



npic
NATIONAL
PESTICIDE ● INFORMATION
CENTER

Oregon State University
Environmental and Molecular Toxicology

Outline

National Pesticide Information Center

- About us
- Services provided

Lessons Learned in Risk Communication

- Debunking myths
- Example questions & answers
- Communicating on the web



National Pesticide Information Center

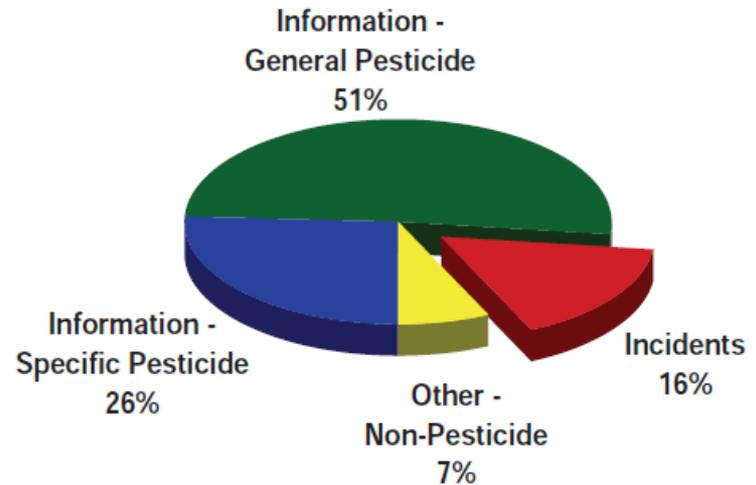
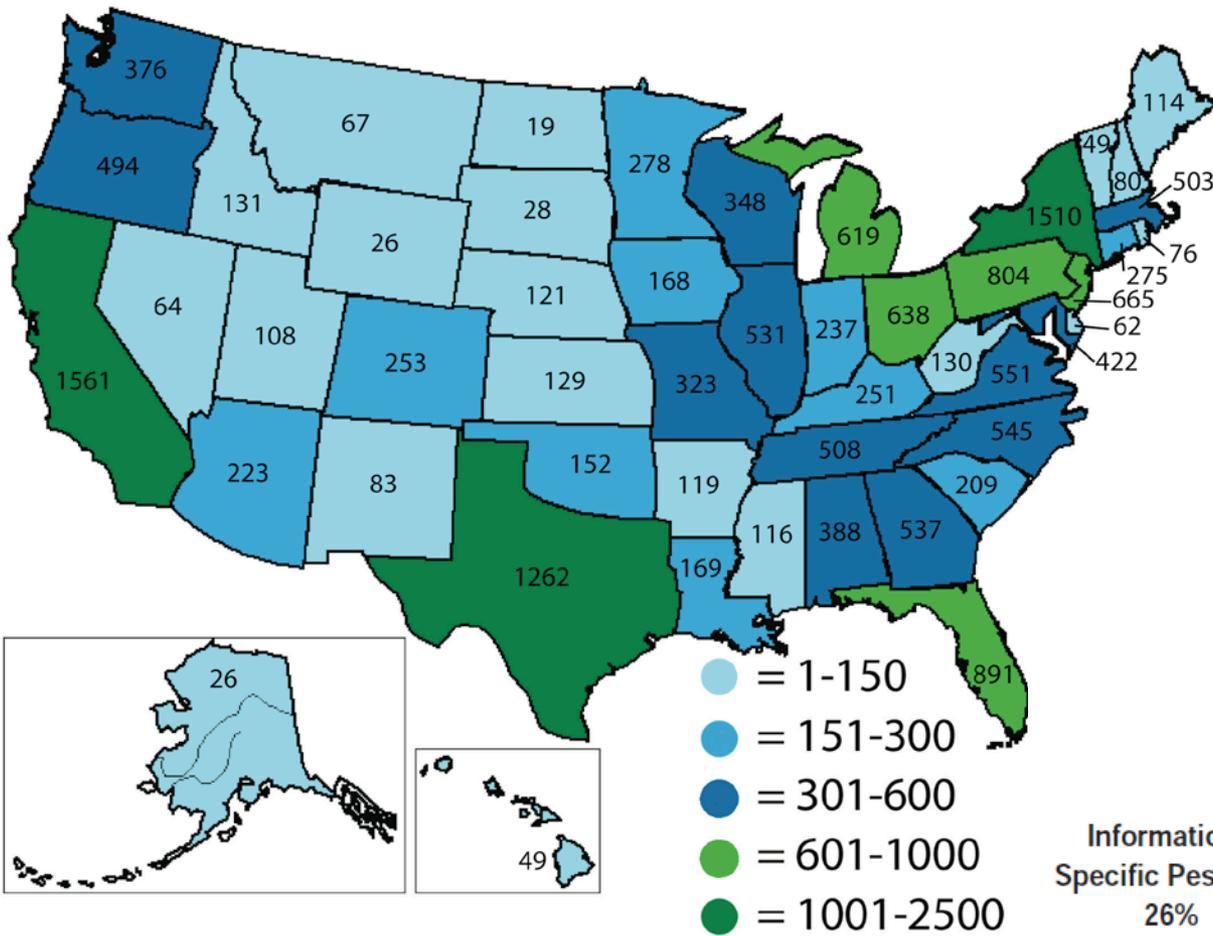
- An information service for the general public and professionals
- Toll-free phone service, answers by email, voicemail and fax
- Funded through a cooperative agreement between the US EPA and Oregon State University



Carmen

- The project is over 25 years old
- NPIC has been housed at OSU since 1995
- NPIC answers ~18,000 inquiries each year
- Website receives >2 million page views/year

National Pesticide Information Center



Example Questions

- Is it safe to use BK Roach Killer in my kitchen? I have kids.
- If I use Roundup to clear some land, will it hurt plants 20 feet away?
- Will *Bti* briquettes hurt the fish in my koi pond?
- How long do I have to wait before harvesting treated figs?
- Why does the label say, “Hazards to humans and domestic animals”? I was told this product would be safe to use.
- How long does it take for ADBAC to break down? I’m chemically sensitive.

