

Solve Pest Problems

Animals

House mouse



The **house mouse (*Mus musculus*)** causes damage to structures and supplies with its chewing. Mice contaminate food stores and household supplies with their droppings and urine.

****Health risk****

Do not tolerate mice in your home or belongings.

Insect

Japanese beetles



The **Japanese beetle (*Popillia japonica*)** is a serious invasive insect pest that threatens Oregon. Japanese beetle adults feed on foliage and flowers of numerous plants and cause serious damage. The larvae (or grubs) attack roots of turf grass and plants too.

****Invasive insect alert!****

Report sightings of Japanese beetle to Oregon Department of Agriculture.

Diseases

Rose black spot



Black spot (*Diplocarpon rosae*) produces black spots that appear on the upper surface of infested leaves.

When infection is severe, large numbers of spots may form, eventually merging to cover much of the leaf surface.

Infested plants often drop leaves during the summer.

Weed

Japanese and giant knotweeds



Japanese and giant knotweeds (*Fallopia japonica*, *F. sachalinensis*) can grow in large clumps and spread by roots. They thrive in a variety of habitats. Knotweeds take over existing plants and cause damage to rivers and streams.

****Invasive plant alert****

Knotweeds are difficult to control and will require a multi-year approach.

Don't let knotweeds become established.

Audience question:

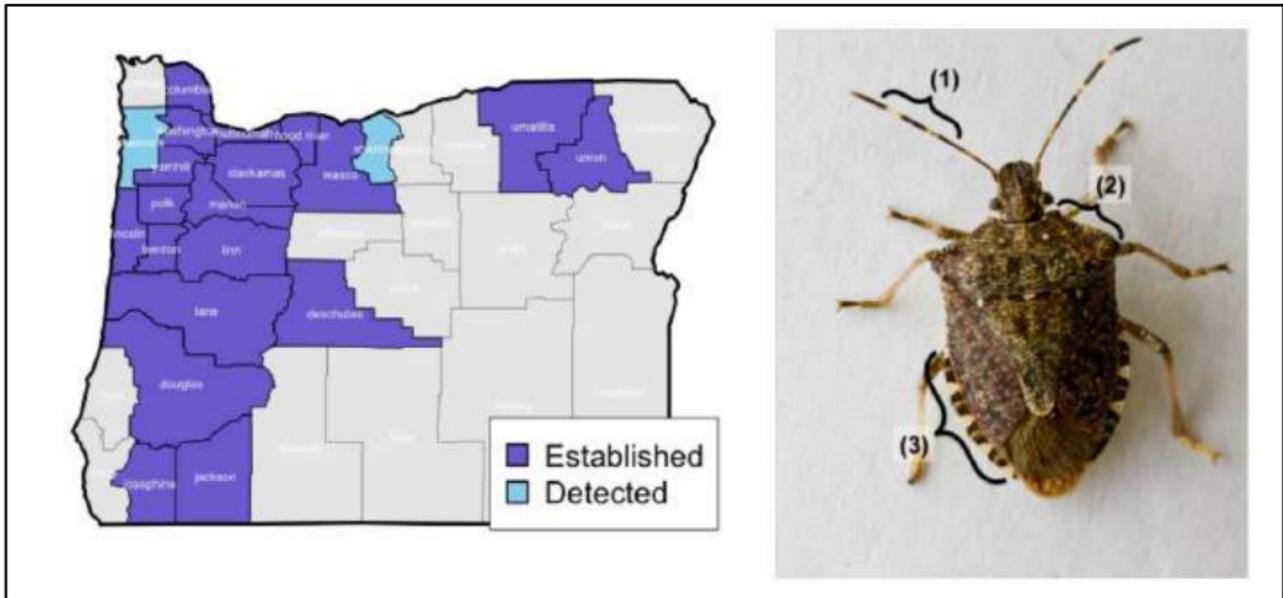
Who has experienced a pest problem at home in the last year?

- **Animals**
- **Household**
- **Plant problems**
- **Weeds**



Oregon State University
Extension Service

Pest problems happen!



Brown Marmorated Stink Bug
<http://agsci.oregonstate.edu/bmsb>

And increasing numbers of pests...

