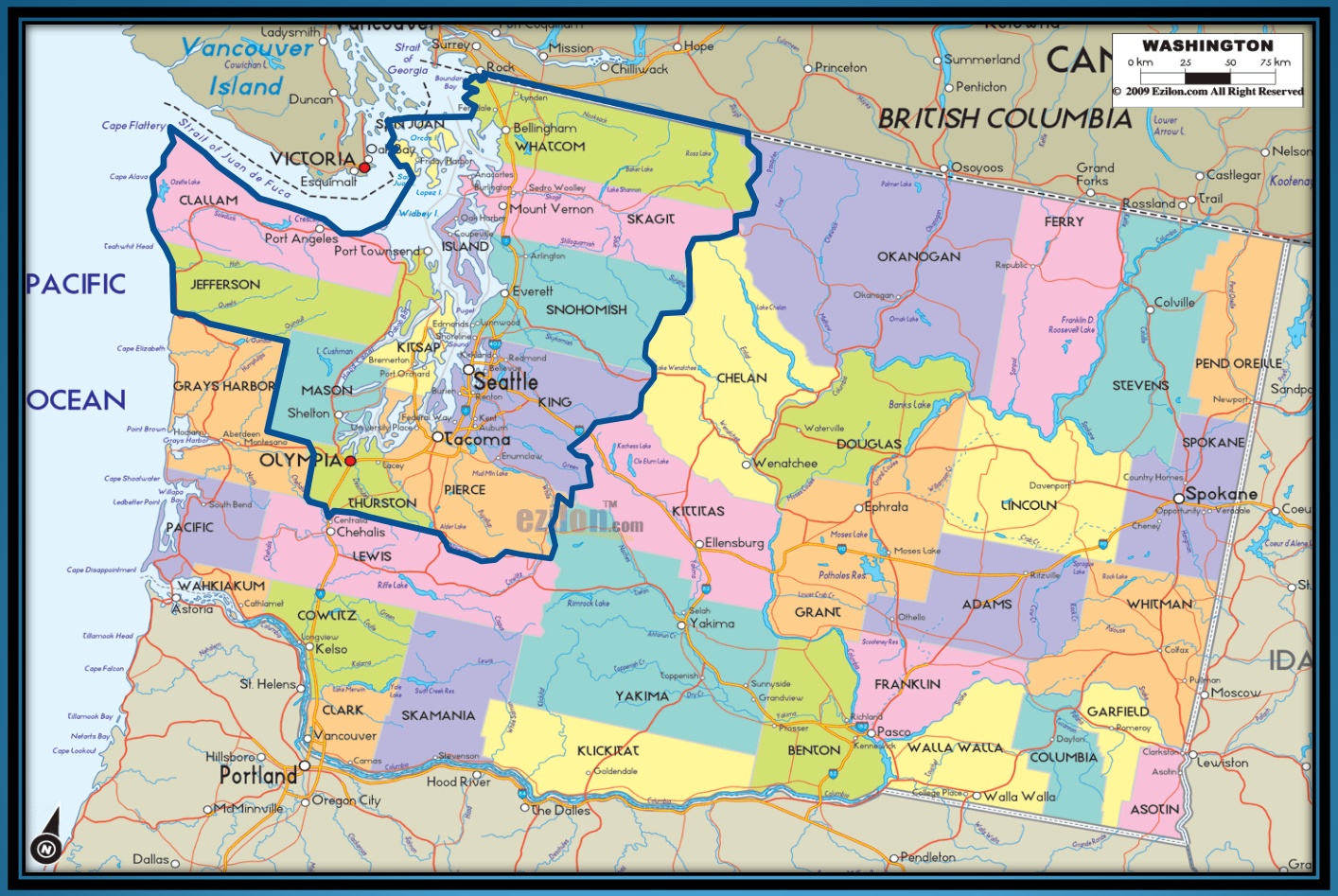
Non-Agricultural Pesticide Use in Puget Sound Counties



Washington State Department of Agriculture

Winter 2014 – Spring 2015

Project Purpose

- State agency partners were concerned about copper fungicide use contributing significantly to copper loading in Puget Sound.
- WSDA agreed to investigate copper as one part of all pesticide use in the urban areas of Puget Sound counties.
- Goal was to create a snapshot of pesticide timing and use in urban and suburban, non-agricultural areas.
- Identify education and outreach opportunities to better inform the general public on best management practices for pesticides.