Services

- We help people by finding and interpreting information about the health and environmental effects of pesticides.
- We can provide general regulatory information.
- We can access pesticide label information on more than 70,000 EPA-registered pesticide products.
- We use science-based information to address real-world exposure scenarios.



Kristina

Services

We can respond to questions in over 170 languages!

- Spanish
- Mixteco
- Russian
- Arabic
- Mandarin
- Hindi
- Farsi
- ... many more



Two NPIC staff members are native Spanish speakers. Humberto and Carmen have masters degrees in science, and training in risk communication.

Boundaries

No recommendations

- what products to use
- whether or not to use a pesticide
- when to use a pesticide

No pest identifications over the phone

No medical advice or diagnosis

No legal advice

NPIC Staff



Pesticide information - How can we help you?

Budget Reduction

<i>Before July 1, 2011</i>	<i>After July 1, 2011</i>
Open hours 6:30 am – 4:30 pm	Open hours 7:30 am – 3:30 pm
Open seven days per week	Open Monday through Friday
Subcontracts with OHSU and ASPCA for managing pesticide emergencies cooperatively	Subcontracts ended. Emergencies managed by giving the caller a number to call, rather than transferring seamlessly with follow-up
Salary support for a medical doctor and veterinarian at OSU/OHSU	Salary support ended. Consultations limited to health care providers (gratis)
NPIC brochures available upon request	People are encouraged to print copies independently from the NPIC website
Continuing Education for Specialists, Exhibiting booths at key conferences...	There are no funds for travel.



Understanding and Controlling Stink Bugs

Problem Wildlife in the Garden and Yard

Managing Ticks and Preventing Tick Bites

Flea Control

Learn how to manage ticks and protect yourself and your pets from tick-borne diseases.

My Local Resources

Find local pesticide & pest control information



Enter your zip code here... Zip Search...

People and Pets



- Human Health
- Animal Health
- Safe Use Practices
- Pest Control
- Pets and Pesticides
- Report a Problem

Science and Regulation



- Toxicology Resources
- Pesticide Ingredients
- Medical Case Profiles
- Veterinary Resources
- Pesticide Regulations
- Occupational Safety

Pests and Environment



- Identify Your Pest
- Learn About Your Pest
- Control Your Pest
- Integrated Pest Management
- Environment
- Report a Problem

NPIC Publications



- Active Ingredient Fact Sheets
- Topic Fact Sheets
- PestiByte Podcasts
- Frequently Asked Questions
- Outreach Materials
- Medical Case Profiles

My Local Resources

Resources:

University Extension in my State
Master Gardeners in my area
Mosquito/Vector Control
Environmental Agency in my State
Pesticide Agency in my State
Health Agency in my State
Worker Safety in my State
EPA in my Region
Household Hazardous Waste

Who Should I Call?

Pest control at home
Garden pest control
Pesticides at work
Neighborhood pest control
Applicator licensing
Pesticide law enforcement
Shipping pesticides into the US
Disposal of leftover pesticide(s)

Emergencies – Call 911 if you need help right now. For help with spills or possible exposures, visit our [pesticide emergency resources](#) or call NPIC at 1-800-858-7378.

NPIC Publications

- 2,4-D
- Acephate
- Acid Copper Chromate (ACC)
- Alkaline Copper Quaternary (ACQ)
- Arsenic
- Bifenthrin
- Bis-(N-cyclohexyldiazoniumdioxy)-copper (Cu-HDO)
- Borate Wood Preservatives
- Capsaicin
- Chlorpyrifos
- Chromated Copper Arsenate (CCA)
- Chromium
- Copper
- Copper Azole (CA)
- Creosote
- Cyproconazole
- DEET
- Deltamethrin
- Diazinon
- Fipronil
- Glyphosate
- Imidacloprid
- Malathion
- Micronized Copper Wood Preservatives
- Naphthalene
- Paradichlorobenzene
- Pentachlorophenol
- Permethrin
- Picaridin
- Propiconazole
- Resmethrin
- Zinc Phosphide

Antimicrobials **NEW**

Ecotoxicology **NEW**

Inert or "Other" Ingredients

Pesticide Formulations

Pesticides in Drinking Water

Pets and Pesticide Use **NEW**

Pesticides: Minimizing Exposure **NEW**

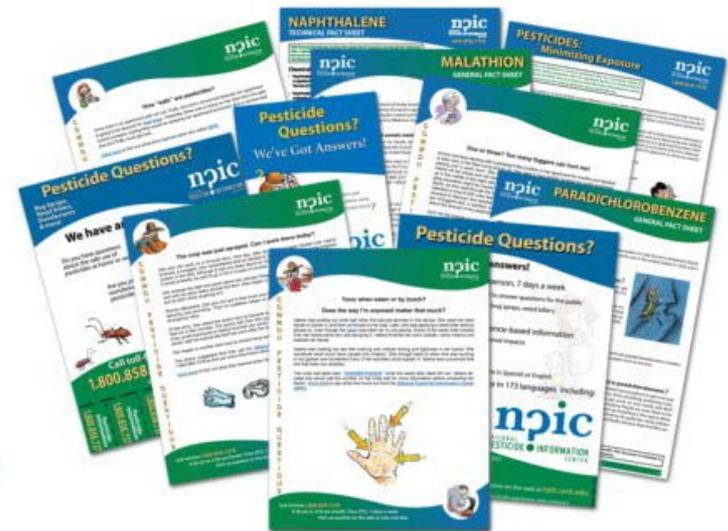
Pesticides: What's my Risk? **NEW**

Rodenticides **NEW**

Signal Words

Veterinary Pesticide Incident Reporting Portal **NEW**

Wildlife and Pesticides





Get Rid of the Mouse! With Kids In the House? Episode 10 - A specialist lists precautions to consider when thinking of using rat or mouse baits around pets and children. [Download and Listen](#), [View Transcript](#) - 1:53 min., 3.45MB



