Directive for Interim Mitigation Measures to Address Health Risks from Chlorpyrifos

September 2017
Chlorpyrifos draft risk assessment

- August 2017 risk assessment identified several potential unacceptable exposures
  - Highest risk was inhalation exposure to 1 – 2 year olds

- Process to identify and mitigate toxic air contaminants (TACs) is lengthy
Development of interim mitigation measures

• DPR will develop interim mitigation measures while the TAC evaluation process is in progress

• Mitigation measures will be in the form of recommended permit conditions to county agricultural commissioners
  
  – Chlorpyrifos is a restricted material when labeled for the production of an agricultural commodity, requiring a permit prior to purchase and use
Scope of interim mitigation measures

- Based on August 2017 draft risk assessment, measures will address
  - Short-term, acute exposures
  - Aggregate exposure – combined inhalation, dermal, oral exposure
  - Bystander exposure
  - Potential cholinesterase inhibition effects
  - Applications to agricultural commodities (production ag use)
Goal of interim mitigation measures

• Reduce aggregate exposures to bystanders so that the aggregate margin of exposure does not exceed 100
  – Model used to estimate amount of chlorpyrifos that causes cholinesterase inhibition in humans
  – Amount reduced by 10x to address human population variation
  – Amount reduced by 10x to address potential developmental neurotoxicity

• MOE of 100 is equivalent to an air concentration of 23.7 micrograms per cubic meter, if all exposure is by inhalation
Mitigation measures

- Current labels and permit conditions partially address bystander exposures, and include application method restrictions and setbacks

- Additional mitigation measures being considered include
  - Additional restrictions on application methods
  - Limits on size of applications
  - Larger setbacks based on August 2017 draft risk assessment
Questions and additional information

Randy Segawa, Special Advisor
(916) 324-4137
Randy.Segawa@cdpr.ca.gov

Web Page: www.cdpr.ca.gov
Under “Programs” tab click on “Risk Assessment & Mitigation”
Click on “Chlorpyrifos”
Extra slides
## Chlorpyrifos use by type of site, 2013-2015

<table>
<thead>
<tr>
<th>Site type</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Average</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Agriculture</td>
<td>1,465,618</td>
<td>1,310,114</td>
<td>1,102,952</td>
<td>1,292,895</td>
<td>99.8</td>
</tr>
<tr>
<td>Non-Production Agriculture and Non-Agricultural</td>
<td>3,680</td>
<td>2,247</td>
<td>3,656</td>
<td>3,194</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,469,298</td>
<td>1,312,361</td>
<td>1,106,608</td>
<td>1,296,089</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Chlorpyrifos use by crop, 2013-2015

- Almond: 27%
- Walnut: 13%
- Alfalfa: 15%
- Orange: 12%
- Cotton: 9%
- Grapes: 5%
- Grapes, Wine: 3%
- Lemon: 3%
- Tangerine: 3%
- Sugarbeet: 2%
- All Other Crops: 8%
Chlorpyrifos use by application method, 2013-2015

Ground 70%

Air 29%

Other 1%
Chlorpyrifos use by month, 2013-2015
Chlorpyrifos use by township (6x6 mile area), 2013-2015