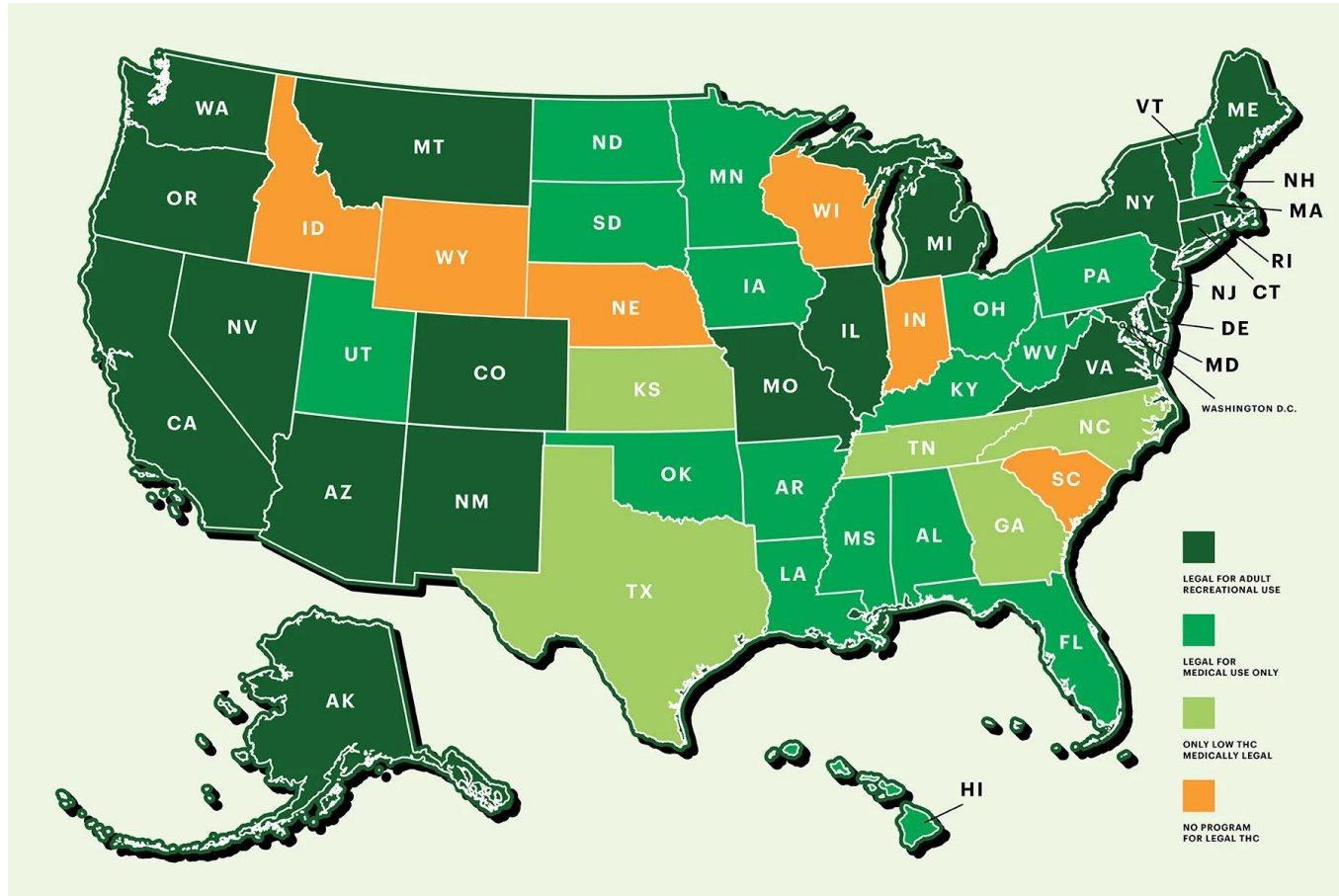
Overseen by state, local government

California independently registers pesticides for use in the state, in parallel with US EPA or following its approval

US EPA sets limits (tolerances) for pesticide residues on food (CFR title 40, part 180)



State-level Regulation of Pesticides in Cannabis



- Recreational cannabis use legal in 24 states, 3 territories, D.C.
- 9 states use US EPA tolerances, or in combination with LODs (CT, IL, LA, ND, OH, NV, CO, ME)
- Most others uses either LOD (OR LOD x 2) or LOQ (NY, MD)
- **CA is the only state with health-based action levels**

Pinkhasova et al., 2021

doi: 10.1016/j.crtcx.2021.02.007

California Action Levels

DPR originally proposed list of 66 pesticides

- Based on input from cultivators, new testing programs in CO, OR, WA

Two broad categories:

Category I

(21 Pesticides)

Based on human toxicity, environmental concerns, restricted materials, no registered food uses, etc.