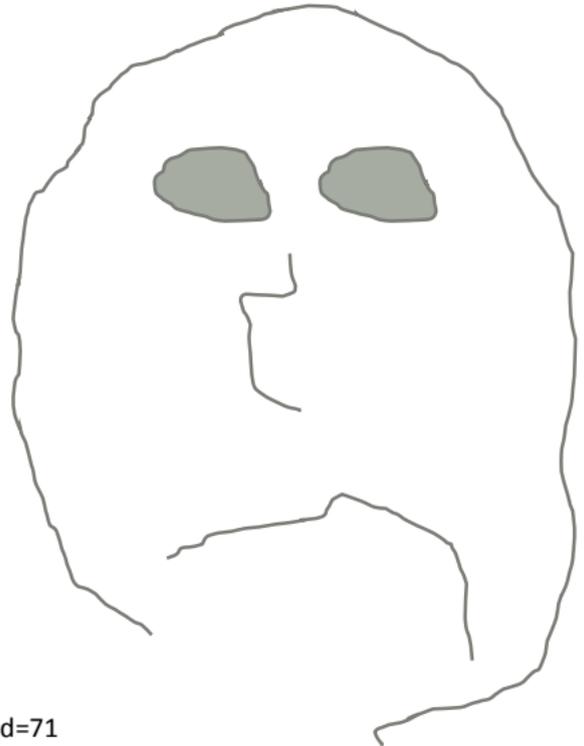


Azalea lace bug damage
Photo: Robin Rosetta, OSU

And increasing numbers of invasive species



Lesser celandine



Confusing array of pest info



Solve Pest Problems

Animals

House mouse



The **house mouse** (*Mus musculus*) causes damage to structures and supplies with its chewing. Mice contaminate food stores and household supplies with their droppings and urine.

****Health risk****

Do not tolerate mice in your home or belongings.

Insects

Japanese beetles



The **Japanese beetle** (*Popillia japonica*) is a serious invasive insect pest that threatens Oregon. Japanese beetle adults feed on foliage and flowers of numerous plants and cause serious damage. The larvae (or grubs) attack roots of turf grass and plants too.

****Invasive insect alert!****

Report sightings of Japanese beetle to Oregon Department of Agriculture.

Diseases

Rose black spot



Black spot (*Diplocarpon rosae*) produces black spots that appear on the upper surface of infested leaves.

When infection is severe, large numbers of spots may form, eventually merging to cover much of the leaf surface.

Infested plants often drop leaves during the summer.

Weeds

Japanese and giant knotweeds



Japanese and giant knotweeds (*Fallopia japonica*, *F. sachalinensis*) can grow in large clumps and spread by roots. They thrive in a variety of habitats. Knotweeds take over existing plants and cause damage to rivers and streams.

****Invasive plant alert****

Knotweeds are difficult to control and will require a multi-year approach.

Don't let knotweeds become established.

Thank you to our sponsors!

- Metro
- East Multnomah Soil and Water Conservation District
- West Multnomah Soil and Water Conservation District
- City of Gresham.
- ODA Pesticide Stewardship Partnership
- Benton County SWCD
- Individuals

- OSU Extension Service Clackamas County
- OSU Pollinator Health
- OSU College of Agricultural Sciences



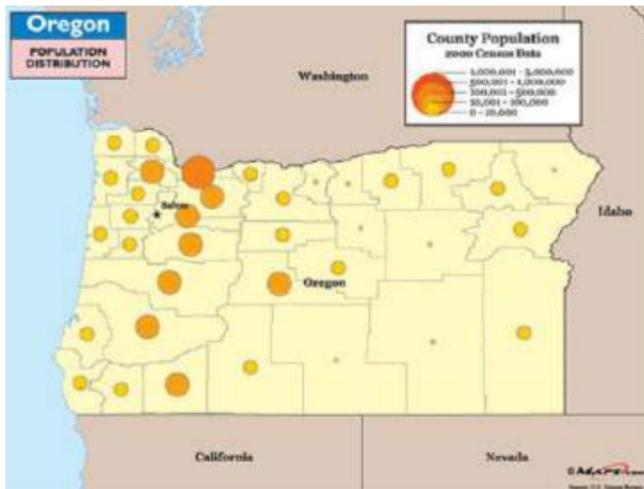
Project purpose

The purpose of Solve Pest Problems is to reduce the impacts of pests and pest management practices on people and the environment in non-agricultural settings. The resource will be built in English and Spanish and will address inequities in access to unbiased, science-based pest management information.

