The Pesticide Label

Cooperative Extension Service
College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

Key to Pesticide Safety and Education

April–December 2015

In This Issue

RECERTIFICATION TOPICS

Other Articles

REGULATORY UPDATES

Special Local Need Registrations

NEW since the last issue of the newsletter:
None

EXPIRED April 1, 2015–March 31, 2016

For managers of **forested areas**—use of the product **First Choice® Sluggo® Slug and Snail Bait** (Loveland Products; **67702–3–34704**)—permitted by the labeling **HI–100004**—is not allowed on or after the expiration date 10/26/15.

For growers of **containerized corn, soybean, and sunflower grown for seed in plant breeding research programs**—use of the product **Merit® 1 G Greenhouse and Nursery Insecticide** (Bayer Environmental Science; **432–1329**)—permitted by the labeling **HI–100003**— is not allowed on or after the expiration date 2/7/2016.

If a link to a website is inoperable, try copying and pasting it directly into your browser.

RECERTIFICATION CREDITS may be earned by certified applicators who score at least 70% on the set of comprehension evaluation questions about the "recertification" articles in this newsletter. These articles have a title followed by "(recertification)." However, credits may not apply to the following categories: Private 2, Private 3, Commercial 7f, and Commercial 11. The question sets (quizzes) are written and administered by the Hawaii Department of Agriculture staff. To ask about earning recertification credits on Hawaii, call Derek in Hilo at (808) 974-4143. On Oahu, Kauai, Maui, Lanai, and Molokai, call Honolulu at (808) 973-9409 or 973-9424.

ENGINEERING CONTROLS FOR PESTICIDE EXPOSURE

(recertification)

How toxic are pesticides to the people who apply them? How does toxicity relate to exposure, or to hazard (risk)? What can be done to reduce pesticide exposure and lower your risk? Following a definition of terms, this article discusses engineering controls, an important method of reducing pesticide exposure.

Toxicity and exposure determine "hazard"

A *hazard* is the potential for injury or illness to occur because of the toxicity of a pesticide and human exposure to it.

Exposure refers to being in contact with the pesticide.

Toxicity is the ability of a pesticide to cause acute (short-term) or chronic (long-term) injury or illness. You can get an idea of a pesticide's toxicity by identifying the signal word on the product's label. The signal word DANGER appears on labels of pesticides with high toxicity ratings. WARNING indicates moderate toxicity and CAUTION means low toxicity. These ratings refer only to acute exposure to a pesticide when compared to other pesticides. Because wild animals and our pets and livestock can react differently than humans, it is not safe to assume that the signal words apply to them.

Toxicity is only part of the story, however. We must also consider exposure to the pesticide. For example, how many times are you exposed to the product? How long is each exposure? Is exposure by absorption through the skin (Fig. 1)? Is it by breathing spray mist, dust particles, or vapors? Or is the exposure due to swallowing the pesticide or getting it in the eyes?

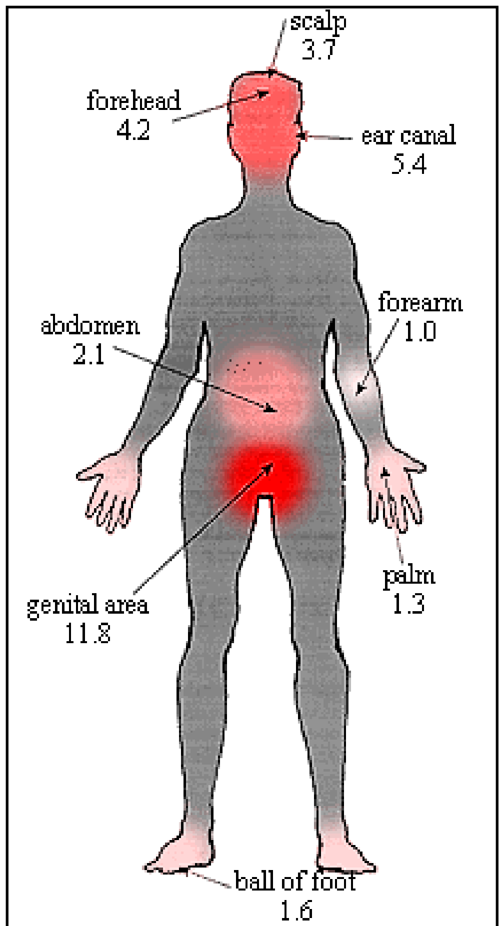


Fig. 1. Relative absorption rates, as compared to the forearm (1.0). Photo British Columbia Ministry of Agriculture http://www.agf.gov.bc.ca/pesticides/b_2.htm

Five safety strategies

No matter how you answer these questions, you should think about five widely-accepted safety strategies, listed here in order of priority:

1. Elimination of the need for a pesticide;
2. Substitution of a less toxic pesticide, such as a reduced risk pesticide;
3. Engineering controls;
4. Administrative controls (such as rules and training) to change work practices; and,
5. Personal protective equipment or PPE (such as goggles and gloves), which are the least effective.

Engineering controls

If elimination and substitution are impractical, engineering controls are the best strategy. They use equipment or some other device designed and made to reduce exposure at its source (Fig. 2). They can be more effective when used with administrative controls and PPE.

