

2015 PESTICIDE SAFETY EDUCATION PROGRAM INSERVICE MANUAL

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PRIVATE APPLICATOR TRAINING

Guidelines For Conducting Private Pesticide Safety Education Program (PSEP) Training

Many educators have participated in discussions about the renewed focusing of their efforts. They also probably have given considerable thought to how Private Pesticide Safety Education Program (PSEP) training will be delivered in future years.

Please consider these guidelines when planning and conducting Private PSEP training:

- Focus on professional quality teaching that engages the audience in asking questions and exchanging ideas, using educational methods that reach different learning styles, and giving research-based quality programs that build UNL Extension's reputation and draws clientele to more Extension programs.
- 2. Move to a system where educators focused on crops or water take the lead in PSEP.
- 3. Strategically schedule training sessions to make efficient use of educator time, travel, and resources. Perhaps a goal of one less training session per county is a place to start.
- 4. When possible, provide the PSEP with additional topics of regional interest. Examples include the Blue River Atrazine Management Project and optional video segments provided by the PSEP team.
- 5. Develop an evaluation plan for the enrichment education offered during the PSEP. The aggregate impact of the Atrazine education project, for example, should be impressive and fits nicely within the Crops/Water Action Team.
- 6. Evaluate your traditional PSEP program using the survey instrument provided.
- 7. Report PSEP and the enrichment components separately in the Extension Educational Program listing in the eARFA. For example, report 1.5 hours as PSEP and 1.5 hours as Water Quality-Atrazine Reduction, or whatever regional enrichment program you choose to deliver. The proportion of your programs will vary depending upon the specifics.
- 8. If you are presenting in another county or asking someone to come to your county, consider the following:
 - a. Discuss who will advertise the meeting, secure the meeting space, and process the applications.
 - b. Discuss the importance of local networking. Assist other educators in maintaining important local connections with clientele by providing time for announcements regarding local or regional offerings. Social media may be useful here.
 - c. Discuss cost-sharing arrangements. A common cost-share arrangement for PSEP funds involves subtracting travel and local expenses from the revenue received from the PSEP Office, then splitting the balance equally among the host county and instructor(s).
 - d. Remember that the revenue received from the PSEP Office is intended to support the conduct and sustainability of the PSEP. This includes office support staff, travel expenses, electronic equipment purchases, visual aids, etc.
 - e. The PSEP Office team suggests that cost-sharing details are best determined by the host county and the instructor(s) prior to the conduct of PSEP.

Forward Private Applicator Training Dates (to PSEP office)

By **December 5, 2014**, post your county private applicator training dates, times, and locations at: *https://edmedia.wufoo.com/reports/2015-pesp-private-training-dates-/*. As requested, this information will be consolidated and forwarded to the Nebraska Department of Agriculture (NDA) as well as put on the Web site.

Email: vschroeder2@unl.edu
Postal: 377C PLANT SCIENCES HALL, LINCOLN, NE 68583-0971
FAX: 402-472-3574
Phone: 402-472-1632 or 800-627-7216

Certification Options for Private Applicators

Private applicators have the option for initial certification and recertification by one of the following:

- 1. Attending and participating in an NDA-approved training session conducted by University of Nebraska– Lincoln Extension. UNL Extension program fee is \$30 per applicator (County share is \$8).
- Completing a self-study manual. The procedure is given in the Nebraska Private Self-Study Manual for the Private Pesticide Applicator (green cover, page iv). UNL Extension program fee is \$60 (County share is \$15).
- 3. Attending and participating in a Crop Production Clinic conducted by UNL Extension. Clinic fee is \$60 per applicator.
- 4. Taking the online private pesticide initial certification or recertification course and passing the quizzes in the course. Fee is \$60 per applicator (County share is \$5).
- 5. Satisfactorily completing an examination provided by the Nebraska Department of Agriculture.

Last year, the Nebraska Department of Agriculture monitored several private applicator training sessions. The same counties may be monitored again this year.

Refund for PSEP Meeting Room Rental Costs

If you are charged a room rental fee for a PSEP session, you are welcome to submit this expense to the PSEP Office for a refund. This refund is for non-UNL Extension controlled rooms that require rentals. The procedure is as follows:

If your office pays the rental fees and wishes reimbursement, send a memo on your office letterhead to the PSEP Office, University of Nebraska, 377C PLANT SCIENCES HALL, Lincoln, NE 68583-0971. Show the dates of the room rentals, total amounts of room rental expenses, and your federal identification number (*very important*).

If your office wishes payment to be made directly to the rented establishment, please send the original bill from the establishment (must be a bill or an invoice - not a statement) to the above address. This bill must show the dates of room rental, total amount of rental fees, and the establishment's federal identification number (*very important*).

NOTE: We are unable to reimburse your office or pay an establishment for *any* refreshments served at the meetings.

Collecting PSEP Private Applicator Program Fees

EDUCATOR: Bring this section of the manual to the attention of your office manager.

PRIVATE APPLICATOR STANDARD SESSION - \$30 per private applicator

- Collect applicator fees (cash and checks payable to your Extension office account).
- The Educator conducts the session.
- Applicators fill out the (NDA) Nebraska Pesticide Applicator Certification Request Form Private (bubble forms) (see page 5 for more information) or the signed BAR-CODED LETTERS. Please note: the barcoded letter is not valid after April 15 of the current year.
- Following the session, the Educator needs to complete the following:
 - o (NDA) Nebraska Pesticide Applicator Submittal Cover Sheets for each training session.
 - Use a separate cover sheet for bar-coded letters and for the NDA Certification Form (bubble forms).
 - Sign the forms (or have any member of the Extension office staff sign who observed the training).
 - Forward the cover sheet with the original NDA Certification Form (bubble forms) and the cover sheet with the bar-coded letters within one week of training to

NEBRASKA DEPT OF AGRICULTURE PLANT HEALTH P.O. BOX 94756 LINCOLN, NE 68509-4756

Private Pesticide Safety Education Program (PSEP) Fee Distribution Form:

(Instructions are on the form).

- This form is available on the UNL Extension Employee Resources Web site under the Financial Management section. It must be completed to document fees collected from participants. The Extension office share is \$8 and the PSEP Office share is \$22.
- Complete the Revenue Receipt Voucher to distribute fee shares. Complete the bank deposit process.
- E-mail the scanned Revenue Receipt Voucher, bank deposit slip, bank deposit receipt, and the distribution form to the IANR Greater Nebraska mailbox at: *GNBUSCTR@UNL.EDU*.
- The Greater Nebraska Business Center will route the fee distribution form to the UNL PSEP Office. Please do not mail or email the PSEP Office directly.

Private Applicator Self-Study Session – \$60 per applicator:

- Educator collects \$60 program fee per applicator, payable to your Extension office account, when the applicator brings in the manual with the completed questions.
- Applicator reviews the *Nebraska Private Self-Study Manual* and answers review questions at the back of self-study manual.
- Applicator returns completed manual to Educator.
- Educator completes the (NDA) Nebraska Pesticide Applicator Certification Request Form Private (bubble form), signed by the applicator and educator (mark the "self-study booklet" circle). The barcoded letter may be used until April 15 of the current year – after that the NDA Certification Form (bubble form) must be used.

NOTE: For the self-study method, NDA requires an authorized signature of an Extension employee on the NDA Certification Form. This signature verifies that the applicator did participate in training — either a formal training meeting or the self-study approach. The signature also indicates that the applicator did complete the questions at the back of the Self-Study manual. It is essential that the Extension Educator be directly involved in the self-study process.

- The manual is kept by the applicator as a reference.
- The Educator checks for completeness of answers and removes the question section from the back of manual (we recommend that the Educator keep the questions with a second copy of the NDA Certification Form for reference).
- NO Nebraska Pesticide Applicator Submittal Cover Sheet is filled out for the self-study procedure.
- Forward the original NDA Certification Form (bubble form) or the bar-coded letter within one week of training to

NEBRASKA DEPT OF AGRICULTURE PLANT HEALTH P.O. BOX 94756 LINCOLN, NE 68509-4756

Private Pesticide Safety Education Program (PSEP) Fee Distribution Form – (instructions are on the form).

- This form is available on the UNL Extension Employee Resources Web site under the Financial Management section. This form must be completed to document fees collected from participants. The Extension office share is \$15 and the PSEP Office share is \$45.
- Complete the Revenue Receipt Voucher to distribute fee shares. Complete the bank deposit process.
- E-mail the scanned Revenue Receipt Voucher, bank deposit slip, bank deposit receipt, and the distribution form to the IANR Greater Nebraska mailbox at: *GNBUSCTR@UNL.EDU*.

The Greater Nebraska Business Center will route the fee distribution form to the UNL PSEP Office. Please do not mail or email the PSEP Office directly.

Directions for Completion of the (NDA) Nebraska Pesticide Applicator Certification Request Form – Private (Bubble Forms)

- 1. Instructions for completing the form are on the back of the form. Complete the form in pencil. Pencil signatures are acceptable.
- 2. Forward these forms with respective (NDA) Nebraska Pesticide Applicator Submittal Cover Sheets (orange bubble forms) *within one week* of training to:

Original Copy:	Second Copy:
Nebraska Department of Agriculture Plant Health P.O. Box 94756 Lincoln, NE 68509-4756	Your choice – keep it as an Extension office copy or provide second copy to private applicator.

- 3. Complete an NDA Cover Sheet for each training session.
 - Use original cover sheets; do not photocopy. The scanner cannot be read photocopies.
 - Use separate cover sheets for bar-coded letters.
- 4. Mail the NDA certification form to the NDA address above. **Do not** send NDA certification forms to the PSEP Office or to the Nebraska Department of Environmental Quality in Lincoln.
- 5. In order to streamline the recertification process for private applicators, the Nebraska Department of Agriculture will mail a bar-coded letter to each private applicator eligible for recertification in December of the preceding year. The applicator's full address and certification number will be printed on the letter.

If there are NO changes or updates needed on the applicator's records as per the letter, no NDA "bubble" application form is completed. Instead, the applicator signs the letter and gives it to the Educator. The Educator signs the letter indicating the applicator was a participant in the private pesticide safety education session.

Send the double-signed, bar-coded letter to the Nebraska Department of Agriculture with a cover sheet for that PSEP session. Remember to use separate cover sheets for bar-coded letters and application forms.

6. NDA collects a license fee for all private and commercial pesticide applicator licenses. These fees are transferred to the NRDs for their water quality fund. Extension Educators cannot collect license fees. Therefore, after the NDA processes the certification forms, they will send a billing postcard for the applicator's license. The fee is \$25 for private applicators. The applicator will need to either pay online (per the instructions on the billing postcard) or send back the billing postcard to NDA with a check. After receipt of the fee, NDA will issue the license. The applicator will not be considered licensed to apply RUPs until the fee has been collected and processed (3-5 working days for checks) by NDA. Fees are non-refundable. The license fee can be paid any time within the 3-year certification period; however, a license cannot be issued or renewed (recertification) until the fee has been paid.

PSEP Materials for 2015

- A. Mailing from PSEP Office:
 - 1. 2015 PSEP Training Materials Package

(distributed approximately late November - early December - numbers as needed) Contents:

- Private Applicator Reference Guide (1)
- 2015 Pesticide Applicator Training In-service Manual (2) (one labeled Extension Educator, the other labeled Office Manager)
- ► 2015 Commercial/Noncommercial "Pesticide Safety Education Program" schedule booklet (20)
- 2. Flashdrive distributed in late December, contents:
 - Private video clips & resources
- B. Mailing from EdMedia Warehouse:
 - 1. Nebraska Private Self-Study Manual For the Private Pesticide Applicator, green cover. For home study only.
 - The manual, Nebraska Pesticide Applicator Certification Core Manual is for distribution to applicators for initial private certification only. Do not distribute it to private recertification applicators. Distribute this manual at the end of your training session with the NDA Certification Form (bubble form).
 - 3. Private Applicator Certification Reference Guide (dark blue cover) Contents:
 - Key points on laws and regulations
 - Worker Protection Standard for Agricultural Pesticides
 - Endangered Species Act
 - Fumigation Management Plan
 - Pesticide Storage Considerations
 - Pesticide Label Exercise
 - Pesticide toxicities of common products (oral and dermal LD₅₀)
 - Sample record keeping form (full-sized page)
 - Related NebGuides, Extension Circulars
 - 4. Ounce Calibration Cards
 - 5. 2015 Guide for Weed Management
 - 6. Field Records for Restricted Use Pesticide Applications
 - 7. Crop Production Recordkeeping Booklet
 - 8. (NDA) Nebraska Pesticide Applicator Certification Request Form Private (bubble forms)
 - 9. (NDA) Nebraska Pesticide Applicator Submittal Cover Sheets (10)
 - 10.Sofchek water quality test strips (1)
 - 11.Hydrion water test strips (1)
 - 12. Take Action Herbicide-Resistance Management (1)
 - 13. The Impact of Water Quality on Pesticide Performance (Purdue Extension) (1)
 - 14. Air Temperature Inversions (NDSU Extension) (1)

Delivery of Private Pesticide Safety Education Program Training

The program is the same for private initial and recertification training. Two options are available for delivery of the program:

- 1. Powerpoint Modules
 - a. Deliver entire program using private PPT modules
- 2. Powerpoint Modules, flashdrive, and activities
 - a. Deliver program using combination of PPTs, video segments on the flashdrive, and activities. See Lesson Plan Table and Lesson Plan Activities in Appendix A for options.

COMMERCIAL/ NONCOMMERCIAL APPLICATOR TRAINING

Certification for Commercial/Noncommercial Applicators

- 1. Initial Certification
 - a. Initial Commercial/Noncommercial certification is based on satisfactory test scores (at least 70 percent) on a General Standards exam plus one or more specific category exam. NDA will administer all examinations. Exam questions are based on PSEP training manuals.
 - b. Individuals seeking certification/licensing for the first time by attending a UNL Extension pesticide applicator education program **MUST** attend the morning General Standards session and at least one of the afternoon category sessions. The PSEP Office strongly recommends only ONE initial category on any date. The individual must get a satisfactory exam score on all exams (General Standards and any categories).
 - c. Those only adding a category need to attend the afternoon category training session appropriate for that category.
- 2. Recertification one of the following:
 - a. Attendance at a UNL Extension Recertification session. Those attending a UNL Extension pesticide applicator education program **MUST** attend the morning General Standards session and at least one of the afternoon category sessions.
 - b. Attendance at a Recertification Conference (for the Agricultural Pest Control–Plant category, the Crop Production Clinics are an example of such a conference).
 - c. By examination.

Facility/Equipment Allotments

Training site representatives will receive a \$25 facility/equipment allotment for each Commercial/ Noncommercial pesticide applicator training day that was held at their site.

Collecting PSEP Commercial/Noncommercial Applicator Program Fees

COMMERCIAL/NONCOMMERCIAL STANDARD SESSION – \$60 per on-line pre-registration, \$70 per mail, fax, and at-the-door registrations.

* IMPORTANT NOTE: To encourage all applicators to register on-line, an additional \$10 is added to all mail, fax, and at-the-door registrations.

Pre-registration for the UNL Extension programs is required for the \$60 fee. To ensure the applicator's registration is processed in time, he/she is encouraged to register on-line at least 10 working days before the scheduled training session. The Extension Educator will receive an e-mail with the names of the pre-registered applicators before the training date. Follow the procedure below for at-the-door registration.

COMMERCIAL/NONCOMMERCIAL AT-THE-DOOR REGISTRATION PROCEDURE:

- Collect \$70 by check (payable to your Extension office account), cash, or credit card.
- If applicator is paying by credit card, collect the following information: credit card number, expiration date, name on card, and billing address. Call the PSEP Office to run the credit card (1-800-627-7216). We need to verify the applicator's credit card information before they can receive training.

Commercial/Noncommercial Pesticide Safety Education Program (PSEP) "At the Door" Registration and Fee Distribution Form: (Instructions are on the form)

- This form is available on the UNL Extension Educator Resources Web site under the Financial Management section. This form must be completed to document fees collected from participants. The Extension office share is \$14 and the PSEP Office share is \$56.
- List names of "walk-in" applicators and payment type.
- Complete the Revenue Receipt Voucher to distribute fee shares. Complete the bank deposit process.
- E-mail the scanned Revenue Receipt Voucher, bank deposit slip, bank deposit receipt, and the distribution form to the IANR Greater Nebraska mailbox at: *GNBUSCTR@UNL.EDU.*

The Greater Nebraska Business Center will route the fee distribution form to the UNL PSEP Office. Please do not mail or email the PSEP Office directly. Do not forward UNL Extension program fees to Nebraska Department of Agriculture.

Completing the (NDA) Nebraska Pesticide Applicator Certification Request Form – Commercial, Non-commercial (Bubble Forms)

- 1. Instructions for completing the form are on the back of the form. Complete the form in pencil. Pencil signatures are acceptable.
- 2. Forward these forms with respective (NDA) Nebraska Pesticide Applicator Submittal Cover Sheets (orange bubble forms) *within one week* of training to:

Original Copy:	Second Copy:
Nebraska Department of Agriculture Plant Health P.O. Box 94756 Lincoln, NE 68509-4756	Your choice – keep it as an Extension office copy or provide second copy to commercial/noncommercial applicator.

