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How to Read a Pesticide Label: A Guide for Small and Beginning Farmers

Logan Bennett and Evie Smith

Introduction

Applications of pesticides, both conventional and organic, can be a practical part of an integrated pest management plan when used appropriately. Incorrect use of pesticides can lead to problems with human health, crop production and environmental damage. Pesticide labels contain important information for keeping people who work with and near them safe and minimizing negative environmental impacts. This guide provides a roadmap to help pesticide applicators and handlers understand how to use pesticides more safely and effectively. When using pesticides, it is important to remember: the label is the law — it is a legally binding agreement between the applicator, manufacturer or registrant and state and federal regulatory agencies.

This document is designed to serve as a guide to help understand the labels of an element. In this document, sections of the label for “ASANA XL” are used for example purposes only.

1 Classification

Pesticides are restricted use (RUP) or Unclassified (general use). Restricted use pesticides typically pose a high risk to the applicator, the environment, or both and require a license to purchase. If a pesticide is labeled as restricted use, it will say on the first page RESTRICTED USE PESTICIDE or RUP.

2 Common name

The common name refers to a pesticide product’s active ingredient. Using the common name makes it easier to recognize the active ingredient (a.i.) in a pesticide product. For example, esfenvalerate is the common name of the active ingredient in ASANA XL herbicide. Esfenvalerate is also found in pesticide products with brand names such as FenvaStar Plus, S-Fenvalo Star and FenvaStar EcoCap. These products are often referred to by the common name “esfenvalerate” as that is the active ingredient in each product. The common name and the chemical name, the full name of the active ingredient, for the a.i. appear in the ingredient list on the front panel of the label. A.i. concentrations and labeled uses may differ between different brand names.

GROUP	3	INSECTICIDE
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1 RESTRICTED USE PESTICIDE
DUE TO TOXICITY TO FISH AND
AQUATIC ORGANISMS.
 For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator’s certification.

ASANA[®]
XL INSECTICIDE

Active Ingredient	By Weight
Esfenvalerate ²	
(S)-cyano (3-phenoxyphenyl) methyl (S)-4-chloro-alpha-(1-methylethyl) benzeneacetate	8.4%
Inert Ingredients*	91.6%
Total	100%

*CONTAINS XYLENE RANGE AROMATIC SOLVENT
 This product contains 0.66 lbs Active Ingredient per gallon.
0.66 Emulsible Concentrate
 EPA Reg. No. 59639-209 EPA Est. No. 5905-GA-01

3 Brand name

The brand name of a given pesticide product comes from the manufacturer. It is visible on the front panel of the label. Many manufacturers can produce pesticides with the same active ingredients. For example, the pesticide products ASANA XL and FenvaStar Plus contain the same active ingredient, esfenvalerate, but are made or sold by different manufacturers. Pesticide product labels with the same active ingredient may have different registered uses. It is up to the handler to know that the chosen product is legal to use for a particular pest management problem.

4 Ingredients list

Pesticide products are composed of two parts: active ingredients and inert ingredients. The active ingredient is the component developed to suppress or control pests. Some pesticide active ingredients are toxic; they may be unstable and could fall out of solution over time without additional stabilization. Inert ingredients in a pesticide help stabilize the product, increase the efficacy and enable more efficient use of the product. Inert ingredients are not required to be listed by name since they do not provide pest control. Inert ingredients may include solvents, emulsifiers, carriers, propellants, fragrances, dyes or otherwise “non-active” ingredients. While non-active ingredients do not control pests, they may still be toxic or dangerous to humans and the environment when not handled appropriately.


5 Formulations

The pesticide formulation is the physical form and composition, the active and inert ingredients, of the pesticide. Pesticides can be sold as concentrates, more suitable for large areas, or ready-to-use products, which are more suitable for home use. Concentrates can come in various liquid or dry forms. They must be mixed with water or another carrier before being applied. Individual formulations often require different mixing practices and application equipment. These requirements are detailed in the label’s “Directions for Use” section. Different formulations of the same pesticide a.i. may also have different potential health and environmental impacts and require other distinct first-aid treatments. These will be described in the “Environmental Hazards” and “First-aid statements” sections. Pay extra attention to the signal words for different formulations of the same a.i.