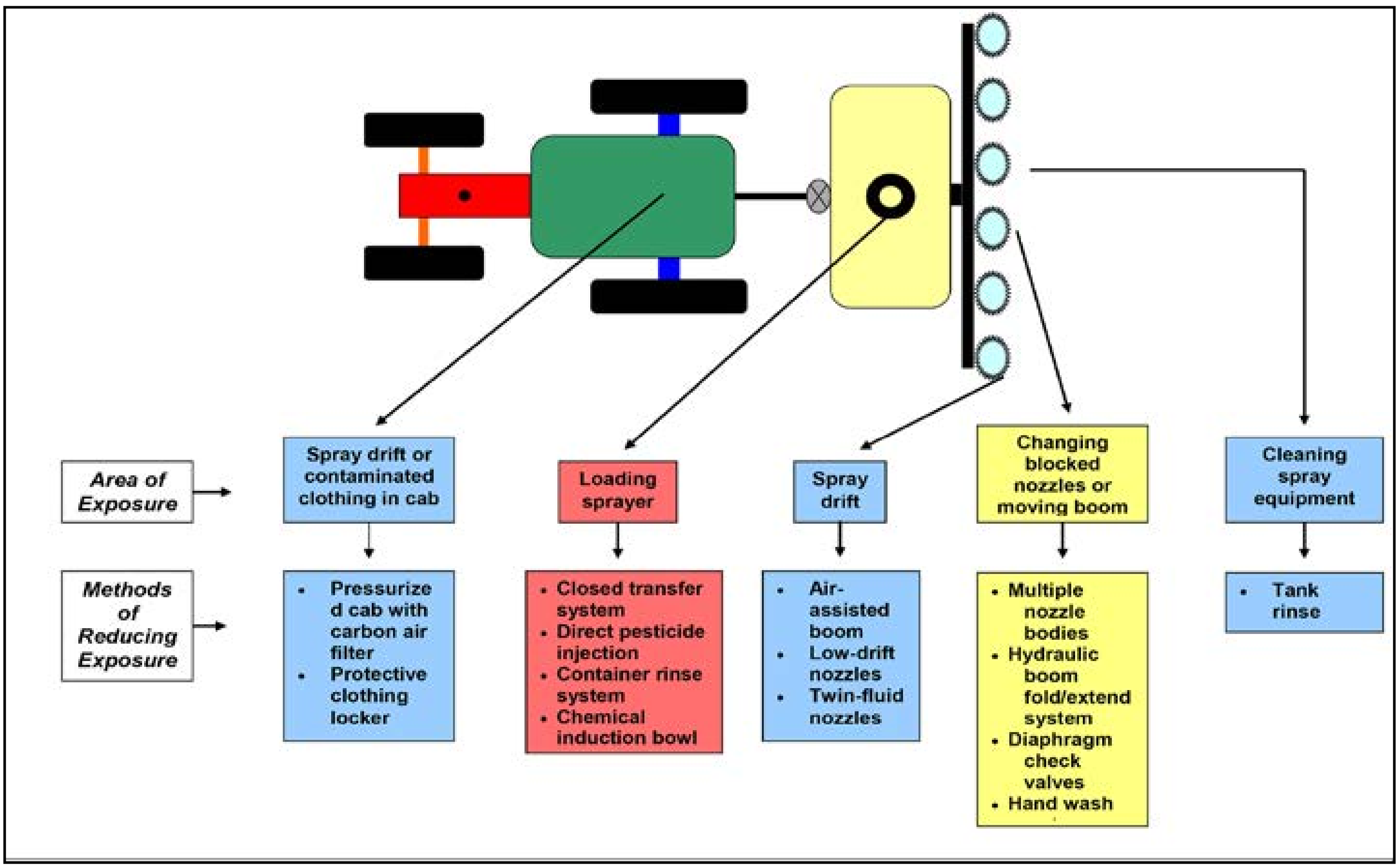


Fig. 2. Areas of potential pesticide exposure and engineering controls to reduce exposure. From "Solutions for Safer Spraying," Cornell

One type of engineering control is built into the packaging of some powder formulations of highly toxic pesticides. The **water-soluble packet** (Fig. 3) is wrapped in a waterproof foil bag. The packet itself encloses a measured amount of pesticide powder. You would use your hands only to tear open the outer foil bag and tip out the packet into water in a sprayer tank where the packet will dissolve and release the powder. This kind of packaging drastically lowers the risk of touching or inhaling the powder because you would not use your hands to scoop it from a conventional container, put it on a scale to measure it, and then put it into the tank.

Fig. 3. This foil bag contains a water-soluble packet of insecticide. The packet is added to the spray tank and mixed by the agitator, reducing the handler's exposure to the chemical.

A hand-powered **chemical transfer pump** can be used to get a liquid pesticide out of its container. Using the pump means you will not use your hands to pick up and tip the container to pour out the chemical.

Closed systems use complex machines for loading pesticide into large sprayers. In one system, an unopened container of liquid pesticide is placed in the machine which automatically punctures the container, drains out the chemical and pumps it into the sprayer tank, and finally pressure-rinses and crushes the container. This system actually prevents you from handling an opened container until it is ready for disposal.

A **direct pesticide injection system** controls the mixing of the pesticide from one tank with water from another tank in the line that fills the sprayer tank. You would not contact the chemical during mixing and loading.

An **induction bowl** (Fig. 4) is a metal, fiberglass, or plastic bowl attached to the side of the sprayer at about three feet above the ground. Instead of climbing onto the sprayer to load the pesticide, the handler can stand on firm stable ground when putting the pesticide into the bowl. Water is added after the pesticide and the resulting mixture pumped into the spray tank. (The bowl swings out of the way during pesticide application.)

Fig. 4. Handler adding pesticide concentrate to an induction bowl. Cornell Cooperative Extension Svc.

On a tractor-mounted sprayer, an **enclosed cab** (Fig. 5) equipped with air filters allows the operator to breath filtered air instead of air that could be heavily contaminated with spray mist. Labels of many agricultural-use

Fig. 5. Enclosed cabs protect the operator from pesticides they are applying. John Deere 6125R Farm Tractor Royalty-free Stock

pesticides specify this as an option for complying with the Worker Protection Standard, an EPA regulation.

Several devices control spray mist that could contact the sprayer operator. **Modified spray booms** take the form of fabric curtains to trap spray mist (Fig. 6), or air foils (attachments shaped like airplane wings) or air curtains that force the spray mist down towards the ground. (But air curtains can make spray drift worse when used over bare ground.) For a backpack sprayer's single nozzle, a plastic **nozzle shield** (Fig. 7) can be attached so that it surrounds the spray pattern.