Methodology

- Complete a survey of pesticide products available to the general public.
- Survey residential, public operator, golf course, and commercial pesticide applicators for typical use.
- Analyze uses, timing, and practices for education and outreach opportunities or further research needs.

Residential Survey

- WSDA and USDA NASS developed 4-page residential survey in late 2012.
- Advisory team of commercial applicators, state, local, and federal agencies provided input to survey.
- Mailed to 15,507 properties that met the following criteria:
  - Classified as SFR (single-family residence)
  - Property less than ½ acre in size
  - Random sample groupings

Residential Sample Groups

Location	Population	Targeted Sample Size	Sampling Rate (1 in)
Mason/Kitsap	62,723	2500	20.0892
Jefferson/Clallam	6,859	2503	2.74
Whatcom/Skagit	56,960	2501	22.784
Thurston/Pierce	206,966	2501	82.7
Snohomish/Island	197,635	2500	79.054
King	412,109	2501	164.8436
Thornton Creek*	17,295	501	34.59

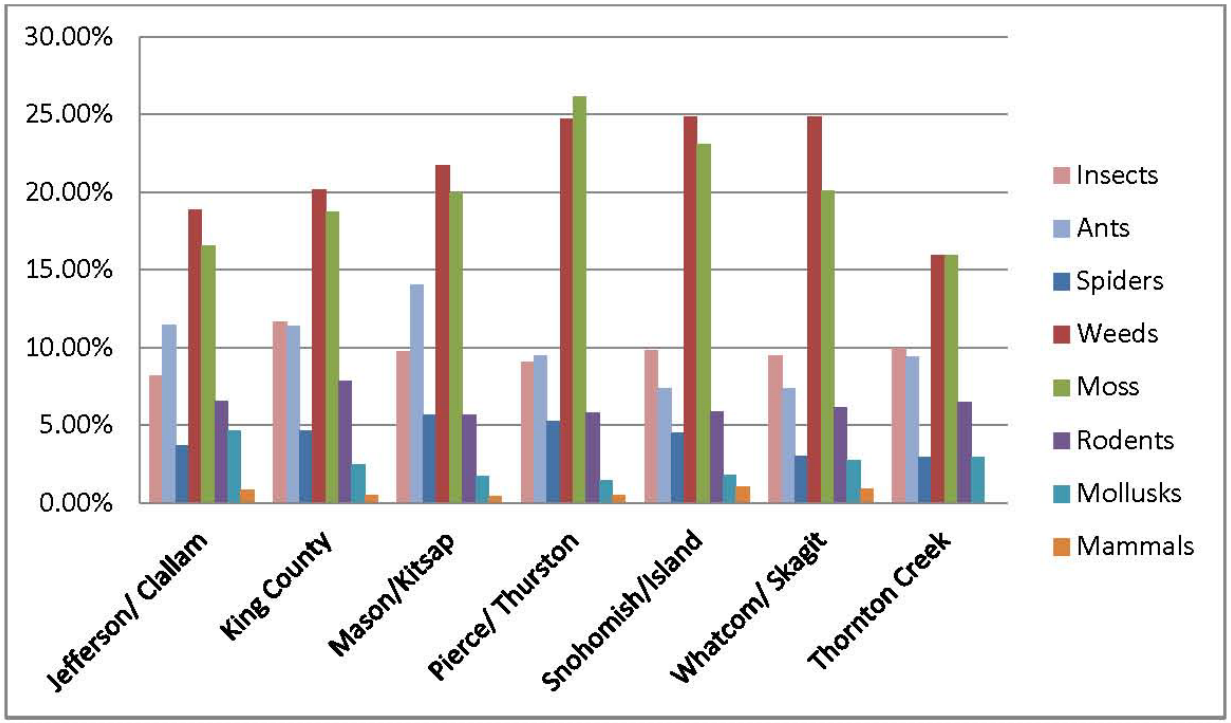
Residential Response

- Survey mailed in late February 2013
- Responses accepted until May 15, 2013
- Average response rate 18.9% (national average is 9% for unsolicited mail-based survey)
- By grouping:

Location	Surveys mailed	Number returned	% returned
Mason/Kitsap	2500	419	16.8
Jefferson/Clallam	2503	518	20.7
Whatcom/Skagit	2501	518	20.7
Thurston/Pierce	2501	426	17.0
Snohomish/Island	2500	411	16.4
King	2501	492	19.7
Thornton Creek	501	147	29.3

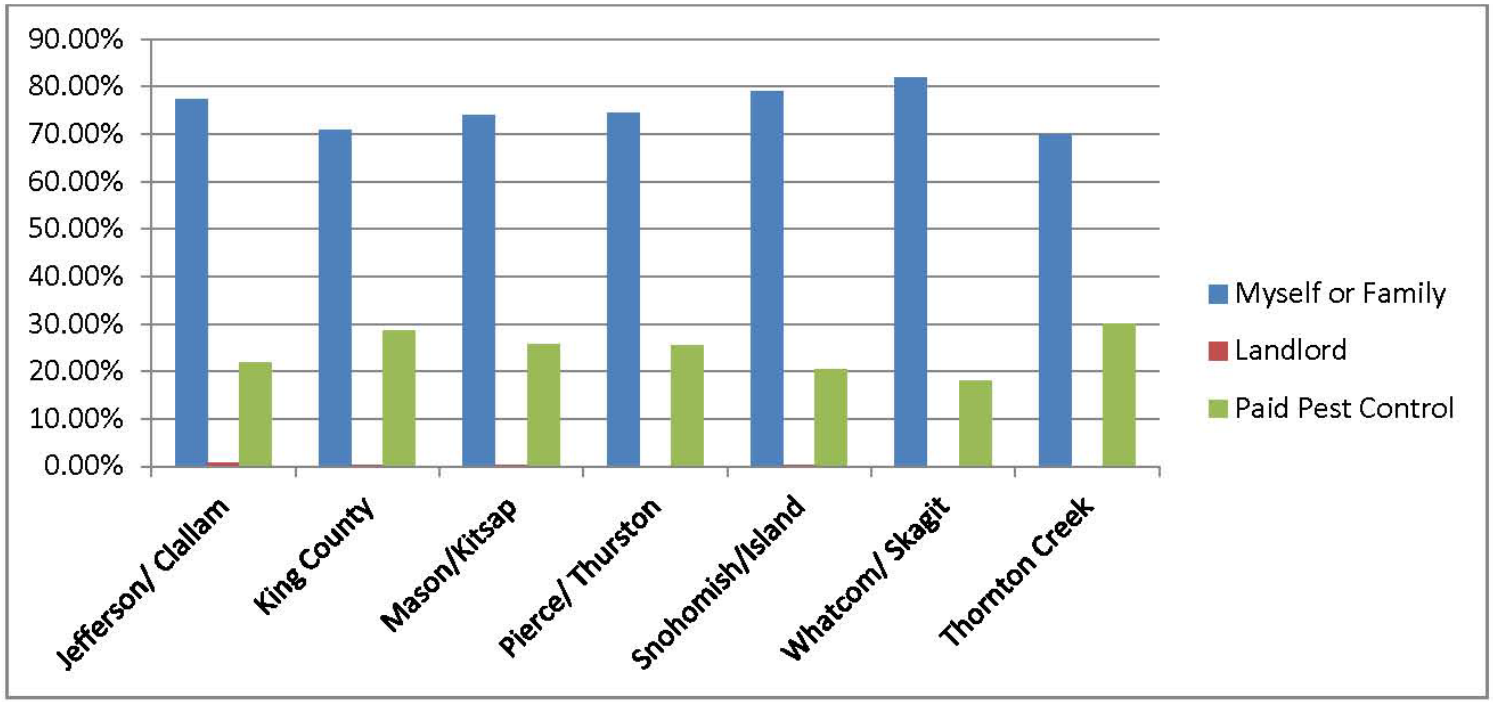
Residential Results

- 51.5% of respondents applied a pesticide in the previous 12 months
- The most controlled pest problems were weeds and moss (30% of total)



