

LACKING PPE

for Pesticides



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Respirators in Short Supply due to COVID-19?



Filtering face-piece respirator, N95 with elastic straps and NIOSH designation. Photo credit: Kim Pope-Brown

Trying to figure it out...

- March 26 and 27: Calls related to PPE shortage
 - Convened by Kaci Buhl, serving as an AAPSE representative
 - Over 150 people participated, sharing their local perspectives
- Late April – May 7: Calls related to PPE shortage
 - Convened by the Agrisafe Network as “think tanks”
 - Widely attended (>100 per call) and informative
 - Commissioner of VDACS attended, and initiated a letter with NASDA, to the National COVID Task-Force, led by Mike Pence
 - Response came in two days, asking for advice about how to act on our recommendations



American Association of Pesticide Safety Educators

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Plan ahead!

- Pesticides may **not** be applied without the label-required PPE.
- Home-made masks are **not** sufficient substitutes for label-required respirators/masks.
- **No** exemption or relaxation of the requirements has been made by EPA.
- Users may need to select alternative products or practices, if required PPE is **not** available.



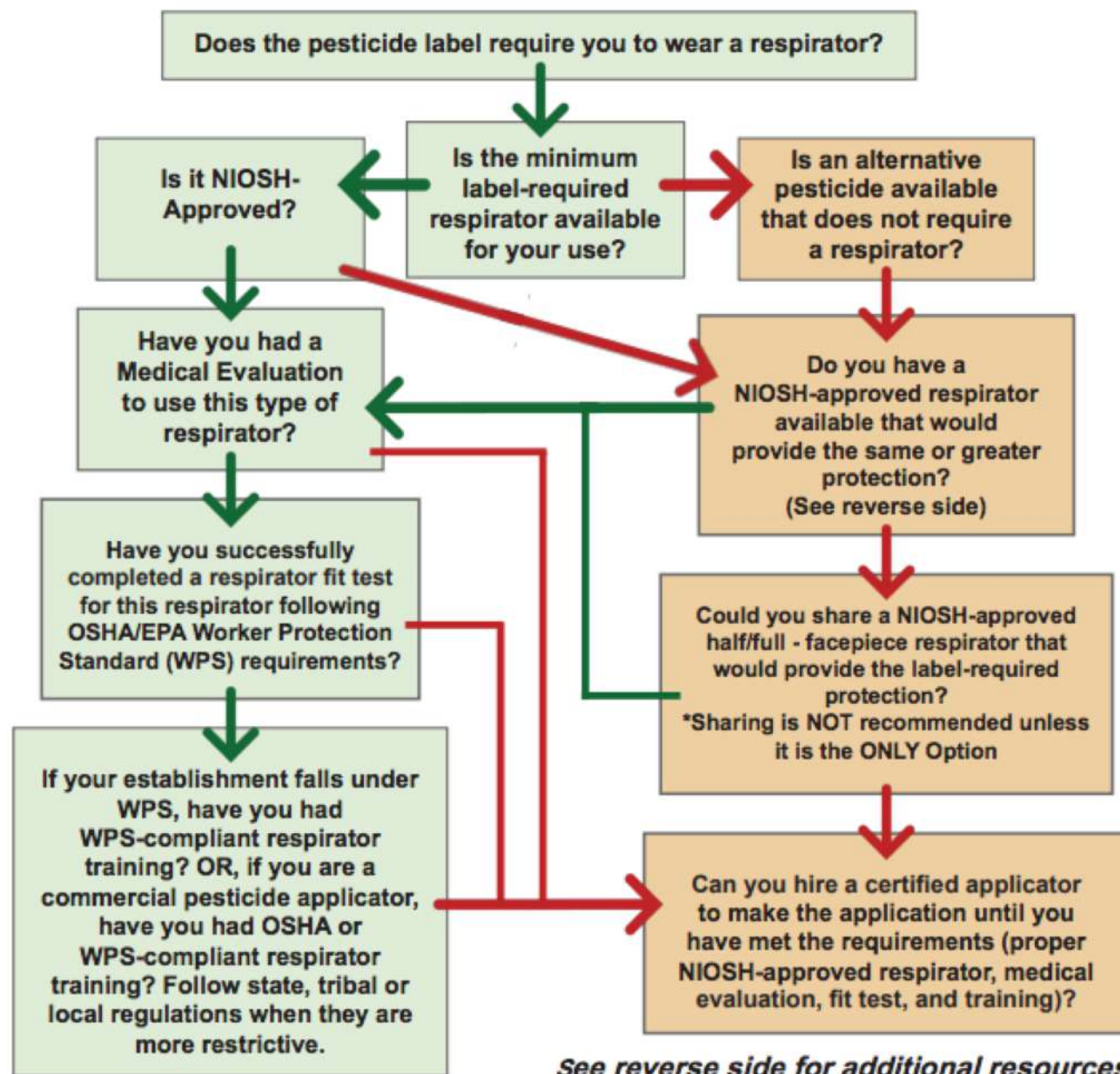
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Get Advice!