- 3. Complete a NDA Cover Sheet for each training session.
 - Use original cover sheets; do not photocopy. Photocopies cannot be read by the scanner.
 - Use a separate cover sheet for bar-coded letters.
- 4. Mail the NDA certification forms to the NDA address above. **Do not** send NDA Certification Forms to the PSEP Office or to the Nebraska Department of Environmental Quality in Lincoln.
- 5. NDA collects a license fee for all private and commercial pesticide applicator licenses. Extension Educators cannot collect license fees. Therefore, after the NDA processes the certification forms, they will send a billing postcard for the applicator's license. The applicator will need to either pay online (per the instructions on the billing postcard) or send back the billing postcard to NDA with a check. After receipt of the fee, NDA will issue the license. The applicator will not be considered licensed to apply RUPs until the fee has been collected and processed (3-5 working days for checks) by NDA. Fees are non-refundable. The license fee can be paid any time within the three-year certification period; however, a license cannot be issued or renewed (recertification) until the fee has been paid.

Remind any applicator who attends a General Standards session without attending a category session or vice versa that he/she must attend both in order to complete the recertification process. Failure to do so would result in the license expiring. Recertification beyond that point will require him/her to take both exams again.

Applicators who plan on staying for category training in the afternoon should be given the NDA certification forms and instructions at the conclusion of their first category training session. Applicators should again be reminded to retain the carbon until they receive the postcard that bills them for the license. Cards should arrive in 1-3 weeks. If they have not received the card after three weeks, they should contact the NDA at the number provided on the top of the application form. Cards arrive in envelopes. Show the group what the envelopes and cards look like.

Those applicators who will be attending other recertification opportunities for additional categories should be encouraged to take their carbon copy of the NDA Certification Form with them to the other sites. It will help explain to facilitators at those locations why the applicator is only attending a category session and not the General Standards session.

PSEP Training Materials Package for Commercial/Noncommercial

Distributed (number as needed) approximately late November to early January

- 1. Items included with your Private PSEP materials package:
 - a. Copies of the <u>Pesticide Label Exercise</u>. Initial applicators should have received a copy in their General Standards study packet, but some applicators may arrive without them. Copies should be distributed to all recertification applicators attending the training session.
 - b. Copies of the NDA sign-in sheet.
 - c. Copies of the (NDA) Nebraska Pesticide Applicator <u>Certification Request Form</u> Commercial, Non-Commercial (Bubble Forms)
 - d. Copies of the (NDA) Nebraska Pesticide Applicator Submittal Cover Sheet
- 2. 2015 Pesticide Safety Education Program Schedule booklet.
- 3. Commercial/Noncommercial <u>DVD</u> Library (2 copies of each new DVD).

Check DVD's to make sure all work correctly in your player.

Торіс	Initial	Recertification
General Standards (00)	2011 version	2014 version
Ag Plant (01)	New for 2015	None
Fumigation of Soil (01a)	None	None
Ag Animal (02)	None	None
Forest (03)	2014 version	None
Ornamental & Turf (04)	2013 version	2013 version
Aquatic (05)	2013 version	2013 version
Sewer use of Metam Sodium (05S)	None	None
Seed Treatment (06)	2007 version	None
Right-of-Way (07)	2014 version	New for 2015
Structural/Health Related (08)	2005 version	2014 version
Wood Destroying Organisms (08W)	2005 version	2014 version
Public Health (09)	2012 version	2014 version
Wood Preservation (10)	2006 version	2012 version
Fumigation (11)	2014 version	2014 version
Aerial (12)	Ag Plant	None
Wildlife Damage Control (14)	2010 version	New for 2015
Regulatory (REG)	None	None
Demonstration/Research (D/R)	None	None

Delivery of Commercial/Noncommercial Training—Initial and Recertification Training

- 1. Run General Standards DVD during the morning training sessions. There is one designated break during the program.
- 2. Conduct the *Pesticide Label Exercise* during the designated morning break time (exercise will take approximately 15 minutes). Allow the applicators time to complete the exercise, and then go over the questions and answers verbally (See "Lesson Plan Activities" information on page 53).
- 3. Lunch break. After lunch, run category DVDs for individual PSEP initial or recertification categories.
- 4. General reference materials. See the General section, later in this guidebook.
- 5. Web site references. Visit Pesticide Safety Education Program Web site at: pested.unl.edu

Definitions of Commercial / Noncommercial Pesticide Applicators

Who are Commercial/Noncommercial applicators?

 <u>Commercial Applicator</u> – a licensed applicator who uses any restricted use pesticide on a contractual or "for hire" basis. Commercial applicator shall also include any person who applies restricted or general use pesticides for lawn care or structural pest control to the land of another person "for hire" or compensation.

When the following person applies an RUP to the following site, that person is operating as a **Commercial** applicator in the category listed:

Category	Applicator Description	Treatment Site
Ag Plant	Grain elevator employee Hi-boy/floater operator or farmer County Weed Control County or State Dept. of Roads	Property of elevator client, for hire Lands not personally owned or rented, for hire Field or pasture of landowner, for hire
Ag Animal	Contracted applicator	Livestock or farm animals, for hire
Forest	Contracted applicator	Forest seedling or mature forest stand
O&T (RUP or GUP)	Contracted applicator Lawn care business employee Golf Course employee	Golf course property, city park, cemetery, school or commercial property, property of client or customer Property other than employer's, for hire
Aquatic	Game and Parks employee Weed Superintendent	Private aquatic or wetland site, for hire
Seed Treatment	Employee of seed producer	Privately owned seed (not owned by employer)
Right-of-Way	Contracted applicator	Forest or park trails, railroad or utility R-O-W, roadsides, parking areas
Structural (RUP or GUP)	Contracted applicator	Grain elevator structures and perimeters, homes, barns, outbuildings
Fumigation	Contracted applicator	Grain storage structures of farmers or grain elevators

Contracted applicators are independent contractors or persons making applications to property not owned by their immediate employer for hire or compensation, and therefore, meet the definition of commercial applicator. A custom farmer is an example of an independent contractor who must be certified as a commercial applicator to apply restricted use pesticides when he/she receives payment for the applications. If they receive no additional fee for the applications, they are considered noncommercial applicators.

 <u>Noncommercial Applicator</u> – a licensed applicator who applies restricted use pesticides only on lands owned or controlled by his/her employer or for a governmental agency or subdivision of the state. Also, a licensed applicator who applies either general or restricted use pesticides to control mosquitoes on behalf of a political subdivision of the state. When the following person applies an RUP to the following site, that person is operating as a **Noncommercial** applicator in the category listed:

Category	Applicator Description	Treatment Site
Ag Plant	County Weed Control	Regulatory control of listed noxious weeds in fields or pastures Fields owned by elevator or employer
Ag Animal	Veterinarian	Treatment of domestic or farm animals
Forest	State or federal forestry employee	Seedling or mature forest stand owned by employer
O&T	Golf Course employee City groundskeeper	Employer's golf course and grounds city park, cemetery, other city grounds
Aquatic	Game and Parks employee County Weed Control Irrigation District employee	Aquatic sites owned or controlled by state government. River bank for listed noxious weeds (not for hire). Aquatic site owned or controlled by employer
Seed Treatment	Employee of seed producer	Seed owned by employer
Right-of-Way	Dept. of Roads employee County Weed Control	State controlled Right-of-Way sites Regulatory control of listed noxious weeds
Structural	Grain elevator employee	In and around elevator facilities
Public Health	City employee	Mosquito sites
Wood Treatment	Utility employee	Lumber owned by utility (not privately owned)
Fumigation	Grain elevator employee	Grain bin owned by elevator

Noncommercial applicators apply RUPs only to lands owned or controlled by their employer or on behalf of a government agency or subdivision of the state.

1. Categories of Commercial/Noncommercial Pesticide Applicators

The following are general guidelines to the types of pesticide applications that may fit within a given category. In general, the name of a category **refers to the site or commodity being protected from pests**. For example, the Agriculture Pest Control - Animal category refers to pesticides applied to animals (cattle, etc.) to protect them from pests. It does not mean the control of animal pests such as prairie dogs in a pasture (see Wildlife Damage Control category 14).

00 **General Standards:** The one category that all applicators have in common. EVERYONE who receives a license must pass a test covering the General Standards and must renew the General Standards every time he/she recertifies.

01 **Agricultural Pest Control–Plant:** Restricted use pesticide applications to protect agricultural crops, vegetables, small fruits, tree fruits and nuts; as well as pastures, rangelands and noncrop agricultural land. **Does NOT** include the control of vertebrate pests such as prairie dogs (See Category 14).

01A **Fumigation of Soil** *(self-study):* Soil fumigant applications to protect agricultural commodities. An individual may choose to be certified in this subcategory alone or in combination with Agricultural Pest Control–Plant (01).

Agricultural Pest Control–Animal *(self-study):* Restricted use pesticide applications to protect beef cattle, dairy cattle, swine, sheep, horses, goats, poultry, livestock, and other animals and to places on or in which animals are confined. Includes doctors of veterinary medicine engaged in the business of applying restricted use pesticides. **Does NOT** include the control of predators such as coyotes in pastures or holding pens (See Category 14).

Forest Pest Control: Restricted use applications to protect forests, forest nurseries, forest seed producing areas, and large tracts of trees that may be considered marketable. This category **does NOT** include protection of ornamental trees (See Category 04).

Ornamental and Turf Pest Control: Includes control of pests to protect ornamental trees, shrubs, flowers, and turf, in and around structures, greenhouses, plant nurseries, golf courses, athletic fields, parks and public or private grounds. Anyone making pesticide applications **for hire** or compensation in this category must be licensed for both general and restricted use pesticides. **Does NOT** include control of vertebrate pests such as moles and ground squirrels in turf areas (See Category 14).

Aquatic Pest Control: Restricted use pesticide applications to protect standing or running water (irrigation canals, farm ponds, golf course lakes and streams, and fish breeding ponds) from weeds or insects, or animal pests. **Excludes** applications in the Public Health Pest Control (09) category made to control disease vectors.

05S Sewer Use of Metam Sodium (self-study): Applications using Metam Sodium in sewer lines.

Seed Treatment: Restricted use pesticide applications to protect seeds. Includes application of seed treatments prior to packaging. **Does NOT** include planter-box seed treatments added at planting time (See Category 01).

Right-of-Way Pest Control: Restricted use pesticide applications to protect roadsides, electric power line rights-of-way, pipelines, railway rights-of-way, fence lines, structural perimeters, and similar areas. **Does NOT** include control of vertebrate pests such as moles and prairie dogs in right-of-way areas (See Category 14).

Structural and Health Related Pest Control: Includes control of insects (**excluding** structural wood destroying pests), pest birds, and vertebrate pests (those invading structures) in, on, or around human dwellings; institutions; food handling, manufacturing, processing, packaging and dining facilities; schools and hospitals; warehouses; and any other structures and adjacent areas, public or private. Anyone making pesticide applications for hire or compensation in this category **must be licensed** for both general and restricted use pesticides. **Does NOT** include fumigation of a structure (see Category 11).

08W **Wood Destroying Organisms:** Includes control of wood destroying pests such as termites and carpenter ants in the same areas as for Category 08. Anyone making pesticide applications **for hire** or compensation in this subcategory **must be licensed** for both general and restricted use pesticides. **Does NOT** include fumigation of a structure (See Category 11).

Public Health Pest Control: Includes control of disease vectors and pests of medical or public health importance such as mosquitoes, rodents, and flies in public landfills, in or on medical and veterinary

instruments, hospitals, nursing homes, swimming pools, food processing areas, and cooling towers. Anyone making pesticide applications for outdoor vector control on the behalf of villages, towns, cities or any other political subdivision of the state **must be licensed** when applying general use and restricted use pesticides.

10 **Wood Preservation:** Restricted use pesticide applications to protect wood or wood products. Includes preservative treatment by pressure or nonpressure methods to protect wood that will be exposed to weather, including utility poles, fence posts, and railroad ties.

11 **Fumigation:** Restricted use pesticide applications made using fumigants in gaseous or solid form, within enclosed gas tight spaces such as tents, vaults, stacks, structures, vehicles, or vessels for a wide variety of conditions and commodities, including raw agricultural products. Does not include fumigants for control of rodents in burrows (See Category 14).

12 **Aerial Pest Control:** Applications made by fixed or rotary wing aircraft. This category includes those aspects in the Agricultural Pest Control–Plant (01) category that are specific to aerial pesticide applications. Applications by air to non-agricultural sites would require testing in additional categories.

14 **Wildlife Damage Control:** Restricted use pesticide applications, including toxicants and fumigants, to control vertebrate pests when not associated with structures. Special permits also may be required from local, state, and/or federal agencies, such as for fur-bearing or game animals. Category 14 does NOT include control of vertebrates that are invading structures (birds, bats, and rodents). See Category 8.

REG **Regulatory Subcategory** *(self-study):* Subcategory of a primary category. Restricted use pesticide applications made for federal, state, or other governmental units in the control of regulated pests.

D/R **Demonstration/Research Subcategory** *(self-study)*: Subcategory of a primary category. Includes commercial applicators who demonstrate to the public or conduct research about the use of pesticides when exceeding label provisions.

For clarification of specific details for any of these categories, contact the Nebraska Department of Agriculture at 402-471-2351 or toll-free at 877-800-4080.

Commercial/Noncommercial PSEP—General Procedures

- 1. We have attempted to anticipate as many circumstances as possible, but as others arise, please don't hesitate to call Clyde Ogg at 402-472-1632 or 800-627-7216.
- Weather Policy Canceling a training date due to weather is an Educator's decision. If training will be canceled, it will be the responsibility of the Educator to report the closing to local radio and TV stations to broadcast. The PSEP Web site directs applicators to listen to local radio and TV stations and/or call the county Extension office for closing information.
- 3. Although we have strongly promoted the need for preregistration, we anticipate that some applicators will arrive at a training site without advance registration. It would not be wise to refuse attendance.
- 4. The morning General Standards program begins at 8:30 a.m. (local time) for initial and 9:00 a.m. for recertification sessions for ALL sites and ALL locations, Central or Mountain Time.
- In January, you will receive revised and/or replaced DVDs for use at your site. You will receive two DVD disks for each recertification and initial video programs for your Pesticide Safety Education Program library.
- 6. Please keep these DVDs for use in subsequent years until they are revised and/or replaced.
- 7. An NDA representative will attend each initial training site to administer examinations and guide applicators in the completion of the NDA certification forms. Please assist the NDA representative as necessary.
- 8. There will be an NDA representative at *most* recertification training sites. If no NDA representative is present at your site, follow the guidelines provided in this guidebook.
- 9. NDA representatives can and will drop in at any of the sessions. This includes those sites that are not expected to be covered by them.

Commercial/Noncommercial PSEP—Initial Procedures

- 1. Be prepared to receive registrants by 8:00 a.m.
- 2. An NDA representative will be present at all initial certification sessions; he/she will sign everyone in and conduct all examinations.
- 3. Check each applicator's registration confirmation letter or check for the name on the registration list as each arrives in the morning.
- 4. If an applicator is NOT preregistered, record name and payment type on the Commercial/ Noncommercial Pesticide Safety Education Program (PSEP) "At the Door" Registration and Fee Distribution Form (instructions on page 9) and collect the \$70 fee payable to your Extension office account. If applicator is using a credit card, collect the following information: credit card number, expiration date, name on card, and billing address of card. Call the PSEP Office to run the credit card.
- 5. If an applicator's certification card is unreadable or lost, ask NDA representative to look up the certification number. If no NDA representative is present, call 800-627-7216, and we will look up the number for you.
- 6. Welcome the group and explain the general process before starting the program.

- 7. Start the Initial General Standards DVD.
- 8. During the break, go through the *Pesticide Label Exercise*.
- 9. If applicators have questions that you are unable to answer, please forward the questions to us at 800-627-7216.
- 10. At the end of the morning program, inform applicators of the testing room(s) and the appropriate afternoon category training session room(s). (In the case of initial, we'll encourage only **ONE** category due to longer running times of DVDs.) You have considerable *flexibility* here. Category training can be scheduled in any way that you prefer, depending upon the number of rooms and/or DVD/TVs that are available. Additionally, if enough rooms and equipment are available, you have the option to offer training in unscheduled categories. These decisions will be driven entirely by local circumstances and are completely up to *YOU*.
- 11. At the end of each afternoon session, direct applicators to testing room(s).
- 12. Assist NDA representative in guidance on completing certification application forms.
- 13. Complete the Commercial/Noncommercial PSEP "At the Door" Registration and Fee Distribution Form following the instructions given on the form (see page 9).

Commercial/Noncommercial PSEP—*Recertification Procedures*

Be prepared to receive registrants by 8:30 a.m.

- 1. NDA representatives will be present at most recertification sessions. When present, they will sign everyone in and check old certification cards.
- If NDA representatives are not present, check each person's old certification card to determine if he/she needs to recertify and to determine that the card is not expired. Direct each person to complete the NDA sign-in sheet. NOTE: One cannot recertify if the license card has expired.
- 3. If applicator's certification card is unreadable or lost, ask NDA representative to look up the certification number. If no NDA representative is present, call 800-627-7216 and we will look up the number for you, or you can find it on-line at: *www.kellysolutions.com/NE/Applicators*
- 4. Direct each person to pick-up a copy of the *Pesticide Label Exercise* for use during the morning training session.
- 5. Check the applicator's registration confirmation letter or check for the name on the preregistration list as each arrives in the morning.
- 6. If an applicator is NOT preregistered, record name and payment type on the Commercial/ Noncommercial Pesticide Safety Education Program (PSEP) "At the Door" Registration and Fee Distribution Form (instructions on page 9) and collect the \$70 fee payable to your Extension office account. If applicator is using a credit card, collect the following information: credit card number, expiration date, name on card, and billing address of card. Call the PSEP Office to run the credit card.
- 7. Welcome the group and explain the general process before the morning program begins.
- 8. Start the Recertification General Standards DVD.

