

Know how. Know now.

# 2014 PESTICIDE SAFETY EDUCATION PROGRAM ANNUAL REPORT

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## **General Overview**

## Introduction

The Pesticide Safety Education Program (PSEP) is an integral part of the University of Nebraska– Lincoln (UNL) Extension. Programming within PSEP reaches diverse audiences from licensed pesticide applicators to consumers to youth. About 10,000 pesticide applicators, consumers, and youth were reached during this past year through a variety of approaches. Close interaction with Extension colleagues, various stakeholders, and the Nebraska Department of Agriculture (NDA) results in consistent, high quality information that is delivered to our audiences.

The responsibilities of those involved with pesticide education, certification, and licensing are clearly defined by state law. The UNL Extension staff, working with NDA, is responsible for conducting educational training programs for private, commercial, and noncommercial pesticide applicators. The NDA, as the pesticide regulatory authority, has responsibility for certification and the issuance of licenses to those who apply pesticides.

PSEP goes beyond the traditional pesticide applicator audiences. Professionals, homeowners, consumers, and youth learn through clinics, conferences, festivals, news releases, youth programming, workshops, social media, and the internet. When you combine these audiences with the traditional pesticide applicators, a clear picture of PSEP begins to emerge. These quality educational programs are vital to Nebraska residents in terms of proper pest management, protection of public health, and environmental stewardship. The list below highlights the ways in which PSEP contributed to the education of Nebraskans in 2014:

- Commercial/Noncommercial and Private Education
- PSEP training DVD, manual, and publication development
- PSEP Website updates
- Hands-on Termite School for Pest Management Professionals
- IPM in Schools Projects
- Participation in Trade Association and UNL Conferences:
  - **o** Crop Production Clinics
  - o Nebraska Urban Pest Management Conference
  - Nebraska Turf Conference
  - Mosquito and Vector Control Association Annual Conference
  - o Ag Expo
  - o Nebraska Aviation Trade Association Conference
  - Nebraska Agri-Business Association Custom Applicator School
- Other Extension Pesticide Safety and Education Presentations (i.e. Master Gardeners)

This is the 2014 (July 2013-June 2014) Pesticide Safety Education Program Annual Report. Additional details are included about each of the specific programs mentioned for this past year.

## What is PSEP?

The Pesticide Safety Education Program is for all licensed applicators and other professionals, homeowners and consumers, and youth. PSEP addresses the following topics:

#### Working Together to Protect Human Health

- Understanding health effects from the misuse of pesticides
- Food safety
- Water quality
- Worker protection from agricultural pesticides
- Personal safety of applicators
- Vector control
- Pesticide application education
- Residential use of pesticides

#### **Protecting Our Environment**

- Water quality
- Prevention of adverse effects to the ecological system
- Endangered species
- Calibration, application, and drift reduction
- Recycling pesticide containers
- Protection of sensitive areas
- Pesticide spray nozzle selection
- Drift prevention

#### **Pest Recognition and Management**

- Pest identification and damage assessment
- Integrated pest management (IPM)
- Nonchemical controls
- Pesticide selection
- Timing of pesticide applications
- Evaluation of control methods
- Pest biology

#### Pesticide Management

- Pesticide safety
- Understanding pesticide labels
- Selection of pesticides
- Proper application of pesticides
- Personal protective equipment
- Proper storage and security
- Pesticide laws and regulations
- Pesticide recordkeeping

## **Steering Committee**

The PSEP Steering Committee has university, regulatory, and industry representatives serving in program administration and advisory capacities. The committee members are familiar with the PSEP program and its audiences. They represent the interests of their industries, disciplines, and associated clientele with a variety of expertise, experiences, and perspectives.

#### **University of Nebraska**

Erin Bauer, Extension Associate, Pesticide Education Office Gary Brewer, Department Head, Entomology Emilee Dorn, Extension Assistant, Pesticide Education Office Pierce Hansen, Extension Assistant, Pesticide Education Office Jan Hygnstrom, Project Coordinator, Pesticide Education Office Scott Hygnstrom, Professor, School of Natural Resources Tamra Jackson-Ziems, Extension Plant Pathologist, Plant Pathology Jay Jenkins, Extension Educator, Panhandle District Rick Koelsch, Extension Administration Wayne Ohnesorg, Extension Educator, Northeast District Clyde Ogg, PSEP Coordinator, Pesticide Education Office Lowell Sandell, Assistant Education Educator, Agronomy & Horticulture Ron Seymour, Extension Educator, Southeast District Nicole Stoner, Extension Educator, Southeast District Bob Wright, Extension Entomologist, Entomology

#### Industry

Alice Licht, Nebraska Agri-Business Association Bob Kacvinsky, Syngenta Crop Protection

#### Nebraska Department of Agriculture

Tim Creger, Manager, Pesticide Programs Kay Kromm, Pesticide Certification & Worker Safety Specialist

#### **Environmental Protection Agency (EPA)**

Dick Wiechman, Nebraska Project Officer

## **Educational Materials and Programs**

Each year, many new publications and other materials are developed to help support PSEP. These include curricula such as training manuals, publications such as Extension circulars and NebGuides, DVD production for use in PSEP, on-line Web site resources, and PowerPoint presentations for use in a variety of ways. Listed here are those materials and publications developed since the last annual report.

#### **Electronic Media**

Pesticide Recordkeeping App-"PeRK", revised Flickr Photo Library, 120 new pictures Additions to YouTube – 4 video segments Facebook Page, 38 new likes Twitter Account, 100 new followers PSEP Web site, 41,080 visits since June 1, 2013 IPM Web site, 1,133 visits since June, 1, 2013

#### **UNL Extension Publications**

Bee Aware: Protecting Pollinators from Pesticides EC, new Integrated Pest Management for Landscapes, new Pesticide Safety in Landscapes, EC, new Fumigating Farm-stored Grain with Aluminum Phosphide, EC, revised Safe Transport, Storage, and Disposal of Pesticides, EC, revised Carpenter Ant Management, NebGuide, revised Cleaning Pesticide Application Equipment, NebGuide, revised Low Toxic Cockroach Control, NebGuide, revised Pesticide Laws and Regulations, NebGuide, revised Rinsing Pesticide Containers, NebGuide, revised Stormwater Management: Pesticide Use in the Lawn and Garden, revised

#### Curricula

Demonstration/Research Manual, revised Regulatory Manual, revised Right-of-Way, Learning Objectives, revised Structural/Health Related, Learning Objectives, revised Crop Watch articles, new Private Lesson Plan, Edited activities and PowerPoints and Videos, revised Private Applicator Reference Guide, revised Pesticide Safety Education Program In-service Manual, revised

#### **Distance Education DVD Production:**

How to Use Driftwatch: A National Specialty Crop Site Registry, new How to Survey for Prairie Dogs Using the Line Transect, new Managing Pesticide Drift, new Pocket Gopher Management, new Prairie Dog Management, new Reducing Risk of Herbicide Drift Injury, new Sensitive Sites: Grapes and Vineyards, new Sensitive Sites: Bees and Pollinators, new Worker Protection Standard in Agriculture, new

## PowerPoint: Development & Presentations

Regional PSEP Southern Regional Conference, invited - "Social Media in PSEP", new

PPTS for Private Training, revised PSEP In-service Presentations, new Nebraska Turf Conference, new Nebraska Urban Pest Management Conference - Recertification, new Crop Production Clinics - Recertification program, new Pesticide Safety for Master Gardeners, new

#### **Evaluations:**

Private Applicator Survey to Assess Training Needs, new Private and Commercial PSEP Training Materials Educator Survey, new Childcare Center Pest Management Survey, new Private On-line Training Evaluation Survey, new

#### 2014 Private Pesticide Safety Education On-site Program Evaluation University of Nebraska–Lincoln Extension

Initial = 181 Re-certification = 1339 Total responses = 1784 Have you attended pesticide safety training in the past? Yes = 1585 No = 184

As a result of <i>previously</i> attending									Very		
pesticide safety education training	Nev	/er	Rai	rely	Occas	sionally	Freq	uently	Freq	uently	Total
sessions(s), I:	#	%	#	%	#	%	#	%	#	%	#
Reduce my pesticide use	101	6%	244	16%	772	<b>49</b> %	362	23%	91	6%	1570
Use regular monitoring to correctly identify pest problems	17	1%	63	4%	332	21%	886	56%	288	18%	1586
Used safe storage, handling, and application practices for pesticides	4	0%	13	1%	100	6%	833	52%	653	41%	1603
Used pesticide best management practices to reduce contamination	6	0%	12	1%	114	7%	780	49%	672	43%	1584
Used IPM control strategies	22	1%	65	4%	297	19%	777	51%	377	25%	1538
Used resistance management strategies	11	1%	32	2%	213	15%	757	52%	442	30%	1455