When to Plant After Using Weed Killer? Episode 9 - A specialist provides information about using weed killers to prepare a vegetable garden. [Download and Listen](#), [View Transcript](#) - 1:44 min., 3.96MB



With a Baby on the Way... Is It Okay to Spray? Episode 8 - A specialist discusses infant sensitivity to pesticides and lists some ideas for minimizing exposure. [Download and Listen](#), [View Transcript](#) - 1:55 min., 4.41MB



Could Snail Bait Hurt My Dog? Episode 7 - A specialist cautions dog owners about the risks of snail baits and provides ways to protect their pets. [Download and Listen](#), [View Transcript](#) - 1:56 min., 4.42MB



Dirty Work Clothes: How Should I Wash Out Pesticides? Episode 6 - A specialist explains how to handle and launder clothes that are contaminated with pesticides. [Download and Listen](#), [View Transcript](#) - 1:33 min., 3.57MB



Over 30 CPQs
are available!

PestiBytes are
available for
radio-play!

Web pages about a variety of pests

- Algae
- Ants
- Bed bugs
- Carpet beetles
- Fleas
- Influenza A Viruses (H1N1, Avian flu)
- Lice
- Mold
- Mosquitoes
- Moths
- Nuisance Wildlife
- Roaches
- Rodents
- Slugs & Snails
- Snakes
- Spiders
- Stink bugs
- Termites
- Ticks
- Weeds



Information available for each
of these pests at:
npic.orst.edu/pest.html

Tips for protecting you and your pets from ticks:

- Check yourself, your children and your pets regularly and remove any ticks you may find.
- When outdoors try to avoid contact with tall grasses and shrubs that may be harboring ticks.
- Wear closed-toed shoes and light-colored clothing so you can see ticks on your clothing. Tuck pant legs into socks to prevent ticks from finding your ankles.
- Consider using a **tick repellent** on exposed skin and clothing according to **label directions**. Many **insect repellents** are also effective against ticks, our **Insect Repellent Locator** can help you find one that will meet your needs.
- Reduce the ticks in your yard by keeping leaf litter, tall grasses, shrubs and bushes away from areas you use regularly.
- Keeping deer and rodents out of your yard can help to reduce the number of ticks.
- If further **tick control** around your home is necessary, you may also consider treating your yard with pesticides designed to control ticks. Always read and follow **label directions**.
- Pets can bring ticks into your home. Consider talking to your veterinarian about the options for **controlling ticks on your pets**.

If you have questions about this, or any pesticide-related topic, please call NPIC at **1-800-858-7378** (7:30am-3:30pm PST), or email at npic@ace.orst.edu.

Topics on this page:

- **Tick Bite Prevention**
- **Diseases Transmitted by Ticks**
- **Biology of Ticks**
- **Controlling Ticks**