6 EPA registration numbers

Pesticide products used in the United States are registered with the Environmental Protection Agency. Each pesticide product is given a specific registration number. The registration number is located near the brand name on the front panel of the label. You can use the EPA registration number to look up information about the pesticide being used. It is the key identifier respondents use in case of an emergency such as a spill or contaminator exposure to a pesticide.

GROUP	3	INSECTICIDE
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3 ASANA® XL INSECTICIDE

Active Ingredient	By Weight
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EPA Reg. No. 59639-209 EPA Est. No. 5905-GA-01 6

7 First-aid statements

First-aid statements include instructions on what to do if a pesticide is inhaled, is swallowed, or comes in contact with clothes or skin. First-aid statement boxes usually include a number to contact in case of exposure. Always have the label with you when contacting poison control or other emergency services.

8 Precautionary statements

Precautionary statements provide details of the hazard concerns for humans and domestic animals if exposed to a particular pesticide product. They also recommend personal protective equipment needed to avoid exposure. The three main types of precautionary statements are described below.

8a Route of entry statements

Route of entry statements indicate ways the pesticide can enter the body that are most hazardous to applicators.

8b Personal protective equipment

Pesticide labels feature a box indicating the personal protective equipment required when mixing and applying pesticides. Always wear a long-sleeved shirt, pants, safety glasses, closed-toed shoes or chemical resistant boots while working with pesticides. See the resources portion of this publication for a PPE selection guide from Oregon OSHA.

8c Action statements

Action statements communicate how to best prevent the pesticide from entering the body through the most hazardous route of entry.

FIRST AID 7 8a	
If swallowed:	Call a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by a poison control center or a doctor. Do not give anything by mouth to an unconscious person.
If inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
If in eyes:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center for treatment advice. (continued)

FIRST AID (continued) **7**

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN

If on skin, after drying apply vitamin E cream or oil if available. If not available, apply vegetable oil liberally over painful areas. The oil or cream may be used repeatedly until relief is achieved.

Contains xylene range aromatic solvent – vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 800-892-0099 for emergency medical treatment information.

PRECAUTIONARY STATEMENTS **8** **8a**

HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING! May be fatal if swallowed. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse.

For medical emergencies involving this product, call toll free 800-892-0099.

PERSONAL PROTECTIVE EQUIPMENT **8b**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks. Protective eyewear.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS **8c**

USERS SHOULD: Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

9 Mandatory statements

Mandatory statements are found throughout the label. By law, they must be followed to avoid uses inconsistent with label instructions. These statements usually communicate instructions related to protecting human health and environmental safety. They use directive language, including words and phrases like “must” and “do not”.

10 Signal words

Signal words give the applicator or handler an easy and immediate indication of the pesticide’s acute toxicity to humans. The signal words you might see on a pesticide label in order of most to least toxic are: DANGER-POISON, DANGER, WARNING and CAUTION. Signal words will accompany a statement providing brief guidance about how to store the chemical or treat exposure. Applicators and handlers should refer to the “precautionary statements” section to reduce their likelihood of exposure to a pesticide product.

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KEEP OUT OF REACH OF CHILDREN WARNING AVISO 10

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID

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- 9 [Do not give any liquid to the person.
Do not induce vomiting unless told to do so by a poison control center or a doctor.
Do not give anything by mouth to an unconscious person.

If inhaled: Move person to fresh air.
If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
Call a poison control center or doctor for further treatment advice.

(continued)

If in eyes:	FIRST AID (continued) Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center for treatment advice.
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
NOTE TO PHYSICIAN If on skin, after drying apply vitamin E cream or oil if available. If not available, apply vegetable oil liberally over painful areas. The oil or cream may be used repeatedly until relief is achieved. Contains xylene range aromatic solvent – vomiting may cause aspiration pneumonia. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 800-892-0099 for emergency medical treatment information.	

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- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks. Protective eyewear.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them. Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENGINEERING CONTROL STATEMENTS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

ENVIRONMENTAL HAZARDS **11**

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when cleaning equipment or when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.

WILDLIFE PROTECTION IS EVERYONE'S RESPONSIBILITY

DIRECTIONS FOR USE **12**

It is a violation of Federal law to use this product in a manner inconsistent with the labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS **13**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

(continued)

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. **13**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls.

Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton. Shoes plus socks.

Protective eyewear.