As a result your participation in today's pesticide safety education training session,	Not Knowledgeable		Some <sup>.</sup> Knowled	Somewhat Knowledgeable		Moderately Knowledgeable		Knowledgeable		Very Knowledgeable	
how knowledgeable are you about:	#	%	#	%	#	%	#	%	#	%	#
Health effects from exposure to pesticides	5	0%	47	3%	226	13%	937	55%	481	29%	1696
How to select proper nozzles to reduce drift	14	1%	83	5%	303	18%	907	54%	372	22%	1679
Using a fumigation management plan	101	6%	221	13%	387	24%	685	42%	251	15%	1645
The value of Personal Protective Equipment (PPE) to protect one's health	2	0%	19	1%	145	9%	863	51%	666	39%	1695
The Guide for Weed Management in Nebraska (EC130)	5	0%	83	5%	260	16%	880	52%	450	27%	1678
Pesticide application recordkeeping requirements	6	0%	44	3%	184	11%	895	53%	552	33%	1681
Reading and following the pesticide label	2	0%	21	1%	135	8%	895	54%	626	37%	1679
The use of Integrated Pest Management (IPM) strategies	17	1%	76	5%	288	17%	921	55%	369	22%	1671
The relationship between spray droplet size and drift	11	1%	64	4%	222	13%	829	49%	556	33%	1682
The importance of calibrating application equipment	8	1%	48	3%	159	9%	864	51%	601	36%	1680
The Worker Protection Standard	11	1%	63	4%	289	17%	844	50%	473	28%	1680
Resistance management strategies	12	1%	52	3%	232	15%	836	55%	395	26%	1527

As a result of today's pesticide safety	Nev	er	Rai	Rarely		onally	Frequently		Very Frequently		Total
education training session, I will:	#	%	#	%	#	%	#	%	#	%	#
Use multiple IPM approaches to manage pests	14	1%	39	2%	301	18%	939	58%	338	21%	1631
Recycle my empty pesticide containers	48	3%	94	6%	276	16%	721	43%	528	32%	1667
Use PPE to protect my health	2	0%	10	1%	138	8%	751	45%	769	46%	1670
Use drift reduction nozzles to prevent drift	10	1%	20	1%	128	7%	809	49%	694	42%	1661
Make pesticide applications according to the pesticide label	0	0%	3	0%	59	4%	640	38%	966	58%	1668
Take steps to prevent carrying pesticide residues inside my home	1	0%	5	0%	73	5%	633	38%	956	57%	1668
Calibrate my equipment at least once per year	11	1%	19	1%	164	10%	745	45%	718	43%	1657
Take appropriate steps to prepare for pesticide spills	5	0%	23	1%	145	9%	803	49%	682	41%	1658
Use Driftwatch (and visit site) prior to spraying pesticides to check for sensitive sites	92	6%	159	11%	374	25%	579	38%	308	20%	1512
Use strategies to reduce the development of resistance to pesticides	4	0%	17	1%	153	10%	774	52%	560	37%	1508

Driftwatch	Y	es	N	o	Learned the site	d about e today	Total
	#	%	#	%	#	%	#
Prior to today's pesticide safety education session, were you aware of the Driftwatch web site?	240	14%	1019	62%	388	24%	1647
Have you accessed Driftwatch to see if sensitive crops were near one of your application sites?	139	14%	831	86%	N,	/A	970
If sensitive crops were adjacent to your site, did you take extra steps	No sensi nec	tive sites Irby	No extr tak	a steps ken	Yes, ext were	ra steps taken	Total
to avoid drift at this application site?	#	%	#	%	#	%	#
	224	28%	19	2%	575	70%	818

## As a result of knowledge gained from this pesticide education session, I expect to save \$\_\_\_\_\_ per acre.

\$1 - 5		\$6 -	10	\$11	- 20	Ove	Total	
#	%	#	%	#	%	# %		#
242	53%	132	29%	53	12%	27	6%	454

## There were 195 total comments received this year with the surveys that were returned. The following table is a compilation of those comments.

Positiv	e	Neg	Negative		estions	Of	Total	
#	%	#	%	#	%	#	%	#
153	78%	5	3%	9	5%	28	14%	195

#### List the crop(s) and number of acres where you make pesticide applications:

#### Acres: Corn

0-2	200	201	-500	501-	-750	751-	1,000	1,0	01+	Total
#	%	#	%	#	%	#	%	#	%	#
300	27%	367	33%	142	13%	145	13%	154	14%	1108

#### **Acres: Soybeans**

0-2	200	201	-500	501-750		751-1,000		1,0	Total	
#	%	#	%	#	%	#	%	#	%	#
353	38%	366	40%	87	10%	59	6%	54	6%	919

#### Acres: Wheat

0-2	200	201	-500	501-750		751-1,000		1,0	Total	
#	%	#	%	#	%	#	%	#	%	#
63	35%	37	21%	25	14%	19	11%	35	19%	179

#### Acres: Sorghum

0-2	200	201	-500	501-750		751-1,000		1,0	Total	
#	%	#	%	#	%	#	%	#	%	#
22	73%	2	7%	0	0%	4	13%	2	7%	30

#### Acres: Millet

0-2	200	201	-500	501-750		751-1,000		1,0	Total	
#	%	#	%	#	%	#	%	#	%	#
21	41%	11	21%	8	16%	3	6%	8	16%	51

#### **Acres: Dry Beans**

0-2	200	201	-500	501	-750	751-	1,000	1,0	01+	Total
#	%	#	%	#	%	#	%	#	%	#
5	38%	5	38%	3	23%	0	0%	0	0%	13

#### **Acres: Sunflowers**

0-2	200	201	-500	501	-750	751-	1,000	1,0	01+	Total
#	%	#	%	#	%	#	%	#	%	#
4	29%	5	36%	2	14%	1	7%	2	14%	14

#### Acres: Grassland

0-2	200	201	-500	501 <sup>-</sup>	-750	751- <sup>-</sup>	1,000	1,0	01+	Total
#	%	#	%	#	%	#	%	#	%	#
46	58%	13	16%	2	3%	2	3%	16	20%	79

#### **Acres: Pasture**

0-2	200	201	-750	501	-750	751-	1000	100	01+	Total
#	%	#	%	#	%	#	%	#	%	#
142	67%	40	19%	5	2%	10	5%	15	7%	212

#### Acres: Alfalfa

0-	25	26	-50	51 <sup>.</sup>	-75	76-	101	10	)1+	Total
#	%	#	%	#	%	#	%	#	%	#
34	21%	127	76%	2	1%	4	2%	0	0%	167

#### Acres: Oats

0-	25	26	-50	51	-75	76-	101	10	)1+	Total
#	%	#	%	#	%	#	%	#	%	#
4	29%	2	14%	3	21%	1	7%	4	29%	14

#### **Acres: Grapes**

0	-1	2	-4	4	-6	7-	10	1	1+	Total
#	%	#	%	#	%	#	%	#	%	#
5	100%	0	0%	0	0%	0	0%	0	0%	5

#### **Total Acres**

0-2	200	201	-500	501-	-750	751-1	1,000	1,0	01+	Total
#	%	#	%	#	%	#	%	#	%	#
1142	41%	846	30%	274	10%	243	9%	286	10%	2791

#### 2014 Commercial/Noncommercial PSEP On-site Evaluation For use following General Standards Recertification Sessions University of Nebraska–Lincoln Extension

Have you attended pesticide safety education training sessions in the past? Yes = 311 No = 57 Total responses = 373 (It doesn't add up because 5 people didn't respond to that question.)

As a result of <i>previously</i> attending pesticide	Ne	ever	Ro	arely	Occasi	onally	Frequ	ently	Ve Frequ	ry ently	Total
safety education training sessions(s), I:	#	%	#	%	#	%	#	%	#	%	#
Reduce my pesticide use	17	6%	46	15%	136	44%	76	25%	32	10%	307
Use regular monitoring to correctly identify pest problems	1	0%	4	1%	36	12%	176	56%	95	31%	312
Used safe storage, handling, and application practices for pesticides	1	0%	3	1%	15	5%	128	41%	167	53%	314
Used pesticide best management practices to reduce contamination	1	0%	3	2%	19	6%	138	45%	150	48%	311
Used IPM control strategies	3	1%	9	3%	39	13%	148	<b>49</b> %	101	34%	300

