



Plant-Back or Rotational Restrictions – Guidelines When None are Indicated on the Label

Plant-back restrictions appear in a pesticide label either because soil residues of some pesticides can adversely affect the growth of sensitive rotational crops or because a tolerance for the active ingredient has not been established for the next crop in rotation.

While herbicide labels typically list rotational restrictions arising from possible crop injury concerns, plant-back restrictions are less common with insecticides and fungicides, but they do exist. Residue tolerance is the maximum amount of pesticide residue that may legally remain on or in food or feed at the time of harvest or slaughter. The limit is established by USEPA. If a pesticide residue level exceeds the food or feed tolerance limit, or if there is not an established tolerance for the residue, the commodity can be embargoed, condemned, or destroyed. Accordingly, the commodity cannot be sold or bartered.

Admire[®] 2 Flowable Insecticide

ROTATIONAL CROPS

Treated areas may be replanted with any crop specified on an imidacloprid label, or any crop for which a tolerance exists for the active ingredient, as soon as practical following the last application. For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.

IMMEDIATE PLANT-BACK:
 Immediate crops on this label plus the following crops not on this label: barley, canola, corn (field, pop & sweet), rapeseed, sorghum, soybean, sugarbeet and wheat.

30-DAY PLANT-BACK:
 Cereals (including buckwheat, millet, oats, rye, and triticale), and safflower.

10-MONTH PLANT-BACK:
 Onion and bulb vegetables.

Figure 1. Example of various plant-back restrictions on Admire 2F label.

DUPONT CROP PROTECTION

SPECIAL LOCAL NEED 24(C) LABELING

DUPONT[™] CURZATE[®] 60 DF FUNGICIDE

FOR THE CONTROL OF DOWNY MILDEW IN SPINACH, CABBAGE, SWISS CHARD, AND TABLE BEET GROWN FOR SEED IN THE STATE OF WASHINGTON

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF WASHINGTON

DUPONT[™] CURZATE[®] 60 DF FUNGICIDE

EPA REG. NO. 352-592
 EPA SLN NO. WA-990021

FOR CONTROL OF DOWNY MILDEW IN SPINACH, CABBAGE, SWISS CHARD AND TABLE BEET GROWN FOR SEED

USE PRECAUTIONS AND RESTRICTIONS

- Do not replant treated fields to any crop within 30 days after last CURZATE[®] 60 DF treatment.

Figure 2. SLN label for Curzate 60 DF displaying plant-back restrictions.

On a pesticide label, plant-back restrictions may be crop specific or inclusive of crops not otherwise listed (commonly, “all other crops”). The plant-back label provisions for Admire 2F (Figure 1) reference both of these plant-back restrictions. The WSDA-issued supplemental label (SLN, Special Local Needs) for the fungicide Curzate 60DF (Figure 2) stipulates that the treated field cannot be replanted to any crop for 30 days following the last application.

However, what are the plant-back guidelines when no restrictions are referenced on a product label, or when no citation is made to a specific crop? Can it be assumed that no rotational or plant-back restrictions apply?

In response to these questions, USEPA writes: “If a pesticide is registered on an agricultural crop(s) and there are no restrictions on the product label concerning when rotational crops may be planted

or any other planting restriction intervals, such as crop failure, then it would not be a violation of FIFRA [Federal Insecticide Fungicide and Rodenticide Act] to plant new crops at any time.”

The minimum rotation interval represents the time period from the last application to the anticipated date of the next planting. Pesticide degradation as influenced by soil pH, presence of soil microorganisms, soil texture, soil temperature, and soil moisture can extend rotational restrictions. The label may require that a field bioassay (e.g., lettuce seed test, tomato transplant test, growing test strips of the rotational crop) be performed.

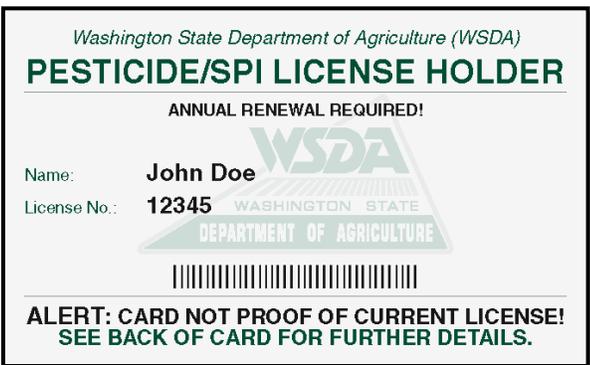
Pesticide Applicator License Applicants – How Old is Old Enough? It Depends.

Reasoning that a pesticide applicator license could be an avenue for summertime employment, at this time of year, a few enterprising high school students inquire about the possibility of obtaining a license. Some people learn early in life that a simple question does not always evoke a straightforward response.



The Washington Pesticide Application Act (RCW 17.21) and the Labor and Industries (L&I) Agricultural Employment Standards (WAC 296-131) must be examined relative to age requirements for pesticide applications.