- 9. During the break, go through the *Pesticide Label Exercise*, following information given in the General section.
- 10. If applicators have questions that you are unable to answer, please forward the questions to us at 800-627-7216.
- 11. At the end of the morning program, inform applicators of the appropriate afternoon category training session room(s). You have considerable *flexibility* here. Category training can be scheduled in any way that you prefer, depending upon the number of rooms and/or DVD/TVs that are available. Additionally, if enough rooms and equipment are available, you have the option to offer training in unscheduled categories. We are taking every possible opportunity to let applicators know that only two categories are possible in one afternoon. These decisions will be driven entirely by local circumstances and are entirely up to *YOU*.
- 12. Assist in the completion of NDA certification forms. See detailed instructions in the section, "Completing the (NDA) Nebraska Pesticide Applicator Certification Request Form Commercial, Non-commercial (Bubble Forms)." If no NDA representative is present, complete one NDA cover sheet for each date of training, put together with the completed NDA certification forms and the NDA sign-in sheets and send to



NEBRASKA DEPARTMENT OF AGRICULTURE PLANT HEALTH P.O. BOX 94756 LINCOLN NE 68509-4756

- 13. Review and sign the completed NDA certification forms while the applicator is still present. Give the applicator the second copy of the form. Send the original directly to NDA.
- 14. Complete the Commercial/Noncommercial PSEP "At the Door" Registration and Fee Distribution Form following the instructions given on the form (see page 9).

Mixer/Loader Training

Changes to the Nebraska Pesticide Act replaced the term "application" with "use." NDA defines "use" to mean "the method by which a pesticide is mixed, diluted, loaded, applied, or released and disposed." Because of this change, mixers and loaders of restricted use pesticides must be certified or trained via an approved video. This requirement affects anyone who handles RUPs or **any** pesticide for structural pest control, lawn care, or public outdoor disease vector control.

The driver of a vehicle transporting pesticides doesn't need a pesticide license or mixer/loader training. That person's duties are different from those of a mixer/loader or an applicator. A driver is not allowed to mix, dilute, load, or apply restricted use pesticides that require a license. The following are the details provided by NDA:

- 1. Mixer/Loader training videos are only acceptable for certification of individuals who do not actually apply pesticides.
- 2. Employers of mixer/loaders will be required to have the employee(s) watch the videos and sign a document that the training was completed (see page 21). Similar to application records, this document is an official record that the NDA has the legal authority to inspect.
- 3. Similar to applicator certification, the training will remain valid for three years from the date of the last training. In the case of new employees, the employer will be required to offer this training prior to the employee's engagement in mixing or loading activities.
- 4. Only an NDA-approved DVD will be allowed to satisfy the training, and the employer will be required to retain a copy of the video used for training to prove an NDA-approved DVD was used.
- 5. No certification card or other document will be issued by the NDA. Sole proof of training rests with the employer, who will share responsibility for the employee's training.

For clarification of these details or to obtain an approved copy of the safety DVD for mixers/loaders, contact the Nebraska Department of Agriculture at 402-471-2351 or toll free at 877-800-4080.

MIXER/LOADER TRAINING VERIFICATION

The Nebraska Pesticide Act requires certification or training for anyone who mixes, loads, or disposes of restricted use pesticides, or any pesticide used in commercial lawn care, commercial structural pest control, or noncommercial outdoor vector control. The intent of this training is to provide people who handle, mix, or dispose of pesticides with correct information on how to protect themselves, the environment, and understand pesticide security issues. The Nebraska Department of Agriculture (NDA) will recognize approved training videos as a substitute for applicator certification. Any video used for training mixers/loaders must be approved by the NDA prior to use. Once the mixer/loader has received the approved training, the employer and the employee must sign this document and keep it, along with the approved training materials, for a period of three years, and make this information available to the NDA upon request. Training must be repeated every three years, similar to certification renewal.

TO BE COMPLETED BY EMPLOYEE:

By signing below, I am verifying that I have viewed an NDA-approved training DVD for mixers/loaders of pesticides. I understand that this training must be renewed every three years.

Name of Employee (printed)_____

Employee Signature _____

Date _____

TO BE COMPLETED BY EMPLOYER/SUPERVISOR:

By signing below, I am verifying that the above named employee viewed an NDA-approved DVD for mixer/loaders of pesticides. I understand that this training must be renewed every three years. I also understand that I am obligated to retain a copy of the NDA-approved DVD and present it, along with this document, to an NDA representative on request.

Name of Employer/Supervisor and Company Name/Location (printed)

Employer/Supervisor Signature _____

Date _____

Title of NDA-approved Videotape

YOU MAY COPY THIS FORM FOR ADDITIONAL EMPLOYEES. QUESTIONS REGARDING APPROVED DVD CAN BE DIRECTED TO THE NDA'S PESTICIDE PROGRAM AT (402) 471-2351 or (877) 800-4080.

GENERAL PESTICIDE SAFETY EDUCATION PROGRAM INFORMATION

Nebraska Department of Agriculture (NDA) License Fees

Private applicators become certified or recertified by successfully completing an educational course, a selfstudy course, attending a Crop Production Clinic, taking the online course, or by examination. Commercial or noncommercial applicators become certified by examination or recertified by either successfully completing a continuing education course or by examination. Once certified, a person needs to become licensed.

Pesticide applicators may confuse the difference between certification and licensure. A similar analogy exists in the academic world. Upon graduation from college, a medical doctor, nurse, attorney, or teacher will receive a diploma (certification of graduation) but cannot practice until receiving a state license to do so.

Pesticide applicators are certified upon completion of their training requirements and/or exams. They become licensed when they receive their license from the NDA. The license fee can be paid any time within the 3-year certification period; however, a license cannot be renewed unless the fee has been paid.

The Nebraska Department of Agriculture will mail to persons completing certification a billing postcard for their license fee (see page 23 – Private, and page 24 - Commercial/Noncommercial). A three-year private applicator license costs \$25, and a three-year commercial applicator license costs \$90. These fees are NOT to be collected by UNL Extension. After the NDA receives the license fee, a license will be issued. A person will not be considered licensed to apply pesticides until the license has been issued by NDA. No license fee exists for noncommercial applicators. A person completing certification as a noncommercial applicator will be sent his/her license without requiring payment of a fee.

NDA PRIVATE BILLING POSTCARD EXAMPLE

Subject: Billing for Pesticide License

You have successfully completed the necessary requirements for certification (examination, self-study, or training). This is your billing statement for the fee applicable to the license you are requesting.

NOTE: this license fee is separate from all fees you previously paid to Extension or an association for training and handouts.

The fee for a three-year private pesticide applicator license is \$25.

Pay by Visa or MasterCard at: www.agr.ne.gov/online/applicator.html

If you pay this fee by mail, please return this postcard with your payment.

Once your license fee has been received and authorized, your license will be printed and mailed to you. You are not authorized to buy or use restricted use pesticides until your license is issued or beyond the expiration date of an existing license.

NDA COMMERCIAL BILLING POSTCARD EXAMPLE

Subject: Billing for Pesticide License

You have successfully completed the necessary requirements for certification (examination or training). This is your billing statement for the fee applicable to the license you are requesting.

NOTE: this license fee is separate from all fees you previously paid to Extension or an association for training, handouts, etc.

The fee for a three-year commercial pesticide applicator license is \$90.

Pay by Visa or MasterCard at: www.agr.ne.gov/online/applicator.html

If you pay this fee by mail, please return this postcard with your payment.

Once your license fee has been received and authorized, your license will be printed and mailed to you. You are not authorized to buy or use restricted use pesticides until your license is issued or beyond the expiration date of an existing license.

Online Database of Certified Applicators, Dealers, and Registered Pesticides

The Nebraska Department of Agriculture has arranged with Kelly Solutions for an online database of Nebraska's certified pesticide applicators. The web address is: *www.kellysolutions.com/NE*. This site also is linked from the Pesticide Safety Education Program Web site (*pested.unl.edu*). The NDA database may be the best resource to offer a client who is seeking license status on pesticide applicators (private or commercial).

Go to the Web site (*www.kellysolutions.com/NE*) and print the list for your county(ies). The directions for this were sent out in the letter accompanying your stamps.

- 1. NDA Database online label instructions. Once you have defined your list of applicators, you can create mailing labels for them.
 - a. Scroll to the bottom of the names you have generated.
 - b. There are two files. One is to generate the labels in Access. The other file is to generate the labels in Excel.
 - c. Below are the instructions for both:

MSAccess MDB Format (Access)	ASCII.txt Format (Excel)
1. Click on MSAccess MDB Format	1. Click on ASCII.txt Format
2. Enter Username (NE) & Password (CORN9zz). The username and password must be in upper case.	2. Enter Username (NE) & Password (CORN9zz). The username and password must be in upper case.
3. Click on Download Nemailing.mdb	3. Click on Download NEmailing.txt
4. Click SAVE (Saving file to hard drive)	4. All the names will appear on screen.
5. Open Access	5. Click on File (TOP LEFT CORNER)
6. Find file named Nemailing.mdb on hard drive.	6. Click on SAVE AS and save file to hard drive.
7. Open File	7. Open Excel
8. Under objects click on Reports.	8. Open file that you saved to hard drive.
9. Labels are ready to print on Avery Labels 5160 or 5161.	9. Text import Wizard Screen opens up.
	10. Click on DELIMITED and hit NEXT.
	11. In the DELIMITERS box check tab and comma box and hit NEXT.
	12. Then click FINISH.
	13. Labels should be set up in a spreadsheet format. You might need to adjust columns to see all the information.
	14. To create labels use this spreadsheet to do a mail merge from Word.

You also can direct a client to request applicator names, certification numbers, and expiration dates directly from NDA (for a fee) for a specific county or counties. Dealers need to make these requests in writing to: Tim Creger, Pesticide Programs, Plant Health, Nebraska Dept. of Agriculture, P.O. Box 94756, Lincoln, NE 68509-4756. Telephone 402-471-2351 or 877-800-4080.

Remember, no list of certified applicators can be considered as a final authority showing certification. Any list is only a guide because it may not be current. The NDA and the presentation of a valid NDA applicator license are the final authorities on the validity or status of any NDA certification.

The database also contains the Nebraska licensed dealers of RUPs and the pesticides registered for use in Nebraska. A "label" is provided for each registered pesticide.

A word of caution about the online "labels:" The "label" is typically a scanned EPA letter to a registration about a specific pesticide product, PLUS a scanned draft pesticide label. The draft label commonly has strikeouts, handwritten edits, and comments on it. In order to fully comprehend the complete and approved label message, one must apply the EPA letter to the draft label. No final, approved label is online at this site.

Nebraska Plastic Pesticide Container Recycling Program

For project information, go to the Web site at: pested.unl.edu/recycling.

This project has succeeded because of the support and interest of Extension Educators. Their local coordination and promotion has aided in the growth of the project. Over 1,000 tons of plastic have been recycled since the beginning of the project in 1992.

Quick Summary of the Pesticide Container Recycling Program

- 1. Agricultural / structural / commercial lawn care plastic pesticide containers accepted
- 2. 2.5- and 1.0-gallon size
- 3. Local cooperator / collector agrees to:
 - a. inspect each container upon arrival;
 - b. temporarily store containers under roof;
 - c. protect containers from weather
- 4. The Educator aids in project promotion, serves as local contact and liaison to the state-wide coordinator, and arranges the second inspection by **Container Services Network (CSN)**.
- 5. CSN of Greenville, South Carolina, provides the second inspection and takes possession of accepted containers. The plastic is recycled into new pesticide containers, plastic fence posts, traffic lane markers, and parking lot tire bumpers.
- 6. The state-wide coordinator will send an informational memo to each Extension office in March about the program and to solicit participation in the upcoming year's program.

Pesticide Disposal

Nebraska does not have a statewide waste/excess pesticide disposal program. Farm and ranch residents have even fewer options because agricultural pesticides are often excluded from household disposal programs. Their only options are to keep the products and hope that Nebraska will have a disposal program in the future, or pay for disposal themselves. If they choose to keep the products, they should periodically monitor the containers for leaks and store them in a cool dry place where flooding is unlikely. Ideally they should be stored under lock and key. If they want to pay for disposal, the Nebraska Department of Environmental Quality has a list of several commercial firms that can consult about, transport, store, or dispose of waste/excess pesticides. See the following list for details.

Nebraska Department of Environmental Quality lists these commercial firms that properly dispose of pesticide wastes:

Nebraska:

Clean Harbors Environmental Services - Kimball, NE (308-235-4012) Web site: *www.cleanharbors.com* Safety-Kleen Corporation - Grand Island, NE (308-384-1616) Web site: *www.safety-kleen.com* Safety-Kleen Corporation - Omaha, NE (402-333-6321) Web site: *www.safety-kleen.com* Univar - Omaha, NE (402-733-3266) Web site: *www.chemcare.com*

Colorado:

Clean Harbors Environmental Services - Deer Trail, CO (970-386-2293) Web site: *www.cleanharbors.com* Safety-Kleen Systems - Englewood, CO (303-761-8614) Web site: *www.safety-kleen.com* Veolia ES Technical Solutions, LLC - Henderson, CO (303-289-4827) Web site: *veoliaes.com*

lowa:

A-Tec Recycling, Inc. - Des Moines, IA (515-263-3707) Web site: *www.a-tec-recycling.com* Safety-Kleen Systems - Des Moines, IA (515-262-2949) Web site: *www.safety-kleen.com*

Kansas:

Clean Harbors PPM, LLC - Coffeyville, KS (620-251-6380) Web site: *www.cleanharbors.com* Clean Harbors Environmental Services - Wichita, KS (316-269-7400) Web site: *cleanharbors.com* Safety-Kleen Systems - Wichita, KS (316-942-5001) Web site: *www.safety-kleen.com*

Missouri:

Green America Recycling, LLC - Hannibal, MO (866-229-6262) Web site: *greenamericarecycling.com* Heritage Environmental Services - Kansas City, MO (816-453-4321) Web site: *www.heritage-enviro.com* PSC - Kansas City, MO (816-474-1391) Web site: *www.pscnow.com*

South Dakota:

Safety-Kleen Corporation - Sioux Falls, SD (605-332-0231) Web site: www.safety-kleen.com

Nebraska Department of Environmental Quality lists these commercial firms that are hazardous waste brokers:

Nebraska:

Safety-Kleen Systems - Grand Island, NE (308-384-1616) Web site: *safety-kleen.com* Univar USA ChemCare - Omaha, NE (402-733-3266) Web site: *www.chemcare.com*

Colorado:

Envirosolve, Inc. - Denver, CO (303-297-3586) Web site: www.enviro-solve.com

lowa:

Assured Decontamination Services, LLC - Des Moines, IA (800-924-6384) Hydro-Klean, Inc. - Des Moines, IA (515-283-0500) Web site: *hydro-klean.com*

Missouri:

Heritage Environmental Services - Kansas City, MO (816-453-4321) Web site: *www.heritage-enviro.com* R&R Trucking, Inc. - Duenweg, MO (417-623-6885) Web site: *www.randrtruck.com*

Nebraska Department of Environmental Quality lists these commercial firms that are hazardous waste consultants:

Nebraska:

Baker & Associates, Inc. - Scottsbluff, NE (308-632-3123) Web site: *www.baker-eng.com* Camercon-Cole, LLC - Omaha, NE (402-289-3490) Web site: *www.cameron-cole.com* CH2M Hill - Omaha, NE (402-342-9765, ext. 37111) Web site: *www.ch2m.com* Geotechnical Services, Inc. - Grand Island, NE (308-381-1987) Web site: *www.gsinetwork.com* Jacobson Satchell Consultants, Inc. - Omaha, NE (402-339-6104) Web site: *www.gsinetwork.com* JEO Consulting Group, Inc. - Grand Island, NE (402-697-0701) Web site: *jacobsonsatchell.com* JEO Consulting Group, Inc. - Grand Island, NE (308-381-7428) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Hastings, NE (402-462-5657) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Lincoln, NE (402-435-3080) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Norfolk, NE (402-371-6416) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Omaha, NE (402-934-3680) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Omaha, NE (402-435-3080) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Norfolk, NE (402-371-6416) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Wahoo, NE (402-443-4661) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Wahoo, NE (402-443-4661) Web site: *www.jeo.com* JEO Consulting Group, Inc. - Wahoo, NE (402-359-2042) Web site: *laynechristensen.com* Layne Christensen Company - Kearney, NE (308-234-1914) Web site: *laynechristensen.com* Marc Enviro Services, L.L.C. - Omaha, NE (402-492-8025) Web site: *www.marcservices.com*

MILCO Environmental Services, Inc. - Kearney, NE (308-237-5923) Web site: *www.milcoinc.com* MILCO Environmental Services, Inc. - McCook, NE (308-345-4741) Web site: *www.milcoinc.com* Olsson Associates - Grand Island, NE (308-345-4741) Web site: *www.oaconsulting.com* Olsson Associates - Hastings, NE (402-463-0240) Web site: *www.oaconsulting.com* Olsson Associates - Holdrege, NE (308-995-8706) Web site: *www.oaconsulting.com* Olsson Associates - Lincoln, NE (402-474-6311) Web site: *www.oaconsulting.com* Olsson Associates - Omaha, NE (402-341-1116) Web site: *www.oaconsulting.com* Olsson Associates - South Sioux City, NE (402-494-3059) Web site: *www.oaconsulting.com* Olsson Associates - South Sioux City, NE (402-494-3059) Web site: *www.oaconsulting.com* Olsson Associates - Scottsbluff, NE (308-635-2627) Web site: *www.oaconsulting.com* RDG Geoscience and Engineering, Inc. - McCook, NE (308-345-3002) Web site: *rdgge.com* RDG Geoscience and Engineering, Inc. - Omaha, NE (402-894-2678) Web site: *rdgge.com* Terracon Environmental, Inc. - Lincoln, NE (402-466-3911) Web site: *terracon.com* Tetra Tech - North Platte, NE (308-534-5131) Web site: *www.tetratech.com* Tetra Tech - Omaha, NE (402-933-1345) Web site: *www.tetratech.com* URS - Omaha, NE (402-334-8181) Web site: *urscorp.com*