As a result your participation in today's pesticide safety education training how	No Knowled	ot Igeable	Some Knowled	Somewhat Knowledgeable		rately Igeable	Knowled	lgeable	Ve Knowled	ry Igeable	Total
knowledgeable are you about:	#	%	#	%	#	%	#	%	#	%	#
Health effects from exposure to pesticides	2	1%	19	5%	54	15%	186	52%	95	27%	356
Pesticides laws and regulations	4	1%	16	5%	64	18%	197	55%	75	21%	356
The importance of applying pesticides only to sites listed on the label	2	1%	17	5%	24	6%	170	48%	143	40%	356
Protecting endangered species	3	1%	26	7%	59	17%	164	46%	103	29%	355
The value of Personal Protective Equipment (PPE) to protect one's health	2	1%	4	1%	25	7%	149	42%	175	49%	355
Acute and chronic exposure to pesticides	4	1%	19	5%	48	17%	172	49%	100	28%	353
Varying PPE requirements between applicators and handlers	3	1%	16	4%	61	17%	155	44%	120	34%	355
The Worker Protection Standard	4	1%	19	5%	79	22%	159	45%	94	27%	355
Reading and following the pesticide Label	1	0%	8	3%	25	7%	156	44%	163	46%	353
The relationship between spray droplet size and drift	2	1%	16	5%	40	11%	160	45%	136	38%	354
The use of Integrated Pest Management (IPM) strategies	4	1%	16	5%	58	16%	165	47%	110	31%	353
Pesticide Application recordkeeping requirements	4	1%	14	4%	48	14%	166	47%	122	35%	354
The importance of calibrating application equipment	3	1%	16	5%	56	16%	164	46%	115	32%	354
Drift reduction nozzles to prevent drift	3	1%	19	5%	55	15%	169	48%	108	31%	354

As a result of today's pesticide safety	Nev	ver	Ra	irely	Occasionally		Frequently		Ve Frequ	ry ently	Total
education training session, I will:	#	%	#	%	#	%	#	%	#	%	#
Use drift reduction nozzles or other measures to prevent drift	3	1%	3	1%	34	10%	161	46%	149	42%	350
Use multiple IPM approaches to manage pests	3	1%	5	1%	41	12%	155	44%	146	42%	350
Use PPE to protect my health	2	1%	0	0%	15	4%	95	27%	241	68%	353
Make pesticide applications according to the pesticide label	2	1%	0	0%	7	2%	88	25%	257	72%	354
Take steps to prevent carrying pesticide residues inside my home	3	1%	0	0%	13	4%	104	29%	232	66%	352
Carry a spill kit in case of an accidental spill	3	1%	13	4%	50	14%	111	32%	172	49%	349
Calibrate my equipment at least once per year	3	1%	6	2%	29	8%	131	37%	183	52%	352
Share Ag Health Study information with members of my family	8	2%	33	9%	72	21%	108	31%	129	37%	350
Use Driftwatch (and visit site) prior to spraying pesticides to check for sensitive sites.	27	9%	23	7%	59	18%	98	31%	110	35%	317

Driftwatch:	Y	es	N	10	Lea about to	rned the site day	Total
	#	%	#	%	#	%	#
Prior to today's pesticide safety education session, were you aware of the Driftwatch web site?	86	24%	192	54%	78	22%	356
Have you accessed Driftwatch to see if sensitive crops were near one of your application sites?	52	27%	138	73%	N	I/A	190
If sensitive crops were adjacent to your site, did you take extra steps	No se sites	nsitive nearby	No ext tal	ra steps ken	Yes, step: ta	extra s were ken	Total
to avoid drift at this application site?	#	%	#	%	#	%	#
	42	33%	3	2%	82	65%	127

#### As a result of knowledge gained from this pesticide education session, I expect to save \_\_\_\_\_.

\$1 - 99		\$100 - 199		\$200 - 1000		Over \$1000		Total
#	%	#	%	#	%	#	%	#
9	18%	6	12%	17	34%	18	36%	50

## There were 51 total comments received this year with the surveys that were returned. The following table is a compilation of those comments.

Positive		Negative		Suggestions		Other		Total
#	%	#	%	#	%	#	%	#
32	48%	15	22%	11	16%	9	14%	67

## **Educator Forum**

An Educator Forum was held April 1, 2014, via Adobe Connect (web conference) with approximately 27 people in attendance including Nebraska Department of Agriculture, Extension Educators, and PSEP Team members. The Forum provided a platform for discussion about commercial/ noncommercial and private PSEP programs and the successes and challenges over this past training season.

Key points from the Educator Forum include:

- New private lesson plan materials have been well received by educators. They especially like the flexibility to adapt the materials, such as PowerPoints and videos, to their needs. Educators emphasized the importance of keeping the information current and providing up to date resources. The PSEP office will continue to revise and develop new materials for private training.
- Educators would like to see more short video segments, including an updated nozzle tip selection piece. The PSEP office is developing segments for ounce calibration, cleaning spray equipment, PPE overview, cleaning PPE, nozzle tip selection, and emergency leak repair.
- Some educators have problems with the DVDs not working and often save to their laptop in order to run the video. PSEP offered video segments on flash drives, this approach was appreciated by educators.
- The PSEP team is revising and converting the Wildlife Damage manual into an interactive ebook, plus several others over the next year.
- Educators want fewer weed guides and reference guides per box to reduce weight. The PSEP Team will work to lower weight of boxes by reducing number per box and by reducing size of reference guides.
- Educators asked for more demonstration items. PSEP provided "spot on" calibration devices and is going to supply pH measurement devices to educators for use in their training programs. A water quality demo will include pH meters or test strips.

The PSEP forum provide us with valuable information that will help us revise and improve future PSEP materials and training.

# EARS: 2013 Commercial/Noncommercial Pesticide Safety Education Program

**Impact Summary Statement:** Nearly 10,000 people are licensed as commercial and noncommercial pesticide applicators in Nebraska. UNL Extension's Pesticide Safety Education Program (PSEP) teaches them how to use pesticides safely and effectively. Ninety-eight percent of surveyed PSEP participants identified positive intended behavioral changes such as making pesticide applications according to the label and taking steps not to carry pesticide residues into their homes. Ninety-eight percent also reported being knowledgeable about the value of PPE, reading and following the pesticide label, and the importance of applying pesticides only to labeled sites.

Pesticides help protect Nebraska's crops, trees, turf and properties from insects, weeds, diseases and other pests. Proper use of pesticides ensures their effectiveness as an important pest management tool. Proper handling, application, storage, and disposal of pesticides by commercial and noncommercial applicators is essential for the preservation of public health, applicator safety, and a clean environment.

Commercial applicators are pest management professionals that use restricted use pesticides (RUPs) on a contractual "for hire" basis. Noncommercial applicators apply RUPs only on lands owned or controlled by his/her employer or for a governmental agency or subdivision of the state. Many pesticide applicators that use pesticides commercially or in public areas are required to become certified and licensed by the Nebraska Department of Agriculture (NDA).

The Pesticide Safety Education Program (PSEP) is a cooperative effort between the University of Nebraska–Lincoln Extension and the NDA, who partner in the educational and licensing process for commercial/noncommercial pesticide applicators. PSEP provides training that helps commercial and noncommercial applicators prepare for initial certification examinations by offering training sessions in 17 categories and subcategories. PSEP also offers recertification training sessions in 10 categories and subcategories. After getting certified, applicators must be licensed by the NDA.

UNL Extension's Pesticide Education Office develops, coordinates, and conducts PSEP through the cooperation of Extension educators, assistants and specialists. Extension educators conduct the PSEP for their respective applicator audiences. Because commercial and noncommercial applicators must recertify by subsequent participation in PSEP, they become regular participants in this and other UNL Extension programs. Over 3000 commercial/noncommercial pesticide applicators were trained in 2013.

PSEP, including Integrated Pest Management (IPM) education, results in greater use of a variety of safer, more sustainable pest control methods. This will increase profitability of agricultural enterprises while minimizing impacts on the quality of natural resources. Nebraska benefits by securing more farmers in rural communities with disposable income, enhancing the quality of Nebraska natural resources, and multiplying the value of agricultural research.

Post-training written evaluations measured knowledge gained by and intended behavioral changes of 252 pesticide applicators attending commercial/noncommercial PSEP training

sessions. The indicated percentage of surveyed commercial/noncommercial applicators were moderately knowledgeable, knowledgeable, or very knowledgeable about:

- 98% The value of Personal Protective Equipment (PPE) to protect one's health
- 98% Reading and following the pesticide label
- 98% The importance of applying pesticides only to sites listed on the label
- 97% The relationship between spray droplet size and drift
- 96% The use of Integrated Pest Management strategies
- 96% Pesticide Application recordkeeping requirements
- 96% The importance of calibrating application equipment
- 96% Varying PPE requirements between applicators and handlers
- 96% Drift reduction nozzles to prevent drift
- 96% Protecting endangered species

As a result of their participation in 2013 commercial/noncommercial PSEP, a significant percentage of surveyed commercial/noncommercial applicators indicated they will frequently or very frequently change their behaviors as follows:

- 98% Make pesticide applications according to the pesticide label
- 98% Take steps to prevent carrying pesticide residues inside their home
- 94% Use PPE to protect their health
- 91% Calibrate their equipment at least once a year

Program topics addressed in the commercial/noncommercial Pesticide Safety Education Program include pesticide laws and regulations, pesticide safety, environmental protection, Integrated Pest Management, pesticide spray drift prevention, and application equipment. Educators teach topics that include pesticide product label information and comprehension, personal protective equipment, and pesticide exposure prevention.