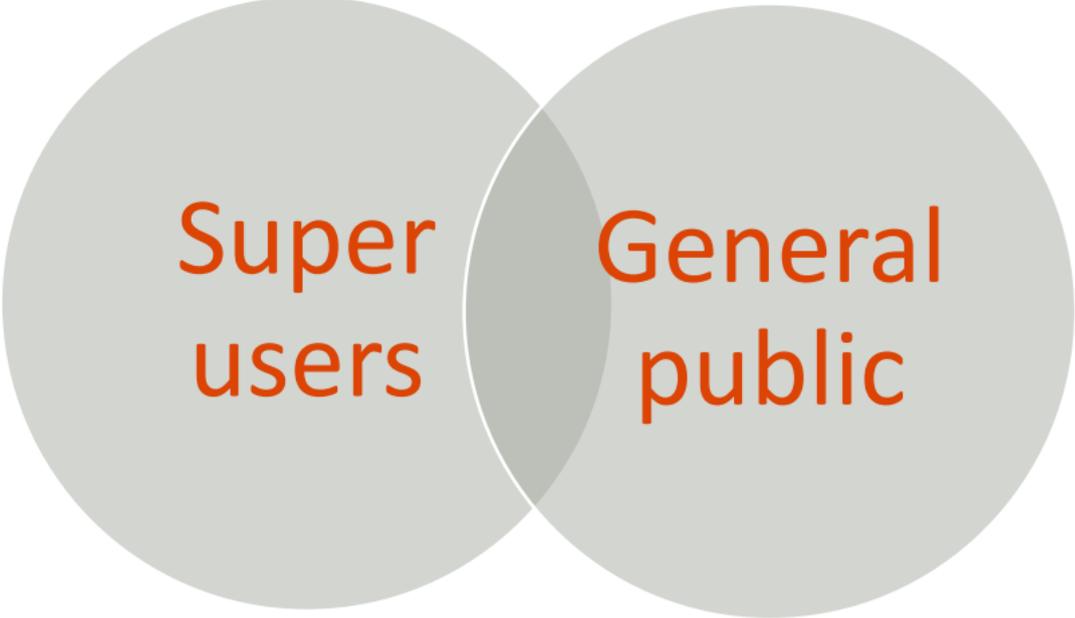


Intended audience

- **DYI Urban and rural residents**
- **Public and private landscape professionals**
- **Retail nursery workers**
- **OSU Master Gardener, Naturalist, and Beekeeper volunteers**
- **Communities historically underserved by OSU's IPM resources**



Audience groups



Super
users

General
public

Program goals

- **Provide access to effective science-based IPM information**
- **Emphasize pest prevention**
- **Reduce risks from pests and pest management practices**
- **Reduce the use of pesticides by eliminating unnecessary use**
- **Advise users about the risks of inaction**
- **Facilitate use of product labels and PPE**
- **Advise users about the risks of specific management techniques and pesticides and provide information to help avoid/minimize the risk.**
- **Identify recommended practices for management of specific pests.**



Reduce the risk of pesticides to people

For both applicators and incidental exposure



Photo: Metro

Reduce the risk of pesticides to waterways



Photo: Rob Emanuel, OSU Extension

Reduce the risk of pesticides to pollinators



Oregon Legislature charge to improve pollinator health in the state (see House Bills [3361](#) and [3362](#)).



Oregon State University
Extension Service

Stakeholder engagement

- **Steering committee**
 - OSU, ODA, Metro, EMSWCD
- **Advisory- 15+ people**
 - ODF, ODA, other agencies
 - Landscape, nursery
 - Community Engagement Liaisons (funded)
- **Spanish-language advisory (funded)**



Broad coalition of support!