Asana® XL Insecticide should be used only in accordance with recommendations in this label or in separate recommendations available through local dealers. Valent U.S.A. Corporation will not be responsible for losses or damages resulting from (i) the reformulation of *Asana* XL into any other product, and (ii) the use of *Asana* XL in any manner that is not specifically recommended by Valent U.S.A. Corporation on the label. User assumes all risk from such non-recommended use.

11 Environmental hazards

The Environmental hazard box outlines potential hazards to animals, fish, plants and insects. This can include specific information about how to protect pollinators during pesticide applications. This box also gives information on specific prohibited actions. For example, a pesticide may have a restriction that it cannot be used within 300 feet of a waterway.

12 Directions for use

The directions for use section of the label communicates where the pesticide can be used, what pests it can control or manage, how to apply it, the maximum amount that can be applied per application or season and pre-harvest interval restrictions.

13 Agricultural use requirements

The agricultural use requirements statement refers to the Worker Protection Standard. These requirements must be met when the product is used in an agricultural setting. The label does not fully describe the WPS but it can be accessed through the EPA website.

STORAGE AND DISPOSAL 14

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Store in a secure, dry and temperate area. Store in original container. Keep container closed when not in use. Do not store near food or feed. Do not use or store around the home. Avoid contact with water. In case of spill or leak, soak up with sand, earth or synthetic absorbent (do not use alkaline absorbents) and dispose of wastes in compliance with local, State and Federal regulations.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill the container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not transport if container is damaged or leaking. If the container is damaged, leaking or obsolete, or in the event of a major spill, fire or other emergency, contact 800-892-0099, day or night.

14 Storage and disposal

The Storage and Disposal section of the label provides information about how to store and dispose of the pesticide to mitigate against harm to humans and the environment. Pesticides are an expensive investment in crop production. Proper storage reduces the chance of pesticides becoming unusable and creating hazardous waste that requires special disposal efforts.

Supplemental labels

Several pesticide registrations and exemptions allow legal pesticide use in the U.S. The most common is a Section 3 registration. Section 3 registrations grant labels

for pesticide use on specific use or target sites or pests. Section 3 labels sometimes only apply in certain states or counties. Oregon supplemental label registrations are granted by the EPA and the Oregon Department of Agriculture Pesticide Division. They can be accessed via the ODA website. Manufacturers must be partners in securing a supplemental label. Once granted, applicators must have such labels when making an application.

Section 24(c), (special local need label)

The Federal Insecticide, Fungicide and Rodenticide Act, Section 24(c), allows for pesticides to be labeled for additional uses, for a new end-use if new conditions exist and for special local needs. Section 24(c) addresses needs that aren't considered emergencies. For example, an herbicide may effectively control a specific weed in a particular crop. If the herbicide isn't labeled in that crop, the manufacturer will work with ODA to apply for a 24(c) label. If granted, the 24(c) label would have a time-limited registration that could be renewed or canceled or the new use could be added to the Section 3 label.

Section 18

FIFRA, section 18, allows pesticides not registered for a specific pest problem to be used in an emergency. Section 18 labels allow pesticides to be used in a defined geographic area for a finite amount of time, both of which will be specified on the Section 18 label. An example would be a Section 18 label being released for a newly discovered pest in the area. If the pesticide isn't labeled in a crop, the manufacturer would work with ODA to apply for a Section 18 label. If granted, the label would have a time limited registration.

Conclusion

Following label instructions is not only legally required, but also the best way to maximize pest control efficacy and safe use of the product. Always read and follow the label when purchasing, applying, storing and disposing of pesticides.

For more information on pesticide labels and uses:

- Contact your local Extension office
- For Spanish label translation: Etiqueta Ahora app: <https://deohs.washington.edu/pnash/LabelsNow>
- Hooven L., Ramesh S.R., Johansen, E., 2016. *How to reduce bee poisoning from pesticides publication*, Oregon State University, <https://catalog.extension.oregonstate.edu/pnw591>
- Oregon OSHA: Personal Protective Equipment: Selecting the Right PPE for Pesticide Use, <https://osha.oregon.gov/OSHA/Pubs/1018.pdf>
- OSU PACE Course - *The Label is the Law: How to Read a Pesticide Label* (Worth 1 CORE ODA credit!) <https://workspace.oregonstate.edu/course/the-label-is-the-law-how-to-read-a-pesticide-label>
- NPIC Signal Word Fact Sheet- <http://npic.orst.edu/factsheets/signalwords.html>