Teaching methods include small group discussion, interactive pesticide label exercises, live demonstrations, and DVD programs. The Pesticide Safety Education Program website (pested.unl.edu) serves as a continually enhanced complement to support the needs of pesticide applicators.

#### **Approval Date:** 10/15/2013

#### Contact: Erin Bauer (ebauer2@unl.edu)

Additional Team Members: Allan Vyhnalek, Barb Ogg, Clyde Ogg, Jim Schild, Kelly Feehan, Keith Jarvi, Paul Hay, Sarah Browning, Doug Anderson, Dennis Ferraro, Tim Lemmons, Stephen Vantassel, Jan Hygnstrom, Jay Jenkins, Lowell Sandell, Erin Bauer, Elizabeth Killinger, Wayne Ohnesorg, Tyler Williams, Zac Reicher, David Boxler, Natalia Bjorklund Jeff Culbertson, Pierce Hansen, Amy Timmerman Action Plan: Crops for the Future Water, Climate and Environment - Community

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## EARS: 2013 Private Pesticide Safety Education Program

**Impact Summary Statement:** More than 21,000 farmers and ranchers are licensed private pesticide applicators in Nebraska. UNL Extension's Pesticide Safety Education Program (PSEP) teaches pesticide applicators how to use pesticides safely and effectively. Over 94% of surveyed PSEP participants identified positive intended behavioral changes such as making pesticide applications according to the pesticide label and taking steps to prevent carrying pesticide residues into the home. In addition, 97% reported being knowledgeable about the value of PPE and reading and following the pesticide label.

Pesticides help protect Nebraska's crops and rangelands from insects, weeds, diseases and many other pests. Because some pesticides can pose environmental risks, proper handling, application, storage, and disposal of pesticides is required. Private pesticide applicators are farmers, ranchers, and other producers that use restricted use pesticides (RUPs) for purposes of producing an agricultural commodity and must become certified and licensed by the Nebraska Department of Agriculture (NDA).

PSEP is a partnership between UNL Extension Pesticide Education Office and the NDA, who partner in the educational and licensing processes for private pesticide applicators. Private applicators must recertify by subsequent participation in PSEP, and in doing so, become regular participants in this and other UNL Extension programs.

PSEP, including Integrated Pest Management (IPM) education, results in greater use of a variety of safer, more sustainable pest control methods. This will increase profitability of agricultural enterprises while minimizing impacts on the quality of natural resources. Nebraska benefits by securing more farmers in rural communities with disposable income, enhancing the quality of Nebraska natural resources, and multiplying the value of agricultural research.

Post-training written evaluations measured the knowledge gained by and the intended behavioral changes of over 6500 private applicators attending private PSEP training sessions. As a result of their participation in 2013 private PSEP, a significant percentage of surveyed private applicators are moderately knowledgeable, knowledgeable, or very knowledgeable about the following topics:

- 97% Value of Personal Protective Equipment (PPE) to protect one's health
- 97% Reading and following the pesticide label
- 96% the importance of calibrating application equipment
- 95% Health effects from exposure to pesticides
- 94% Pesticide application recordkeeping requirements

As a result of their participation in 2013 private PSEP, a significant percentage of surveyed private applicators indicated they will frequently or very frequently change their behaviors as follows:

- 96% Make pesticide applications according to the pesticide label
- 95% Take steps to prevent carrying pesticide residues into the home
- 94% Use PPE to protect their health
- 89% Take appropriate steps to prepare for pesticide spills

UNL Extension's Pesticide Education Office develops, coordinates, and conducts PSEP through the cooperation of Extension educators, assistants and specialists. Extension educators conduct the PSEP for their respective applicator audiences.

Program topics addressed in the private Pesticide Safety Education Program include pesticide laws and regulations, environmental protection, Integrated Pest Management, pesticide safety, pesticide spray drift prevention, and application equipment. Extension educators teach topics that include pesticide product label information and comprehension, personal protective equipment, pesticide exposure prevention, and related crop production topics.

Teaching methods include live demonstrations, video segments, small group discussion, and interactive pesticide label exercises. Educators also fine-tune the program to meet local crop and growing conditions for their clientele by inserting complementary topics. The Pesticide Safety Education Program website (pested.unl.edu) serves as a continually enhanced complement to support the needs of pesticide applicators.

#### Approval Date: 10/16/2013 Contact: <u>Erin Bauer (ebauer2@unl.edu)</u>

Additional Team Members: Alan Corr, Allan Vyhnalek, Brent Plugge, Bruce Treffer, Clyde Ogg, Dennis Bauer, Dennis Kahl, Dave Varner, Gary Stauffer, Gary Zoubek, Jenny Nixon, Jim Schild, John Wilson, Kim Bearnes, Karen DeBoer, Kelly Feehan, Keith Glewen, Kayla Hinrichs, Keith Jarvi, Larry Howard, Noel Mues, Paul Hay, Randy Pryor, Ron Seymour, Sarah Browning, Sharon Nielsen, Steve Niemeyer, Steve Pritchard, Tony Anderson, Tom Holman, Troy Walz, Dewey Lienemann, Doug Anderson, Dennis Ferraro, Steve Tonn, Colleen Pallas, Monte Stauffer, Aaron Berger, Gary Lesoing, Tim Lemmons, Jennifer Rees, Stephen Wegulo, Jan Hygnstrom, Brandy VanDeWalle, Aaron Nygren, Jessica Jones, Scott Cotton, Jay Jenkins, Bethany Johnston, Michael Rethwisch, Erin Bauer, Elizabeth Killinger, Randy Saner, Wayne Ohnesorg, Robert Tigner, Tyler Williams, Lindsay Chichester, David Boxler, Natalia Bjorklund, Heather DePra, Nicole Stoner, Pierce Hansen, Amy Timmerman, John Thomas, Monte Vandeveer, Darci McGee Action Plan: Crops for the Future Water, Climate and Environment - Ag

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## **Summary of Monitored Private Applicator Sessions**

During the 2014 certification season, 27 private applicator sessions were monitored by NDA staff. Monitoring was conducted to determine compliance with requirements as defined in Title 25, Chapter 2 of the Nebraska Administrative Code. In some instances a single educator may be monitored on more than one occasion. Similarly, some meetings may have more than one educator providing training. Below is a tally of monitored session numbers.

Educators continue to use a variety of training resources to develop training appropriate to their part of the state. Training resources include: lecture outlines, University of Nebraska developed DVDs and videos, Powerpoint presentations, personal protective equipment demonstrations, label exercises, private applicator reference study guides, record keeping books, and various editions of the University of Nebraska Guide for Weed Management in Nebraska publication.

The NDA utilizes evaluation forms that break down the required training into 8 different areas of focus, which include 43 specific training points defined in the Nebraska Administrative Code. Each of the eight areas of content is scored on a 1-5 scale. Because the score range is 1-5, instead of 0-5, even if no points within a subject area are covered, that segment of training will receive a score of 1.

Topic	<u>Average</u>	<u>Range</u>	<u>Number of 5's (Excellent) Ratings</u>
Laws and Regulations	3.77	3-5	2
Label Information and Comprehension	3.96	3-5	3
Pesticide Safety and WPS	3.38	2-5	5
Environmental Protection	3.80	2-5	6
Integrated Pest Management	3.46	1-5	5
Pesticide Formulations	3.67	2-5	4
Equipment and Application	3.67	3-5	3
Calibration	3.96	3-5	5
Average of Averages	3.70		

## **Crop Production Clinics**

The 2014 Crop Production Clinics were held at nine locations in Nebraska and attendance totaled 1,777 (Agronomy Department Data). The Nebraska Department of Agriculture reported that 1,098 (NDA Data) individuals recertified as pesticide applicators (either commercial/non-commercial or private applicators).

## Integrated Pest Management in Schools and Other Sensitive Environments

The University of Nebraska–Lincoln Extension IPM in Schools program began in 2002. Since that time, we have developed a Web site, How-To Manual (revised in 2012 for sensitive environments),and online learning modules; conducted IPM educational assessments in Nebraska schools/child cares; and provided training or in-services for industry professionals, youth, school staff, and consumers about pests and IPM.

Following the guidelines suggested in the national "School IPM 2015" initiative, we have continued our IPM coalition consisting of representatives from schools, child care centers, UNL Extension, Health and Human Services, Nebraska tribes, Nebraska Department of Agriculture, Parent Teacher Associations, pest management industry, and others interested in implementing IPM in Nebraska. We hold quarterly meetings, which include educational presentations about pests and IPM.

Over the last three years, we have visited six child care facilities in Lincoln, conducted pest assessments, and provided recommendations. We also offered in-services about pests and IPM to child care directors and providers. We also organized an IPM in Schools session as part of the International IPM Symposium. This session included presentations about IPM efforts in Nebraska, South Dakota, and Missouri. In addition, we reestablished contact with the Winnebago and Omaha tribes through the new Pesticide Circuit Rider, and conducted IPM inservices and assessments at the tribal schools. In 2013-14, we helped Omaha and Lincoln Public Schools and the tribal schools develop IPM policies. Creation of these policies and adoption of IPM indicate positive behavioral changes from how Nebraska schools previously managed pests (i.e. the "preventative spray" approach).