CLATSOP
SWCD



TSWCD



WEST MULTNOMAH
Soil & Water Conservation District



Metro



Oregon
Department
of Agriculture



House of Representatives



NORTHWEST CENTER FOR
ALTERNATIVES TO PESTICIDES



Commission on Hispanic Affairs



Oregon State University
Extension Service

Oregon Invasive Species Council connection

- I. Prevention
- II. Early Detection & Rapid Response
- III. Control & Management
- IV. Education & Outreach
- V. Coordination & Leadership

Highlight invasives in website footer

- Anticipate 100,000+ users per year with both lay and pro audiences
- Key resource for OSU volunteers

- Starting from scratch!; now is the time to weigh-in
- Referral to state and local agencies
- Michelle Delepine- advisory



Oregon State University
Extension Service

Home page mock-up in English and Spanish

Oregon State University  Menu

Pest Management Info

 Search all

Diagnose the problem

Household pests
Insects, animals and mold in your home 

Animal pests
In your home and yard 

Plant problems
Browse by type of plant 

Weeds
Identification key and management guidelines 

Find solutions

I don't know where to start!
A pest management primer 

Nonchemical solutions
Cultural, physical, and biological techniques 

Chemical solutions
Practical information about pesticides and risk reduction 

Universidad Estatal de Oregon  Menú

Información de manejo de plagas

 Buscar todos

Diagnosticar el problema

Plagas domésticas 

Plagas animales 

Problemas de las plantas 

Malezas 

Buscar soluciones

No sé por dónde empezar 

Técnicas culturales, físicas y biológicas 

Soluciones químicas 

2017

Home page mock-up- continued

Recommended practices

How to grow

Learn how to grow specific kinds of plants



Human and pet health



Buildings and property



Protect waterways



Pollinator health



Wildlife

How to attract wildlife and how to live with wildlife



Urban forests

How to care for trees and shrubs in urban areas



Rural landscapes and property



Storing pesticides



How to transport and dispose of pesticides



High priority invasive species



Garlic mustard Garlic mustard Garlic mustard

Prácticas recomendadas

Guías de "Cómo trabajar en la horticultura"



Salud humana y de las mascotas



Edificios y propiedades



Proteger los cursos de agua



Salud del polinizador



Vida silvestre



Bosques urbanos



Cómo guardar los pesticidas



Cómo transportar y deshacerse de los pesticidas



Especies invasivas de alta prioridad



Garlic mustard Garlic mustard Garlic mustard

2017



Oregon State University
Extension Service



Drupal 8 development site established

Highlight invasive
weeds

Highlight invasive
insects, etc.

2018

Beta content -85 pages

Solve Pest Problems

Yellowjackets

View Edit Details Resources

Vespa pensylvanica

Identify the Problem

Description of the pest

Description of the damage

Know the life cycle

Photos



Figure 1. Western yellow jacket on cabbage seed, among other insects.



Figure 2. Western yellow jacket foraging on soil over chicken.



Figure 3. The larger wasp (left) is more likely to nest under rocks and/or tree branches. They are more aggressive.



Figure 4. Western yellow jacket foraging on a painted can.



Figure 5. Yellow jacket foraging on yellow honeydew on rubber flooring of these insects (larvae of blackflies and gnats) on a tree.



Figure 6. Western yellow jacket on cabbage seed, among other insects.
Photo credit: William Courchesne, Colorado State University, Bugwood.org

Take action

What happens if I do nothing?

Non-chemical solutions

Chemical solutions

For more information

- Know thy enemy—A primer on yellow jackets (Oregon State University)
- PNW Insect Management Handbook (Oregon State University)
- Yellowjackets (University of California)
- Yellowjackets (Washington State University)

Sample page: Yellow jackets 2018



Draft content developed and released for stakeholder review and feedback (July 2018)

Quick overall comment survey	Scores
Total points (1 - 5 scale)	118
Possible points (n * 5)	140
Average	0.84
Number (n)	28
Total responses	29

Key pages short survey	Scores
Total points (1 - 5 scale)	553
Possible points (n * 5)	620
Average	0.89
Number (n) ranked	125
Total responses	14

Key pages detailed	Scores
Total points (1 - 5 scale)	408
Possible points (n * 5)	490
Average	0.83
Number (n) ranked	98
Total responses	13

One-page-at-a-time	Scores
Total points (1 - 5 scale)	38
Possible points (n * 5)	50
Average	0.76
Number (n) ranked	10
Total responses	20

76 survey entries from stakeholders Take home messages:

- Plain language editing
- Templates need improvement
- Style sheet needed
- More welcoming home page
- Suggestions for improvement of specific pages
- On the right track!