Any detectable amount prohibited

Category II

(45 Pesticides)

Specific Action Level
($\mu\text{g/g}$; ppm)



2024 Revised California Action Levels

New toxicity and human health data

Informed by
Pre- & post-market detects in cannabis and ag commodities

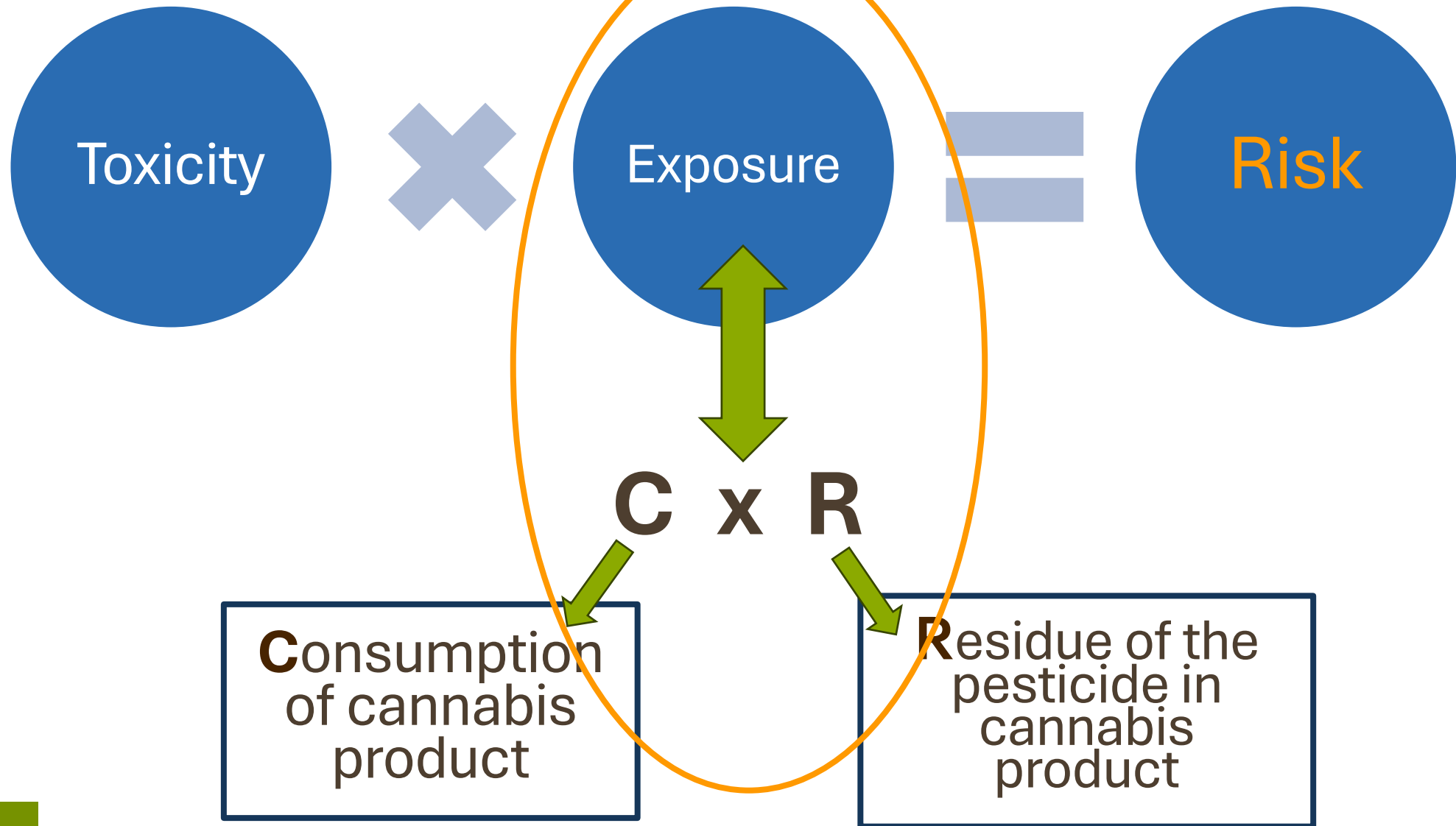
Recommendations

Derive quantitative actions levels for all former Cat I pesticides

Adding edible and inhalation action levels for 10 new pesticides

Revised edible and/or inhalation action levels for 28 pesticides

Derivation of California Action Levels



Action Levels for Inhalable Cannabis

- DPR uses tobacco as a surrogate
- Guidance Residue Levels (GRLs) were established by CORESTA*
- If GRL has not been established, DPR uses US EPA trigger levels for pesticide pyrolysis testing on tobacco (0.1 ppm)
- All updated CORESTA and US EPA values incorporated into 2024 recommendations



* Centre de Coopération pour les Recherches Scientifiques Relatives au Tabac/Cooperation Centre for Scientific Research Relative to Tobacco

Action Levels for Edible Products

- Set at max safe exposure (mg/kg/day), reference dose (RfD)
- E is different for each pesticide
- RfD set by DPR, US EPA

$$\textcircled{E} = \textcircled{C} \times \textcircled{R} \rightarrow \text{Calculate Action Level}$$

Use consumption (g food/kg body weight) of ag commodity as surrogate for maximum consumption rate for any **edible cannabis product**

A Changing Landscape

What's changed:

- Continued discoveries of illegal grows
- Exceedances of tested pesticides *or* detection of illegal pesticides in the marketplace

What hasn't changed:

- DPR's commitment to protecting health and the environment
- Data-driven methods to derive health-based approaches to analytical testing



Future Updates

- In 2018 DPR funded the California Cannabis Consumption (C3) survey conducted by California State University, Sacramento (CSUS)
 - First comprehensive survey of cannabis consumptions in the US
 - Analyzing data to refine exposure calculations
 - Roll into future revisions of action levels
- Anticipate working with DCC on future action levels that can be informed by cannabis cultivation and enforcement work



Thank you
and
Questions?

shelley.duteaux@cdpr.ca.gov