- In agriculture, ask your University Extension Office about alternative practices or products that don't require as much PPE. Directory of Extension Offices [here](#).
- For structures and fumigation, consider working with [NPMA](#) or [ASPCRO](#) to meet your essential needs during the crisis.

There is no accurate/up-to-date list of pesticide products that do/do-not require respirators. There is no substitute for reading the label.



1. Alternative product or practice
2. Alternative respirator with MORE protection
3. Alternative respirator – re-usable, shared with others
3. Alternative applicator, such as a commercial operator if they have PPE



When you can't locate an N95 FFR, you may safely substitute:

- 1) N99, N100, R95, R99, R100, P95, P99 or P100 FFR
- 2) Half/full facepiece APR with N95, N99, N100, R95, R99, R100, P95, P99 or P100 particulate filters. Combination chemical cartridge/particulate filter respirators or gas masks could also be substituted.
- 3) PAPR with HE particulate filter(s). Combination chemical cartridge/HE particulate filter PAPR may be substituted.

The photo to the right shows some examples of respirators that could be used as substitutes for an N95 FFR.

Non-powered APR with Particulate Filtering Elements:
clockwise from bottom: N95 FFR; full facepiece APR with dual replaceable P100 filters; half facepiece APR with dual replaceable P100 filters; half facepiece APR with replaceable N95 filter (photo: © Rutgers)

TOXICITY CLASSIFICATION -

	High Toxicity	Moderate Toxicity	Low Toxicity	Very Low Toxicity
Acute Oral LD₅₀	Up to and including 50 mg/kg (≤ 50 mg/kg)	Greater than 50 through 500 mg/kg (>50 -500 mg/kg)	Greater than 500 through 5000 mg/kg (>500-5000 mg/kg)	Greater than 5000 mg/kg (>5000 mg/kg)
Inhalation LC₅₀	Up to and including 0.05 mg/L (≤ 0.05 mg/L)	Greater than 0.05 through 0.5 mg/L (>0.05 -0.5 mg/L)	Greater than 0.5 through 2.0 mg/L (>0.5-2.0 mg/L)	Greater than 2.0 mg/L (>2.0 mg/L)
Dermal LD₅₀	Up to and including 200 mg/kg (≤ 200 mg/kg)	Greater than 200 through 2000 mg/kg (>200 -2000 mg/kg)	Greater than 2000 through 5000 mg/kg (>2000-5000 mg/kg)	Greater than 5000 mg/kg (>5000 mg/kg)
Primary Eye Irritation	Corrosive (irreversible destruction of ocular tissue) or corneal involvement or irritation persisting for more than 21 days	Corneal involvement or other eye irritation clearing in 8 - 21 days	Corneal involvement or other eye irritation clearing in 7 days or less	Minimal effects clearing in less than 24 hours
Primary Skin Irritation	Corrosive (tissue destruction into the dermis and/or scarring)	Severe irritation at 72 hours (severe erythema or edema)	Moderate irritation at 72 hours (moderate erythema)	Mild or slight irritation at 72 hours (no irritation or erythema)

The highlighted boxes reflect the values in the "Acute Toxicity" section of this fact sheet. Modeled after the U.S. Environmental Protection Agency, Office of Pesticide Programs, Label Review Manual, Chapter 7: Precautionary Labeling. <http://www.epa.gov/oppfead1/labeling/lrm/chap-07.pdf>

Label Review Manual

Chapter 10: Worker Protection Label

Table 1. Handler PPE for WPS Products

Route of Exposure	Toxicity Category by Route of Exposure of End-Use Product			
	I DANGER	II WARNING	III CAUTION	IV CAUTION
Dermal Toxicity or Skin Irritation Potential ¹	Coveralls worn over long-sleeved shirt and long pants	Coveralls worn over short-sleeved shirt and short pants	Long-sleeved shirt and long pants	Long-sleeved shirt and long pants
	Socks	Socks	Socks	Socks
	Chemical-resistant footwear	Chemical-resistant footwear	Shoes	Shoes
	Waterproof or Chemical-resistant Gloves ²	Waterproof or Chemical-resistant Gloves ²	Waterproof or Chemical-resistant Gloves ²	No minimum ⁴
Inhalation Toxicity	Respiratory protection device ³	Respiratory protection device ³	No minimum ⁴	No minimum ⁴
Eye Irritation Potential	Protective eyewear ⁵	Protective eyewear ⁵	No minimum ⁴	No minimum ⁴