Colorado:

Black & Veatch - Centennial, CO (913-458-6526) Web site: *www.bv.com* Brown and Caldwell - Golden, CO (303-239-5400) Web site: *www.brownandcaldwell.com* Camercon-Cole, LLC - Boulder, CO (303-938-5500) Web site: *cameron-cole.com* GeoTrans Inc. - Louisville, CO (303-665-4390) Web site: *www.geotransinc.com* Jacobson Satchell Consultants, Inc. - Lakewood, CO (303-986-0733) Web site: *jacobsonsatchell.com* Layne Christensen Company - Aurora, CO (303-755-1281) Web site: *laynechristensen.com* Mactec, Inc. - Golden, CO (303-292-5365) Web site: *www.mactec.com* Olsson Associates - Lakewood, CO (720-962-6072) Web site: *www.oaconsulting.com* Terracon Environmental, Inc. - Ft. Collins, CO (970-484-0359) *www.terracon.com* Tetra Tech EMI - Denver, CO (303-312-8800) Web site: *www.tetratech.com* Walsh Environmental - Boulder, CO (303-443-3282) Web site: *www.walshenv.com*

lowa:

Assured Decontamination Services - LLC, Des Moines, IA (800-924-6384) Trileaf - Grimes, IA (515-986-5151) Web site: *www.trileaf.com*

Kansas:

Geotechnical Services, Inc. - Wichita, KS (316-554-0725) Web site: www.gsinetwork.com

Missouri:

Black & Veatch - Kansas City, MO (913-458-6526) Web site: *www.bv.com* Heritage Environmental Services - Kansas City, MO (877-829-4374) Web site: *heritage-enviro.com* Tetra Tech EMI - Kansas City, MO (816-412-1741) Web site: *www.tetratech.com*

South Dakota:

Geotek Engineering & Testing Services - Sioux Falls, SD (605-335-5512) Web site: *www.geotekeng.com* Tetra Tech - Rapid City, SD (605-348-5850) Web site: *www.tetratech.com*

Wyoming:

Terracon Environmental, Inc. - Evansville, WY (307-472-5274) Web site: *www.terracon.com* Terracon Environmental, Inc. - Cheyenne, WY (307-632-9224) Web site: *www.terracon.com* Tetra Tech - Casper, WY (307-234-2126) Web site: *www.tetratech.com*

Directions for Reporting Pesticide Applicator Training

Accountability reports: Private PSEP is reportable under the Crops/Water Action Team. Commercial/Noncommercial PSEP is reportable under Crops/Water Action Team (i.e., O&T, Aquatic, Rightof-Way, Structural, Wood Destroying, Public Health, and Wildlife Damage Control categories). Include the percentage of time invested toward PSEP. Pesticide Safety Education Program is a "Special Funded Program." Provide an estimate of your time devoted to PSEP here as well.

EARS reports: The PSEP Office prepares EARS reports on a statewide basis and completes other reports for the USDA. You are encouraged to share your successes by submitting EARS reports for your local activities. Specific examples of pesticide education programming that can be reported as behavior change or impact include:

- use of personal protective equipment
- · care and handling of pesticide-soiled clothing
- buffer strip development

- use of IPM or acres under IPM
- calibration of pesticide application equipment
- protection of water resources

Sponsorship of Pesticide Safety Education Programs

The private Pesticide Safety Education Program is a UNL Extension program, and you are in charge. The sponsorship of your pesticide training programs by commercial interests is allowed with discretion. It is not a program to promote commercial services or products. If a sponsor wishes to pay for a meeting room or refreshments, such cooperation is acceptable. The Educator should arrange and conduct the training sessions and be certain to keep control.

Sponsorship can be an effective method to offset costs. It is not a method for a commercial interest to collect names or addresses of applicators as potential customers.

Reporting Pesticide Accidents and Poisonings

A Communication from the Dean:

Because of the sensitive nature of pesticide accidents, and in fairness to all parties concerned and involved, it is especially important that factual, accurate information be released to the public. To this end, it has become apparent, that a central system for reporting and disseminating information on such incidents be established.

It is our policy that pesticide accident cases be reported immediately to the Pesticide Education Office, IANR, UNL at (402) 472-1632. The individual to be contacted is Clyde L. Ogg, Extension Educator. The Pesticide Education Office will then inform UNL Extension administration, the Extension Educator in the county where the incident occurred, the appropriate departments within IANR and the Plant Industry Division of the Nebraska Department of Agriculture.

> Elbert Dickey Dean and Director November 10, 2000
Recordkeeping Agreement between Custom Applicator and Producer

If a commercial pesticide applicator holds the records of restricted use pesticide (RUP) applications on behalf of a farmer customer, federal law requires that an informal agreement signed by both parties must be on file at the business office. It is not a formal contract. The agreement, once signed by both parties, may be kept indefinitely from year to year. The RUP records must be kept for a minimum of three years from the date of the application.

An example of an agreement is below. The business name should be substituted in the appropriate place. There is a great deal of latitude about how formal this agreement is. It can be placed on company letterhead or simply on a 3 X 5 card. In any case, the agreement must be made available to a Nebraska Department of Agriculture pesticide inspector upon request.

Date _				
	As a commercial pesticide applicator is holding records of restricted use pe	"Business Name" esticide applications	applied on behalf of	
	(farmer/customer's name)			
Signec	"Business Name"	Signed	"Farmer/customer"	

Private Pesticide Applicator Recordkeeping

Certified private pesticide applicators must keep records of federally restricted use pesticide applications. The RUP records must contain:

- 1. Brand or product name of the RUP
- 2. EPA registration number
- 3. Total amount of RUP applied
- 4. Size of the area treated

- 5. Crop, commodity, stored product, or site
- 6. Location of the application
- 7. Month, day, and year of the application
- 8. Certified applicator's name and certification number
- 9. Target pests(s)

Here are a few of the points concerning the process:

- 1. In Nebraska, these records must be kept for three years from the date of application.
- 2. A private applicator must record his/her application of a restricted use pesticide within 14 days.
- 3. A commercial applicator who applies an RUP for a farmer is required to provide a copy of the records to the person for whom an application was made within 30 days of the application.
- 4. A custom applicator can keep pesticide application records on behalf of a farmer if a signed agreement is kept on file, see details on page 31.
- 5. A certified applicator shall, upon verbal request and presentation of credentials or written request by an authorized representative, make these records available and permit the authorized representative to copy any of the records.
- 6. NDA randomly inspects private applicator records every year.

Commercial/Noncommercial Applicator Recordkeeping

1. Each commercial and noncommercial applicator shall keep and maintain records of the use of restricted use pesticides for a period of three years.

NOTE: Commercial applicators in the Structural category are required to keep records on their use of general *and* restricted use pesticides. Commercial applicators in all other categories, including the Ornamental & Turf category, are required to keep records only on restricted use pesticide applications.

- a. Name and address of the person for whom the pesticide was applied.
- b. Name, address, certified applicator number of the person making the application.
- c. Location of the pesticide application.
- d. Target pest(s).
- e. Crop, commodity, or site of application.
- f. Date and starting time of application.
- g. Trade name and EPA registration number of pesticide.
- h. Amount and rate of pesticide applied.
- i. Area or size of treated area.
- j. Method of disposal.

Pesticide Dealer Recordkeeping Requirements for RUPs

- 1. Retail dealers must maintain the following records concerning transactions when selling RUPs to certified applicators. No specific format or method for these records is stipulated; just, collect and keep the following information available:
 - a. Name and address of purchaser to whom the RUP is made available for use by a certified applicator. No dealer may make an RUP available to any uncertified person unless he or she can document that the RUP will be used by a certified applicator.
 - b. Name and address of the certified applicator or dealer who will use the RUP, if different from above.
 - c. Certification number or dealer license number, state, expiration date, category(ies).
 - d. Product name, EPA reg. number, special local need registration number, if any.
 - e. Quantity of pesticide purchased.
 - f. Date of transaction.
- 2. A dealer must register with the NDA before selling restricted use pesticides in Nebraska.
- 3. The EPA Region VII office in Kansas City, Kansas, will continue the registration of pesticide-producing establishments.

Pesticide Misuse Complaints

Allegations of pesticide misuse and/or damage are occasionally brought to the attention of Extension personnel. You may receive complaints concerning pesticide misuse with possible FIFRA violations and your clientele wants action taken.

Procedure:

Ask the client if he/she desires to take action and file a complaint.

If yes, state "The Nebraska Department of Agriculture is the regulatory agency to whom you file this complaint. Please contact Tim Creger, Pesticide Programs, Plant Health, Nebraska Department of Agriculture, P.O. Box 94756, (301 Centennial Mall South), Lincoln, NE 68509-4756; phone 402-471-2351 or 877-800-4080."

See the memo on the following page concerning misuse complaints.

DATE:	December 2014
MEMO TO:	Extension Educator
FROM:	Clyde Ogg Extension Educator PSEP Coordinator
SUBJECT:	Pesticide Misuse Complaints

University of Nebraska–Lincoln Extension personnel do not represent nor report potential pesticide damage to authorities on behalf of private individuals or commercial interests. The responsibility to file a pesticide complaint or to report damage to authorities lies entirely with the complainant.

Extension personnel are to provide, upon request, full information to the client on how to reach the Nebraska Department of Agriculture. Do not become involved personally in contacting the NDA. Typically, an Extension Educator will ask if the individual desires to file a complaint concerning potential pesticide misuse. If the complainant wishes to do so, the Extension Educator provides the name, address, and telephone number of the regulatory authority. The complainant initiates action by contacting the regulatory authority and files the concern.

The address and related information for the Nebraska Department of Agriculture (NDA) is:

Nebraska Department of Agriculture Plant Health P.O. Box 94756 Lincoln, NE 68509-4756 (402) 471-2351 (877) 800-4080

The NDA is located on the 4th floor of the State office building at 301 Centennial Mall South.

Nebraska Department of Agriculture Personnel Directory

Animal and Plant Health Protection P.O. Box 94756 Lincoln, NE 68509-4756 (402) 471-2351 voice (402) 471-6892 fax (877) 800-4080 toll free number Tammy Zimmerman, Animal & Plant Health Protection Focus Area Administrator Tim Creger, Pesticide/Fertilizer Program Manager Kay Kromm, Certification, Training, and Worker Safety Specialist Buzz Vance, Registration and Dealer License Specialist Mitch Coffin, Noxious Weed Program Craig Romary, Environmental Programs Specialist Herbert Bates, Case Review Officer



Nebraska Department of Agriculture Pesticide Program Inspection Personnel

Noxious Weed Program Inspectors:

West Jeff Lampmann (402) 416-5642 Northeast Dave Boschult (402) 887-4789 Southeast Paul Moyer (308) 750-5967

Developing a Fumigation Management Plan (FMP)

All phosphine fumigant products must bear an approved label and be accompanied by the applicator's manual, all of which are part of the *labeling*. These labels require anyone who fumigates with phosphine to develop a Fumigation Management Plan (FMP) for each fumigated site.

A FMP is a written record that provides specific information and data about fumigation practices to help characterize each fumigated grain storage site. The purpose of the FMP is to ensure the safety of employees, the community, and environment. It also is designed to help ensure an effective fumigation and to assist the company in meeting phosphine label requirements.

The FMP provides a uniformly organized process that will help managers at each site document their fumigation procedures, and thus characterize their fumigation. The FMP should include a layout plan illustrating the primary structures and technical features (such as main electrical power, gas and water shut-off points) of the facility, showing storage structures in relation to other buildings and equipment at the site.

The FMP has a standard data form that is to be completed by the person responsible for the fumigation each time a fumigant application is made. It covers important items such as the volume of product fumigated, the type and dosage level of the fumigant, starting and ending times of the fumigant dosage application, and the overall fumigation time from dosage to structure ventilation. Gas levels are to be monitored and documented at points around the storage structure where personnel work, as well as at specified locations on the property, such as property boundaries downwind from fumigated structures.

A template for the Fumigation Management Plan is available online at: *pested.unl.edu/educators*. This educator page also can be found at the *pested.unl.edu* Web site by scrolling down and clicking on "Related Links" at the bottom of the page, then scroll down to click on Fumigation Management Plan for Applicators.

The Fumigation Management Plan template was provided by: Jay Bruesch—Technical Director, Plunkett's Pest Control, Inc.

PSEP Reference Materials

- 1. PSEP Web site: pested.unl.edu.
- 2. UNL Extension Publication Web site: <u>www.ianrpubs.unl.edu/epublic/pages/index.jsp</u>.
- 3. Nebraska Pesticide Applicator Certification Core Manual
- 4. "Recognition and Management of Pesticide Poisonings," Fifth edition, EPA, 1999.
- 5. "The Pesticide Book," Sixth Edition, George W. Ware & David M. Whitacre, 2004.
- 6. Crop Protection Handbook.
- 7. The Worker Protection Standards for Agricultural Pesticides How to Comply manual, EPA, September, 2005.
 - See page 127 for quick reference guide:
 - Duties for all employers Duties for employers of ag field workers
 - Duties for employers of pesticide handlers
 - See pages 117-123 for employer checklists

For additional copies of the manual, contact Clyde (402-472-1632) or NDA (Tim Creger, 402-471-2351or 877-800-4080).

- 8. "Nebraska Pesticide Act and Pesticide Regulations, Revised December 2006," NDA.
- 9. "TeeJet Spray Products Buyers' Guide."

TRAINING POLICIES AND GUIDELINES

Nebraska Department of Agriculture

<u>Memorandum</u>

Forms

Exactly 20 years ago today, I began my employment with the Nebraska Department of Agriculture (NDA) in the Pesticide Program. There are many things that have changed in our regulatory program over the years, but one of the parts that has remained fairly consistent is how we train, certify and license pesticide applicators. What has changed with this program are the people who we serve, and the folks within UNL and NDA that run the program. This auspicious anniversary is a good time to refresh everyone's memory, and perhaps help some folks new to the program, on the NDA's expectations for pesticide applicator certification. Some of the policies below are in place due to statutory mandates, others are merely due to functionality of the program.

The Nebraska Pesticide Act (the Act) stipulates the NDA is the lead state agency to regulate pesticides and the people who apply them. It also identifies the University of Nebraska as the primary entity charged with training those people seeking to gain an original license, or renew an existing license. Because of the way the Act is written, it places a legal obligation on UNL to provide pesticide applicator education, and a legal obligation on the pesticide applicator issued the license. The NDA is therefore considered a law enforcement agency, and we do take this role seriously.

In order to assure the public that pesticide applicators are competent to apply toxic chemicals, the NDA works very hard at making sure there is a high degree of security in the testing sessions we conduct, that training sessions are of a consistent high quality, and that any application for a license be signed by the license applicant and either an NDA or UNL employee that was physically present during the training or testing event. We do this because the Act specifically states that it is a violation of the law if someone attempts to circumvent this system to obtain a license for which they did not satisfy the training or testing criteria.

Because of our legal duty to administer the Act, and the authority it grants to us to penalize violations, the NDA has certain policies in place for their employees, which we also expect to be carried out by UNL employees we cooperate with to conduct training or testing sessions. We use standardized forms that are scanned by high speed optic-read equipment. These forms only work when filled out in pencil (NOT ink!). They are encoded with timing marks that are critical to the success of the batch scanning system, therefore, crumpled, folded or creased forms are very difficult to feed through the equipment.

We require each application for a license to be signed by either the NDA employee testing the applicant, or the UNL employee conducting the training. This is a requirement meant to reduce fraud and the likelihood of improperly issued licenses. The question of whether we will accept only original signatures or stamped signatures has come up, and it is the NDA policy that stamped signatures are acceptable <u>only if the NDA can be assured the individual of the signature was indeed the person witnessing or conducting the testing or training session.</u> This applies to take-home study manuals as well. It is extremely important for UNL employees to understand a personal signature is used to attest to the authenticity of the document. If the NDA discovers intentional irregularities in the tests, application forms or cover sheets, all applications from that training session are subject to question, and the NDA will investigate the situation before any licenses request are processed or licensees issued. The use of a rubber stamp signature for someone who was not present at the session is a

violation of the Act, and considered fraud. The NDA expects the actual UNL Extension employee who witnessed the training or study manual be the one who signs the application for the license.

Finally, it is the policy of the NDA to require all communication devices such as cell phones and computers to be turned off during testing or training. This policy is meant to reduce or eliminate cheating on exams, but is also meant to reduce distractions during training. The NDA has authorized staff to confiscate any device or materials they feel are being used for cheating or distraction during testing or training. We would ask you to help support that policy by doing the same if you feel it is interfering with your training session.

If you would like to discuss this reminder memorandum further, please contact me or Kay Kromm at (402) 471-2351.

Reciprocal Certification *into* and *from* Nebraska *http://www.agr.ne.gov/pesticide/reciprocal.html*

Private Certification

Iowa, South Dakota, Wyoming, Kansas, Colorado, and Missouri (all states bordering Nebraska) have reciprocal agreements with Nebraska; contact the NE Dept. of Agriculture at 402-471-2351 or 877-800-4080 for details.