Fig. 6. Boom sprayer with a fabric curtain (arrow) to help protect the applicator from spray drift. Photo Agshield Co., Ltd.

Generally, you should not count on a single strategy to get adequate protection from pesticide exposure. In some situations, engineering controls may be the most important strategy as they control chemical exposure at its source. But they are best used with administrative controls and personal protective equipment.

Fig. 7. A plastic shield for a single-nozzle spray wand.

Use of engineering controls in the Midwest: A small sample

Iowa State University asked certified private and commercial pesticide applicators in three Midwestern states about their use of engineering controls and personal protective equipment. Due to the small number of participants, large area covered, and different types of farming practices, the results may have limited application, especially to farmers in Hawaii. See References for a link to download this survey.

In the Midwest survey, engineering controls were more often used by growers of field crops (e.g., corn) with large farming operations employing boom and hydraulic sprayers (Fig. 8). The most-used engineering controls were enclosed tractor cabs (72%), low-drift nozzles (71%), a hand-wash water supply (64%), and a container rinse system (62%). Though most agricultural pesticide applicators in Hawaii have smaller farms, some of these engineering controls are worth considering.

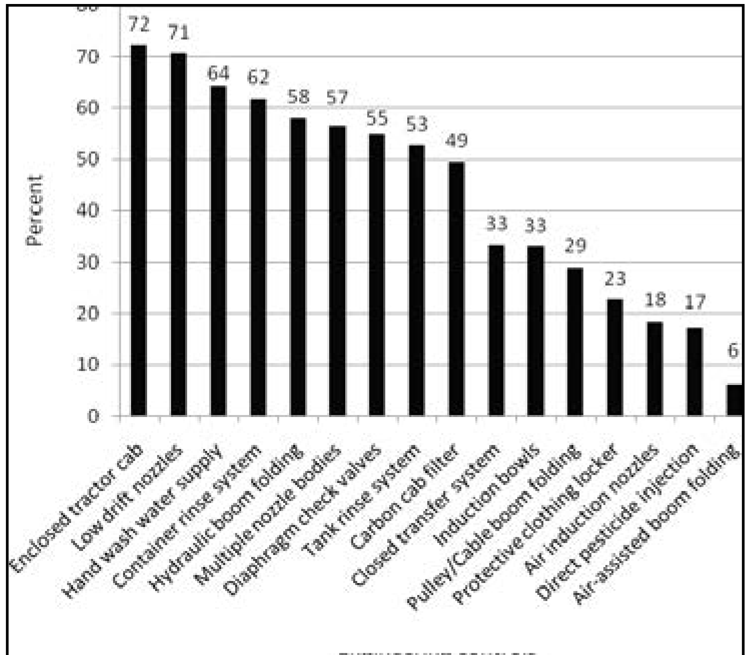


Fig. 8. Percentage of large-scale Midwestern growers surveyed that used engineering controls.

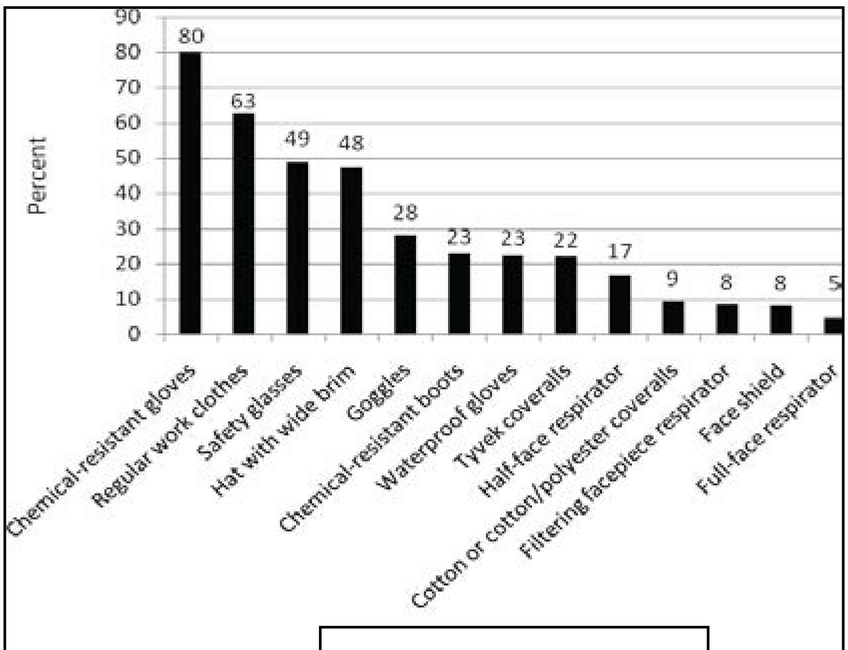


Fig. 9. Percentage of surveyed Midwestern growers that used types of personal protective equipment or regular work clothes.

A large number of the Midwestern respondents reported using personal protective equipment (PPE). More than 80% wore chemical-resistant gloves, 49% wore safety glasses, and 48% wore wide-brimmed hats. Interestingly, most respondents said they did not wear less PPE when using engineering controls.

References

CDC/NIOSH http://www.cdc.gov/niosh/pdfs/78-174d.pdf

Engineering Control Fact Sheet http://web.entomology.cornell.edu/landers/pestapp/eng.htm

Use of Engineering Controls and Personal Protective Equipment by Certified Pesticide Applicators. 2009. Iowa State University http://lib.dr.iastate.edu/abe_eng_pubs/111/

This article is based on one published in the April–June 2008 issue of "The Pesticide Label."

REDUCING SPRAY DRIFT: WINDBREAKS AND BUFFER ZONES

(recertification)

Drift is defined by the US Environmental Protection Agency (EPA) as the movement of a pesticide through the air at the time of application, or soon thereafter, to any site other than the site of application. Some pesticide labels include precautions to minimize drift and state that drift is the applicator's responsibility. While no single method can eliminate drift, a combination of methods can reduce it. Two methods of reducing pesticide drift are windbreaks and buffer zones. This article reviews factors to consider about windbreaks and buffer zones and how these elements can reduce drift.