Risk communication

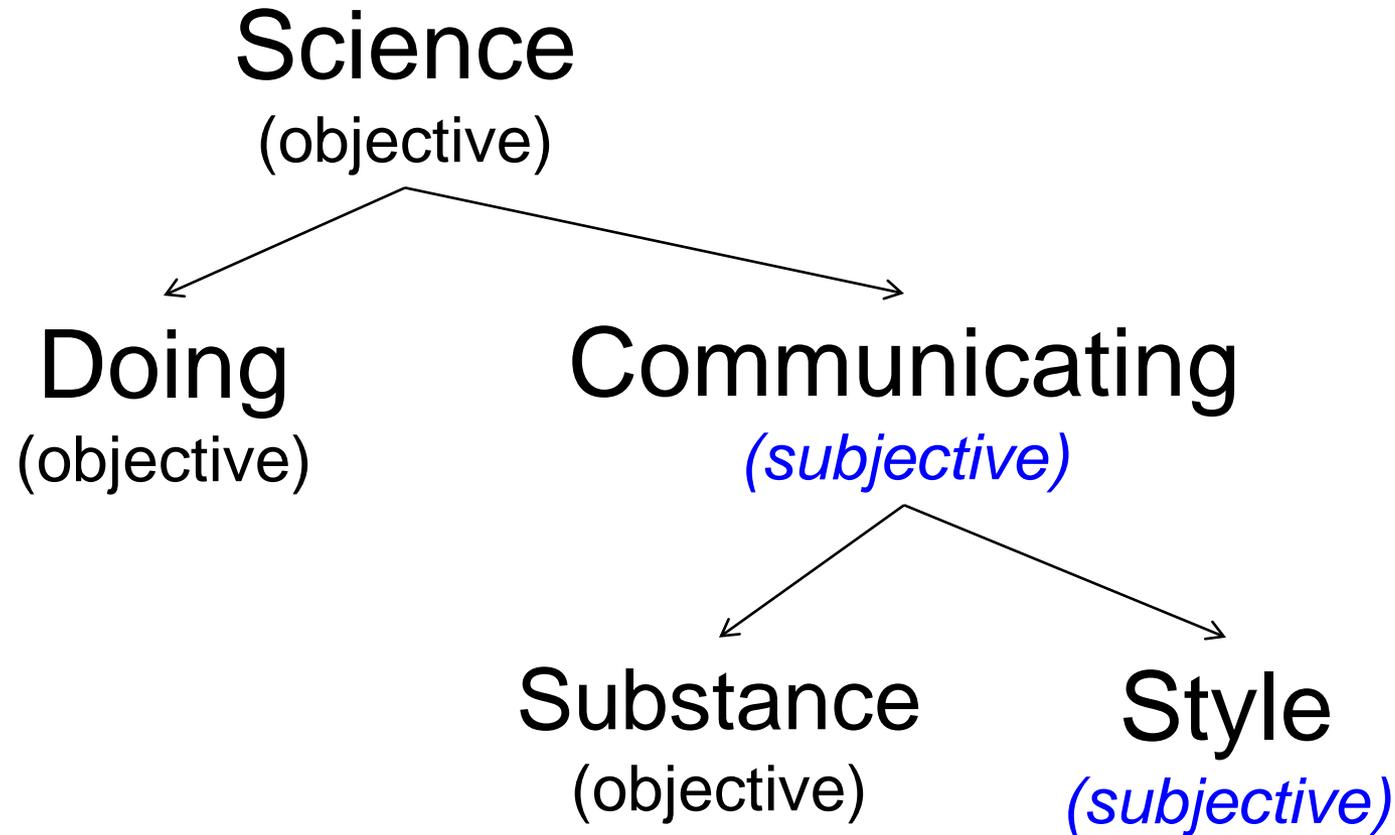


All pesticides have some amount of **risk**. The lowest risk comes with using no pesticide(s) at all. You can minimize the need for pesticides by using **integrated pest management** techniques. If you already tried exclusion, sanitation, and other methods, you may have decided that a pesticide is necessary. If so, consider using the lowest risk pesticide products first and only using higher risk products when all other tactics have failed.

$$\text{Risk} = \text{Toxicity} \times \text{Exposure}$$

Low-toxicity pesticide products are labeled with a **signal word** of "CAUTION", rather than "WARNING" or "DANGER". No matter how toxic a pesticide may be, it's important to follow all of the **label directions**.

Outside the comfort zone

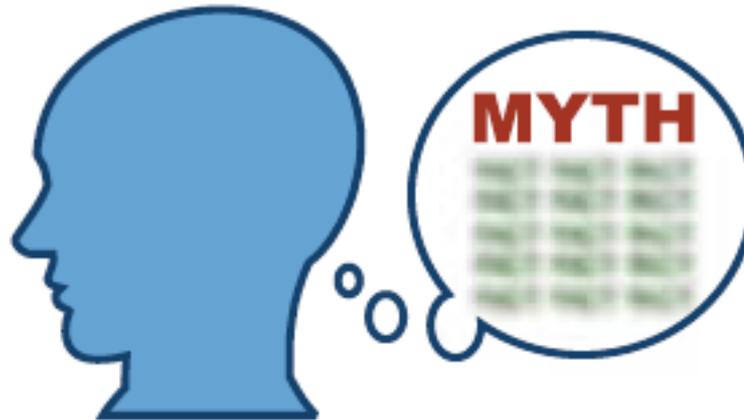


It's not just
what people
think that
matters, but
how they
think.