Commercial/Noncommercial Certification

Colorado, Indiana, Iowa, Kansas, Minnesota, Mississippi, Missouri, Montana, North Dakota, Oklahoma, South Dakota, Texas, Washington, and Wyoming have reciprocal agreements with Nebraska; contact the NE Dept. of Agriculture at 402-471-2351 or 877-800-4080 for details.

Individuals requesting a reciprocal license in Nebraska must submit an NDA Commercial/Noncommercial Application Form (form is located at <u>www.agr.ne.gov/forms/p57.pdf</u>), a photocopy of their license card from their state of origin to the NE Dept. of Agriculture, and the corresponding licensing fee.

Applicators who have only a reciprocal license in Nebraska may not add a category to that reciprocal license by testing in Nebraska. Comparison of Nebraska categories to other states can be found at <u>www.agr.ne.gov/pesticide/reciprocal.pdf</u>. They must either add the appropriate corresponding category in their state of origin and then apply for an updated reciprocal in Nebraska or pass both the Nebraska General Standards and category(ies) exams for a Nebraska pesticide license.

Applicators holding a reciprocal license in Nebraska based upon a license from another state may not recertify that reciprocal license via a Nebraska recertification program. They must recertify in their state of origin and then re-apply to NDA to update their reciprocal license.

To buy a Restricted Use Pesticide, an applicator must hold a valid license from any state. For Commercial/Noncommercial applicators, the license must be in the appropriate category. **To apply a Restricted Use Pesticide**, an applicator must hold a valid license for the state (or a valid reciprocal license) where the application will be made. For Commercial/Noncommercial applicators, the license must be in the appropriate category.

Procedure to Replace a Lost Certification Card

An applicator can request a duplicate card by calling NDA at 402-471-2351 or 877-800-4080, or by submitting a certification application form to NDA. If submitting an application form, use the following procedure:

Private applicator completes NDA private applicator certification form

► For "Reason for Application," select "Lost/Replacement."

Commercial and Noncommercial applicator completes NDA commercial applicator certification form

- For "Reason for Application," select "Replacement of Card."
- No fee is involved.
- Extension Educator does not sign (since no training took place).
- Applicator submits original of application form to NDA.
- Extension Educator provides the applicator with the second copy or make a photocopy of the application form for his/her records.

DVD Viewing Outside the Normal Training Schedule

If arrangements are made with an applicator to view the commercial/noncommercial PSEP DVDs at a time other than the normal training schedule, the UNL Extension program fees still apply. Collect the fees as outlined previously.

Before conducting any unscheduled Commercial/Noncommercial training, please provide advance notice to Tim Creger at the NDA (402-471-2351) or (877-800-4080).

NDA Recertification Policy

"Unless a person was out of state, in the hospital, had a family emergency, or has some other legitimate reason for not attending the provided training, then that person will need to submit to examination. As the agency that issues the applicator licenses, NDA requests that UNL Extension Educators route inquiries related to this policy through an NDA representative, rather than each county setting its own policies." — Source: Buzz Vance, NDA, January 18, 2001.

PSEP DVD Policy

DVDs are not available for loan to applicators. You are welcome to lend UNL Extension PSEP audio/visual programs to teachers for use for classroom discussion purposes only. Certification of individuals in classrooms can occur only if UNL Extension personnel conduct the educational session. Youth are not targeted clientele for Pesticide Safety Education Programs leading toward licensing. State law requires that a person be at least 16 years of age to become a licensed pesticide applicator.

PSEP Private Applicator Training Policy

Private pesticide applicator training is conducted only by UNL Extension personnel, not individuals from other organizations acting on our behalf.

Weather Policy

Canceling a training date due to weather is an Educator's decision. If training will be canceled, it will be the responsibility of the Educator to report the closing to local radio and TV stations to broadcast. The PSEP Web site directs applicators to listen to local radio and TV stations and/or call county Extension office for closing information.

Appendix A

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2015 Private Pesticide Safety Education Training

Extension Educator Curriculum

Developed by

University of Nebraska – Lincoln

Pesticide Safety Education Program

Contents:

Nebraska Department of Agriculture (NDA) Checklist	42
Curriculum Table	44
Example Lesson Plan	47
Activity Options: Video Segments	48
Activities	53

The **NDA Checklist** shows what must be covered according to state law. Use this as you plan your certification training. The PowerPoint for each section serves as the framework that includes each of the checklist items. Feel free to reorganize: we followed the order of the NDA checklist for simplicity. You may feel more comfortable delivering the topics in a different order.

The **Curriculum Table** lists options for completing the NDA requirements. Mix and match the PowerPoint, clicker questions, videos segments, and activities into a lesson plan that addresses all of the checklist items. Consider the preferred learning styles of your audience (verbal, visual, and physical) as you develop your program. If you do not have time or do not wish to emphasize a topic, refer to a NebGuide or Extension Circular and point out that the information is located in the blue Reference Guide or *Guide to Weed Management in Nebraska*. You might even encourage participants to look at the publication by asking a question and having them find the answer, or locate the section that holds the answer.

The **Example Lesson Plan** provides a *sample* combination of PowerPoints, videos, and activities you could use to meet the checklist requirements.

The **Activity Options: Video Segments** lists all of the optional video segments that can be used in Private Pesticide Applicator training. It includes video titles, run-times, and synopses to help you organize your programs.

The **Activities** section provides instructions for how to conduct activities that are listed in the **Curriculum Table.** You may use these in conjunction with the PowerPoint modules, clicker questions, and video segments to complete the NDA requirements.

Checklist: Pesticide Applicator Training Topics for Private Pesticide Applicator Training (PAT)

1. Laws & Regulations

- □ Mention state and/or federal laws
- □ Requirements of certification
- □ Recordkeeping requirements
- □ Changes during recertification period

2. Label Information/Comprehension

- General format and terminology of labels
- Warnings
- □ Terms
- Names
- □ Symbols
- □ General Use classifications
- □ Restricted Use classifications
- □ The label as a legal document

3. Pesticide Safety

- Product-specific examples of personal risks
- Management techniques that reduce exposure
- □ Acute vs. chronic toxicity
- $\hfill\square$ Common routes of exposure
- Precautions
- □ Hazard = Toxicity X Exposure
- D PPE
- □ Common types of pesticide accidents
- □ Common causes of pesticide accidents
- Recognition of acute toxicity symptoms
- □ Emergency response
- □ Cleaning of equipment
- Disposal of rinsates
- □ Cleaning of containers
- □ Disposal of containers

4. Worker Protection Standards (WPS)

- WPS posting
- □ WPS warnings

2015 Extension Educator In-service

- □ WPS re-entry restrictions
- □ WPS worker training requirements
- □ WPS decontamination sites
- □ WPS water amounts
- WPS soap
- □ WPS towels
- □ WPS required emergency assistance

5. Environmental protection

- Product/AI -specific environmental risks
- □ Recognition of sensitive areas
- Recognition of fish, wildlife, and other non-target organisms, including children and pets
- □ Climatic factors contributing to drift
- □ Climatic factors contributing to run-off
- Management practices which address protection of surface water quality
- Management practices which address protection of groundwater quality

6. IPM

- □ Identification of common pests
- Identification of the damage common pests cause
- Pest development
- Pest biology
- Pest control options (cultural, mechanical, biological)
- □ Thresholds impacting pest control

7. Pesticides

- Pesticide types
- Pesticide formulations
- Pesticide adjuvants
- Synergism
- Pesticide persistence
- Resistance

Residues

- □ Hazards associated with use
- □ Factors influencing effectiveness
- □ Factors influencing resistance
- □ Selection of formulation
- □ Application technique

8. Equipment and Application

- □ Equipment characteristics
- □ Equipment advantages
- □ Equipment limitations
- □ Proper use of equipment
- Proper maintenance of equipment
- Application techniques for a given situation

- □ Proper application of product
- □ Proper placement of product
- Prevention of drift
- □ Prevention of loss to the environment

9. Calibration

- Dilution of concentrate according to label
- Calculation of area, volume, or amount to apply
- □ Adjustment of nozzle
- □ Adjustment of pressure
- □ Adjustment of speed

Curriculum Table - Continued

Module	PowerPoint Foundation	Activity Options
Laws & Regs	PowerPoint presentation: "Laws and Regulations"	PSEP Jeopardy
		Turning Point "clicker" questions
		Video segment: "Pesticide Laws and Regulations Parts 1 & 2"
		Video segment: "PeRK Recordkeeping App"
		Discussion: NDA Enforcement Summary
		Discussion: Compliance Issues for 2014
Label Information	PowerPoint presentation: "The Label"	Turning Point "clicker" questions
		Activity: Label Exercise
Pesticide Safety	PowerPoint presentation: "Pesticide Safety"	Turning Point "clicker" questions
		Activity: Dermal Exposure Chart
		Activity: Glove Exercise
		Activity: Fit Testing A Respirator Exercise
		PPE Display & Demonstration
		PowerPoint Presentation: Personal Protective Equipment (PPE)
		Demonstration: Proper Personal Hygiene (Glitterbug potion)
		Demonstration: Liquid Pesticide Container Rinsing
		Video segment: "What to Wear"
		Video segment: "Pesticide Respirator Use"
		Video segment: "Spill Survivor #1, 2, 3, and 4"
		Video segment: "Gloves for Pesticide Application"
		Video segment: "Private Greenhouse Safety"
		Video segment: "How to Rinse Caged Tanks for Recycling"
		Video segment: "10 Tips for Safe Pesticide Storage"
		Video segment: "Control, Contain, and Clean Up"
		Video segment: "Pesticide Disposal"
		Video segment: "Pesticide Storage"
		Video segment: "Pesticide Spill Management"
		Video segment: "Handling Pesticide Resistant Gloves"
		Video segment: "Personal Protective Equipment for Pesticide Applicators"
		Video segment: "Spill Kit Addition" (IA state)
WPS	PowerPoint presentation:	PSEP Jeopardy
	Worker Protection Standards in Agriculture	Turning Point "clicker" questions
		Video segment: "Worker Protection Standard in Greenhouses"
		Video segment: "Worker Protection Standard Notification Nursery"
		Video segment: "Worker Protection Standard Notification Ag"
		Video segment: "Worker Protection Standard in Agriculture"
Environmental Protection	PowerPoint presentation: "Environmental Protection"	PSEP Jeopardy
		Turning Point "clicker" questions
		PowerPoint presentation: "Measuring Wind Direction with a Compass"
		PowerPoint presentation: "Water Quality and Pesticides"
		PowerPoint presentation: "Nozzle Selection for Droplet Size"
		Activity: Spray Drift Prevention
		Activity: Water Quality and Pesticides
		Activity: Driftwatch
		Video segment: "10 Tips for Safe Pesticide Storage"

Curriculum Table - Continued

		Video segment: "Spill Survivor #4: Environment"
		Video segment: "Bulletins Live"
		Video segment: "How to Survey for Prairie Dogs Using the Line Transect Method"
		Video segment: "Sensitive Sites: Bees and Pollinators"
		Video segment: "Sensitive Sites: Vinevards"
		Video segment: "How to Use Driftwatch, a National Specialty Crop Site Registry"
		Video segment: "Herbicide Drift"
IPM	PowerPoint presentation: "Integrated Pest Management"	Turning Point "clicker" questions
		PowerPoint Activity: "Name that Pest"
		Video segment: "Integrated Management of Eastern Redcedar"
		Video segment: "Soybean Cyst Nematode"
		Video segment: "Sovbean Aphid and Bean Leaf Beetle"
		Video segment: "Bird Control in Feedlots"
		Video segment: "Glyphosate Stewardship"
		Video segment: "Burrow Builders (for controlling pocket gophers)"
		Video segment: "Pocket Gopher Control"
		Video segment: "Prairie Dog Management"
Pesticides	PowerPoint presentation: "Pesticides"	PSEP Jeopardy
		Turning Point "clicker" questions
		Demonstration: Pesticide Compatibility (Jar Test)
		PowerPoint presentation: "Pesticide Compatibility for the Applicator"
		Video segment: "Glyphosate Stewardship"
Equipment and Application	PowerPoint presentation: "Application Equipment"	PSEP Jeopardy
		Turning Point "clicker" questions
		PowerPoint presentation: "Nozzle Selection for Droplet Size"
		Video segment: "Burrow Builders (for controlling pocket gophers)"
		Video segment: "Particle Drift Research"
		Video segment: "Step potential"
		Video segment: "How to Clean a Backpack Sprayer"
		Video segment: "How to Clean a Large Field Sprayer"
Calibration	PowerPoint presentation: "Calibration"	PSEP Jeopardy
		Turning Point "clicker" questions
		Sample Problems
		Demonstration: Ounce Calibration Method
		Demonstration: Measuring Pesticides
		Activity or Demonstration: SpotOn Sprayer Calibrator
		Video segment: "How to Calibrate a Backpack Sprayer"
		Video segment: "How to Calibrate an ATV/Boom Sprayer"
		Video segment: "Sprayer Calibration and Nozzle Selection"
		PowerPoint presentation: "Are Your Pesticides Measuring Up?"

Private Pesticide Application Training - Example Lesson Plan

- 1. Laws and Regulations
 - a. PowerPoint
 - b. Clicker questions
- 2. Labels
 - a. Label exercise + discussion
- 3. Pesticide Safety
 - a. PowerPoint
 - b. Dermal Exposure Chart Activity
 - c. Video Segment: "What to Wear"
- 4. Worker Protection Standard
 - a. PowerPoint
 - b. Clicker questions
 - c. Video Segment: "Worker Protection Standard Notification AG"
- 5. Environmental Protection
 - a. PowerPoint
 - b. Clicker questions
 - c. Video Segment: "Spill Survivor #4: Environment"
- 6. Integrated Pest Management
 - a. PowerPoint
 - b. Clicker questions
 - c. "Name that Pest" PowerPoint Activity
- 7. Pesticides
 - a. PowerPoint
 - b. Clicker questions
 - c. Demonstration: Pesticide Compatibility (Jar Test)
 - d. Video Segments: "Spill Survivor 1-3"
- 8. Equipment and Application
 - a. PowerPoint
 - b. Clicker questions
 - c. Demonstration: Nozzle kit
- 9. Calibration
 - a. Video Segments: "How to Calibrate a Backpack Sprayer," "How to Calibrate an ATV Sprayer"
 - b. Demonstration: Measuring Pesticides
- 10. Evaluation
- 11. Applicators complete bar-coded letter or bubble sheet to submit to NDA

Lesson Plan Activity Options: Video Segments

Laws and Regulations

• PeRK Recordkeeping App (3:08)

Pesticide applicators are required under state law to keep records of their pesticide applications for 3 years. In 2013, UNL developed an online recordkeeping app for Apple and Android phones and tablets to help simplify the process. This video introduces the app and how to use it.

- *Pesticide Laws and Regulations* Parts 1 and 2 (may be divided further into smaller segments) This dramatization video covers pesticide laws and regulations, including NDA Inspections.
 - o Part 1 (14:53)

This video covers laws such as FIFRA, use inspections in lawn care and aquatic settings, and inspections for proper mixing and loading, rinsing, storage, and disposal.

• Part 2 (15:00)

This video covers topics such as compliance inspections, dealer and applicator records inspections, recordkeeping requirements, fumigation management plans, container rules, and certification and licensing.

Pesticide Safety

- 10 Tips for Safe Pesticide Storage (4:55) This video covers 10 tips for homeowners about safely storing pesticides.
- *Control, Contain, and Clean Up* (3:38) NEW This video explains the 3 C's of spill management: control, contain, and clean up.
- *Gloves for Pesticide Application* (7:52) This video demonstrates the types of gloves that can be used when handling and applying pesticides.
- *How to Handle Chemical Resistant Gloves* (TBD) NEW This video explains how to properly clean, remove, store, and maintain disposable and reusable gloves after applying pesticides.
- Personal Protective Equipment for Applicators (5:10) REVISED VERSION
 This video discusses the basic personal protective equipment needed for safe pesticide handling.
- *Pesticide Disposal* (2:55) NEW This video discusses how to properly dispose of pesticides and pesticide containers.
- *Pesticide Respirator Use* (6:31) This "how-to" video demonstrates proper seal testing of a half-face cartridge respirator.
- *Pesticide Spill Management* (7:48) NEW This video discusses the use of a spill kit and personal protective equipment when dealing with a pesticide spill.
- *Pesticide Storage* (2:37) NEW This video talks about the proper storage of pesticides.
- Private Greenhouse Safety (7:39)

A greenhouse owner discusses what crops he grows in his greenhouse and the safety measures he follows when applying pesticides.

• Spill Survivor 1-4

This series addresses how to prevent pesticide spills or take action if one occurs.

o Prevention (1:36)

This segment explains how to prevent pesticide or other chemical spills.

o 3 C's (3:04)

This segment reviews the 3 C's of pesticide spills: control, contain, and cleanup.

• Safety (2:34)

This segment examines how to keep yourself safe using personal protective equipment during a spill cleanup.

o Environment (1:16)

This segment looks at potential environmental problems in the event of a pesticide spill and why cleanup and restoration is essential.

• What to Wear (9:56)

This parody of the reality show "What Not to Wear" demonstrates the proper personal protective equipment to wear when applying pesticides.

• How to Rinse Caged Tanks for Recycling (4:45)

This video explains how to rinse caged tanks in preparation for recycling, including suggested/required PPE, equipment for thorough rinsing, and reuse of rinsate. Filmed at a Nebraska farm, this video is available to PSEP through courtesy of The Pesticide Stewardship Alliance (TPSA).

• Spill Kit Addition (2:46) NEW Kristine Schaefer, Iowa State Extension, discusses some spill kit additions to consider, including unscented clumping or scooping kitty litter for emergency repair of leaks in pesticide drums.