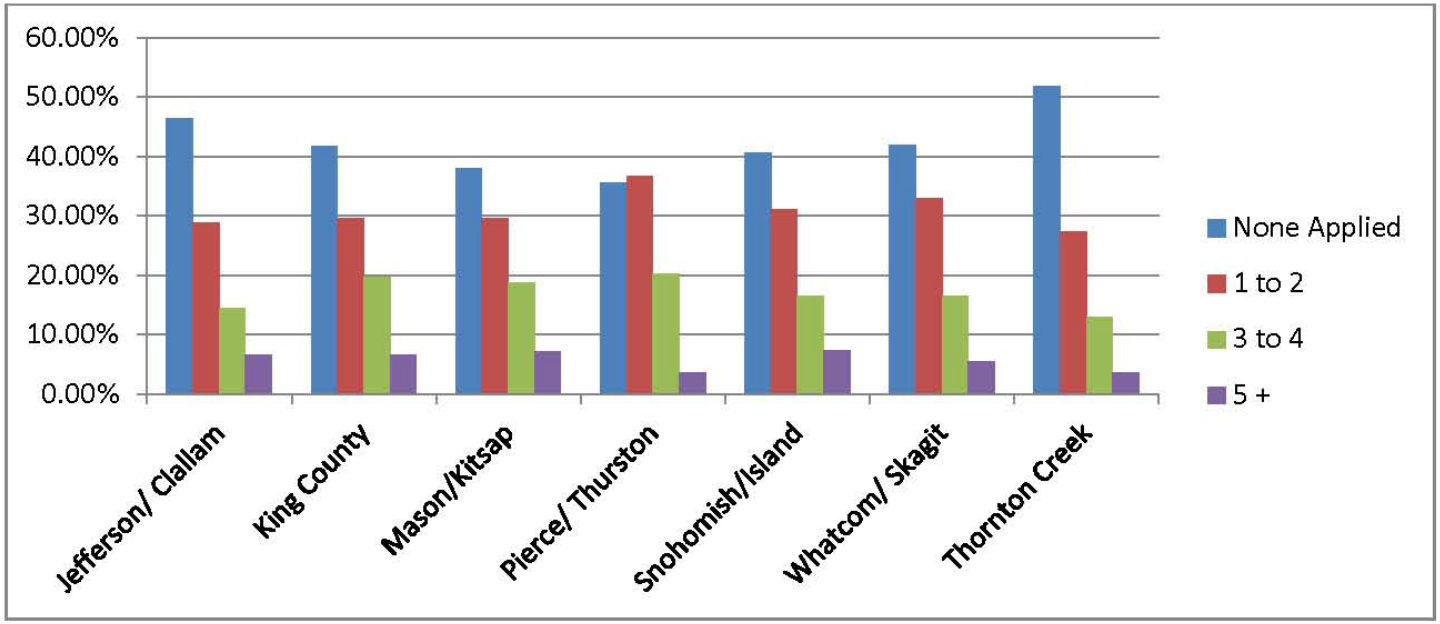
Residential Results

- 75% of those who treated conducted the application themselves (vs. hiring a professional with a license)