The familiarity backfire effect

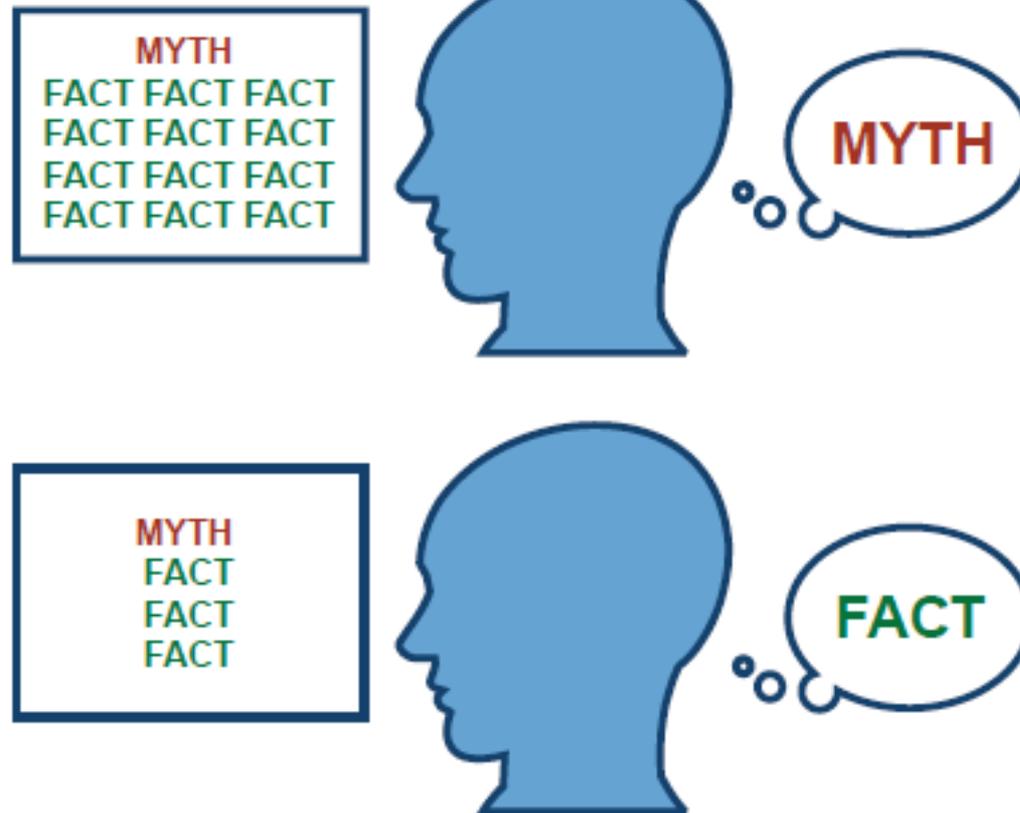
MYTH
FACT FACT FACT
FACT FACT FACT
FACT FACT FACT
FACT FACT FACT
FACT FACT FACT



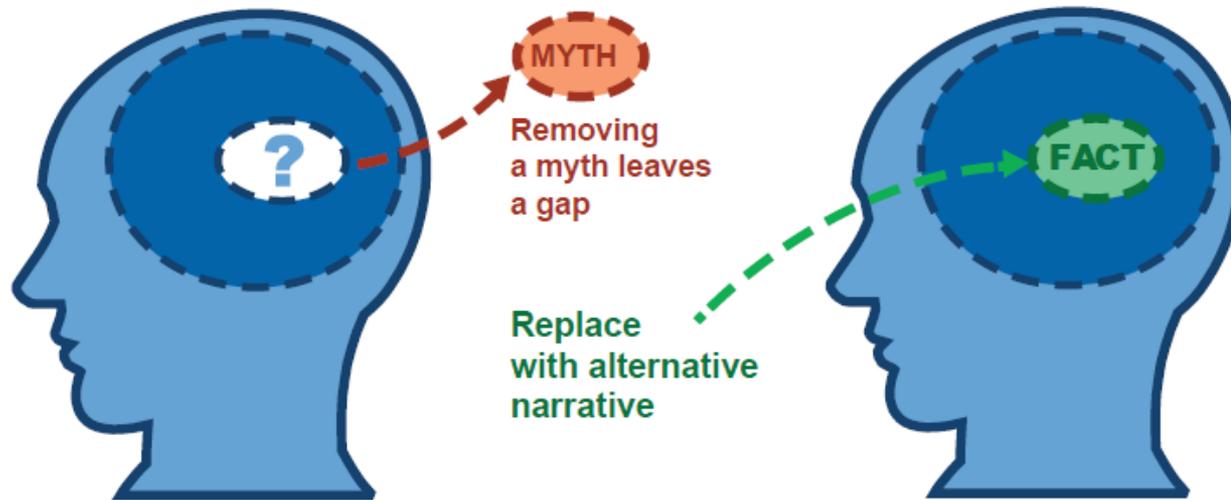
FACT
FACT FACT FACT
FACT MYTH FACT
FACT FACT FACT
FACT FACT FACT
FACT FACT FACT



The overkill backfire effect



Fill the gap in the mind-map



People prefer an ***incorrect*** model over an ***incomplete*** one.

- Offer an alternative explanation
- Suggest why the myth was propagated
- Explain why the myth is wrong

Anatomy of an effective debunking

Bringing all the different threads together, an effective debunking requires:

- **Core facts**—a refutation should emphasise the facts, not the myth. Present only key facts to avoid an Overkill Backfire Effect;
- **Explicit warnings**—before any mention of a myth, text or visual cues should warn that the upcoming information is false;
- **Alternative explanation**—any gaps left by the debunking need to be filled. This may be achieved by providing an alternative causal explanation for why the myth is wrong and, optionally, why the misinformers promoted the myth in the first place;
- **Graphics** – core facts should be displayed graphically if possible.

The Risk Equation

$$\text{Risk} = \text{Toxicity} \times \text{Exposure}$$

- Toxicology of active ingredient
- Product signal word
- Dose estimate
- Effects (signs, symptoms) reported in the literature
- Onset, duration and resolution of symptoms

- Distance to application site
- Route of potential exposure
- Physical/chemical properties of active ingredient
- Duration/frequency of exposure
- Bioavailability by the route in question

Example questions & answers



References to pesticide products, active ingredients and/or product formulations in this presentation do **not** constitute endorsement of those products/active ingredients/formulations by NPIC, the College of Agricultural Sciences, OSU or the U.S. Environmental Protection Agency.

Question:

Which product is less toxic? I have asthma.

- Product # 1: Sevin 5% Dust Insecticide
 - Active ingredient: carbaryl at 5.0%
 - Signal word: CAUTION
 - Formulated as a DUST
- Product # 2: Ornamental and Garden Vegetable Insecticide Spray
 - Active ingredient: esfenvalerate at 0.0033%
 - Signal word: CAUTION
 - Formulated as a liquid, ready to use



Answer:

It depends... In your case, product #2 is less risky.

- Least toxic to what?
 - Humans, pets, fish, bees....
 - In this case, humans
- Least toxic by which route?
 - Inhalation, ingestion (eating), skin contact....
 - In this case, inhalation.
- “Carbaryl is practically non-toxic to rats by inhalation, with LC_{50} greater than 3.4 mg/L.”
- “Esfenvalerate is practically non-toxic via inhalation, with LC_{50} greater than 2.93 mg/L.”
- Dust is more prone to being inhaled than a liquid.
- Product #2 has a lower concentration of the active ingredient



Question:

What does “skin sensitizer” mean? It’s here on my product label...

WARNING: EYE & SKIN IRRITANT
CAUTION: POISONOUS IF INHALED
POTENTIAL SKIN SENSITIZER
KEEP OUT OF REACH OF CHILDREN
CONCENTRATE HAZARDOUS TO HUMANS AND
DOMESTIC ANIMALS

Answer:

- “Skin Sensitization (allergic contact dermatitis): An immunologically mediated cutaneous reaction to a substance.”
Handbook of Toxicology 2nd. Ed., Derelanko & Hollinger, p.148
..... How about something in *English*?

An NPIC specialist would go further to explain:

- After a person is sensitized, any future exposure to the substance results in an allergic reaction. Allergies may manifest as skin irritation, hives, red or puffy eyes, sneezing, etc.

Question:

How should I wash my pesticide-contaminated work clothes?