Depending on the type of license, [RCW 17.21.132\(2\)](#) specifies the age requirements for pesticide license applicants. Those interested in obtaining a Private Applicator, Limited Private Applicator, or Rancher Private Applicator license must be at least 16 years of age on the day that they apply for the pesticide applicator license. However, when an employee-employer relationship exists, circumstances change.



Commercial business ventures are subject to the L&I-enforced agricultural employment standards and to the commercial pesticide license requirements as enforced by WSDA. [WAC 296-131-125\(2\)](#), the prohibited and hazardous employment section of the L&I employment standards, stipulates that no employed minor under the age of 18 can handle, mix, load, or apply – including the cleaning or decontaminating of equipment – Class I (Poison-Danger or Danger) or Class II (Warning) pesticides.

Therefore, if hired by an agricultural employer, the minor is covered under the L&I rule and is prohibited from applying these pesticides, unless the minor is an immediate family member where no employer-employee relationship exists for the type of work performed. Note: The Minimum Wage Act requires payment of minimum wage for agricultural employers who employ their own children, precluding the exceptions as cited in [RCW 49.46.010\(5\)](#).

The WSDA law governing commercial pesticide license holders ([RCW 17.21.132\(2\)](#)) is based on the L&I agricultural employment standard. Subsection 2 reads: “For all classes of licenses . . . applicants shall be at least 18 years of age on the date that the [pesticide license] application is made.”

Delivery Slips, Proper Storage, and the End User . . . What do They Have in Common?

Regardless if a general use or restricted use product, the responsibility of the seller concerning the delivery of a pesticide to the end user (pesticide applicator) is the same. Specifically, in referencing [WAC 16-228-1200\(6\)](#), a shipper cannot deliver pesticides to a site unless

- the consignee or an authorized agent is present to accept delivery of the pesticides and
- the consignee or an authorized agent signs the delivery slip.
- If neither the pesticide consignee nor an authorized agent is present to accept and to sign for the delivery, the shipper is responsible for the proper storage of the pesticide(s).

WAC [16-228-1220\(6\)](#) defines the proper storage requirements for pesticides and their containers. Section 7 describes posting requirements for pesticide storage areas.

Furthermore, a pesticide dealer, as required in [WAC 16-228-1300](#), must maintain the signed delivery slips for a period of seven years from the date of distribution of any pesticide, except for products deemed by the department as “home and garden use only.”

Enclosed Cabs as a Respiratory Protection Measure: Is it Still a Valid WPS Exception?

The Agricultural Worker Protection Standard (WPS) requires individuals who use pesticides or who employ workers or pesticide handlers who are exposed to pesticides to undertake measures that reduce the risk of pesticide-related illnesses and injury. Previously, when applying pesticides that required air-purifying respirators, one “engineering control” to protect people from pesticide exposure was an enclosed cab with a charcoal filtration system (Figure 3).

In considering the enclosed cab exception to personal protection equipment (PPE), USEPA requires equivalent respiratory protection if the system is to suffice for pesticide labeling requirements. In this regard, the cab must

- have a properly functioning ventilation system that is used and maintained according to the manufacturer’s written operating instructions and
- have written declaration by the manufacturer or by a governmental agency of at least as much respirator protection as the type of respirator listed on the pesticide labeling.



Figure 3. For this cab, the ventilation intake for the charcoal filtration system is located under the “MT865” insignia.

Herein lies the problem:

- For a manufacturer to claim equivalency with respirator protection requirements and to qualify for the PPE exception on a pesticide label, the cab must conform to the test procedure and performance criteria as described in ASABE (American Society of Agricultural and Biological Engineers) Standard S525, Parts 1 and 2 (May 1998): Agricultural Cabs-Environmental Air Quality. Currently, no cabs being marketed are “certified” for respiratory protection.

- Even with an established certification protocol, neither cab manufacturers nor governmental agencies will certify an enclosed-cab system for respiratory protection.
- To qualify for the PPE exception, the applicator must furnish documentation that the enclosed cab and filtration system meet the respiratory protection level as required on the pesticide label. Currently, no manufacturer provides that documentation because the companies are unwilling to expose themselves to liability arising from operator failure to service the filtration system in accordance with manufacturer’s guidelines or to maintain an enclosed cab environment during a pesticide application.

Therefore, with no authorizing cab certification program and with manufacturers unwilling to furnish documentation that substantiates respiratory protection equivalency to that specified on pesticide labeling, the enclosed cab exception to PPE requirements is negated.

Since the USEPA exception is no longer valid for enclosed cabs intended to provide respiratory protection (e.g., charcoal filtration system), the PPE listed on the pesticide label for the type of task being performed must be worn by the applicator while in the cab. USEPA is currently reconsidering this exception; however, a directive has not been issued.