Audience groups

Super
users

General
public

Missed the mark



Oregon State University
Extension Service

Literacy rates in the US

- A 2013 study found that 21 percent of adults read below a fifth-grade level

Functional illiteracy is the inability to read or write well enough to accomplish everyday tasks in modern society.

- **14% (1 in 7) of adults fell into the category of “Below Basic” in “Prose Literacy,”**

Source: National Assessment of Adult Literacy



Plain language editing - Before

Text before editing:

Never drain pesticide containers or rinse water into storm drains

Improper pesticide handling can contaminate water.

Misapplication, spills, and improper storage, mixing/loading, or disposal of unused or unwanted pesticides are the most likely pathways for pesticides to move from your home landscape into the storm drain system.

Readability Grade Levels	
READABILITY FORMULA	GRADE
Flesch-Kincaid Grade Level	12.3
Gunning Fog Index	14.7
Coleman-Liau Index	16.2
SMOG Index	14.6
Automated Readability Index	13.7
Average Grade Level	14.3



Plain language editing- After

- ***Text after editing:***

Don't drain pesticides or rinse water into storm drains!

You can pollute water if you do not handle pesticides correctly.

Pesticides are most likely to move from your home and into the storm drain system due to mistakes with:

- Application
- Storage
- Loading
- Disposal

Readability Grade Levels	
READABILITY FORMULA	GRADE
Flesch-Kincaid Grade Level	5.1
Gunning Fog Index	6.9
Coleman-Liau Index	8.3
SMOG Index	8.4
Automated Readability Index	4.8
Average Grade Level	6.7



Solve Pest Problems

[Home](#) / [Keep pesticides out of waterways](#)

Keep pesticides out of waterways

[View](#) [Edit](#) [Delete](#) [Revisions](#) [Devel](#)

Pesticides are applied to landscape settings. They have the potential both to leach into groundwater and to flow into storm drains. Thus, pesticides can impact our drinking water, recreation areas, and aquatic life.

Follow these steps to help keep pesticides out of waterways:

- Learn how pesticides get into waterways
- Read the label; follow instructions and best practices
- Pay attention to weather conditions
- Manage sites to reduce the risk of pesticides entering water

Help protect our waterways



tribune

How to keep pesticides out of waterways

Follow these steps:

- Learn how pesticides get into waterways
- Read the label before you apply
- Pay attention to weather conditions
- Manage sites to reduce the risk

Learn how pesticides get into waterways



Pesticides have commonly been detected in stormwater runoff and in creeks and other water bodies.

And these detections have, at times, been at levels which are harmful to aquatic life forms.

Thus, pesticides can impact our drinking water, recreation areas, and aquatic life.

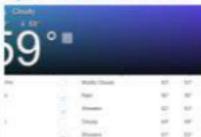
Read the label before you apply



Read the pesticide label before you apply them.

Follow the instructions on the label.

Pay attention to weather conditions



Check the for rain in the forecast. Don't spray on hot or windy days.

Don't spray when there is a temperature inversion (warm layer of air near ground).

Manage sites to reduce the risk



How can you help to keep pesticides out of waterways?

Survey the site. Determine the risks of pesticides moving into waterways. Manage those risks.





Solve Pest Problems

[Home](#) / [Keep pesticides out of waterways](#) / [Read the label before you apply pesticides](#)



Read the label before you apply pesticides

Pay attention to environmental precautions

Follow label rates and application intervals

Always calibrate and maintain your equipment

Don't mix pesticides in the gutter

Never drain containers or rinse water into storm drains



Find key information on pesticide labels



Environmental precautions
Read the label and understand risks to

waterways

Pesticide labels contain a great deal of useful information on the safe and legal use of these products. It is your responsibility to read and follow all directions.



Follow label rates and application intervals
Subtitle

Carefully follow label rates and timing of application to maximize success and minimize chances of environmental contamination.



Always calibrate
And maintain your equipment

Calibrate spray equipment before each use.



Don't mix pesticides in the gutter
It's the law

Pesticides should never be mixed or applied in the gutter.



Never drain pesticide containers
Or rinse water into storm drains!