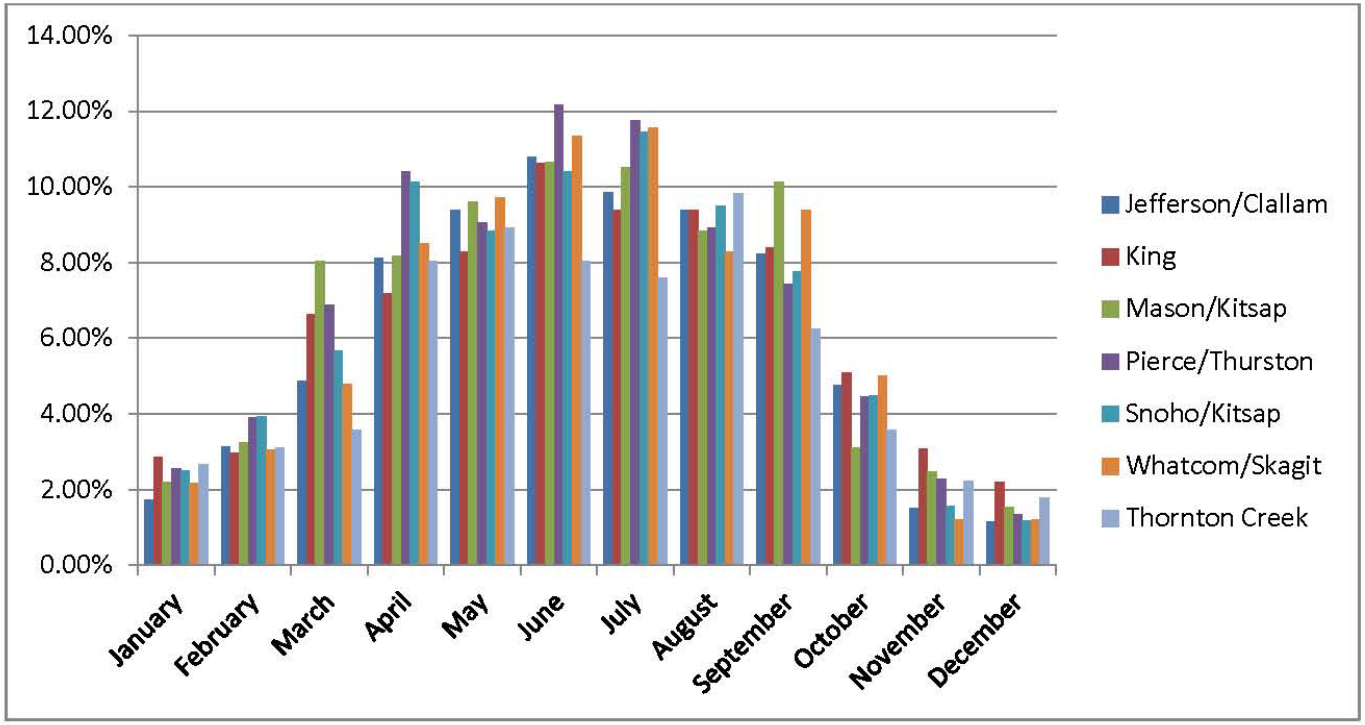
Residential Results

- 31% of respondents conducted 1-2 pesticide applications per year (less than 6% treated 5 times or more)



Residential Results

- Treatments typically corresponded with WA's growing season (March-September) across all groupings