Revised March 2018

Label Review Manual

Chapter 7: Precautionary Statements

Table 5. Typical Statements for Acute Inhalation Toxicity

Category	Signal Word	Statement
I	DANGER POISON ☠	Fatal if inhaled. Do not breathe (dust, vapor, or spray mist) ¹ . Wear (<i>specify appropriate respiratory protection</i>). Remove and wash contaminated clothing before reuse.
II	WARNING	May be fatal if inhaled. Do not breathe (dust, vapor or spray mist) ¹ . Wear (<i>specify appropriate respiratory protection</i>). Remove and wash contaminated clothing before reuse.
III	CAUTION	Harmful if inhaled. Avoid breathing (dust, vapor, or spray mist) ¹ . Remove and wash contaminated clothing before reuse.
IV	CAUTION (optional)	<i>No statement is required. May use Category III statement.</i>

¹ Choose the word which appropriately describes the product formulation type during use.

*Respiratory protection is
required by pesticide labeling
only when inhalation toxicity is
life-threatening.*



Atrazine
(herbicide)

Chlorpyrifos (insecticide)



Paraquat *(herbicide)*



What are the differences between N-, R- and P-filters?

N – is **Not** resistant to oils. (Oil can be from the pesticide formulation or in one of the spray adjuvants.)

R – is **Resistant** to oils but has a limit on the amount of time it can be relied on.

P – is strongly resistant to oil or oil-**Proof**.

What do the numbers 95, 99, and 100 mean?

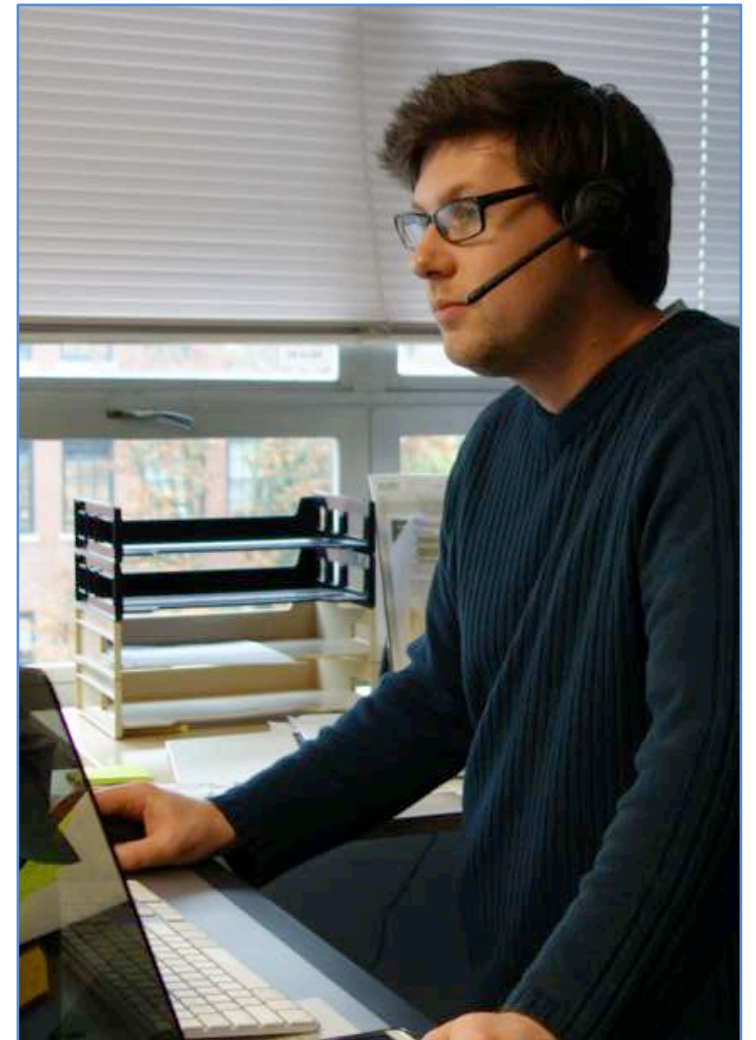
95 means a filter can remove at least 95% of airborne particles.

99 means the filter removes at least 99% of airborne particles.

100 means the filter removes at least 99.97% (essentially 100%) of airborne particles.

Leverage local expertise

- University Extension Service –
County offices with agricultural experts
<http://npic.orst.edu/pest/countyext.htm>
- Contacts for Pesticide Handlers =
Occupational safety & health
<http://npic.orst.edu/workermhr.html>
- State Pesticide Regulators = Licensing,
enforcement, label interpretation
http://npic.orst.edu/reg/state_agencies.html



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