- I work with a variety of pesticides.
- Most of them are sprays; some are fumigants.
- I wash my aprons, boots and goggles at work, but my shirts and pants get moist from the spray mist.



Answer(s):

- Store and wash contaminated clothing separately from the family laundry.
- Clothes that are *soaked* with pesticides should be thrown away rather than washed.
- Wash your work clothes each day.
- Wash only a few items at a time.
- Use hot water - the hotter the better. Use heavy duty laundry detergent.
- Laundry additives such as chlorine bleach or ammonia do not improve removal of pesticide residues.
- Line dry, if possible. Sunlight breaks down many pesticides and it can prevent residues from collecting in the dryer.



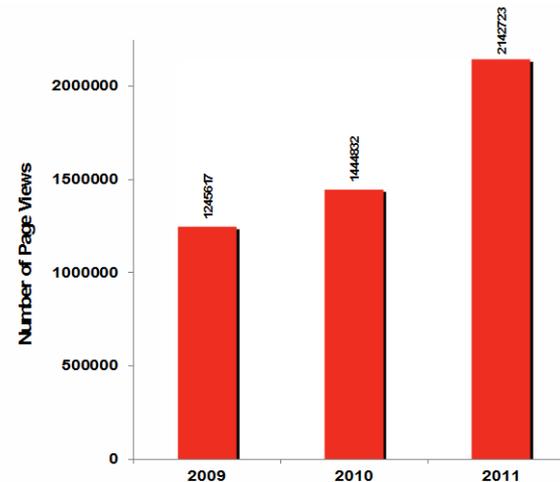
Risk communication on the web

On average, visitors to web pages spend **2-4 seconds** deciding whether to leave or stay.

People with limited literacy skills tend to skip whole paragraphs if they have more than **3 lines**.

Links and content on the right margin are often ignored, mistaken for advertisements.

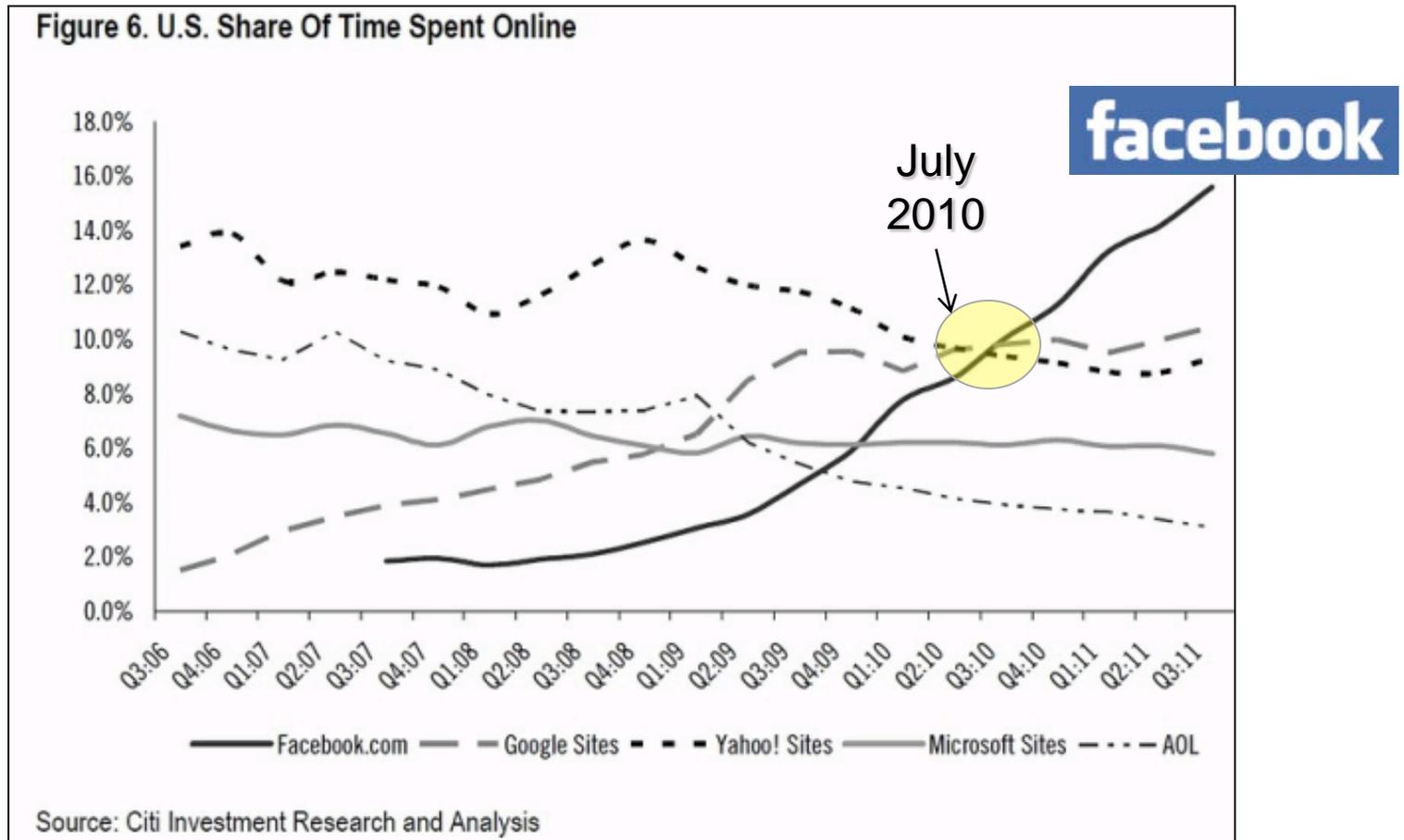
NPIC website
Over 2 million page views in 2011



In 2011, visitors stayed for an average of 2.75 minutes.

