

Perspectives on Pesticide Health Issues

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Look at the
whole problem.

PIRT Reports

309 agricultural occupational cases*
were reported to DOH from 1997
through 2001.

* Definite, probable and possible cases

Department of Health Farm Worker Focus Groups

- More than of participants had experienced symptoms from pesticide exposures on the job.
- Few sought health care.

DOH, "Summary Results of Yakima Farmworker Focus Groups About Pesticides and Health Care",
Sept. 22, 2003

Simcox 1999:

- 20 apple thinners studied;
OP metabolites found in all urine samples.
- “These findings support the conclusion that workers absorbed Guthion daily due to their contact with pesticide-treated foliage during apple thinning.”

Simcox et al, “Farmworker Exposure to Organophosphorous Pesticide Residues During Apple Thinning in Central Washington State”, American Industrial Hygiene Association Journal 60:752-761 (1999)

Thompson 2003

- OP metabolites in urine of 92% of 213 workers tested.
- Of 571 farm workers surveyed, more than 96% reported pesticide exposures at work:
 - 63.4% said pesticides touched clothes (33% daily)
 - 53.3% said pesticides touched skin (28.6%)
 - 51.6% breathed pesticides (19.7%)
 - 17.3% dusted or sprayed directly (2.5%)

(Thompson, 2003)

AZM Risks per EPA

- MOE <100 is considered unsafe by EPA.
- Even with full PPE, closed systems, and closed cabs, MOEs fall well below 100 for the majority of pesticide handler exposure scenarios considered.
- Re-entry MOEs < 100 for almost all activities, all crops

Weeks Where Safety Level Not Met (AZM)

Crop	Activity	EPA Safety Level (<100 = unsafe)	Weeks where safety level not met
Apples	Thinning	1	13
Apples	Harvesting	2	13
Pears	Thinning	2.1	13
Pears	Harvesting	1.9	12
Cherries	Harvesting	2.9	10

California Air Monitoring

- Short term CPF exposure estimates exceeded acute reference value for 50% of children in exposed populations.
- Farm workers and their children face higher risks than general population.

Lee et al, "Community Exposures to Airborne Agricultural Pesticides in California: Ranking of Inhalation Risks", EHP 110(12): 1175-1184 (December 2002)

Metam Sodium

- Reference values for non-cancer health effects in CA exceeded for 50% of exposed populations for sub-chronic and/or chronic exposures for MITC.
- Farm workers and their children at greater risk.
- 9,614,000 lbs (a.i. only) used in 2001 on WA potatoes alone.

California: Ranking of Inhalation Risks”, EHP 110(12): 1175-1184 (December 2002)

Worker Exposures

- Pesticides used in their own workplaces.
- Drifting from neighboring farms and orchards onto their workplaces.
- In their homes.

Worker Exposures =
Family Exposures

DRIFT

One study found that 63% of applicators had sprayed within 200 feet of their own homes at least once during the season.

(Loewenherz et al, "Biological Monitoring of Organophosphate Pesticide Exposure among Children of Agricultural Workers in Central Washington State", EHP 105(12): 1344-1353 (Dec. 1997))

Examples of Recent Findings

- AZM in 85% of dust samples from 156 homes, AZM metabolites in 88% of urine samples from 211 children. (Curl 2002)
- AZM, CPF, parathion, & phosmet all present in 62% of dust samples from 48 homes. (Simcox 1995)
- CPF in 100% of dust samples from 75 homes; on hands of 11% of children. (Fenske 2002)

Fenske et al, June 2000

- Exposure doses estimated for 109 children based on OP metabolites in urine.
- For farm worker children, 56% of estimated doses for spray season exceeded EPA's chronic dietary reference doses for AZM.