WPS

- Worker Protection Standard in Agriculture (10:41) This "newscast" dramatization video features a visit to a local producer, who outlines how he follows the Worker Protection Standard in his business.
- Worker Protection Standard in Greenhouses (14:38) This "newscast" dramatization video features a visit to a greenhouse owner, who outlines how he follows the Worker Protection Standard in his business.
- Worker Protection Standard Notification Ag (3:29) Communication between agricultural producers and the custom applicator is essential. This dramatization segment outlines the notification requirements under the Worker Protection Standard.
- Worker Protection Standard in Notification Nursery (3:30)
 Communication between nursery operators and the custom applicator is essential. This dramatization segment outlines the notification requirements under the Worker Protection Standard.

Environmental Protection

- *10 Tips for Safe Pesticide Storage* (4:55) This video covers 10 tips for homeowners about safely storing pesticides.
- Bulletins Live (4:33)

EPA's *Bulletin's Live* is an online database where pesticide applicators can access county bulletins for the protection of endangered species. This video provides a walkthrough for using this site.

- How to Survey for Prairie Dogs Using the Line Transect Method (7:53) This video will demonstrate the transect method for checking prairie dog towns for carcasses of poisoned animals after a pesticide application. This method helps reduce secondary poisoning of non-target species that may feed on carcasses.
- How to Use Driftwatch, a National Specialty Crop Site Registry (3:09)
 This video will introduce Driftwatch, a website where producers and beekeepers who have specialty crops (such as vineyards or apiaries) can register their sensitive sites. Pesticide applicators can search the database before application so they can avoid sensitive sites and reduce the risk of pesticide drift to those sites.
- Reducing Risk of Herbicide Injury (6:09)
 Herbicide drift can damage and even kill nontarget plants. Tomatoes, grapes, and redbuds are extremely sensitive to 2,4-D and Dicamba, herbicides that fall into the category of plant growth regulators. This video covers how to reduce the risk of herbicide drift, what those with sensitive plants/crops can do to reduce the chance of getting injury, and the Driftwatch website.
- Sensitive Sites: Bees and Pollinators (6:52)
 A beekeeper discusses bees, stressors that can affect the health of bee colonies, and how to protect bees and other pollinators from pesticide poisoning.
- Sensitive Sites: Vineyards (5:44) This video discusses the grape industry, how drift can affect vineyards, how to reduce the potential for drift, and how to learn if sensitive sites are near an application area, such as checking Driftwatch before applying pesticides.
- *Spill Survivor: Environment* (1:16) This segment looks at potential environmental problems in the event of a pesticide spill and how cleanup and restoration is essential.

IPM

- *Bird Control in Feedlots* (10:05) This video discusses controlling pigeons, starlings, and sparrows in feedlots using methods such as habitat modification, short-term techniques (effigies, hazing, noise makers), trapping (netting, cages, etc.) and lethal control techniques (shooting, toxicants).
- Burrow Builders (9:30)

This video segment discusses mechanical control of pocket gophers using a burrow builder. Burrow builder devices are pulled behind a tractor and create tunnels where toxicant is placed in intervals for pocket gophers to find.

• *Glyphosate Stewardship* (9:21)

Glyphosate (the active ingredient in Round-up) herbicide is used extensively in agronomic crops to control weeds, which could lead to resistance. This video covers how to prevent weed resistance and maintain glyphosate effectiveness by using several additional or alternative management tools, such as scouting and identification, crop rotation, tillage, herbicide rotation, herbicide combinations, and threshold-based management.

- Integrated Management of Red Cedar (13:01) This video discusses how to control Eastern redcedar (*Juniperus virginiana*) in pastures, including cutting, burning, biological, and chemical controls.
- Pocket Gopher Control (10:51)
 This video examines how to identify a pocket gopher mound and how to control pocket gophers by using a variety of methods.
- *Prairie Dog Management* (12:20) This video covers how to control prairie dogs through a variety of methods.
- Soybean Aphid and Bean Leaf Beetle (9:56) This video examines issues relating to management of the soybean aphid and bean leaf beetle, including insecticidal seed treatments, mid-season tank mixes, and pesticide resistance.
- Soybean Cyst Nematode (10:14) This video discusses the soybean cyst nematode, currently the biggest pest affecting soybean production. Topics include nematode lifecycle, factors that influence population numbers, inspecting for nematodes, and management.

Pesticides

• Glyphosate Stewardship (9:21)

Glyphosate (the active ingredient in Round-up) herbicide is used extensively in agronomic crops to control weeds, which could lead to resistance. This video will cover how to prevent weed resistance and maintain glyphosate effectiveness by using several additional or alternative management tools, such as scouting and identification, crop rotation, tillage, herbicide rotation, herbicide combinations, and threshold-based management.

Equipment and Application

- Burrow Builders (9:30)
 This video segment discusses mechanical control of pocket gophers using a burrow builder. A burrow builder device is pulled behind a tractor and creates a tunnel where the toxicant is placed at intervals for pocket gophers to find.
- *How to Clean a Backpack Sprayer* (TBD) NEW This video demonstrates the proper way to clean a backpack sprayer after applying pesticides.
- How to Clean a Large Field Sprayer (TBD) NEW

This video demonstrates the proper way to clean a field sprayer after applying pesticides.

• *Particle Drift Research* (9:38) This video reviews different spray nozzles tested in the lab, their droplet/particle sizes and application uses, and which best minimize drift.

Step Potential (1:50) NEW
 If a spray rig hits a power line, the area around the vehicle can become electrified. The driver should stay within the vehicle and call 911 or the power company for help. Anyone in the area is at risk of electrocution if they approach the site of the accident. This is called "step potential." This video from Northeast Utilities demonstrates how to safely avoid step potential.

Calibration

•

- How to Calibrate an ATV/Boom Sprayer (4:30)
 This video segment demonstrates how to calibrate ATV/Boom sprayers for use in pesticide applications.
- *How to Calibrate a Backpack Sprayer* (4:27) This video segment demonstrates how to calibrate a backpack sprayer in preparation for applying pesticides.
- Sprayer Calibration and Nozzle Selection (14:56)

Lesson Plan Activities

The following lesson plan activities address checklist items. You may use these in conjunction with the PowerPoint modules, clicker questions, and video segments to complete the NDA requirements.

Consider different learning styles as you develop your program. Three of the most common include:

- Visual (spatial): Pictures and images
- Verbal (linguistic): Speech and writing
- Physical (kinesthetic): Hands-on, tactile

The type and size of your audience and your personal teaching strengths also contribute to how you plan your training program. For example, you may feel you teach best by using a PowerPoint while another Educator likes the hands-on approach. Or if you have a small group you may be able to provide hands-on where a larger group may require another method.

The activities listed below fall into a variety of learning styles. Mix and match for a well-rounded and fun program!

Laws and Regulations - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Laws and Regulations - Activity: PSEP Jeopardy Game

Use the PowerPoint PSEP Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a question from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly, such as the being first to visit the refreshment table at break!

Laws and Regulations - Discussion: NDA Enforcement Summary

The following data reflects the NDA's enforcement activities. These real-life examples can break up the training and offer important examples in how NDA handled problem situations. Use this information to emphasize the importance of following the regulations for using pesticides and the action that NDA can take when violations occur. Possible activities include the following:

- List a few categories on a PowerPoint slide, white board, or easel. Ask participants which category they think had the highest number of violations; review the requirements applicators should follow for the selected categories.
- Use the case situations to provide real examples and opportunity for discussion.

Data in the two tables below will not appear to match up with the data presented in the narrative that follows the tables. This is due to a more detailed analysis required for the data in the second table.

NDA Pesticide Inspection Summary for federal fiscal year 2014						
Inspection Type and Abbreviation		Total Inspections Accomplished				
Certified Applicator Inspections (commercial/non-c	ommercial) CAR	98				
Certified Applicator Inspections (private)	CAR	0				
RUP Dealer Record Inspections	DLR	102				
Marketplace Inspections	MKT	115				
Producing Establishment Inspections	PEI	8				
Agricultural Complaint Investigations	UAF	45				
Agricultural Use Observations	UAG	37				
Non-Agricultural Complaint Investigations	UNF	22				
Non-Agricultural Use Observations	UNG	24				
Import / Export Inspections	IMP/EXP	1				
Experimental Use Permits	EUP	0				
WPS Field Inspections ¹	WPS	17				
Total as of (date)		469				

WPS inspections are counted as ag use observations; therefore, they are not counted a second time for this entry.

NDA Pesticide Inspection Summary for FY2014						
Inspection Type	Number of Inspections	Number Violations Found	Violations Found (See abbreviations below)			
Certified Applicator Inspections (C/NC/P)	98	18	(REC-15, UIL-1, UNL-2,)			
RUP Dealer Record Inspections	102	14	(REC-7, RUV-1, UNL-1, UPF-1, UPS-4)			
Marketplace Inspections	115	8	(UNL-2, UPS-6)			
Agricultural Complaint Investigations	45	13	(DFT-10, DIS-1, REC-1, UIL-1)			
Non-Agricultural Complaint Investigations	22	6	(DFT-1, PPE-1, UIL-3, UNL-1)			
Agricultural Use Observations	22	12	(ADV-1, MSB-1, PPE-2, REC-2, UIL-1, WIE- 1, WHV-1, WPE-2, WSP-1)			
Non-Agricultural Use Observations	24	11	(PPE-2, UIL-5, UNL-4)			
Experimental Use Permits	0	0				
Import / Export Inspections	1	0				
Producing Establishment Inspection	8	1	All referred to EPA for case review (1)			
Total inspections accounted for above: 469						
Total violations found for inspections above: 83 = 17.7% violation rate						

Violation Codes:

ADV = Advertising (typically advertising a RUP without saying it is a RUP) DFT = Drift

DIS = Disposal

MSB = Misbranded Label (incorrect numbers, statements, etc.) PPE = Personal Protective Equipment

REC = Record Keeping

RUV = Restricted Use Violation (sale to or use by uncertified applicator)

UIL = Use Inconsistent with Label UNL = Unlicensed UPF = Unregistered Product Federal UPS = Unregistered Product State WIE = Worker Information Exchange WHV = WPS Handler Violation WPE = WPS PPE for Handlers WSP = Worker Safety Poster

Types of enforcement actions taken for type of violations committed						
Type of Violation	Enforcemer	Enforcement Actions Taken				
ADV			1 EPA			
DFT	8 WL	1 AOP		2 OEC		
DIS	1 WL					
EPA			1 EPA			
MSB			1 EPA			
PPE	1 WL			3 OEC		
REC	5 WL			20 OEC		
RUV				1 OEC		
UIL	4 WL	2 AOP		5 OEC		
UNL	2 WL			8 OEC		
UPF	1 WL					
UPS					10 SSURO	
WIE	1 WL					
WHV	1 WL					
WPE	2 WL					
WSP				1 OEC		

Enforcement Action Codes:

AOP = Administration Order with Penalty

EPA = Referred to EPA for enforcement case review OEA = Other Enforcement Action (i.e. record keeping letters, advisory letters, and notices of certification violation)

SSURO = Stop Sale, Use or Removal Order

WL = Warning Letter

Compliance issues for federal fiscal year 2014:

FY 2014 saw fewer complaints and routine inspections due to a couple of factors; the weather was less windy in early summer and wetter in mid- and late summer which resulted in fewer complaints, while the transition to a paperless inspection format slowed down the number of routine inspections completed. Overall percentage of violations was similar to previous years, with few repeat offenders, resulting in a higher number of advisory and warning letters than penalty actions. Two trends are starting to develop that are in NDA's watch list going forward; an increasing number of uncertified applicators and an increase in the number of violations involving improper waste pesticide disposal.

Regarding the number of uncertified applicators, NDA typically finds these individuals during routine unannounced inspections of lawn care applications and investigation of complaints. Due to the seasonal nature of commercial lawn care, and the statutory requirement that commercial lawn care applicators must be certified for all pesticides applied, it is expected this would be the segment of the industry with the highest potential for non-compliance. One case in particular resulted in the discovery of seven uncertified commercial applicators. The case involved an out-of-state firm contracting with pest control applicators to travel to Omaha and make structural pest control applications at franchise restaurants. Seven of 11 applicators documented by NDA were found to either be without a reciprocal license, or any commercial applicator license at all. All applicators were issued warning letters, and the company responsible for bringing them into the state is currently being reviewed for financial penalty action.

Regarding the uptick in the number of improper disposal cases, NDA has found most of these cases are being found at established companies that have loadout pads and secondary containment structures in place, but chose to dump the collected rinsates or overflow material rather than use it as make-up water or hold it for future use. All cases are still in enforcement case review, but two cases are of particular concern due to both sites being owned by the same company, but under shared management. The parent company claims they require all branch locations to follow regulations regarding waste disposal, but when branch managers and employees were interviewed, the statements found that there was no oversight by owners, and local management claimed wastes were routinely dumped over a period of many years, not just once or twice. These cases are not only being considered for NDA penalty action, but will also be referred to NDEQ for Clean Water Act violations for those involving surface water contamination, and solid/hazardous waste violations, for those with certain pesticide ingredients exceeding threshold concentrations for regulated disposal.

Looking Forward

For the period October 1, 2014 through September 30, 2015, NDA has agreed with EPA to expand their monitoring and reporting of pesticide drift incidents as part of a regional initiative to better understand the dynamics of label language as it affects drift violations. This is a three-year effort, and will dovetail nicely with a special study NDA is conducting in 2015 and 2016 that will study air temperature inversions in a vineyard in an effort to determine if that is a cause of the herbicide damage seen in eastern Nebraska vineyards. NDA intends to collaborate closely with Dr. Greg Kruger of the UNL West Central Nebraska Research and Extension Center, who has developed a leading research program for pesticide drift.

Finally, it would be my recommendation that UNL not deviate much from the essential elements of traditional applicator education. The fundamentals of pesticide risk and safety continue to be the most important areas to train applicators, since they include protection of human and environmental health. The situations with sensitive sites has always been a part of our education and regulatory program, and I personally feel that as long as UNL and NDA continues to cover the basics, with reference to examples of current day situations, the training will have the desired impact on applicators and result in an expected level of compliance.

Significant Cases

a. Termiticide Pretreatments

The NDA responded to a number of citizen complaints from one specific housing development that was between 4 and 5 years old. As many as 30 of the 51 homes in the development had experienced some degree of termite infestation, and the homeowners believed they purchased homes that were not pretreated as their builder had promised. NDA's investigation determined that the pre-construction termiticide treatments were not done correctly, and the substandard treatment resulted in virtually no protection from termite infestation. Had the treatment been done correctly, the homeowners should have experienced at least 5 years of control. In some of the homes in question, termites had infested over 50% of the structure, and were found in all areas of the homes, including attic areas. The NDA took enforcement action against the applicator for failure to follow termiticide label pretreatment directions for use.

b. Improper Application of Termiticides

Ever since EPA revised termiticide labels to require minimum standards of application, NDA has encountered applicators who misapply these products. Termiticides are intentionally formulated so that they will remain active in the soil a minimum of 5 years. EPA requires any conventional liquid termiticide to control 100% of the termites for 5 years before the product can be registered for use. Because of this highly residual effect, and the fact that poor application almost always results in reinfestation by the insects in less than 5 years, NDA has gone a step further in requiring the minimum application standards for all termiticide applications, not just limited for new construction.

There are a few fundamental principles all termiticide applicators need to understand to do any job correctly. <u>The primary rule:</u> conventional liquid termiticides must be applied in a manner that creates a continuous chemical barrier in the soil between the termites and the structure being treated. If applicators think on this level, and understand construction practices for building foundations, they will normally do the job right. Current minimum standards for termiticide applications are to first dig a trench in the soil around the entire exterior perimeter of the structure (usually 6 inches deep and 6 inches wide at the top of the trench). The liquid termiticide is then injected, or rodded, into the soil to the top of the foundation footer, or 4 feet deep, whichever is less. These injection points can be no more than 12 inches apart (current federal and state label requirements). The trench is then flooded and backfilled with the excavated soil so that it soaks up the chemical solution, thus leaving behind a soil profile that is completely treated along the foundation wall both vertically and laterally.

