

CHILDREN AND PESTICIDES

By Melanie Forti, Director of Health & Safety Programs, AFOP

Estimates are that 2.5 million migrant and seasonal farmworkers are in the United States, with an additional 400,000 to 500,000 children working in the fields alongside their parents.

In 2006, the Childhood Agricultural Injury Survey found 307,000 youth under the age of 20 are legally employed in the agricultural industry. No studies have been done on the number of child farmworkers under age 12; however, AFOP's Health & Safety Programs staff has documented children as young as six exposed to pesticides while working in the fields.

Pesticides include a large group of products designed to kill or harm living organisms including insects, rodents, plants, and animals, making the products inherently toxic.

Beyond obviously acute poisoning, the influences of consistent, low-level exposures on child health are poorly documented and of increasing concern to health professionals.

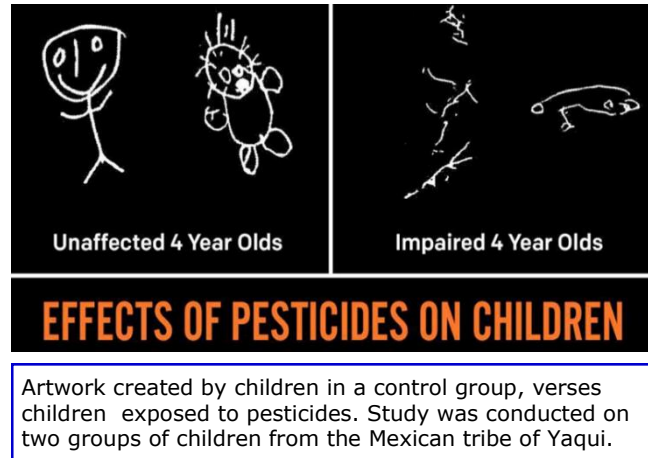
The Environmental Protection Agency (EPA) defines pesticides as "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control unwanted organisms such as rats or even deer.

Agricultural chemicals are used heavily in farming to control pests. While all pesticides can harm humans, insecticides and herbicides are the cause of most human poisonings.

There are critical periods in human development when exposure to a toxin can permanently alter the way an individual's biological system operates. This is relevant for children who may be exposed more to certain pesticides because they often eat foods that are different than adults.

Several factors contribute to the vulnerability of children to pesticides. We may think of them as "mini-adults," but in fact their bodies are not as prepared as a more mature body to process toxic chemicals. Because their glands, pancreas, liver, and kidneys are still developing, children's metabolic and immune systems cannot completely detoxify and eliminate toxins.

Absorption through the skin is the most common route of pesticide exposure among both adults and children. The dermal area of an infant per unit of body weight is greater than that of an adult, placing infants at increased damage from pesticide exposure. Also, due to the fact that children's skin is still growing and expanding, blood flow through the skin is greater, and that makes the skin absorb chemicals faster and move them throughout the body more efficiently. Additionally, their internal organs are still developing and their enzymatic, metabolic, and immune systems may provide less



natural protection than those of an adult.

Children encounter pesticides in their daily activities through air, food, soil or dust, and on surfaces from home and public lawn or garden applications, household insecticide use, application to pets, and agricultural product residues on fruits and vegetables.

Consumption is the most common source of pesticide exposure for the majority of American children. However, in agricultural settings, the main source of pesticide exposure is through pesticide spray and/or water drift, as well as by take-home exposure on the clothing and footwear of agricultural workers.

In urban settings, heavy use of pesticides for pest control may affect the health of children and teens. Many pesticides are hormone blockers, yet others mimic hormones, which can have serious effects on children's development from birth through adolescence.

Also, many adolescent workers may have occupational exposures on the farm, where 12 years is the legal age to perform most farm work, or when suburban youth earn a few extra dollars mowing lawns or doing yard work.

Americans use more than one billion pounds of pesticides each year to combat pests on farm crops and in homes, places of business, schools, parks, hospitals, and other public places. According to the EPA and the American Association of Poison Control Centers, "Annually, more than 10,000 kids are poisoned by rodenticides. Rat poisons are by far the leading cause of visits to health care facilities in children under the age of six years, and the second leading cause of hospitalization."

This graphic was part of a study done by an anthropologist who was looking at two groups of young children of the Yaqui Tribe in Mexico. The children live in an agricultural area, but whereas in the foothills pesticides are rarely used, the valley is inundated by pesticides. A group of four-year-olds were asked to draw a stick figure of a person. There is a dramatic difference between the motor abilities of the children growing up in the foothills as opposed to the valley.

Adverse effects of pesticide exposure range from mild symptoms of dizziness and nausea to serious, long-term neurological, developmental, and reproductive disorders.



Children learning about pesticide safety. AFOP

At AFOP Health & Safety Programs, we believe that prevention is an important key to helping maintain a healthier and safer life. We developed several curricula to prevent pesticide exposure among children and adults.

Our take-home exposure curriculum, *Limiting Exposure Around Families (LEAF)*, educates farmworker parents about the dangers of "take-home" exposure, urging them to consider precautions to prevent the transfer of agricultural pesticide residues from their work environments into their homes. The curriculum seeks to identify, increase awareness of, and mitigate take-home exposure risks to families through training and

other educational materials. As an extension to the *LEAF* curriculum, we also created a *Pesticide Exposure & Pregnancy (PEP)* curriculum that is focused on educating women who are pregnant, or may become pregnant, on the effects of pesticide exposure while working/living in agricultural settings.

AFOP's Health & Safety Programs also developed a storytelling curriculum, *José Learns About Pesticides*, for children ages 4 to 12 years. The curriculum teaches children how to protect themselves from pesticides at home or while in the field.

Prevention is the key to helping reduce pesticide exposure and subsequent health concerns. Benjamin Franklin said, "An ounce of prevention is worth a pound of cure." At AFOP's Health & Safety Programs, we are committed to the farmworker community by continuing to educate and provide adequate and effective tools needed for a healthier and happier life.