“Biologically Based Pesticide Dose Estimates for Children in an Agricultural Community”, EHP 108(6): 515-520 (June 2000)

Fig. 7. Percentage of Schools in Chelan, Douglas, Grant and Okanogan Counties Within 2000 ft of an Agricultural Area

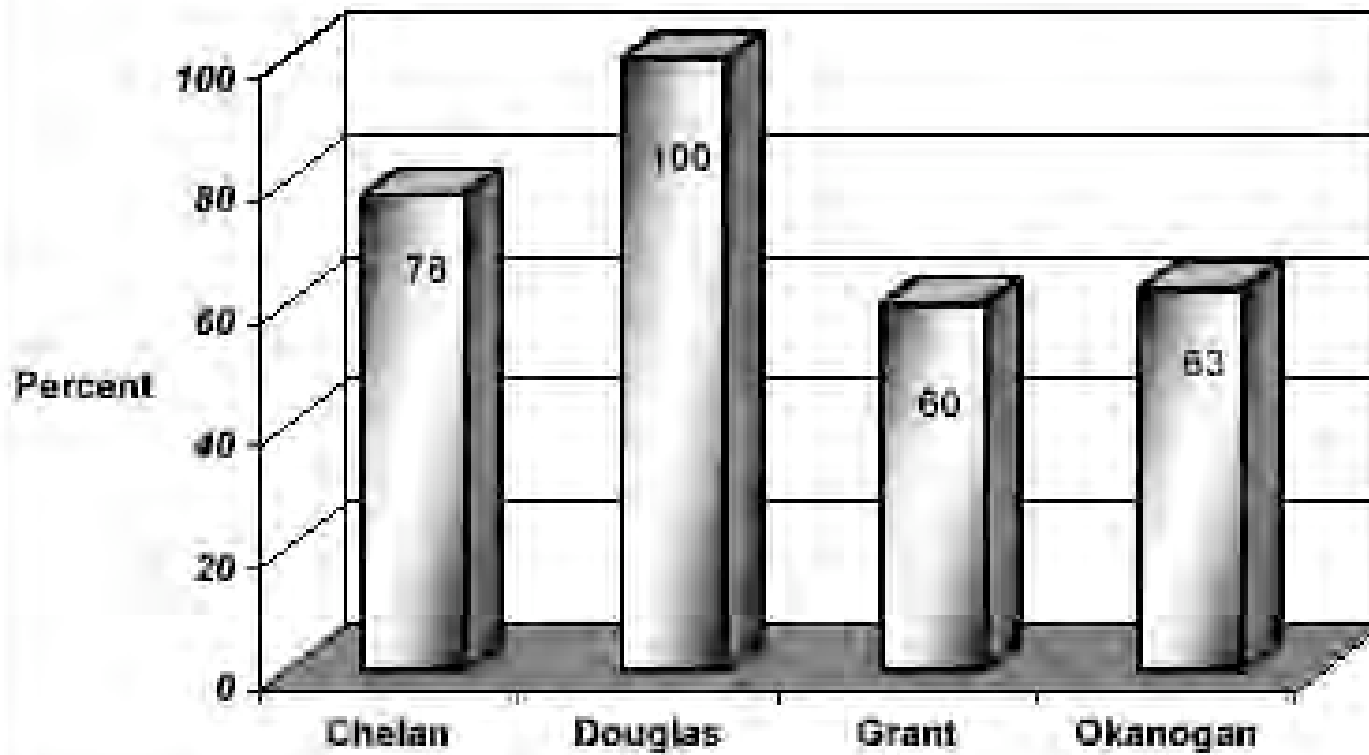
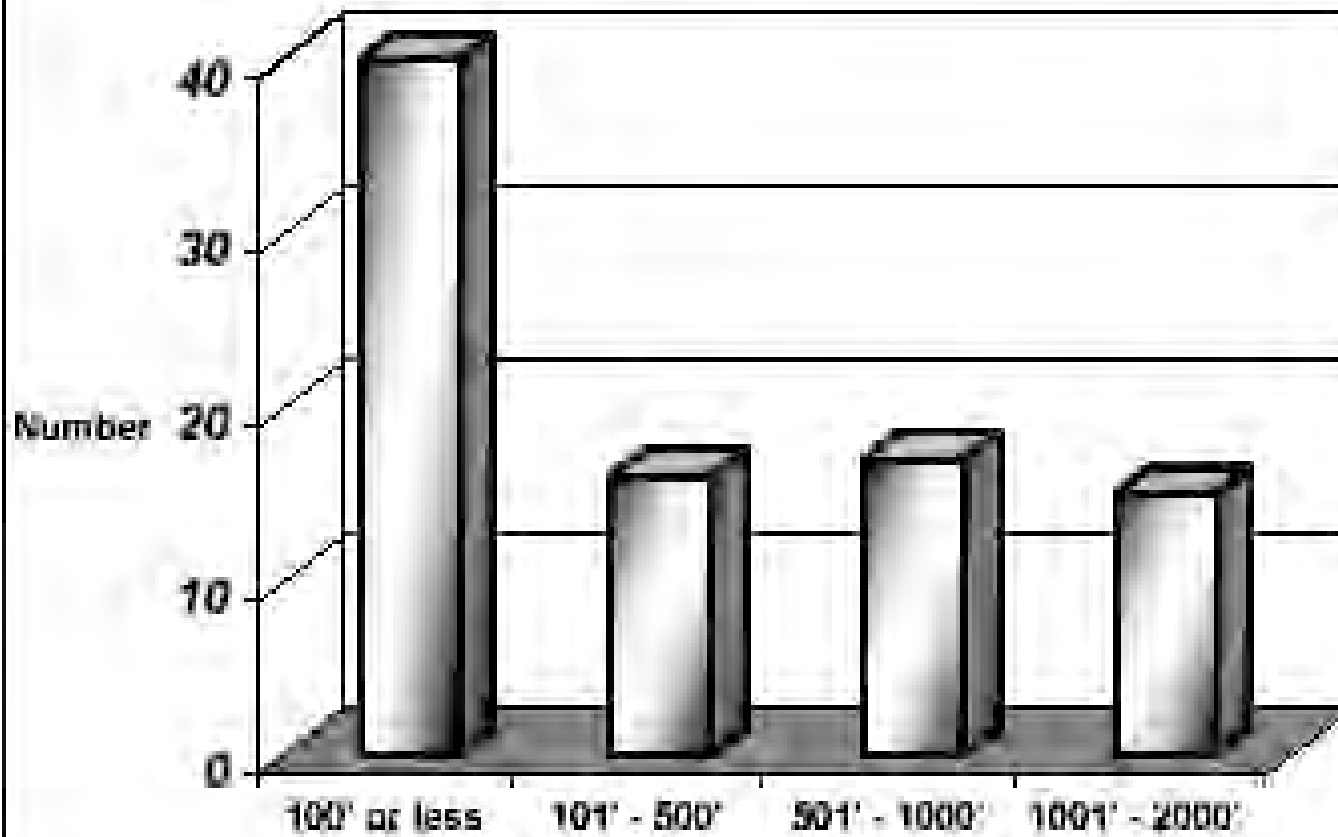