“Between the dawn of civilization through 2003, *five exabytes* of information was created.” – Eric Schmidt, Google

“That same amount of information is now being created *every two days*.” – S. Rosenbaum, Magnify.net



www.health.gov/healthliteracyonline/

Health Literacy Online

**A guide to writing and designing
easy-to-use health Web sites**



U.S. Department of Health and Human Services
Office of Disease Prevention and Health Promotion

Write Actionable Content

“ Get my attention.
Then get to the point. ”



- Write in plain language. Use your own voice.
- Put the most important information first.
- Describe the desirable behavior – just the basics.
- Stay positive and realistic.
- Provide specific action steps.

Display Content Clearly on the Page



“ I like this Web site because it gives you the information you want right away. It gives you the basics, not too much to read. ”

- Limit paragraph size. Use bullets or short lists.
- Use meaningful headings with action words
- Use white space, avoid clutter
- Keep content in the center, above the fold

Pesticides and Children



If you choose to use a pesticide, keep these tips in mind to minimize risk to infants and children:

- Always be sure to **read the product label** first. The product must be approved for the intended use and applied according to label directions.
- Seek the **least-toxic pesticide** option available. Use the **signal word** to identify products that are low in toxicity.
- Keep children out of treated areas while pesticides are being applied, and until areas are dry. The product label may have more specific instructions.
- Allow plenty of time for the pesticide to dry and the home to ventilate before returning.
- If your lawn or carpeting has recently been treated with pesticides, consider using shoes, blankets or another barrier between the treated surface and children's skin.
- Be sure children wash their hands before eating, especially after playing outdoors.
- If you **apply pesticides to your pets**, be sure to keep children from touching the pet until the product has completely dried.
- Place **ant, snail and rodent baits** in locked bait stations or safely out of reach of children.
- Never use mothballs outside of sealed, airtight containers. Children often mistake mothballs for food when used improperly around the home.
- Never use **illegal pesticides**, such as **Miraculous, Pretty Baby or Chinese Chalk**. It looks and writes like normal chalk, and the pesticide dust can be breathed in, get on kids' hands or end up in their mouths.
- Be sure to **store pesticides** in their original containers. Never use **food or beverage utensils or containers** to mix or store pesticides.
- Store all pesticides out of the reach of children.
- If someone in the household **works with pesticides**, take steps to reduce the amount of pesticide residues they bring into the home. If possible, wash and dry the **work clothes** separate from family laundry.



Soil can be degraded and the community of organisms living in the soil can be damaged by the misuse or over use of pesticides. Some pesticides are more toxic to soil organisms than others. Some pesticides may **break down** quickly when applied to soils, while others may persist for longer periods. The type of soil and the type of pesticide can also affect pesticide persistence.

When applying pesticides to soils, keep these tips in mind:

- Review the "Environmental Hazards" section of the product label, and always follow the **label directions**.
- Adopting **IPM methods** of controlling pests can reduce the need for pesticides application to soils.
- Pesticides in soil may be taken up by plant roots and moved to other plant tissues, including the fruit.
- Pesticides applied to sandy or coarse-grained soils are more likely to leach through the soil and **contaminate groundwater**.

To learn more about pesticides and soils visit these resources:

- [Residential Soil and Pesticides](#)
- [Pesticides and Agricultural Soils](#)
- [Exposure and Testing](#)



Nat'l Pesticide Info @NPICatOSU

15 Nov

Plant cover crops now to replenish soil and suppress weeds. extension.oregonstate.edu/gardening/node...



Nat'l Pesticide Info @NPICatOSU

10 Nov

Mulching with leaves or newspaper can reduce winter weeds and suppress spring weeds. extension.oregonstate.edu/gardening/node...



Nat'l Pesticide Info @NPICatOSU

8 Nov

Most home compost piles don't get hot enough to kill plant pathogens. Leave diseased plants out. [npic.orst.edu/envir/ressoil....](https://npic.orst.edu/envir/ressoil...)



Nat'l Pesticide Info @NPICatOSU

1 Nov

Removing fallen fruit around trees now can reduce insect pests and diseases next year. npic.orst.edu/pest/gardenipm...

“ Get my attention.
Then get to the point. ”





National Pesticide Information Center shared a link.

April 29, 2011

Plant diseases can move with you from one plant to another, from one place in the garden to another. The disease can hitchhike in the mud on your boots, or on the blade of pruning shears. Good garden practices can reduce the amount of pesticide you need by preventing the spread of a problem.



Clean Clip Tips: Disinfect Your Tools to Prevent Disease

davesgarden.com

As your spring garden clean-up gets underway, don't sabotage your efforts by using dirty, infected tools.

Like · Comment · Share



1

Timely information.

Roses are pruned
in the spring.



Greenversations

“... Here are some unnecessarily long or ugly words (and replacement words) that many people use a lot:”

utilize – use

currently – now

possess – have

however – but

for the purpose of – for

initiate – start

terminate – end

facilitate – help

interface – meet? Talk to?

relocate – move

retain – keep

Let's review:

The National Pesticide Information Center (NPIC) is:

- a **cooperative effort** between Oregon State University and the U.S. Environmental Protection Agency.
- A **resource** for the general public and professionals
- A place to **report pesticide poisoning** and other incidents
- Available free of charge to anyone, in over 170 languages



NPIC operates Monday - Friday

- 7:30 am to 3:30 pm Pacific time
- 8:30 am to 4:30 pm Mountain time
- 9:30 am to 5:30 pm Central time
- 10:30 am to 6:30 pm Eastern time, excluding holidays.