Next the applicator must turn his/her attention to the foundation wall and the interior of the structure. Depending on the structure, the foundation may be a hollow block wall that needs to be drilled and treated, the floor inside may need to be drilled and treated, and in the case of new construction, interior horizontal surfaces should be treated prior to the concrete being poured. Throughout all of this, applicators must adhere to the minimum treatment standards of injection holes being no greater than 12 inches apart and continuous chemical barriers being created between the termites and the structure.

c. Termite Bait Stations

While Nebraska has been and will likely remain known as an agricultural state, there are other pests that affect people outside of the farm. Termites have become one such pest that represents a significant problem, for both home owners and pest management professionals. Traditional liquid termiticides are still used, and the newer generation products are quite effective if applied correctly. Another termite control method developed uses the concept of installing monitoring stations around a structure, locating the points of activity of the termite colony, and strategically introducing insect growth regulators in the monitoring station that eventually eliminates the colony. Termite bait systems have proven effective in many locations and situations in the U.S. and Nebraska; however, proper installation and monitoring of the bait station is critical for effective control of the termite colony. Since both the termite bait and monitoring stations are registered with EPA as a pesticide system (with instructions on how to install and monitor the stations written on the pesticide label), the installation and monitoring of the stations must be done according to label instructions, and by a certified and licensed pesticide applicator. The NDA has encountered numerous situations in the last two years where termite bait stations have been monitored incorrectly or not at all after installation. While the NDA has chosen to issue warning letters for first time offenses, repeat offenses will result in financial penalties, since improper monitoring is considered a misuse of a registered pesticide.

d. Battling for Business

The NDA received a call from a farmer who said he had hired an aerial applicator to spray his wheat pre-harvest for weed control, which resulted in damage to a nearby alfalfa field. Upon investigation, the NDA found that the farmer had called three different aerial applicators to bid the job. After hiring one company to do the work, the pilot started the job. During a turn to return on the next pass the pilot spotted a second aerial applicator spraying the same field. Following standard policy, the first pilot returned to base and called the customer to report the incident. The farmer did not know who the second pilot was until he received a bill for the work, at which time he called the NDA and reported his alfalfa had been damaged by the application. NDA's investigation found at least 40 acres of alfalfa had been damaged, and the application was made during windy conditions.

e. Disposal Compliance Problems

All facilities that mix or load pesticides more than 100 gallons of pesticide solution at a time, or pull concentrated pesticides from containers of greater than 3 gallons, must do so over a correctly built and maintained loadout pad. NDA inspectors find that most facilities have done well to comply with this Nebraska Department of Environmental Quality (NDEQ) rule; however, there has always been some problem managing rinsate and leftover solutions. NDA investigations have seen a rise in the number of incorrectly disposed waste solutions, some of which have resulted in surface and groundwater pollution. Companies that rinse equipment and minibulk tanks over loadout pads and collect the resulting liquids are faced with a disposal problem. These solutions must either be used as make-up water in future applications (made to the correct site as listed on the label), or disposed correctly according to the label, which often only allows in-field use or licensed waste handling contractor. *To collect and dump or spray the collected solution on any site not listed on the label is a violation of disposal rules* and considered a serious offense to the NDA.

f. Watch That Root Zone!

The NDA receives lawn care complaints every year, ranging from drift to tank contamination issues. One common complaint is that a lawn care application for weed control resulted in damage to ornamentals or trees. There are a variety of reasons for a lawn care herbicide to damage trees: Volatility, drift, and overspray of root zones. A tree or bush's root zone can easily extend well past the "drip line" of the plant. Most leachable herbicides, such as 2,4-D and prodiamine, have very specific prohibitions on the label that tell the user to avoid application of the products within the drip line or over the root zone of trees and ornamentals. This is because the herbicides can be carried into the root zone by rainfall or irrigation, the tree or ornamentals can take up the chemicals by root absorption, and the trees or shrubs can be damaged, showing typical signs of leaf puckering, stem twisting, and discoloration of green tissue.

g. Worker Protection Violations

The NDA has noted that the lack of concern for regulatory compliance identified above often resulted in a breakdown of the established communications and notification between applicator and farmer, which is required by the Worker Protection Standard. NDA inspectors documented situations where work orders used by aerial applicators had no name, address or phone numbers for the farmers of the fields they were spraying. The work orders would be returned to the local dealer soon after application was done to be invoiced, but the dealer did not follow through on contacting the farmers to let them know the fields had been sprayed. In some incidents, the farmers themselves didn't even know what their fields had been sprayed with. This causes serious concern for the NDA, especially when considering that many of the insecticides and fungicides used during this period of time are some of the most toxic products used during the growing season.

h. Drift

Glyphosate accounts for nearly 75% of the pesticides involved in all drift cases, which is the case in Nebraska as a large percentage of glyphosate-resistant corn and soybeans are grown. While it is not uncommon to encounter wind-blown drift in nearly any type of spray application, it is very important for applicators to understand that drift management is possible and extremely important. Applicators can plan their spray applications at times of the day that carries drift away from sensitive plants, humans or animals. Simply contacting adjacent landowners frequently prevents misunderstanding and promotes cooperation for difficult applications. The NDA is especially concerned about spray drift near organic farming operations, where even trace amounts of chemical will cause the organic farm to lose its certification, leading to serious loss of income. Educator: photos are available at the Web site at pested.unl.edu/educators, fill out e-mail (pested@unl.edu)and password (40cfr171). Scroll down and click on the Flicker Photo Site, click on NDA Enforcement, The first two photos, RRcorn1 and RRcorn2. show glyphosate drift onto non-resistant corn. These two photos show an aerial view of a corn field planted to conventional corn where the planter had two boxes filled with left over RR corn. The majority of the field was damaged, the RR corn survived. The target site was in the background of RRcorn2, a wildlife sanctuary that was sprayed with glyphosate in order to control widespread noxious weeds. There are many other photo examples available.

i. Waste/Rinsate Disposal

NDA pesticide inspectors encounter incidents of commercial applicators intentionally disposing of leftover spray solution in locations that are prohibited by label directions. It is especially disturbing when this activity is observed within feet of a designated loadout pad built for the purpose of containing spills and rinsate. The NDA considers the intentional disposal of pesticides in a manner prohibited by State or Federal law to be a serious offense, and will typically levy maximum penalties against applicators and companies found in violation. Penalties for illegal disposal have ranged from \$2,500 to over \$10,000. Applicators need to control left-over spray solution by holding for future use on labeled sites, or disposal in a manner allowed by label directions. **Educator:** photos are available at the Web site at *pested.unl.edu/educators*, fill out e-mail (pested@unl.edu) and password (40cfr171). Scroll down and click on the Flicker Photo Site, click on NDA Enforcement. The third & fourth photos, Disposal1 and Montage, show disposal violations. It was an unexpected discovery by an inspector that was driving down the highway and spotted the applicator pulled up and spraying out the left over solution after the day's work was done. There are many other photo examples available.

j. Water Resource Protection

During routine pesticide application monitoring, the NDA witnessed several applicators directly applying row crop herbicides over wellheads and near surface water. Herbicides containing such active ingredients as atrazine and S-metolachlor are prohibited by Federal and State law from application within 50 feet of wellheads, and 66 feet of surface water. These "buffer zones" are required in order to protect surface and groundwater from pollution by pesticides. As the EPA continues to increase the level of monitoring for water pollution, more attention is made to applications that might impact Nebraska's water resources. Applicators who apply restricted pesticides over or near wells or surface water will find the NDA regards this activity as a serious offense, and intentional acts will result in financial penalties to both the applicator personally, and the applicator's employer. Since nearly 95% of drinking water in Nebraska comes from groundwater, and the surface water that flows through our state eventually winds up in drinking water systems downstream, applicators are protecting their own health by keeping this valuable resource free from pesticides. Educator: photos are available at the Web site at pested.unl.edu/educators, fill out e-mail (pested@unl.edu) and password (40cfr171). Scroll down and click on the Flicker Photo Site, and click on NDA Enforcement. The fifth, sixth, and seventh photos, Wellhead1, Wellhead2, and Wellhead3, show wellhead overspray. The Wellhead photos are selfevident, one shot of the wellhead in relationship to the target site corn field, one shot of the feeder pipe with overflow vent, one shot of both in relation to each other. The wellhead and vent pipe were both directly over sprayed with atrazine, acetochlor, and S-metalochlor. In the Runoff photos, the inspector was called by passing motorists to an urban road median application that was made on a rainy day. Three issues were present in this case: It was raining before and during the application, making the target site water saturated, the target median was not loose brick but poured concrete, making the calculated amount of application exceeded by 10 times (too much volume for the site), and the applicator was uncertified, untrained, and conducting his first-ever application without any other instruction than "go spray the median." There are many other photo examples available.

k. Unlicensed Applicators

The NDA continues to encounter pesticide applicators that should be certified/licensed, but are not. Here are the rules: 1) Anyone applying a restricted use pesticide (RUP) <u>must</u> be certified and licensed in the correct category for the work being done; 2) Anyone commercially applying structural or lawn care pesticides <u>must</u> be certified and licensed in those categories; 3) Anyone applying any pesticide for outdoor disease vectors (such as mosquito control) <u>must</u> be certified and licensed in the correct category. NDA pesticide inspectors encountering an uncertified applicator will first determine if that person has applied for their once-in-a-lifetime 60-day exemption from certification. If that person has not applied for this exemption, he is immediately issued a Notice of Certification Violation, which is a binding enforcement action. This Notice stipulates the applicator must cease all pesticide applications immediately or face a \$2,500 penalty. Failure to apply for the 60-day exemption results in a permanent loss of that opportunity, and the only way the person can then legally apply pesticides is if they successfully pass the examinations and obtain the license.

I. Diversion of Treated Corn Seed for Cattle Feeding

An NDA Feed and Fertilizer Program inspector was alerted to the possible use of treated seed corn in cattle feed. An investigation found that a trucking company hired to haul waste seed corn had instead diverted numerous truckloads to cattle feedlots for livestock feed. Seed that has been treated with pesticides is not allowed to be used for this purpose, and the proper disposal method is either deep

burial (landfill) or incineration (not burn pile, but chamber incineration). The NDA issued an enforcement action and collected over \$15,000 in penalties for this violation.

m. Disputed Property Lines

Application of herbicides at or near fence lines that were subsequently questioned resulted in potential violations that eventually were non-issues. In one particular case, a private applicator applied a spring burndown application to alfalfa in preparation to plant corn. The elderly lady living next to the field complained the farmer drifted the chemical onto her property. The NDA inspector visited the site, observed two survey nails, and collected vegetation samples on the complainant's property in order to substantiate the claim. Upon interviewing the farmer, it was learned that there was a dispute regarding the property line. The inspector returned to the site and found that not only had the private survey nails been moved by the complainant, but she had also dug out and moved a State right-of-way concrete marker in her effort to "claim" property that was not hers. The samples collected by the inspector were actually taken from the farmer's property, therefore making the residues found technically on the target site, and no violation of the label existed.

n. Birds

Nuisance bird populations are an ever-increasing problem for cities and food processing plants, such as ethanol/corn syrup plants. The NDA has been involved situations that looked into bird control practices. These situations are very delicate in nature, due to the public's concern about killing birds, and the potential for unintended impacts on protected bird species. Any bird species that migrates with the change in seasons is protected by Federal laws. Killing protected birds with pesticides is therefore not just a violation of pesticide laws, but also a violation of Federal law, which is enforced by the U.S. Fish and Wildlife Service, and punishable by much stiffer fines and possible jail time. Fortunately, the cases the NDA investigated found the applicators were following the label, taking every reasonable measure to use IPM in their control practices, and following Federal guidelines on monitoring, trapping, and disposal in order to prevent impacts on protected species.

o. Mosquito Control

At the request of EPA, the NDA initiated monitoring of mosquito control applications in residential sites. While many of the larval treatments were applied correctly, it was determined that a number of smaller towns were allowing adulticide treatments to be made at inappropriate times and in ways that created overexposure to humans and the environment. It should be noted that most mosquito control labels fall far short of providing adequate directions for use of the product so that applicators can do the job correctly. The NDA and EPA have taken steps nationally to improve mosquito control product labels, and in the next year or two applicators will start to see expanded labels that address when to apply the products (timing), how to apply them (swath wide and overlap), and how to incorporate IPM into control programs (such as water dipping to count insect populations and determine if control is even needed, thus avoiding the common practice of prophylactic applications).

p. Odor Complaints

Every year the NDA receives a few odor complaints. NDA believes that the odor of a pesticide application will linger much longer when it is calm, thus creating the potential for more concern by the public. There is a certain percentage of the population that, for various reasons, possesses a heightened fear of pesticides. This group also often feels that smelling the odor of a pesticide application represents exposure to the chemical. In reality, the odor of the chemical does not always mean exposure to the active ingredient, but could mean the volatile "other" ingredients in the solution are what is being smelled and associated with exposure. Examples of when an odor is the actual active ingredient would be 2,4-D, dicamba, sodium hypochlorite (in many disinfectants), and the organophosphate insecticides such as malathion and diazinon. The important thing to take into consideration is whether these odors represent actual health concerns from exposure. Applicators need to read those

labels and not only protect themselves from exposure, but take into consideration what possible exposure the public and environment might experience after the application.

q. Sale of Restricted Use Pesticides Without a Dealer License

By way of routine marketplace inspections, the NDA determined that a previously uninspected facility that was not typically associated with the pesticide industry had been selling restricted use pesticides to other unlicensed dealers for a number of years. Follow-up inspections at the other facilities found that the products were being sold as part of an equipment lease program that partnered the restricted pesticide with the lease of the application equipment. At least three enforcement actions are in process, for penalties in excess of \$25,000.

r. Intentional Application to Un-owned Property

An urban property owner didn't like the weed problems on the vacant lot next door to his well-kept yard. Taking matters into his own hands, the property owner talked a good friend into spraying the property for weed control as a favor to him. Unfortunately, the applicator, who was not commercially certified or well trained, applied the herbicide on a very windy day, causing drift to carry onto three adjacent properties, resulting in damage on all three. The NDA found both the applicator and the initial property owner in violation of the Nebraska Pesticide Act for 1) use of a pesticide that caused damage to non-target plants, and 2) causing a pesticide to be used on property without the property owner's permission (chemical trespass).

s. Counterfeit Pesticides

Nationwide, states and consumers are finding more and more illegally imported, counterfeit animal care products. Of primary concern are counterfeit flea and tick control products mimicking *Frontline* and *Advantage* single dose pet treatments. Unscrupulous counterfeiters are repackaging both products into mislabeled counterfeit containers and selling them over the internet to unsuspecting customers. In some cases, large wholesale veterinarian's have been duped into selling this product as the genuine article, when in fact, close examination of the contents and labeling of the counterfeit products have found the real product repackaged so that the customer applies two or three times the proper dosage, endangering the animal's health, or unknown product being packaged and sold in very realistic containers.

Three significant cases of counterfeit products have been found in Nebraska. One involved an overdosing of a small dog that caused immediate and serious health problems for the animal. The NDA suspects doses for large animals were repackaged into small animal containers, causing the pet owner to overdose the animal without realizing it. The second case involved a pet groomer who was buying "bulk" quantities of counterfeit product and selling single dose amounts through their pet grooming business. Once inspectors from both Nebraska and Iowa informed the store owner that violation of State and Federal laws had occurred, the owner ceased this practice. The third situation is still being investigated but has to do with a pet supply Web site selling counterfeit product, sending the orders to a mail forwarding service in Nebraska, which sent the package orders to an address in California. The Web site was operated by someone in Iowa. This underscores the concerns of state and federal regulators that national consistency of pesticide enforcement is needed. Federal enforcement is being considered for multi-state distributions.

t. Aerial Applications Resulting in Human or Animal Health Effects

For the period of October 1, 2008 through September 15, 2009, the number and severity of aerial application complaints was significantly lower than the previous year. A total of 4 complaints of aerial drift were filed with the NDA for the previous year, compared to 18 similar complaints in 2008. The number of complaints in 2009 is more in line with other years, 2008 being an unusual exception. While most of the complaints investigated this year are still in the process of case review, there are some

conclusions that can be made. First, over 75% of the complaints filed in 2008 were against out-of-state pilots who were flying in Nebraska for the first time (mostly due to the high number of fields treated with fungicides and a late season soybean aphid infestation). In 2009, <u>none</u> of the complaints filed were against out-of-state pilots, even though the number of reciprocal licenses issued by the NDA for aerial applicators was just as high in 2009. Perhaps the out-of-state pilots were more familiar with the work and paid closer attention to their applications. The NDA also visited as many out-of-state pilots in the early part of the season as possible in order to help them understand state pesticide regulations, as well as raise their awareness of nearby sensitive sites. Whatever the reason, NDA would like to extend a sincerely Thank You to the aerial applicators who worked in the state this year for "taking care of business" in serving Nebraska Agriculture while keeping the pesticides where they are intended to be applied.

u. Herbicide Contamination in Spray Tank

Perhaps you've heard the occasional rumor of another pesticide applicator who didn't flush all the lines and hoses out when switching from one pesticide to another, and damaged some crops or plants on the next spray job. It's even more eye opening when you hear of someone who sprayed numerous lawns or acres of corn with the wrong product, not knowing what had been mixed in the tank by another person earlier in the day. These are normally innocent, but expensive mistakes, and underscores the importance of two points. 1) The applicator of any pesticide is ultimately responsible for the application of the chemical, and should be present when someone else is mixing and loading the equipment. 2) Pay attention, know everything about the product you are using, and think ahead about special considerations that will avoid costly mistakes from happening. It's all about being professional and responsible.

v. Runoff of R-O-W Applications

Herbicides designed for season-long control of weeds on rights-of-way, vacant lots, parking areas, utility sites, and fencelines must be applied with an eye to the weather. Close reading of many residual R-O-W herbicides finds very specific language about not applying the products within a certain number of hours or days before precipitation is expected. Applicators need to know the runoff potential of residual herbicides so that surface water (and in turn, groundwater) is not polluted. Many of the residual herbicides applied to R-O-W sites is extremely toxic to aquatic organisms, and care must be taken to prevent these products from running off the treated site into nearby drainage ditches that lead to streams.

Label Information - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Label Information- Activity: Label Exercise

Use the label and the questions provided in this manual. Below are a number of small group activities to encourage interaction.

- a. **Think-Pair Share:** By twos, each person thinks about the question and formulates an answer. They then share their answer with their partner and when an agreement is reached they can share their answer with the larger group. This works very well with shy people in very large groups.
- b. **Expert Method:** Divide the group into small groups of 4-5 individuals. Assign a section of the label to each group. Their task is to become experts on this section, so much that they can explain what it means to the other groups. This activity continues until all groups have reported.

- c. **Circle of Cooperation:** This is a hybrid of both the above methods. Divide the group into 6-8 individuals. Each person in the group is assigned one more sections of the label to study. After a specific time, each individual in the group explains to others in the group the meaning of his/her section.
- d. **Dialog/Role Play:** The Extension Educator and another individual dialog back and forth using questions and answers about label content.