Fig. 2. Schools in Chelan, Douglas, Grant, and Okanogan Counties Within Specified Distances of Crops



Children are exposed

- *Homes & schools*
- *Playing, working in orchards and fields*
- *Prenatal*

Health Effects

- Chronic as well as acute exposures.
- Delayed as well as immediate effects.
- Children as well as adults
- Cumulative and multiple exposures

Examples of Health Effects

- Neurological damage
- Cancers
- Birth Defects
- Respiratory
- Developmental, reproductive
- Immune suppression
- Eye damage, skin
- Nausea, convulsions, other acute effects

“The weight of current evidence is therefore very much in favor of the motion that chronic low-level exposure to OP produces neurotoxicity.”

*Jamal et al. “Low level exposures to organophosphorus esters may cause neurotoxicity.”
Toxicology 181-182 (2002) 23-33*

National Academy of Sciences

Children's OP exposures are of special concern because "exposure to neurotoxic compounds at levels believed to be safe for adults could result in permanent loss of brain function if it occurred during the prenatal and early childhood period of brain development."

National Research Council. *Pesticides in the Diets of Infants and Children*. Washington: National Academy Press, 1993.

Implications

- Workers need better protection.
- Standards must be based on children and other neighbors as well as workers.
- We must dedicate real resources to addressing this problem and we must work toward real solutions.

Specific Reforms

1. Full enforcement of existing rules, including new medical monitoring rule.

2. Strengthening Protections for Workers, Families, Other Neighbors:

- Closed systems
- Longer REIs
- Better access to information
- Drift prevention
- Other reforms

3. REAL SOLUTIONS

Safer alternatives.

Sustainable agriculture.

Farm Worker Pesticide Project (Proyecto de Campesinos y Pesticidas)

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