Windbreaks

A *windbreak* is a fence, wall, row or rows of trees, etc. that reduces or redirects the wind. When the wind blows against a windbreak, air pressure builds up on the windward (upwind) side and air moves up and over the top or around its ends. The turbulence directly in front of, behind, and at its ends, however, makes it difficult to design the perfect windbreak. There are a number of uses for a windbreak, from reducing wind erosion and noise, to managing snow distribution. Our interest is in reducing *spray drift*—the amount of pesticide spray that moves out of the area we are spraying.

The ability of a windbreak to reduce drift depends on a number of factors, including its height, density, composition, capture efficiency, width and shape. The most important of these factors in reducing wind speed is height (H). Experiments have demonstrated that with a solid fence 10 feet high, wind speed within a distance of five times the height of the fence (5H), or 50 feet downwind, will be reduced by about 25% (Figure 1). Wind speeds can be reduced up to 30H behind a windbreak, but the reduction may be less than 10%. There is even a measurable reduction of wind speed 5H upwind due to turbulence. Generally speaking, the taller the windbreak the greater the zone it protects.

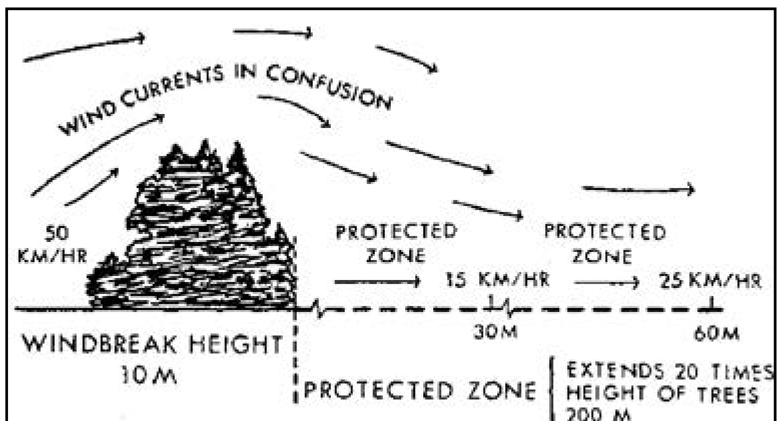


Figure 1. A taller barrier usually provides a longer protected zone, but permeability is also an important factor (see Table 1). Photo FAO

With windbreaks of a similar height, however, density may have the greatest effect on wind speed and drift. The density, or porosity, of a windbreak is the ratio of the solid part of the barrier to its total area. The denser a windbreak is, the less wind that is able to pass through it (Table 1). With the solid fence in our previous exam-

Table 1. Effect of barrier density on wind speed

WIND REDUCTION AT DIFFERENT BARRIER DENSITIES					
Open Wind Speed 20 mph, Solid Fence 100% Density					
Distance behind barriera	5H	10H	15H	20H	30H
MPH	5	14	18	19	20
% of open wind speed	25%	70%	90%	95%	100%
Open Wind Speed 20 mph, Multi-Row 60-80% Density					
Distance behind barrier	5H	10H	15H	20H	30H
MPH	5	7	13	17	19
% of open wind speed	25%	35%	65%	85%	95%
Open Wind Speed 20 mph, Conifer 40-60% Density					
Distance behind barrier	5H	10H	15H	20H	30H
MPH	6	10	12	15	19
% of open wind speed	30%	50%	60%	75%	95%
Open Wind Speed 20 mph, Deciduous Plants 25-35% Density					
Distance behind barrier	5H	10H	15H	20H	30H
MPH	10	13	16	17	20
% of open wind speed	50%	65%	80%	85%	100%

***H = height of the windbreak: if the barrier is 10' high, 5H is a distance of 50' (5 x 10') downwind of the barrier.** Table modified from Brandle and Finch, 2002.

ple, low pressure builds up behind it, pulling air coming over the windbreak downward. This creates a turbulence that reduces the protected area immediately downwind (Figure 2). Decreasing the density of the windbreak will increase the amount of air moving through it. This reduces the downwind turbulence and can increase the length of the sheltered area. According to the Food and Agriculture Organization (FAO), the optimum permeability for a windbreak is 40 to 50% open space and 50 to 60% vegetation.

An important aspect of porous vegetative barriers is their ability to trap airborne spray droplets. Drift assessment trials in New Zealand compared pesticide residue levels downwind of artificial and natural (live) barriers. Residues were reduced almost 10-fold in the lee of natural, compared to artificial windbreaks. All vegetation types are not equal in reducing spray drift. Recent studies suggest that the needle-like leaves of pines and firs, or the fine leaves of cedar and *Casuarina* capture more spray than broadleaf trees and shrubs. Their finely divided leaves have more surface area to trap and hold spray.

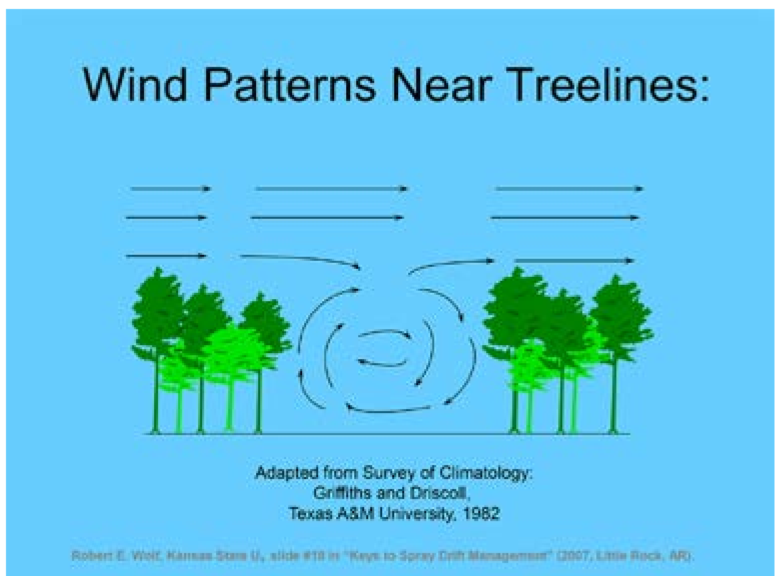


Figure 2. Wind blowing over the top of a windbreak is pulled downward, creating turbulence behind it.