In addition to Nebraska schools, we have also recently worked with the St. Elizabeth's Asthma Initiative to train health professionals and the public about IPM and pests, and UNL colleagues from Facilities Management and Building Systems Maintenance to develop an IPM policy for the university. These are ongoing projects.

Our most recent efforts include conducting a survey in late 2013 of child care centers in Lancaster County to assess their pest management practices. As part of this survey, we asked for child care centers to indicate if they would like an IPM assessment. As a result, we conducted 4 assessments in early 2014 and provided the facilities with recommendations. We will continue to work with child care centers on an as needed basis, and will also be working with Beatrice Public Schools to conduct assessments in 2014. In addition, our online web modules will be enhanced to include IPM information for sensitive environments.

Finally, we are participating in a multi-state effort to establish a *Stop School Pests* IPM Certification program for school personnel. We have contributed to the development of training modules, evaluations, and exam questions for use in the program, and piloted it with Nebraska custodial supervisors. We hope to conduct the program with food service and other Nebraska school staff in the future.

## **Pesticide Container Recycling Program**

The container recycling program has 32 collection sites in 2014 for the inspection and temporary holding of rinsed, clean plastic pesticide containers. The recycled containers include 2.5-gallon jugs and crop protection drums (15-, 30-, and 55-gallon).

In the past 22 years, more than 1,000 tons (2.2 million pounds) of plastic from recycled pesticide jugs and drums have been removed from Nebraska's landscape. The success of this program is due to the superb assistance of UNL Extension Educators and the cooperation of collection site managers.

## **PSEP Social Media Use**

The Pesticide Safety Education Program office is actively involved in using social media such as Facebook, Twitter, and YouTube. We are using social media because we want educational material to reach our audiences, and many people are using at least one of the social media platforms that we are using. All of our social media platforms have been operating for two years or more and we think we are doing a good job at establishing a connection with the general public, colleagues, creating content, and sharing others' content in the social media web.

We were one of the first Extension PSEP programs to appear on Facebook. We now have more than 250 fans. We post training events, photos, links to publications and videos, relevant news, and all our contact information. If you haven't liked us yet, be sure visit our page and click the like button!

Twitter is a great service for sharing some quick information, a link to an article or photo, as well as pictures. We've gathered more than 260 followers. Find us and follow us on Twitter at @UNL\_PSEP.

Another way our office is using social media is with our YouTube channel. We post videos filmed by the UNL Educational Media Department. Most of our videos are how-to videos, instructional training videos, dramatizations, and demonstrations. If you have a YouTube or Google account, you can find our YouTube channel (UNLExtension PSEP) and subscribe to it to keep up to date with our videos. Currently we have 73 subscribers and combined, all of our videos have been viewed almost 47,000 times.

Our main homepage, *pested.unl.edu*, has links to all of our social media sites (YouTube, Facebook, and Twitter). We encourage and recommend that you check out and interact with our social media sites, and spread the word to others.





QR code to PSEP homepage.

## **Online Private Applicator Certification Training**

In 2012, we finished development of the online private applicator training for certification and recertification. This program consists of ten modules to cover the required topics for private applicator training, including text plus photos, diagrams, video clips, and interactive learning elements. "Know Your Facts" quizzes are located throughout each module so applicators can check their knowledge. This process verifies that they are reading the content. Learners must pass an End of Module Quiz with a grade of 70% or higher before proceeding to another module. If the 70% requirement is not satisfied, the learner must repeat that module until the requirement is met. All modules are in a specially designed, password-protected site. The site is connected with the NDA database to verify names, addresses, and certification numbers for those recertifying. Also, paperwork for private applicator certification and licensing is automatically submitted to NDA after completion of the modules and NDA sends billing for licensing.

After completing a beta test of the program with private applicators, Extension educators, and state regulators in January 2012, we revised the training program to clarify content and streamline navigation. The training package was made available for private applicators to purchase for \$60 through the online IANR Marketplace in 2013. This is the same cost as the self-study process.

In the self-study process, an Extension educator receives \$15 of the \$60 fee. The applicator reads printed material, takes an exam, and then meets with the Educator to review and discuss the answers. For online training, the role of the Extension educator is to market materials, which is considerably less time-consuming. After the close of the fiscal year, the Extension educator receives \$5 of the \$60 for each applicator from his/her county who recertifies through online training. Approximately \$4 of the \$60 goes to UNL Marketplace for distribution and administrative costs.

From the inception of the online certification training through July 1, 2014, 132 people have registered for online training, and 95 were certified or recertified by completing all requirements for the online process. Of that amount, 24 were involved in the beta testing, of which 12 (50%) were certified or recertified. From July 1, 2013 to June 30, 2014, 82 registered for online training and 62 (76%) completed the training.

In March of 2014, the 76 applicators who purchased the online private applicator cert/recert training were invited to complete an online evaluation through Survey Monkey. The invitation was sent twice, and 50% responded. The majority of respondents (>75%) agreed or strongly agreed that the instructions and module navigation were clear and straightforward; learning objectives, diagrams, activities, and videos helped them learn; and content was well organized. Almost 60% felt the level of difficulty was just right, while 3% felt it was too easy. About 50% agreed or strongly agreed they would take online training again for recertification. About 55% took over 9 hours to complete the training, and almost 25% took less than 6 hours. Comments were that some felt the training was too long, while others appreciated the opportunity to learn on their own schedules. The evaluation and e-mail comments indicated that after completing training, people were not sure or else forgot that they had to watch for a post card from NDA with instructions about getting licensed. Some assumed they would receive the license immediately upon finishing the training.

## Online Private Applicator Certification Training Survey

- 2013: 29 purchased and 23 (79%) completed (Doesn't include Beta testers)
- 2014: 77 purchased and 59 (77%) completed

According to our records, you purchased the Online Private Pesticide Applicator Training for certification/recertification. We'd like your opinion of the program, including the ease of access, navigation through the program, and the content. Your answers and opinions will help us plan for revisions to the online training program. The evaluation will take only about 5 minutes of your time.

#### 6/16/14 38/76 = 50.0% response

1. The instructions for the training were straightforward.

a.	Strongly disagree	7.89% (3)
b.	Disagree	2.63% (1)
c.	Neutral	7.89% (3)
d.	Agree	60.53% (23)
e.	Strongly Agree	21.05% (8)

- 2. Do you have any other comments related to the instructions and/or accessing the training?
  - -passed all the online tests....NEVER received my certification! TOTAL WASTE OF TIME AND MONEY! (This person e-mailed this response to J Hygnstrom and was told the process (receive a card from NDA with information and must respond). He thanked her and all was well).
  - -No 2X
  - -I called & left a message to return my call for help & never received a return call. Trial & error finally figured it out.
  - -Not really for sure why we have to buy the disc other than the ID number off of it. If my computer will run the course by itself, we shouldn't have to spend the \$60 for the disc
  - -It needs to be a quicker process. I didn't want to wait two or three days to start the training after I registered.
  - -Very easy to understand.

- -No additional comments.
- -I downloaded the training and bookmarked it on the desktop. Did one module each time that I sat down at the computer.
- -It is a little different than the other training I have done on line. It could use a popup hint that guide the user until the user selects to turn it off.
- -Not really I got better with repetition.
- -Was fine
- 3. Module navigation (how to move from one topic to the next within each module, as well as how to move to the next module) was clear and straightforward.
  - a. Strongly disagree
     2.63%, 1

     b. Disagree
     0, 0

     c. Neutral
     7.89% (3)

     d. Agree
     68.42% (26)

     e. Strongly Agree
     21.05% (8)
- 4. I was able to exit the training and easily return to where I had left off.

a.	Doesn't apply - I completed the course in one sitting					
b.	Strongly disagree	2.63%, 1				
c.	Disagree	5.26%, 2				
d.	Neutral	10.53%, 4				
e.	Agree	<b>52.63%, 20</b>				
f.	Strongly Agree	28.95%, 11				

- 5. Do you have any other comments related to navigation and movement through the training materials?
  - passed all the online tests....NEVER received my certification! TOTAL WASTE OF TIME AND MONEY! (see above)

0, 0

- -no 4X
- -It would be nice to be able to return to the exact spot in the module that you left off at.
- -When exiting training & resuming had to go thru all quizzes again.
- -It seemed to work as instructed.
- -I have 4.5 hours on it and have only completed 3 modules.
- -I struggled with all of the popups that were bothering me through the test. navigation kept getting interrupted and didnt like that at all.
- -I would have like it to allow me stop and pick up in the middle of a module, instead of having to start each module over.
- -Many of the links for additional material are broke.
- 6. The learning objectives helped me as I went through the course.
  - a. Did not look at learning objectives
     2.63%, (1)

     b. Strongly disagree
     5.26%, (2)

     c. Disagree
     2.63%, (1)

     d. Neutral
     7.89% (3)

     e. Agree
     65.79% (25)

     f. Strongly Agree
     15.79% (6)