USEPA Chemical Resistance Categories and the Label PPE Requirements

The federal Worker Protection Standard (WPS) requires that the labels of pesticides used in the production of agricultural plants on farms, forests, plant nurseries, and greenhouses must list the type of personal protection equipment (PPE) that must be worn. Proper selection of protective clothing will help avoid both accidental acute poisoning and unknown health effects from long-term exposure. Suitable protective clothing, based on the nature of handler- or worker-related activity, is listed under a pesticide’s label Precautionary Statements section.

Some labels are specific as to the type of protective clothing (Figure 4). In contrast, some pesticide labels simply reference “chemical-resistant,” cite a chemical resistant category (A-H), and then refer the user to the EPA chemical resistance category selection chart for more PPE options (Figure 5). The EPA Chemical

Resistance Category Chart (<http://www.epa.gov/oppfead1/safety/workers/equip.htm>, Figure 6) lists the chemical resistance categories and the types of protective material (e.g., nitrile and neoprene rubber, polyethylene, Viton) and the desired level of protection for the chemical hazard.

The chemical resistance of a material depends on the type and thickness of protective material, the duration of pesticide contact, and the pesticide formulation. Selection categories are based on the solvents used in the pesticide formulation, not on the pesticide (active ingredient) itself. Hence, different formulations (dry flowable, D or DF, versus emulsifiable concentrate, E or EC) of the same pesticide will require a different level of protection, sometimes involving different materials from another chemical resistance category.

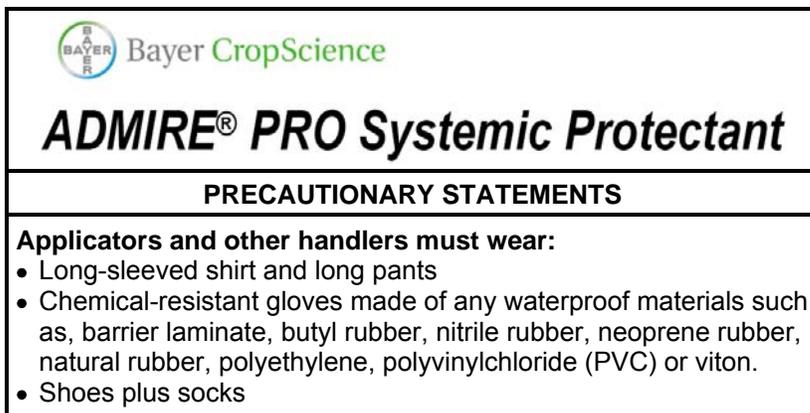


Figure 4. Protective clothing (PPE) required on the Admire Pro label for those who either apply or perform handler-related tasks.



Precautionary Statements

Personal Protective Equipment (PPE)

Some materials that are chemically resistant to this product are listed below. For more options, refer to **Category A** on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Protective eyewear (goggles, face shield, or safety glasses)
- Socks
- Chemical-resistant footwear
- Chemical-resistant gloves made of any waterproof material (such as nitrile, butyl, neoprene and/or barrier laminate)
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing and loading.

In selecting the appropriate protective clothing, the handler should

- consult the label to determine the chemical resistance category,
- determine the duration that contact with the pesticide may occur, and
- select the level of chemical resistance (high, moderate, slight, none) based on the descriptions provided below the chart.

The definitions section of the Worker Protection Standard (CFR Part 170.3) describes the activities associated with a handler- or worker-related task:

<http://www.epa.gov/pesticides/safety/workers/PART170.htm#170.3>.

The handler must refer to the pesticide label to determine the suitable chemical resistance category.

Figure 5. Label directs the user to Category A of the EPA chemical resistance category selection chart for protective clothing options.

Selection Category Listed on Pesticide Label	Types of Personal Protective Material							
	Barrier Laminate	Rubber				Polyethelene	Polyvinyl Chloride (PVC) > 14 mils	Viton > 14 mils
		Butyl > 14 mils	Nitrile > 14 mils	Neoprene > 14 mils	Natural > 14 mils			
A (a dry and water-based formulation)	High	High	High	High	High	High	High	High
B	High	High	Slight	Slight	None	Slight	Slight	Slight
C	High	High	High	High	Moderate	Moderate	High	High
D	High	High	Moderate	Moderate	None	None	None	Slight
E	High	Slight	High	High	Slight	None	Moderate	High
F	High	High	High	Moderate	Slight	None	Slight	High
G	High	Slight	Slight	Slight	None	None	None	High
H	High	Slight	Slight	Slight	None	None	None	High

HIGH: Highly chemical-resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.
MODERATE: Moderately chemical-resistant. Clean or replace PPE within an hour or two of contact.
SLIGHT: Slightly chemical-resistant. Clean or replace PPE within ten minutes of contact.
NONE: No chemical-resistance. Do not wear this type of material as PPE when contact is possible.

Figure 6. EPA Chemical Resistance Category Selection Guide is referenced on pesticide labels to aid a user in choosing suitable PPE.

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