The width, or number of rows in a windbreak, also affects its density. Though more rows increase the density, a single row of closely spaced trees can be as dense as several more widely spaced rows. If one tree in a single row dies, however, it creates a gap in the barrier. Any gap in the windbreak—dead plants, damaged fencing, roads— will affect its continuity. Wind will funnel through the gap and can reach speeds downwind that exceed its initial velocity.

The length and height of a windbreak determine the total area protected. The most efficient length for a windbreak is ten times its height. This 10:1 ratio reduces barrier-end turbulence in the protected area.

Generally speaking, windbreaks should be built at right angles to the prevailing wind. If cross winds are common in your area, legs can be extended perpendicular to the barrier and to the crosswind (Figure 3).

Figure 3. Legs (arrows) extending perpendicular to the barrier help protect crops from crosswinds. Photo NRCS USDA

Buffer Zones

A *buffer zone* is an untreated area between the sprayed field and an area to be protected (Figure 4). Environmental monitoring by the USDA determined that an 18.3 m no-treatment zone was effective in protecting an endangered species habitat from malathion drift. A study from the Netherlands reported a 2.25 m buffer zone reduced spray drift to surface water next to a potato field by 50%. Many factors determine the effective width of a buffer zone, including: toxicity of the pesticide, sensitivity of the protected area, windspeed, spray droplet size, method of application, etc. Therefore, buffer zone widths must be determined on a case-by-case basis.

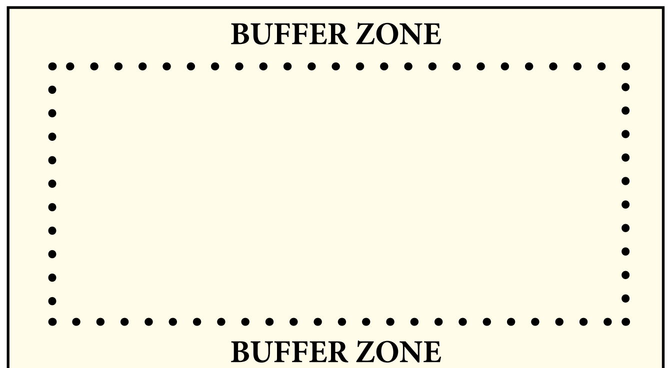


Figure 4. Buffer zone surrounding a field where a soil fumigant is being applied. To calculate buffer zone size for fumigant application, see EPA link in References.

Is a windbreak or buffer zone, or both, right for your situation? Here are some points to consider: (1) the time it takes windbreaks to become established, (2) damage pesticides may cause to a natural (living) barrier, (3) the amount of land needed, and (4) the cost of preparing and maintaining windbreaks and buffer zones.

Pesticide spray drift is a result of improper application techniques and uncontrollable environmental conditions. Thoughtful applicators postpone pesticide treatments scheduled for hot, dry, windy days until a time when the winds are calmer. They also select a spray pattern with the highest proportion of large droplets consistent with good spray coverage. Consider windbreaks and buffer zones because they can provide significant drift reduction even when other practices are impractical.

References

Brandle and Finch. 1991. How Windbreaks Work. Viewed on 27 October 2015 at http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1122&context=natrespapers

EPA. 2015. Calculating Buffer Zones (fumigants). 2015. Accessed 27 Oct. 2015 at http://www2.epa.gov/soil-fumigants/calculating-buffer-zones-guide-applicators

LABELING SECONDARY CONTAINERS AND SERVICE CONTAINERS

(recertification)

Questions are sometimes asked about transferring pesticides from their original container to other containers. This article defines secondary containers and service containers, whether labeling them is required, and what information a label should include.

A *secondary container* is used to store or apply a pesticide registered by the Environmental Protection Agency (EPA). The pesticide cannot be sold or distributed while in a secondary container. Secondary containers are often used to store concentrated pesticide from a larger container, or to store or hold the dilution prior to application.

A *service container* is filled with an EPA-registered pesticide by an applicator and usually transported to the field where the pesticide will be applied by the applicator. The pesticide may be stored in the service container, but only for a short time. The pesticide cannot be sold or distributed while in a service container.

There are no federal or state regulations requiring labels on secondary containers or service containers. The EPA does, however, have some recommendations to improve the safety of their use and provide information in case of a pesticide release (leak, spill, or fire).

- The name, address and telephone number of the applicator and pest control firm [if applicable].
- Product name.
- EPA registration number.
- Name and percentage of active ingredient, or the percentage of active ingredient in the end-use dilution.
- If the product in the container is diluted, it should be followed by the phrase: "The product in this container is diluted as directed on the pesticide product label."
- Signal word and precautionary statements from the registered label unless the registrant has acute toxicity data supporting lesser precautionary statements for the diluted product and alternate directions for the diluted product are indicated on the product label; and
- The statement: "Follow the directions for use on the pesticide label when applying this product."

Hawaii Department of Agriculture also suggests that, "Before transferring a pesticide from a large container to a smaller one that previously held the exact same product, check to see that the label does not prohibit reuse of the smaller container."