7. The training content was well organized.

α.	Strongly disagree	2.63%, 1
b.	Disagree	2.63%, (1)
с.	Neutral	18.42% (7)
d.	Agree	63.16% (24)
e.	Strongly Agree	13.16% (5)

#### 8. The level of difficulty for this course was:

α.	Too difficult	10.53% (4)
b.	Difficult	28.95% (11)
c.	Just right	57.89% (22)
d.	Easy	2.63%, (1)
e.	Too easy	0, 0

9. The diagrams, photos, activities, and videos helped me learn the material.

a.	Strongly disagree	2.63%, 1
b.	Disagree	0, 0
C.	Neutral	13.16% (5)
d.	Agree	65.79% (25)
e.	Strongly Agree	18.42% (7)

10. The supplemental materials such as supporting NebGuides and publications were helpful.

а.	I didn't look at them	26.32% (10)
b.	Strongly disagree	2.63%, 1
c.	Disagree	2.63%, (1)
d.	Neutral	15.79% (6)
е.	Agree	47.37% (18)
f.	Strongly Agree	5.26% (2)

11. Quizzes covered important course materials and concepts.

a.	Strongly disagree	2.63%, 1
b.	Disagree	7.89% (3)
C.	Neutral	2.63%, (1)
d.	Agree	78.95%, (30)
e.	Strongly Agree	7.89% (3)

#### 12. I printed a certificate of completion.

- a. No, since I did not complete the training 2.63%, (1)
- b. No. I completed but didn't want a certificate 7.89% (3)
- c. No. I completed but was not able to print a certificate 0,0
- d. Yes, I completed and printed a certificate 89.47% (34)

13. I would take online pesticide applicator training again for recertification.

a.	Strongly disagree	15.79% (6)
b.	Disagree	2.63%, (1)
с.	Neutral	28.95% (11)
d.	Agree	28.95% (11)
e.	Strongly Agree	23.68% (9)

14. I spent approximately \_\_\_\_\_ hours of computer time to complete the training program.

a. Under 6 hours23.68% (9)b. 6-8 hours21.05% (8)c. 9-12 hours34.21% (13)d. Over 12 hours21.05% (8)

15. I completed all 10 modules of the training

- a. Yes (go to question 17) 97.37% (37)
- b. No (go to question 16) 2.63%, (1)

16. If no, can you tell us why not?

- a. Was not able to start the training 0,0
- Had problems with internet access
- c. Had technical difficulties (freezing up, etc.)
- d. Navigation (menus, tabs, continue buttons, etc.) was difficult to follow 0,0
- e. Took too long to complete 100% (1)
- f. Other 0,0

17. Please include other comments about the online training for private pesticide applicator certification/recertification. Thank you for your time!

 -passed all the online tests....NEVER received my certification! TOTAL WASTE OF TIME AND MONEY! (see above)

0.0

0.0

- -Much easier to take as a group. They give you the answers.
- Would really like to see an online course for first time certification of commercial applicator license. Would like to get mine but don' have the daytime hours to complete the course or take the test.
- Had trouble getting in with password to many zero's or O. How long does it take to get the bill and card?
- -Will I receive a certification card in the mail?
- -Over the years I have taken several pesticide classes thru the extension office. That class was a 100 times easier & less time consuming. The reason I opted for online was convenience, not knowing it would be so time consuming. It was also more expensive than I expected. The tests were hard enough then adding the double negative questions were even more difficult. I think straight forward questions would have been more effective. I was overwhelmed with all the quizzes & time that it took. If it were less time consuming & user friendly I would be interested in using this system, but as it is now I would not recommend to anyone.
- -The hours spent for online training is way more than taking the class. I will most likely take the class next time since it is less expensive and many hours shorter. I liked the ability to take the class online in my home at a time that works for me, but it took way too long. Thanks.
- -The online course is more informative and much more learning experience than the live training but I would still take the online certification.
- -Some of the questions in the tests where so "broad based" that they could have had multiple answers. I believe those are the ones I missed, but fortunately I still passed. I also thought the price of it should be the same as the local seminars, rather than paying a higher price.

- -It was a convenient way to get the certification.
- -The explaining on some of the modules was not audible so I had to read the text myself Very good.
- -It took a long time. A lot of information.
   -Felt like I could have benefitted from a few more written materials even if they came with the added costs of copying.

-Program was easy to use and very educational. It did seem quite redundant in several places and that led to quite a bit of wasted time going over something repeatedly. Overall i was thankful that the course was offered in this format as i enjoy learning this way.

• -After doing the first module, I realized that I needed to take notes while studying the module. This helped greatly when taking the final test of each module, I spent approx. one hour per module. This was an enjoyable way to complete the certification requirements.

-I thought this would be a faster, more convenient way to take the recertification. I was disappointed that it actually took longer than sitting thru a class. I'm not sure if I would do it again due to the amount of time it took.

-This was very helpful, but it took a lot longer than going to a training session. -It was too hard.

-It seems like it takes longer to do the online training than it would have to go to class. I suspect persons doing the online likely get more out of the training as it is possible to review some of the material.

-Expensive. I wouldn't think it should cost any more than the go to meeting.

• -This coarse was way too in depth for the private applicator license. I think I took the commercial applicator one but I called and they said it was the correct one. I'm pretty sure I don't need to know about spiders and such. I also wish it would tell me which answers were incorrect on the final test as I took it 2 or 3 times. I won't do the online again I can assure you...

## **UNL Personnel Resources**

The Pesticide Education Office would like to thank their University colleagues who help make PSEP a successful program. Below is a list of people who have contributed to PSEP through private, commercial, or noncommercial applicator programs; learning module development; involvement on the steering committee; publication development; or involvement in teaching (clinics, conferences, festivals, Internet, and/or workshops) during the past year. There are Extension Educators, Extension assistants, and office managers who are not directly involved provided who aid and support to PSEP. We appreciate their cooperation as well.

We also would like to recognize the strong involvement in the program by Tim Creger, Kay Kromm, and Craig Romary of the Nebraska Department of Agriculture, as well as many other state departments and trade association members.

PSEP: A Multi-Discipline Approach: Teaching Through							
	Private / Commercial Program	Learning Module Development: DVD / VHS / PowerPoint	Steering Committee	Publication Development	Teaching: Clinics, Conferences, Festivals, Internet, and Workshops		
Doug Andersen	•				•		
Tony Anderson	•						
Dennis Bauer					•		
Erin Bauer		•	•	•	•		
Fred Baxendale					•		
Kim Bearnes	•						
Aaron Berger	•						
Natalia Bjorklund	•						
Dave Boxler	•						
Gary Brewer			•				
Sarah Browning	•						

	Private / Commercial Program	Learning Module Development: DVD / VHS / PowerPoint	Steering Committee	Publication Development	Teaching: Clinics, Conferences, Festivals, Internet, and Workshops
Alan Corr	•				
Karen DeBoer	•				•
Emilee Dorn		•	•	•	•
John Fech	•				
Kelly Feehan	•				
Richard Ferguson					•
Dennis Ferraro	•				•
Loren Giesler				•	•
Keith Glewen	•				•
Pierce Hansen		•	•	•	•
Bob Harveson					•
Paul Hay	•				•
Kayla Hinrichs	•				
Tom Holman	•				
Larry Howard	•				
Tom Hunt					•
Jan Hygnstrom		•	•	•	•
Scott Hygnstrom		•	•	•	•
Troy Ingram	•		•	•	•
Tamra Jackson			•	•	•
Keith Jarvi	•				•
Jay Jenkins	•		•		
Bethany Johnston	•				
Jessica Jones	•				

	Private / Commercial Program	Learning Module Development: DVD / VHS / PowerPoint	Steering Committee	Publication Development	Teaching: Clinics, Conferences, Festivals, Internet, and Workshops
Dennis Kahl	•				•
Jim Kalisch					•
Shripat Kamble					•
Mike Kamm		•			
Elizabeth Killinger	•				
Bob Klein				•	•
Stevan Knezevic				•	•
Rick Koelsch			•		
Kevin Korus		•			•
William Kranz				•	•
Greg Kruger				•	•
Tim Lemmons	•				•
Gary Lesoing	•				•
Duane Lienemann	•				
Brad Mills		•			
Noel Mues	•				
Sharry Nielsen	•				
Steve Niemeyer	•				