Improper pesticide handling can contaminate water.

[For more information](#)



Source: "Water quality in pest manag. systems"

Water quality is your main concern

Source: [Water quality in pest manag. systems](#)

Storm drains are found in many areas of a landscape where they may come into contact with water from irrigation or rain fall, they have the potential both to leach into groundwater and to flow into storm drains.



Storm drains are either directly connected to creeks, rivers, lakes, or the ocean, so contaminants in runoff water have a high potential to impact water quality.

- Never apply pesticides when it's raining, or when the soil is saturated, the product won't stay out.
- Pay attention to the shape of the ground when you apply pesticides, consider pesticide alternatives when the slope leads down to a body of water.
- Don't place granules to rest on hard surfaces. Sweep them into the treatment zone to prevent runoff.
- Dispose of leftover pesticides properly, never in a storm drain or gutter.

The risk to groundwater - Decoding labels



What do pesticide labels say?

Protecting groundwater

Look for the "ENVIRONMENTAL HAZARD" section on the product label. It may be inside a booklet or pamphlet.

What the label says...

"This chemical has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where table are permeable, particularly where the water table is shallow."

What the label says...

"This chemical has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where table are permeable, particularly where the water table is shallow."

What if there is no mention of groundwater?

It doesn't mean the product is incapable of reaching groundwater.

The risk to surface water - Decoding labels



What do pesticide labels say?

Protecting surface waters

Look for the "ENVIRONMENTAL HAZARDS" section on the product label. It may be inside a booklet or pamphlet.

What the label says...

"This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water."

What the label says...

" ... high potential for reaching surface water via runoff ... "

What the label says...

" ... medium potential for reaching both surface water and aquatic sediment via runoff"

What the label says...

" ... high potential for reaching aquatic sediment via runoff"

What the label says...

" ... for several days after application."

What the label says...

" ... for several weeks after application."

What the label says...

" ... for several months after application."

What if there is no mention of surface water?

" ... for several months after application."

Protecting well water



Can pesticides reach your well water?

Yes, pesticides can contaminate your well.

They are often found in mixtures. The health effects of mixtures are unknown.

For more information





Reduce the risk of pesticides to pollinators

Solve Pest Problems

[Home](#) / [Pollinators are your concern](#)



Basic page *Pollinators are your concern* has been updated.



Bee-friendly pesticide application practices



Tips tips to protect pollinators



Pollinator protection tips



Protect their food, their water, and their space.



Pesticide issues for the backyard beekeeper



Coordination with neighbors is key.



Protect birds and bats



They eat insect pests and are fun to watch in the yard.



How to attract pollinators



Strategies to attract pollinators to your garden

Pollinators are your concern

When choosing a pesticide, you want to keep your yard pollinator-friendly.