References

EPA. Secondary Containers and Service Containers for Pesticides. Accessed 7 November 2015 at http://www2.epa.gov/pesticide-labels/secondary-containers-and-service-containers-pesticides
EPA. Pesticide Containers. Accessed 9 November 2015 http://www2.epa.gov/pesticide-worker-safety/pesticide-containers
University of Wisconsin. Service Containers: Label Reminders. Accessed 6 November 2015 at http://ipcm.wisc.edu/pat/2014/06/service-containers/

PESTICIDE REPORT: CALIFORNIA FRUITS, VEGETABLES SAFE TO EAT

State samples domestic produce and imports for pesticide residues

by Todd Fitchette, Western Farm Press, 15 October 2015 http://westernfarmpress.com/vegetables/pesticide-report-california-fruits-vegetables-safe-eat

State regulators frequently test produce from a variety of sources, including farmer's markets, for dangerous pesticide residues. Produce testing under California's stringent protocols revealed over 96 percent of the fruits and vegetables sampled for pesticide residues had little to none detectable. A report released by the California Department of Pesticide Regulations (DPR) says the agency sampled about 3,500 different pieces of produce in 2014 and determined that a significant portion of it was safe for human consumption. "This report further confirms that California's vigorous pesticide regulatory program creates a reliable marketplace where consumers can have faith in their fresh fruits and vegetables," said Brian Leahy, DPR director. "The pesticide rules and oversight we have in this state are effective at protecting the produce that we enjoy eating."

According to the report, the year-round collections of produce from grocery stores, farmers markets, food distribution centers, and other outlets throughout California include certified "organic" fruits and vegetables. Of the products labeled "organic" – 234 total samples – about 3 percent had pesticide residue levels in violation of state labeling guidelines, according to Charlotte Fadipe, spokesperson for California DPR.

The produce is tested using state of the art equipment for 300 types of pesticides operated by the California Department of Food and Agriculture (CDFA).

The U.S. Environmental Protection Agency sets standards allowing fruits and vegetables to contain trace amounts of pesticide. The highest residue level that is allowed on that commodity is called a "tolerance." Violations occur if a residue exceeds the tolerance for the specific fruit/vegetable, or if no tolerance has been established.

According to the report:

- 93.43 percent of all produce samples (California grown and non-California grown) had pesticide residue levels that were legal, i.e., at or below EPA tolerances.
- Of those, 40.74 percent had no detectable residues at all, while 52.69 percent had residues detected within the legal level.
- 1.07 percent of the samples had pesticide residues in excess of the established tolerance level.
- An additional 5.5 percent of the samples had illegal traces of pesticides not approved for that commodity.

Illegal residues

Produce that most frequently tested positive for illegal pesticide residues in 2014 included ginger from China; cactus pads, cactus pears, limes, papaya, summer squash, tomatillos, chili peppers and tomatoes from Mexico; and spinach and kale from the United States.

If DPR finds produce with illegal residues, it quickly works to remove it from the chain of distribution (to prevent it from reaching consumers) and also attempts to trace it to its source.

The tainted lots are quarantined. Businesses that violate California pesticide residue laws face loss of their product and fines. In Dec. 2014, DPR imposed a $21,000 fine against a California produce importer with a history of recurring pesticide residue violations, mostly on produce imported from Mexico.

DPR continues to find a small but significant number of cases of illegal residues on fresh produce from Mexico and other countries. To help address this, in 2014 DPR enforcement staff gave presentations about the DPR Pesticide Residue Monitoring Program to about 160 Mexican fruit and vegetable growers at workshops in Mexicali and Ensenada.

The 2014 pesticide residue monitoring data is posted at: http://www.cdpr.ca.gov/docs/enforce/residue/rsmonmnu.htm.

The California Department of Food and Agriculture's Multi-Residue Screening tests foods for over 650 common pesticides.

COMMENT PERIOD FOR PESTICIDE APPLICATOR RULE CHANGES EXTENDED BY EPA

The U.S. Environmental Protection Agency (EPA) is proposing changes to rules governing certification of applicators of restricted use pesticides (RUPs). The deadline for comments has been extended from 23 December 2015 until 22 January 2016. You can submit a comment at www.regulations.gov using the docket number EPA-HQ-OPP-211-0183.

EPA proposed stronger rules for the approximately one million applicators of RUPs in August 2015. Their stated goal is to reduce the chances of harm caused by misapplication of the most acutely toxic pesticides, RUPs.

This rule will affect all certified applicators, both commercial and private, and all states and tribes that have certification programs. Most of the proposed rules are already part of these programs, but some are being strengthened. Here is a list of EPA's proposed changes:

- Enhances applicator competency standards.
- Establishes for the first time, a nation-wide minimum age of 18 for certified applicators and persons working under their direct supervision.
- Requires all applicators to renew certifications every three years.
- Requires additional specialized certifications for people using high-risk application methods (fumigation and aerial).
- Requires first-time annual safety training and increased oversight for persons working under the direct supervision of a certified applicator. Training includes the topic of reducing take-home pesticide exposure to protect worker families.
- Promotes interstate recognition of applicator licenses.
- Provides expanded options for establishing certification programs in Indian Country that acknowledge tribal sovereignty.
- Clarifies and streamlines requirements for states, tribes, and federal agencies to administer their own certification programs.

This proposal will also indirectly affect homeowners, whether RUPs are applied by professional pest control handlers on their property or not. However, most states already require all commercial applicators to be certified, even if they don't apply RUPs,

EPA has been considering changes in the certification program since the 1990s. This proposal is based on information collected through consultations with state regulatory agencies, other stakeholders, and individuals during this time. When the comment period expires EPA will draft a final regulation, which will be reviewed by the U.S. Department of Agriculture and the Office of Management and Budget. The final regulation will then be issued.