	Private / Commercial Program	Learning Module Development: DVD / VHS / PowerPoint	Steering Committee	Publication Development	Teaching: Clinics, Conferences, Festivals, Internet, and Workshops
Jenny Nixon	•				
Aaron Nygren	•				•
Barbara Ogg		•		•	•
Clyde Ogg		•	•	•	•
Wayne Ohnesong	•		•	•	•
Colleen Pallas	•				
Brent Plugge	•				•
Steve Pritchard	•				
Randy Pryor	•				•
Zac Reicher				•	•
Jenny Rees	•				•
Michael Rethwisch	•				•
Lowell Sandell		•	•	•	•
Randy Saner	•				•
Jim Schild	•				
Ron Seymour	•		•		•
Charles Shapiro				•	•
Gary Stauffer	•				
Monte Stauffer	•				
Gary Stone	•				•
Nicole Stoner	•		•		
Robert Tigner	•				•

	Private / Commercial Program	Learning Module Development: DVD / VHS / PowerPoint	Steering Committee	Publication Development	Teaching: Clinics, Conferences, Festivals, Internet, and Workshops
Amy Timmerman	•				•
John Thomas	•				
Steve Tonn	•				
Bruce Treffer	•				
Cindy Tusler	•				
Monte Vandeveer	•				•
Brandy Vandewalle	•				
Stephen Vantassel		•		•	•
Dave Varner	•				•
Allan Vyhnalek	•				•
Troy Walz	•				
Stephen Wegulo				•	•
Todd Whitney	•			•	•
Tyler Williams	•				•
Bob Wilson				•	•
John Wilson	•				•
Bob Wright			•	•	•
Gary Zoubek	•				•

## **Licensed Pesticide Applicators in Nebraska**

Applicators: Private/Commercial/Noncommercial

### Total Number of Licensed Applicators in Nebraska as of April 16, 2014 (Source of All Data: NDA)

Private	20,807
Commercial	7,397
Noncommercial	2,584
Total Commercial/Noncommercial	9,981
Total	30,788

#### 2014 Private Pesticide Applicator Licenses

Initial	Recertification	Total
899	9,229	10,128

### **Private Applicators: Initial and Recertification Methods**

	Initial	Recertification	Total	Percentage
Training sessions	846	9,077	9,923	98.02%
Self Study	38	99	137	1.36%
Online	10	47	57	.56%
Exam	4	2	6	.06%
Total	898	9,225	10,123	100%

## Commercial and Noncommercial Category Licenses

	Commercial			1	Noncommercial			
Year	Initial	Recert	Recip	Initial	Recert	Recip	Total	
2014	571	1,803	231	144	695	4	3,448	
2013	523	1637	191	153	624	4	3,132	
2012	416	1476	231	168	679	8	2,978	
Total Category Licenses						9,558		

## Initial Commercial Certification Examinations at UNL Initial Certification Sites

## 2014 Initial Commercial/Noncommercial Exams (October 1, 2013 - April 16, 2014)

Category	Passed	Failed	% Failed	Total Tests
General Standards	431	144	25%	575
Agricultural Plant	165	84	34%	249
Soil Fumigation	0	0		0
Agricultural Animal	1	0	0%	1
Forestry	0	0		0
Ornamental and Turf	115	107	48%	222
Aquatic	7	12	63%	19
Sewer Root Control	5	2	29%	7
Seed Treatment	27	3	10%	30
Right-of-Way	70	59	46%	129
Structural / Health Related	13	17	57%	30
Wood Destroying Organisms	6	3	33%	9
Public Health	16	14	47%	30
Wood Preservation	1	5	83%	6
Fumigation	5	3	38%	8
Aerial	2	0	0%	2
Wildlife Damage Control	9	3	25%	12
Demonstration / Research	2	2	50%	4
Regulatory	0	0		0
Total	815	458	34%	1333

## 2014 Overall Initial Certifications

(October 1, 2013 - April 16, 2014)

Category	At Organizations	At UNL Training Sessions	Total
General Standards	114	431	545
Agricultural Plant	114	165	279
Soil Fumigation		0	0
Agricultural Animal		1	1
Forestry		0	0
Ornamental & Turf		115	115
Aquatic		7	7
Sewer Root Control		5	5
Seed Treatment		27	27
Right-of-Way	1	70	71
Structural/Health Related		13	13
Wood Destroying Organisms		6	6
Public Health		16	16
Wood Preservation		1	1
Fumigation		5	5
Aerial	7	2	9
Wildlife Damage Control		9	9
Demonstration/Research		2	2
Regulatory		0	0
Total	236	875	1,111

## 2014 Initial Certifications at Organization Conferences

Category	Ag Expo	Mosquito Vector	NABA Custom Applicator School	NATA	NE Great Plains	NE Turf	NE Urban Pest Mgmt.	Total
General Standards	15	0	89	10	0	0	0	114
Ag Plant	15	0	89	10	0	0	0	114
Soil Fumigation								
Ag Animal								
Forestry								
Ornamental & Turf								
Aquatic								
Sewer Root Control								
Seed Treatment								
Right-of-Way				1				1
Structural/Health Related								
Wood Destroying Organisms								
Public Health								
Wood Preservation								
Fumigation								
Aerial				7				7
Wildlife Damage Control								
Demonstration/Research								
Regulatory								
Total	30	0	178	28	0	0	0	236

## Initial Commercial/Noncommercial Certifications February 4, 2014

Category	Columbus	Fremont	Grand Island	Lincoln	North Platte	Omaha	Scottsbluff	Total
General Standards	11	22	44	15	19	14	14	139
Agricultural Plant	8	14	26	3	12		5	68
Soil Fumigation								0
Agricultural Animal								0
Forestry								0
Ornamental and Turf		2	3	6		13	3	27
Aquatic			1		1			2
Sewer Root Control								0
Seed Treatment		12						12
Right-of-Way				2	3	1		6
Structural/Health Related	1		1					2
Wood Destroying Organisms								0
Public Health			1		2		3	6
Wood Preservation								0
Fumigation				1				1
Aerial			2					2
Wildlife Damage Control				1	1			2
Demonstration/Research				1				1
Regulatory								
Total Certifications	20	50	78	29	38	28	25	268
Total Attendance	10	30	50	18	21	20	18	167

## Initial Commercial/Noncommercial Certifications February 27, 2014

Category	Grand Island	Lincoln	Norfolk	North Platte	Scottsbluff	Total
General Standards	43	56	32	11	16	158
Agricultural Plant	2	19	23	2	3	49
Soil Fumigation						0
Agricultural Animal				1		1
Forestry						0
Ornamental and Turf	10	17	4	5	3	39
Aquatic	2			1	1	4
Sewer Root Control		2			2	4
Seed Treatment	6		8		1	15
Right-of-Way	20	6	2	6	5	39
Structural/Health		5		1		6
Wood Destroying Organisms		4				4
Public Health	5					5
Wood Preservation						0
Fumigation	3				1	4
Aerial						0
Wildlife Damage Control	4		1			5
Demonstration/ Research						0
Regulatory						0
Total Certifications	95	109	70	27	32	333
Total Attendance	63	77	30	21	34	225

## Initial Commercial/Noncommercial Certifications

March 17, 2014

-

Category	Norfolk	Total
General Standards	31	31
Agricultural Plant	20	20
Soil Fumigation		0
Agricultural Animal		0
Forestry		0
Ornamental and Turf	3	3
Aquatic		0
Sewer Root Control		0
Seed Treatment		0
Right-of-Way	4	4
Structural/Health	2	2
Wood Destroying Organisms		0
Public Health	2	2
Wood Preservation		0
Fumigation		0
Aerial		0
Wildlife Damage Control		0
Demonstration/Research		0
Regulatory		0
Total Certifications	62	62
Total Attendance	38	38

## Initial Commercial/Noncommercial Certifications

March 18, 2014

-

Category	Beatrice	Total
General Standards	10	10
Agricultural Plant	8	8
Soil Fumigation		
Agricultural Animal		
Forestry		
Ornamental and Turf	3	3
Aquatic		
Sewer Root Control		
Seed Treatment		
Right-of-Way		
Structural/Health		
Wood Destroying Organisms		
Public Health		
Wood Preservation		
Fumigation		
Aerial		
Wildlife Damage Control		
Demonstration/Research	1	1
Regulatory		
Total Certifications	22	22
Total Attendance	11	11

## Initial Commercial/Noncommercial Certifications

April 10, 2014

Category	Lincoln	North Platte	Omaha	Scottsbluff	Valentine	Total
General Standards	13	13	46	15	6	93
Agricultural Plant	3	8	4	4	1	20
Soil Fumigation						
Agricultural Animal						
Forestry						
Ornamental and Turf	10	1	29	3		43
Aquatic					1	1
Sewer Root Control	1					1
Seed Treatment						
Right-of-Way		3	7	7	4	21
Structural/Health Related		1	2			3
Wood Destroying Organisms		1	1			2
Public Health				3		3
Wood Preservation				1		1
Fumigation						
Aerial						
Wildlife Damage Control			1		1	2
Demonstration/Research						
Regulatory						
Total Certifications	27	27	90	33	13	190
Total Attendance	16	20	84	14	7	141