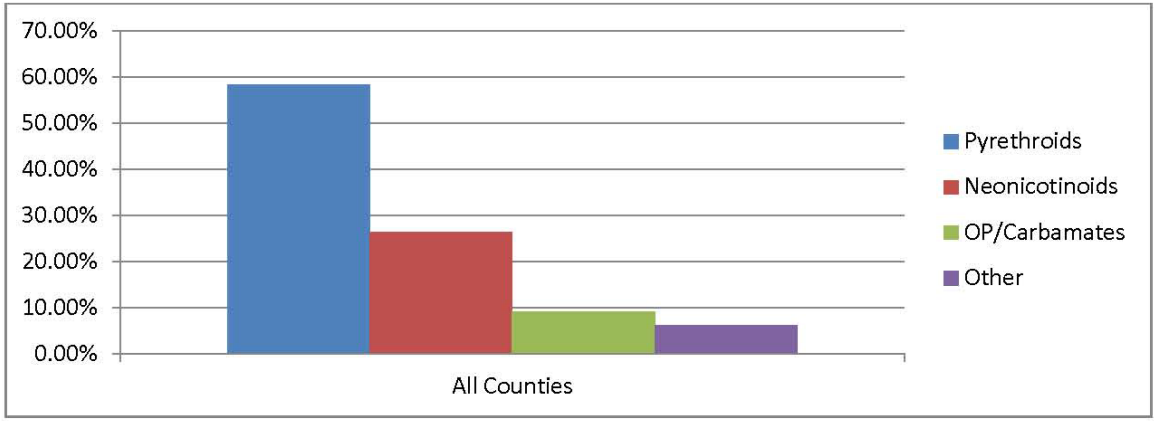
Residential Results

- Purchases seem opportunistic rather than targeted, and there is no variation between urban and more rural counties
- Fungicides were found to be used infrequently, most likely due to lack of disease understanding.
- Of those applied, only 6.5% of fungicides contained a copper compound.
- Residential copper pesticide use does not appear to be a significantly loading source to Puget Sound (based on both availability and use patterns)

Residential Results

- 84.7 percent of all insecticide use fell into the neonicotinoid and pyrethroid families of chemicals

Total insecticide purchases	988
Chemical information known	680
Chemical unknown	308
Pyrethroids by count	397
Pyrethroids percentage of known	58.4%
Neonicotinoids by count	179
Neonicotinoids percentage of total	26.3%
Total other chemicals	15.3%



Public Operator Survey

- Public operators were surveyed in the 7 most populous counties around Puget Sound (total counties: 12)
- Data collected included:
  - Pesticide active ingredient
  - Target Pest
  - Application Method
  - Treatment Month

- Groups were asked specifically about copper pesticide use

Public Results - Roadsides

- 6 of the 12 counties around Puget Sound operate their roadside programs as no-spray (many cities are also no spray). The other 6 use IPM programs.
- Roadside herbicide applications were the largest use category for public agencies.
- All products are applied either with a truck or ATV-mounted sprayer or with a backpack.
- Treatments began in late February or March and ended in late September/early October.
- Tank mixes are very common (2-3 pesticides per tank).

Public Results - Ports

- Major ports in Tacoma, Olympia, and Seattle were surveyed for this report.
- Unique issues– no plant tolerance near or on pressure-sensitive fencing.
- Invasive species – ports are a landing for new invasives, necessitating increased surveillance and rapid response to new pests.
- Rodent control is a year-round issue

Public Results - Parks

- Very limited use
- Predominantly herbicides (in developed parks only)
- Insecticide use is complaint or safety-based (i.e. wasp control)
- Moss or fungus control is limited to developed or planted areas
- Because of visibility, most park pest management is done using mechanical or biological controls (odor is also a concern and draws complaints)

Golf Course Survey Results

- Most regular pesticide user to maintain uniformity and turf health
- Rotation is key to preventing pesticide resistance
- Very little insecticide used today since mechanical controls (spiking and aeration) implemented
- Very little copper fungicide use due to phytotoxicity (phased out ~5 years ago)

Commercial Applicator Survey

- 8 different companies were surveyed (activities in all 12 counties were covered by these companies)
- Local and regional companies conducted primarily residential work (80-90%).
- National companies did the majority of commercial work (>50%).
- Most companies pre-mix and allow their operators to choose from a small number of pre-chosen active ingredients for each pest.

Commercial Survey Results

- Residential properties are usually treated for only documented problems (commercial may be on a set schedule regardless of pest pressure).
- Applicators in the region have actually expanded during the recession by offering year-round pest control, including exclusion, baiting, source identification, cleanup, as well as pesticide applications.
- Residential #1 Controlled Pest: Ants
- Commercial #1 Controlled Pest: Rodents

How Does the Data Relate?

- The herbicide active ingredients reported by applicators are almost all found regularly in our surface water monitoring program.
- The insecticides used are found in our surface water monitoring and highly available in the retail market.
- There are very few fungicides used outside of the agricultural environment.
- Pesticide use is marginally higher in more rural counties than urban counties.

Next Steps

- Potential data gaps: military installations, airports, schools
- Future needs: Education materials available in the retail marketplace
- Repeat: retail shelf survey, residential survey?
- Work on coordinated outreach for residential property owners

Questions?

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Full Report:
http://agr.wa.gov/FP/Pubs/docs/103-409PSReportfinal2014.pdf