U.S. EPA CERTIFICATION OF PESTICIDE APPLICATORS RULE

COMPARISON OF THE MAJOR NEW PROPOSED PROTECTIONS TO THE EXISTING PROTECTIONS

PROPOSED RULE	CURRENT RULE
Certified Applicators	
Strengthen competency standards for private applicators to cover content necessary for safe application of RUPs, similar to commercial applicator core competency plus agricultural pest control	Private applicator competency standards cover 5 general topics
Establish certification categories for certain application methods (soil fumigation, non-soil fumigation, aerial application) for private and commercial applicators	Private applicators: no categories of certification Commercial applicators: no additional certification to use certain application methods
Establish a mandatory 3-year certification period for private and commercial applicators and minimum requirements for recertification programs (continuing education or retest)	No federal requirements for recertification (timeframe or content)
Eliminate special process to allow non-readers to be certified as private applicators	Non-readers can be certified to use restricted use pesticides under a special process administered by the State
Noncertified Applicators Working Under the Direct Supervision of Certified Applicators	
Require pesticide safety training for noncertified applicators using RUPs similar to the training for handlers under the Worker Protection Standard (safety, proper pesticide application techniques, responding to spills, protecting oneself, others and the environment) Exemption from the training requirement for those with valid WPS training and those who have passed the commercial core exam	No requirement for instruction in safety, proper pesticide application techniques, responding to spills, protecting oneself, others and the environment
Require the supervising applicator to **provide specific instructions** related to application and ensure that the noncertified applicator has a copy of the labeling at the time of application	Supervising applicator must provide general guidance on applying a specific pesticide
Require supervising certified applicator to provide means for **immediate communication** with noncertified applicator	Supervising applicator must provide noncertified applicator with instructions on how to contact the supervisor in the event he or she is needed
Minimum Age	
Require all persons using restricted use pesticides to be **at least 18 years old** (private applicators, commercial applicators, noncertified applicators)	No minimum age to use restricted use pesticides
Program Administration	
Require candidates for certification and recertification to **present identification**	No identification required for persons seeking certification to apply restricted use pesticides
Require certification exams to be closed bood and proctored	**Certification exams must be written**
Require dealers of restricted use pesticides to maintain records of sales	**No requirement for dealers of restricted use pesticides tomaintain records**
Require specific information on the credential (licednse) issued to a certified applicator	**No federal requirements for what information must be included on documents used to verify an applicator's certification status**

PROPOSED CHLORPYRIFOS BAN WOULD HURT PRODUCE GROWERS, SAYS CFFA

This article from "*FreshFruitPortal.com*" accessed 4 November 2015 at http://www.freshfruitportal.com/news/2015/11/04/u-s-proposed-chlorpyrifos-ban-would-hurt-produce-growers-says-cffa/?country=australia

A key representaitve from California's fruit industry believes the proposed ban on the common insecticide chlorpyrifos could indirectly hit production and even lead to higher prices for consumers.

The Environmental Protection Agency (EPA) recently opened a public comment period to revoke all food residue tolerances for the chemical.

Chlorpyrifos is used on a variety of fruit crops including apples, citrus, grapes and cherries, as well as other produce items like almonds, walnuts, broccoli, cabbage, cauliflower and asparagus.

The EPA claimed traces had been found in waterways and said overuse could make targeted insects immune, amongst other issues.

However, California Fresh Fruit Association (CFFA) president Barry Bedwell said the product has always had a good safety record.

"The proposed ban is a confirmation of the growing trend to ban or severely limit the use of pesticides due to selective and largely inaccurate portrayals by anti-pesticide activist groups."

"As an example, activists point as one of the factors that 'dozens of workers' have been sickened due to the use of this product. However given the use by literally hundreds of thousands of agricultural workers over the years, the fact is that the product actually has a very good safety record.

"Keep in mind that the misuse of any product such as a pesticide can result in negatives [*sic*] consequences but when used properly, workers are kept safe and pests are eliminated as intended."

He added that chlorpyrifos was a 'very important' product with a high level of efficacy for a "large number of crops in treating destructive pests that can materially limit production."

"If this material were to be banned, growers would have to turn to other materials that are less effective and more costly," Bedwell said.

"Unfortunately, the net result might be the use of even larger quantities of lesser effective pesticides at a greater cost to the grower and ultimately to the consumer."

The EPA said it would take public comments on the proposal for at least two months, with a final rule expected in December 2016. The rule would not take effect until 2017 at the earliest.

EPA PULLS REGISTRATION FOR DOW'S ENLIST DUO

This article from "*Feedstuffs.com*," accessed 28 November 2015 at http://feedstuffs.com/story-epa-pulls-registration-dows-enlist-duo-45-134634

The Environmental Protection Agency withdrew its approval of a new weed killer that combines *glyphosate* and *2,4-D*. Dow AgroSciences developed this two-ingredient product for use on the next generation of genetically engineered crops.

It has been over a year since the agency approved the herbicide, saying at the time the decision to approve the pesticide would help manage the problem of resistant weeds and their decision "reflects a large body of science and an understanding of the risk of pesticides to human health and the environment."

Palmer amaranth (*Amaranthus palmeri*) was one of the first weeds reported resistant to glyphosate (Roundup®). It can grow over 6 feet tall, produce more than 100,000 seeds, and outcompete most crop plants. The weed has caused yield losses of 91% in corn and 79% in soybean (Purdue Ext. Pub.). Photo J. LaForest,Bugwood.org

Following the approval in October 2014, several environmental groups sued EPA in the Ninth Circuit Court of Appeals on EPA's decision to register the Enlist Duo pesticide product for use on corn and soybean genetically modified to be tolerant of this pesticide.

On Nov. 25, EPA asked the court to vacate and remand the registration of the pesticide Enlist Duo "because the agency has received new information from Dow AgroSciences—the registrant of Enlist Duo—that suggests the two active ingredients could result in greater toxicity to non-target plants. Dow had not provided this information to EPA prior to EPA issuing the Enlist Duo registration. EPA has not yet completed its review of the new information," EPA said in a statement.

EPA said it is seeking a remand because this new information could lead EPA to a different decision on the restrictions for using Enlist Duo. "Specifically, this could result in changes to the width around application areas of no-use buffer zones that EPA imposed to protect nontarget plants, including those listed as endangered," EPA added.

Initially in 2014 EPA put in place restrictions to avoid pesticide drift, including a 30-foot in-field "no spray" buffer zone around the application area, no pesticide application when the wind speed is over 15 mph, and only ground applications are permitted.