## **Commercial/Noncommercial Recertification**

## **2014 Overall Recertifications**

(October 1, 2013 - April 16, 2014)

Category	At Crop Production Clinics	At Organization Conferences	At UNL RECERT Sessions	Total
Agricultural Plant	1098	121	162	1381
Soil Fumigation			4	4
Agricultural Animal			0	0
Forestry			1	1
Ornamental and Turf		154	514	668
Aquatic			55	55
Sewer Root Control			0	0
Seed Treatment			1	1
Right-of-Way		31	299	330
Structural/Health Related		58	105	163
Wood Destroying Organisms		41	68	109
Public Health		21	73	94
Wood Preservation			4	4
Fumigation		12	82	94
Aerial		66	0	66
Wildlife Damage Control		3	63	66
Demonstration/Research	15		1	16
Regulatory			0	0
Total	1113	507	1432	3052

2014 Crop Production Clinics								
Location	AttendanceRecertifications Ag - PlantPercent Recertification Ag - Plant		Private Recertifications*					
Atkinson	70	39	56%					
Beatrice	192	138	72%	2				
Fremont	205	105	51%	6				
Gering	108	61	56%					
Hastings	190	118	62%	3				
Kearney	293	185	63%					
Norfolk	324	210	65%	3				
North Platte	194	123	63%					
York	201	119	59%	4				
Total	1777	1098	62%	18				

\*Many of those who recertify their private license were the same individuals who also recertify in Ag-Plant.

Crop Production Clinics, 2011-2014								
YearAttendanceRecertificationsPercent								
2011	1,631	853	52%					
2012	1,501	655	44%					
2013	1,428	679	48%					
2014	1777	1098	62%					

## 2014 Agricultural Plant Recertification

Location	Recertifications	Location	ation Recertifications		ndance
Ainsworth	1	Beatrice	10	Year 2012	150
Columbus	0	Fremont	remont 6		226
Grand Island	26	Holdrege	Holdrege 18		162
Lincoln	26	Norfolk	39		
North Platte	22	Ogallala	0		
Omaha	2	Scottsbluff	12		

## 2014 Organizational Conference Recertifications

Category	Crop Production Clinics	Ag Expo	Mosquito Vector	NABA Custom Applicator School	NATA	NE Great Plains	NE Turf	NE Urban Pest Mgmt.	Total
Ag Plant	1098	21		33	67				1219
Soil Fumigation									
Ag Animal									
Forestry									
Ornamental & Turf							154		154
Aquatic									
Sewer Root Control									
Seed Treatment									
Right-of-Way					27			4	31
Structural/Health Related								58	58
Wood Destroying Organisms								41	41
Public Health			19					2	21
Wood Preservation									
Fumigation								12	12
Aerial					66				66
Wildlife Damage Control								3	3
Demonstration/Research	15								15
Regulatory									
Total	1113	21	19	33	160	0	154	120	1620

## Commercial/Noncommercial Recertification February 5, 2014

Category	Columbus	Total
Agricultural Plant		
Soil Fumigation		
Ag Animal		
Forestry		
Ornamental & Turf	16	16
Aquatic	8	8
Sewer Root Control		
Seed Treatment		
Right-of-Way	14	14
Structural/Health		
Wood Destroying Organisms		
Public Health		
Wood Preservation		
Fumigation	1	1
Aerial		
Wildlife Damage Control		
Demonstration/ Research		
Regulatory		
Total Certifications	39	39
Total Attendance	37	37

## Commercial/Noncommercial Recertification

February 6, 2014

Category	Ainsworth	Beatrice	Fremont	Grand Island	Holdrege	Lincoln	Norfolk	North Platte	Omaha	Scottsbluff	Total
Agricultural Plant					7		1	1		1	10
Soil Fumigation								4			4
Ag Animal											0
Forestry								1			1
Ornamental & Turf	1	8	13	48	17	37	11	21	61	18	235
Aquatic				1	1	1	1	2			6
Sewer Root Control											0
Seed Treatment			1								1
Right-of-Way	9	3	6	37	9	10	23	21	9	15	142
Structural/Health	2		2	13	1	13	8		25	3	67
Wood Destroying Organisms				5	1	7	4		21	2	40
Public Health		1	1	4	6			1	4	4	21
Wood Preservation				2							2
Fumigation		2		2		3	3	8	5		23
Aerial											0
Wildlife Damage Control	9	1		6	1			15			32
Demonstration/ Research											0
Regulatory											0
Total Certifications	21	15	23	118	43	71	51	74	125	43	584
Total Attendance	11	12	18	90	25	67	42	49	85	33	432

## Commercial/Noncommercial Recertification February 20, 2014

Category	Dakota City	Omaha	Total
Agricultural Plant		1	1
Soil Fumigation			
Agricultural Animal			
Forestry			
Ornamental and Turf	2	27	29
Aquatic		3	3
Sewer Root Control			
Seed Treatment			
Right-of-Way	2	6	8
Structural/Health Related			
Wood Destroying Organisms			
Public Health			
Wood Preservation			
Fumigation		1	1
Aerial			
Wildlife Damage Control		3	3
Demonstration/Research			
Regulatory			
Total Certifications	4	41	45
Total Attendance	2	38	40

## Commercial/Noncommercial Recertification

February 25, 2014

Category	Ainsworth	Beatrice	Grand Island	Lincoln	Norfolk	North Platte	Omaha	Scottsbluff	Total
Agricultural Plant	1		26	1	28	21		6	83
Soil Fumigation									0
Ag Animal									0
Forestry									0
Ornamental & Turf	1	2	15	27	13	7	36	12	113
Aquatic			8		1			11	20
Sewer Root Control									0
Seed Treatment									0
Right-of-Way		4	24	11	8	10	5	14	76
Structural/Health Related			8	8	3		11		30
Wood Destroying Organisms			7	7	1		9		24
Public Health		2				11	5	2	20
Wood Preservation									0
Fumigation	1	1	24	11			3	2	42
Aerial									0
Wildlife Damage Control					4	2		5	11
Demonstration/Research								1	1
Regulatory									0
Total Certifications	3	9	112	65	58	51	69	53	420
Total Attendance	4	6	91	55	55	44	51	31	337

## Commercial/Noncommercial Recertification

March 20, 2014

Category	Beatrice	Fremont	Holdrege	Lincoln	Norfolk	Ogallala	Omaha	Scottsbluff	Valentine	Total
Agricultural Plant	10	6	11	25	10			6		68
Soil Fumigation										0
Ag Animal										0
Forestry										0
Ornamental & Turf	9	2	6	36	13	4	40	11		121
Aquatic			14				1	2	1	18
Sewer Root Control										0
Seed Treatment										0
Right-of-Way	2	7	13	6	12	1	6	7	5	59
Structural/Health Related				7	1					8
Wood Destroying Organisms				3	1					4
Public Health	4	6			11	1	4	6		32
Wood Preservation							2			2
Fumigation			3	10				2		15
Aerial										0
Wildlife Damage Control				3	1		2	7	4	17
Demonstration/Research										0
Regulatory										0
Total Certifications	25	21	47	90	49	6	55	41	10	344
Total Attendance	19	22	39	77	41	11	49	26	6	290

## 2015 Estimates

## 2015 Commercial/Noncommercial Recertification Estimates

Category	Currently Certified (3 Years)	Expirations in 2015		
Agricultural - Plant	4602	1334		
Soil Fumigation	5	0		
Agricultural - Animal	4	0		
Forestry	28	4		
Ornamental & Turf	2794	963		
Aquatic	337	96		
Sewer Root Control	25	16		
Seed Treatment	95	28		
Right-of-Way	1603	456		
Structural / Health Related	891	263		
Wood Destroying Organisms	522	155		
Public Health	458	164		
Wood Preservation	36	1		
Fumigation	415	114		
Aerial	446	68		
Wildlife Damage Control	282	106		
Demonstration / Research	65	24		
Regulatory	1	0		
Total Certifications	12,609	3792		
Total Applicators	9981			
Certification per Applicator (average)	1.3			

Number of certifications expiring in 2015:	3,792
5-year average of those who actually recertified:	86%
Estimate of commercial/ noncommercial recertifications in 2015:	3,261

Past Years' Estimates				
2014	3,438 recertifications			
2013	2,974 recertifications			
2012	2,637 recertifications			
2011	2,883 recertifications			
2010	2,342 recertifications			

## **2015 Private Certification Estimates**

Year	Eligible for Recertification	Actually Recertified + Initials	Percentage Recertified or Initially Certified
2010	7,900	6,811	86%
2011	11,140	10,791	97%
2012	3,476	3,445	99%
2013	6,744	6,638	98%
2014	10,660	10,128	95%
		Average for 5 Years	95%

From NDA data: Applicators eligible for recertification in 2015 is 3,556.

3,556 eligible applicators X 95% = 3,378 private applicators (recertifications + initials)