Let's review:

Risk communication:

- Debunking myths
 - keep it simple,
 - de-emphasize the myth, and
 - fill any gaps in the mind-map

Risk communication online:

- Break up paragraphs, use bullets
- Say the most important part first
- Put the information in your target audience's path, in the venues where they spend time online



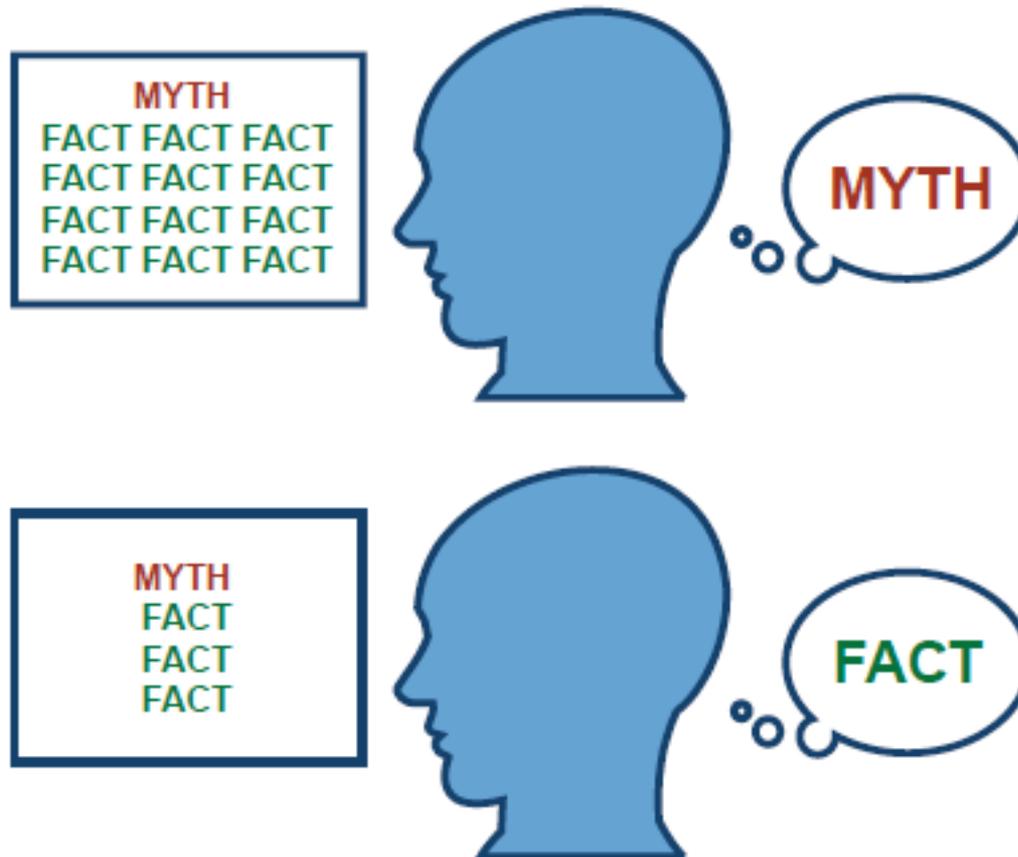
How can I collaborate with NPIC?

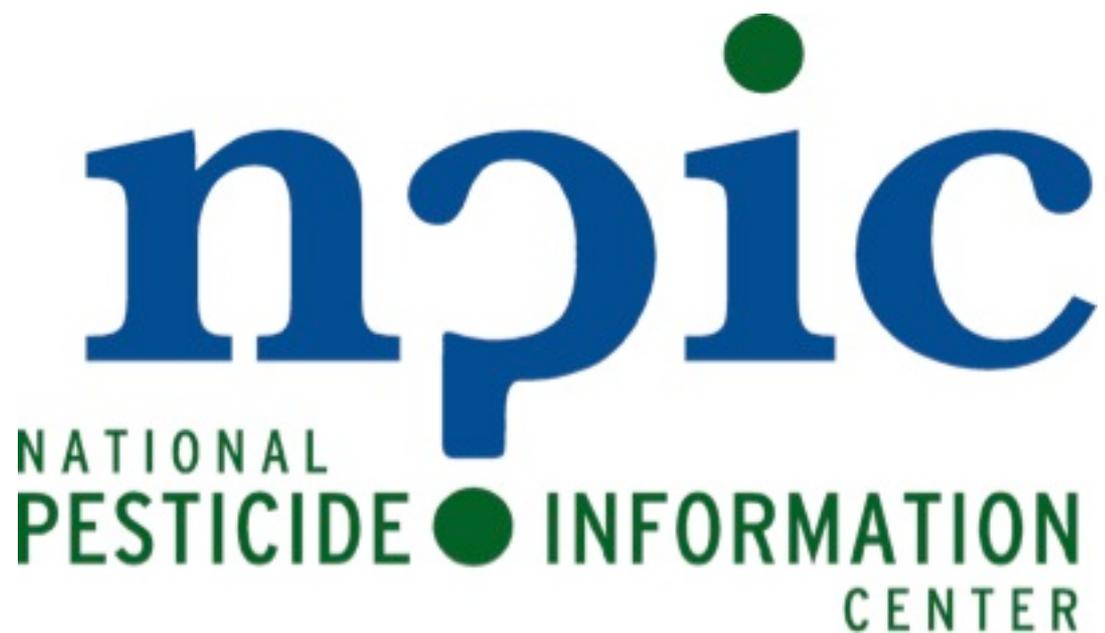


Ann

*Other collaboration
ideas are welcome!*

- Add our toll-free number to your fact sheets, websites and announcements. Allow us provide the phone support your audience may need.
- Use our fact sheets and other publications as handouts and/or references.
- Encourage people to report pesticide incidents in order to better inform the risk assessment process.
- Follow us on Facebook and Twitter and share the posts that “hit the spot” for your audience.





1-800-858-7378 (PEST)

www.npic.orst.edu

npic@ace.orst.edu