Dow said in a statement that it had only heard about the issue the night before but remains confident in the extensive data supporting Enlist Duo herbicide. "We are working with EPA to quickly provide further assurances that our product's conditions of registered use will continue to protect the environment, including threatened and endangered plant species," Dow said.

"Recognizing the pressing needs of U.S. farmers for access to Enlist Duo to counter the rapidly increasing spread of resistant weeds – and in light of the comprehensive nature of the regulatory assessments already conducted to support the Enlist Duo registration – we expect that these new evaluations will result in a prompt resolution of all outstanding issues," Dow said.

Research trial to find an effective herbicide against Palmer amaranth. Photo J. LaForest.Bugwood.org

The herbicides 2,4-D and glyphosate are two of the most widely used herbicides in the world for controlling weeds. Dozens of other countries including Canada, Mexico, Japan and 26 European Union members have approved these pesticides for use on numerous crops and residential lawns. In 2013, Canada approved the use of Enlist Duo for the same uses that EPA is authorizing.

Enlist Duo is a combination of two herbicides - 2,4-D and glyphosate - designed for use in herbicide resistant corn and soybeans. Glyphosate was already widely used on those plants before Enlist Duo was registered; 2,4-D was not.

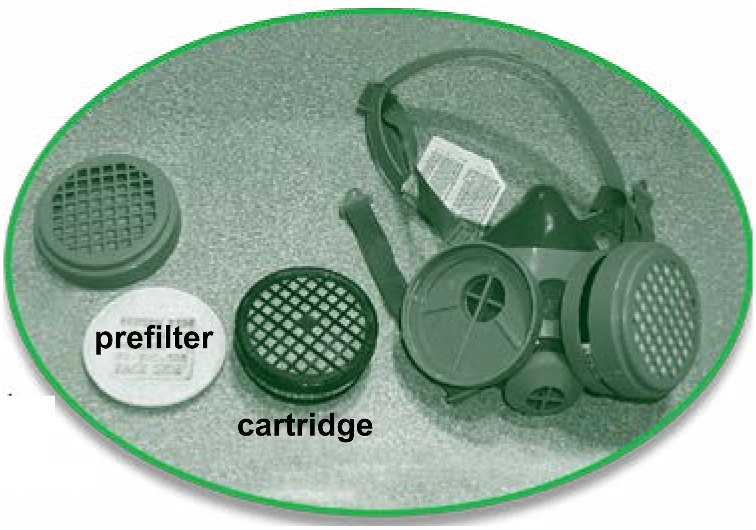
References

Purdue Extension Publication WS-51 https://www.extension.purdue.edu/extmedia/WS/WS-51-W.pdf

ILLUSTRATED GLOSSARY
Terms from Pesticide Labels
(recertification)

Organic-vapor-removing cartridge. Black plastic part of an air-purifying respirator (photo below) filled with activated carbon (charcoal) that will adsorb certain gases , vapors, or both.

Prefilter. Fibrous pad through which inhaled air first passes (photo below), filtering out dry or liquid particles before the air enters the cartridge.



This is a schematic of a half-mask, air-purifying respirator. It cleans contaminants from the air via cartridges and/or filters before the air is inhaled. This is one of the most commonly used respirators by pesticide handlers and is also available as a full-face mask or as a powered unit.
All respirator photos are from the National pesticide Applicator Certification Core Manual, 2nd edition (2014)

Canister. The metal container (photo right) on a "gas-mask type" air-purifying respirator. It is filled with sorbents and catalysts that remove gases, vapors, and other particles from inhaled air. Contaminants are removed by filtration, absorption, adsorption, catalysis, and other methods.

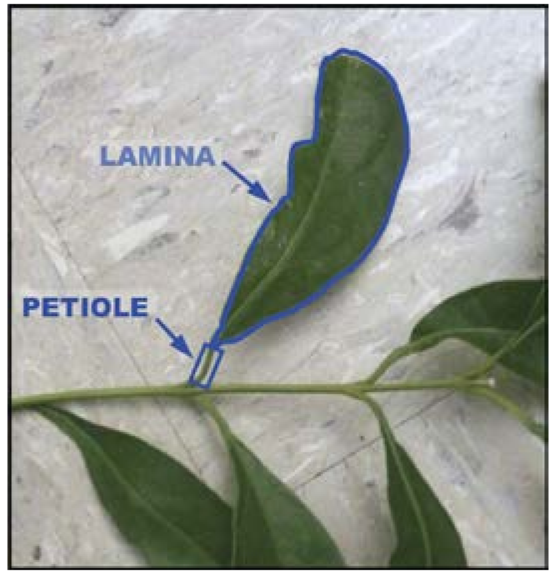
Canister respirator

Label example. *Applicators, mixers, loaders, and other handlers must wear [a] respirator with either an* <u>organic-vapor-removing cartridge</u> *with a* <u>prefilter</u> *approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a* <u>canister</u> *appoved for pesticides (MSHA/NIOSH approval number prefix TC-14G).*

Lamina. Usually flat blade-like part of a leaf that increases the photosynthetic capacity of a plant.

Petiole. The stalk that attaches a leaf blade (lamina) to the plant.

Label example. *This defoliation is characterized by the leaf* lamina *falling off leaving the leaf* petiole *still attached to the stem.*



Pressure rinsing nozzle. A specialized nozzle (A) made to rinse the inside of a pesticide container. Water enters the nozzle under pressure through a hose and exits from small holes in the tip. The empty container is placed over the spray tank and the handler twists the nozzle (B) to direct the spray around the inside of the container until the water runs clean.

Photos University of Florida/IFAS Extension Services

Photo North Carolina State University

Label example. *Insert* pressure rinsing nozzle *in the side of the container and rinse at about 40 psi for at least 30 seconds.*

Definitions in this Illustrated Glossary are intended to help understand terms used on pesticide labels. Other definitions may be available for these terms.

The Pesticide Label

PREVIOUS RECERTIFICATION ARTICLES

Archived issues of *The Pesticide Label* available free for download at
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