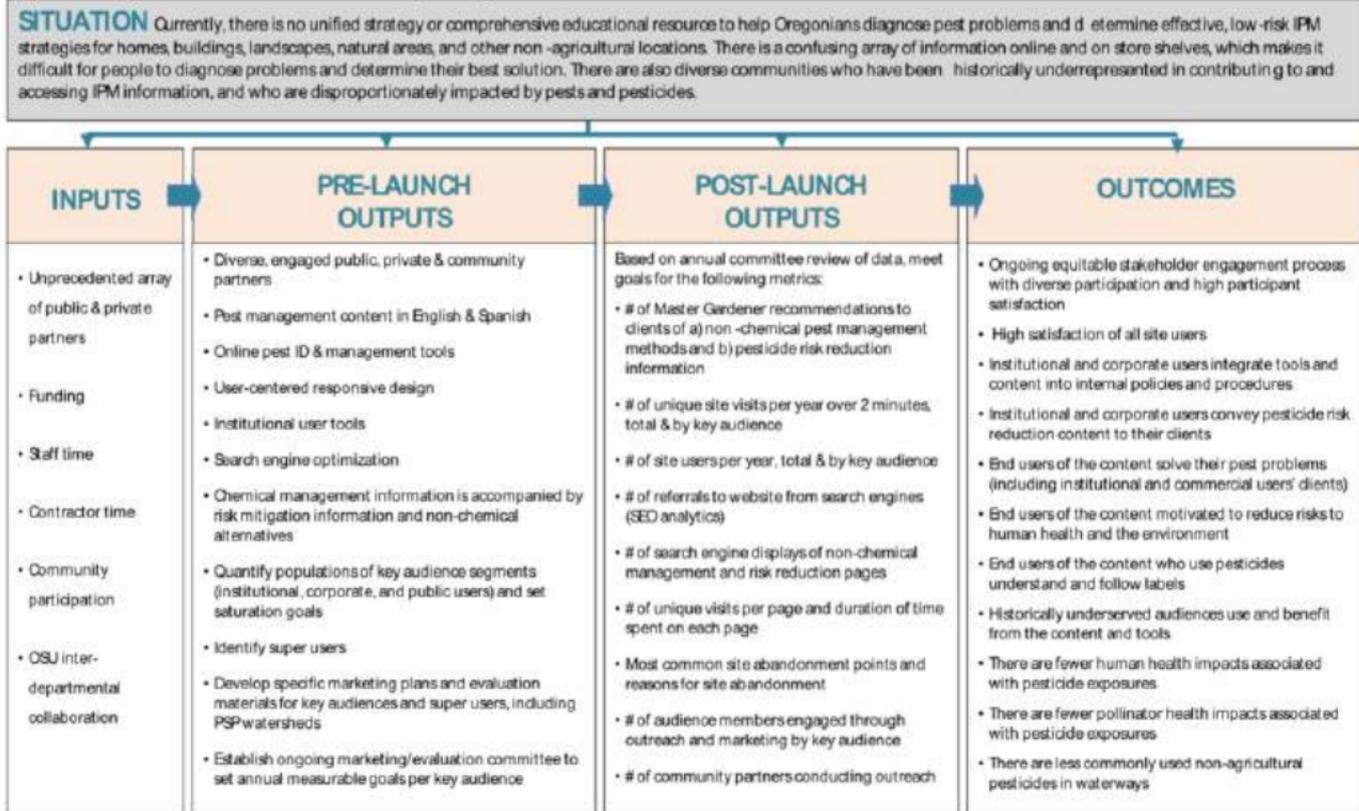
urobuross on pixabay

What's the point in attracting pollinators if we can't keep them safe in our gardens?



Evaluation plan

Figure 1. Oregon IPM Information Service Project Logic Model



500 +/- Pest Pages

Animals

House mouse



The **house mouse (*Mus musculus*)** causes damage to structures and supplies with its chewing. Mice contaminate food stores and household supplies with their droppings and urine.

****Health risk****

Do not tolerate mice in your home or belongings.

Insects

Japanese beetles



The **Japanese beetle (*Popillia japonica*)** is a serious invasive insect pest that threatens Oregon. Japanese beetle adults feed on foliage and flowers of numerous plants and cause serious damage. The larvae (or grubs) attack roots of turf grass and plants too.

****Invasive insect alert!****

Report sightings of Japanese beetle to Oregon Department of Agriculture.

Diseases

Rose black spot



Black spot (*Diplocarpon rosae*) produces black spots that appear on the upper surface of infested leaves.

When infection is severe, large numbers of spots may form, eventually merging to cover much of the leaf surface.

Infested plants often drop leaves during the summer.

Weeds

Japanese and giant knotweeds



Japanese and giant knotweeds (*Fallopia japonica*, *F. sachalinensis*) can grow in large clumps and spread by roots. They thrive in a variety of habitats. Knotweeds take over existing plants and cause damage to rivers and streams.

****Invasive plant alert****

Knotweeds are difficult to control and will require a multi-year approach.

Don't let knotweeds become established.

Built-in marketing plan

Leverage partners and existing relationships with media

- **Social media prompts**
- **Postcard, bookmarks, and other prompts for OSU Master Gardener and partners to distribute at community events.**
- **Prompts at garden centers and hardware stores with easy instructions to access the website.**
- **Provide trainings for partners**

Oregonian video series



The \$3.9 Million Question?



Oregon State University
Extension Service

Solve Pest Problems

Questions?

Recommendations?

Thoughts?



Please contact us:

SolvePestProblems.edu

Weston Miller, program manager

Weston.miller@oregonstate.edu

503-706-9193



Oregon State University
Extension Service