Pesticide Safety - Activity: Clicker Questions

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Pesticide Safety – Activity: Know the Risk Equation. *Risk = Toxicity x Exposure*

Use these points to discuss and explain the risk equation.

- a. Certain risks are encountered when mixing, loading, or applying any chemical, including pesticides. It is important to understand that risk is a based on of product toxicity and the potential for personal exposure.
- b. The equation is RISK = TOXICITY x EXPOSURE. Knowledge of toxicity and exposure allows risk to be lowered. The toxicity of a product does not by itself determine how much risk there may be in handling it. Gasoline is an example. It is very toxic when ingested or exposed to skin for a prolonged time. However, it can be handled safely with proper nozzles and hoses to reduce exposure.
- c. Regardless of how toxic a product is, if the exposure is low enough, risk can be maintained at an acceptable level. The toxicity of a product cannot be changed, but the risk can be safely managed.
- d. The bottom line is that pesticide risk is manageable, and applicators are the managers.

Index of Pesticide Absorption

Use the following as a method of emphasizing the importance of wearing protective clothing while handling pesticides. The chart shows relative absorption rates through the skin of various parts of the body compared to the forearm (1.0).

1	1.3	1.6	2.1	3.7	4.2	5.4	11.8
Forearm	Palm	Ball of the foot	Abdomen	Scalp	Forehead	Ear canal	Groin

Source: Agricultural Safety: Fundamentals of Machine Operation. 1987. Deere & Co. Service Training, Moline, IL. Chpt. 7, pg 206. The head area absorbs pesticides through the skin at a rate about four times that of the hand.

This index highlights the importance of clean hands and the use of an apron to protect the abdomen and groin. Also, it shows how a pesticide may be easily transferred from hand to head (when wiping a sweaty brow) or hand to groin area (when urinating) and thus increasing the potential for absorption.

Pesticide Safety – Activity: Dermal Exposure Chart

Objective: Participants will be able to list parts of the body most sensitive to pesticides.

Materials: Copies of the handout (1 per group). The 1 (forearm) is given as a baseline.

Procedure: Separate participants into groups of 4 or 5. Give each group a copy of the handout with an outline of a human body (Rates of Absorption). Tell them that different parts of the human body absorb pesticides at different rates. For this exercise, the forearm has a rating of 1. An area that absorbs pesticides twice as fast will have a rate of 2, three times as fast will have a rate of 3. Have each group fill in the numbers listed at the side of the sheet in the appropriate box. Members of each group must agree on the ratings. After 5 to 10 minutes, ask what rate they gave each part. Discuss the importance of wearing the appropriate PPE, such as a chemical-resistant apron when mixing pesticides, and then washing hands after applying pesticides.

Alternative options are to draw a figure with boxes on a white board or chalkboard and have the entire group decide what numbers go in which boxes. The answer chart appears



below.



Handout: Dermal Exposure Chart Handout
Pesticide Safety – Activity: Fit Testing a Respirator Exercise

Objective: Participants will be able to properly fit test a cartridge respirator.

Materials: Half-face cartridge respirators

Photos of fit testing on PPT slides

Copies of "Maintaining and Fit Testing Cartridge Respirators for Pesticide Applications" NebGuide G2083

Procedure:

Choose one of these methods to teach about respirator fit testing. See the end of this exercise for detailed instructions on how to do a fit test and seal check on a respirator.

Option 1:

Take photos of the steps for putting on a half-face cartridge respirator, fit testing it, and removing it. Incorporate the photos into PowerPoint or other presentation method.

Option 2:

Show the PSEP Office video "Cartridge Respirator Use" from YouTube (Go to <u>http://www.youtube.com</u>, search for UNLExtensionPSEP and choose the respirator video from our channel)

Option 3:

Hand out NebGuide G2083 and discuss how to fit test a respirator based on the information in the publication.

Option 4:

Have a volunteer come to the front of the room and provide them with a respirator. Demonstrate with the volunteer how to fit test a respirator. Alternatively, if the class is small, you may wish to have everyone fit test a respirator.

How to Fit Test:

- 1. Remove respirator and cartridges from their packaging.
- 2. Place the mask in front of you with the cartridge holes facing toward you.
- 3. Attach each cartridge by lining it up with one of the holes, inserting it, and turning it counterclockwise until it locks firmly in place.
- 4. Place the respirator on your face, then pull the top ("halo" shaped in some models) plastic strap and adjust it over and on top of your head.
- 5. Connect the straps together that go behind the neck, and pull the loose ends of the straps to adjust for comfort and fit.
- 6. When you feel you have a tight seal, *do the following tests* to ensure your respirator is fitted properly.

Positive Seal Check

Cover the exhalation value in front of the respirator and gently exhale. If you can do this without feeling a rush of air around the faceplate, you have a good seal.

Negative Seal Check

Cover the intake portion of each of the two cartridges with your hands and inhale gently. You can also do this test without the cartridges by simply covering the inlet holes and testing the seal. If you have a good seal you should not be able to pull any air through the seal against your face. If you can pull in air, check carefully around the seal for damages or obstructions. If you find breaks or damaged portions of the seal, replace the respirator. If you are able to clear obstructions and make additional adjustments to strengthen the seal, simply retest the unit. In some cases, if you can't find a solution, it will be necessary to replace the respirator seal or the entire unit.

Ampule Test

An ampule is a small sealed vial that can be purchased from many online suppliers. In the ampule test, you break an ampule designed for this purpose and see if you can detect the odor (often smelling like concentrated banana) through the respirator. If you detect the odor, you know that your seal isn't adequate and you'll have to make additional adjustments. Make sure to test the ampule across all portions of the respirator seal. You should also consider simulating common working motions such as moving your head up and down and side to side as a test of field operability.

Pesticide Safety – Activity: Glove Exercise

Objective: Participants will be able to properly wear, clean, and remove gloves used for pesticide applications.

Materials: Chemical-resistant gloves (such as disposable or reusable nitrile)

Photos of putting on, cleaning, and removing gloves

Copies of "Pesticide Safety: Choosing the Right Gloves" NebGuide G1961

Procedure:

Choose one of these methods to teach about gloves. See the end of this exercise for detailed instructions on how to wear, clean, and remove gloves used for pesticide applications.

Option 1:

Take photos of the steps for putting on gloves before a pesticide application, and cleaning and removing the gloves after a pesticide application. Incorporate the photos into PowerPoint or other presentation method.

Option 2:

Show the PSEP Office video "Gloves for Pesticide Application" from YouTube (Go to <u>http://www.youtube.com</u>, search for UNLExtensionPSEP and choose the glove video from our channel)

Option 3:

Hand out NebGuide G1961 and discuss how to wear, clean, and remove gloves based on the information in the publication.

Option 4:

Have a volunteer come to the front of the room and provide him/her with a pair of chemical resistant gloves. Demonstrate with the volunteer how to properly put on, clean, and remove the gloves. Alternatively, if the class is small, you may wish to provide everyone with a pair of gloves and do the exercise.

Gloves: Wearing, Cleaning, and Removing

In most cases, we recommend wearing gloves under sleeves to keep the pesticide from running down the sleeves and into the gloves. When working with hands above the head, roll glove tops into cuffs to prevent the pesticide from running down the gloves to the forearms. As an extra safety measure, duct tape around the arm where the glove and sleeve meet.

To properly remove disposable gloves:

- Grasp the cuff of one glove with the other gloved hand and pull it inside out and off the hand. Deposit the glove into a plastic bag for later disposal. Do the same with the other glove by grasping the inside of the cuff and pulling the glove off uncontaminated side up. Avoid contacting your clothing or skin with the contaminated surface of the gloves.
- 2. Finally, dispose of the plastic bag containing the gloves according to label directions.

To properly clean and remove reusable gloves:

- 1. Wash the outsides of the gloves with soap and warm water. Then, with gloved hand either grasp the fingers of the other glove and slowly pull both gloves off, or turn back the cuffs of each glove and proceed to remove the gloves inside out.
- 2. Finally, hang the reusable gloves out to dry. Do not put gloves in the washing machine!

After removing gloves, always wash hands with warm water and soap before going about daily activities. This will ensure that no pesticide residue is transferred from hands into the home, vehicles, or other areas where it could potentially expose the applicator or his family, or other non-targets to pesticides.

Pesticide Safety – PPE Display and Demonstration

Objective: Seeing and handling equipment helps people to remember, and may increase usage of PPE.

Materials: Variety of PPE, including different types of gloves, eye protection, respirators, aprons, footwear, headwear.

Procedure:

Pick up each item and explain its use. Alternative: Place labeled items on a table so participants can look at and try PPE.

Pesticide Safety – Demonstration: Proper Personal Hygiene GlowBar/Glitterbug Potion

Personal Hygiene Kit

Objective: Participants will learn if their hand washing methods provide good personal hygiene.

Materials:

Vendor for *GlowBar/Glitterbug Potion*: Brevis Corporation 225 West 2855 South Salt Lake City, UT 84115 (801) 466-6677 (800) 383-3377 Web site: <u>http://www.brevis.com</u>

Procedure: The Fluorescent Tracer Manual contains detailed instructions for demonstrations and hands-on activities using fluorescent materials such as glo-germ. The manual is on the PSEP site at *http://pested.unl.edu/educators*. You will be prompted for the email address and password to proceed to the Extension Educator Information Page. Find the manual under Training Activities.

Pesticide Safety - Liquid Pesticide Containers: Rinse Three Times

Objective: Participants will see how to properly triple or pressure rinse containers.

Materials:

- Empty container with cap
- Water
- Tank or container to pour rinsates
- Pressure rinse nozzle
- Hose and water source

Procedure: Are empty liquid pesticide containers really "empty?" They are not unless they have been triple or pressure rinsed. Use this information to discuss the proper procedure for rinsing empty pesticide containers.

Triple rinse procedure:

- a. Drain empty container 30 seconds.
- b. Immediately fill container one-quarter full with the proper diluent (water, oil, or liquid fertilizer).
- c. Close container, shake, and rotate.
- d. Pour rinsate into spray/mixing tank, drain 30 seconds.
- e. Repeat two more times.
- f. Puncture and crush the rinsed container.
- g. Present rinsed, clean, drained containers for recycling.

Pressure Rinsing of Containers Procedure

Pressure rinsing nozzles that can be attached to a garden hose or nurse water tank hose allow for easy pressure rinsing. While holding the empty pesticide container upside down over the spray tank, puncture the side of the empty container with the point of the rinsing nozzle. The side of the container of the container is of smaller gauge thickness. Then, throw the switch on the handle and water will squirt inside the container; rinse water drains directly into the spray tank.

Source of Pressure Rinsers:

Jet Rinser available at

Gempler's Inc.www.gemplers.com/P.O. Box 270; 100 Countryside DriveBelleville, WI 53508(800) 382-8473

Worker Protection Standard - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Worker Protection Standard - Activity: PSEP Jeopardy Game

Use the PowerPoint Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a question from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly.

Environmental Protection - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Environmental Protection - Activity: PSEP Jeopardy Game

Use the PowerPoint Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a question from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly.

Environmental Protection – Activity: Nozzle Selection for Droplet Size

This PowerPoint by Bob Klein, explains that many pesticide labels now list recommended or required spray droplet sizes to increase pesticide efficacy and help manage drift.

Environmental Protection - Activity: Spray Drift Prevention

This is a series of activities on topics relating to drift, such as droplet size, wind speed, and wind direction. Feel free to use some or all of the activities to reinforce concepts.

A. Discuss the effect that droplet size, nozzle type, and boom set-up can have on drift. Refer to *Spray Drift of Pesticides (NebGuide G1773)* for background information.

Table I. Effect of droplet size on drift potential			
(Ross and Lembi, 1985)			
Diameter in microns	Time to fall 10 feet in still air		
1 (Fog)	28 hours		
10 (Fog)	17 minutes		
100 (Mist)	11 seconds		
200 (Fine Spray)	4 seconds		
400 (Coarse Spray)	2 seconds		
1,000 (Coarse Spray)	1 seconds		

Table VI. Effect of wind speed on drift in a 10-foot fall			
(Ross and Lembi, 1985)			
	Winds	speed	
Droplet Diameter, Microns	1 MPH	5 MPH	
	Drift,	feet	
100 (Mist)	15.4	77	
400 (Coarse Spray)	3	15	

B. The Beaufort Scale

Sir Francis Beaufort (1774-1857), a British admiral, invented a way to connect what he observed happening at sea to ships and ocean waves with the strength of the wind. The Beaufort Scale, from Force 0 to Force 12 scale, has been adapted for use on land. Now it is used internationally as a way to gauge wind velocities. Meteorologists use the Beaufort Scale with weather maps and in other work. Give the Beaufort Scale for Wind Speed as a handout and discuss.

C. Know the Components of a Compass:

Provide compasses for all, have a demonstration table with the following notes (found on Compass Handout) so they can pick up the compass and find the arrows and needles in small groups, or have a PowerPoint showing each of these features.

•Find the red arrow on the plastic base, and the red and black needle in the compass.

•The rotating compass dial has an outline of a black arrow in it.

•Degrees are marked in 5-degree increments around the compass perimeter.

•The "north direction indicator" is the green tip of the red needle in the compass.

D. Monitoring Wind Direction: A Compass Exercise

Applicators should have good data describing wind direction to make an accurate record. This information is invaluable if questions arise regarding pesticide damage due to drift.

Objective: This exercise will help applicators record accurate data on the wind. Following are key points to keep in mind about wind direction. Give the Key Points about Wind Speed as a handout.

Materials: Have enough compasses for all, or about 5 so that participants in a small group of 5 can do the activity, or that 5 small groups of participants can each have a compass. Photocopy handouts for the activities so that each person, or each group will have a copy, depending on your choice.

E. Using a Compass to Determine Wind Direction in Degrees:

Provide compasses for all, have a demonstration table with the following notes (found on Compass Handout) so they can pick up the compass and do the activities as small groups, or have a powerpoint showing each of these features.

•While staying away from metal objects, face into the wind and hold the compass level.

•Rotate the plastic compass base until the red arrow points directly into the wind.

•With no further rotation of the base, turn the compass dial so the black arrow outline is "under" the greentipped, red compass needle.

•At the base of the red arrow, read the wind direction in degrees on the compass dial.

What is the current wind direction? Circle best choice: N, NE, E, SE, S, SW, W, NW

Wind direction in degrees

Turn the dial so that the reading of 220 degrees is at the base of the *red arrow*. Rotate the compass base until the green needle tip is over the black arrow. Write down what landmark you see in the direction of each bearing.

220 degrees	
315 degrees	
35 dearees	

180 degrees _____

2. Orienteering Exercise

Prior to the training program, prepare by establishing a starting point outdoors, and, using the compass, takes 3 paces north, 4 paces east, 2 paces northeast, and 2 paces northwest. Hide a golf tee in the grass. During training, direct participants to stand at the "start" line or marker, take 3 paces north, 4 paces east, 2 paces northeast, and 2 paces northeast, and 2 paces northwest. They should see the golf tee in the grass. This activity provides further opportunity for applicators to become more familiar with the compass.

Best Management Practices Concerning Pesticide Drift

All nozzles produce a range of droplet sizes. The small, drift-prone particles cannot be eliminated but can be reduced and kept within reasonable limits. Hand out the Best Management Practices Concerning Pesticide Drift.

Handout: Beaufort Scale for Wind Speed

FORCE	STRENGTH	WIND SPEED MPH *	EFFECT
0	CALM	-	Smoke rises vertically.
1	LIGHT AIR	1 - 3	Smoke drifts.
2	SLIGHT BREEZE	4 - 7	Leaves rustle, weather vanes move, wind felt on face.
3	GENTLE BREEZE	8 - 12	Light flags unfurl, leaves and twigs on trees move steadily.
4	MODERATE BREEZE	13 - 18	Small branches move, loose dust and paper fly about.
5	FRESH BREEZE	19 - 24	Leafy shrubs and trees sway.
6	STRONG BREEZE	25 - 31	Big branches move, wind pulls umbrellas.
7	HIGH WIND	32 - 38	Trees sway, walkers push into the wind.
8	GALE	39 - 46	Twigs break off trees, walking is hard.
9	STRONG GALE	47 - 54	Shingles, slates, and branches blown off. Slight building damage.
10	STORM	55 - 63	Serious building damage, trees uprooted.
11	VIOLENT STORM	64 - 72	Widespread damage, wild storm.
12	HURRICANE	ABOVE 73	Violent destruction of building & vehicles.
*MPH = Mile	es per hour		

Wind direction is named after the direction the wind is blowing from, not the direction the wind is blowing. A south or southerly wind is blowing from the south. Key points to remember:

- Accounting for wind direction can reduce damage to sensitive areas and reduce liability.
- Know the location of sensitive areas. Use Driftwatch and check the area prior for spraying.
- Consider leaving safe buffer zones.
- Do not spray when wind of any speed is blowing toward sensitive areas.
- All nozzles can drift. Spray when breeze is gentle, steady, and blowing away from sensitive areas.
- "Dead Calm" conditions are not good conditions to spray pesticides.
- Wind currents can drastically affect spray droplet deposition.
- Structures (windbreaks, tree lines, buildings, hills/valleys) drastically affect wind currents, so using wind data from an off-site source may not be accurate.

Handout: Compass

Know the Components of a Compass:

•Find the red arrow on the plastic base, and the red and black needle in the compass.

•The rotating compass dial has an outline of a black arrow in it.

•Degrees are marked in 5-degree increments around the compass perimeter.

•The "north direction indicator" is the green tip of the red needle in the compass.

Using a Compass to Determine Wind Direction in Degrees:

•While staying away from metal objects, face into the wind and hold the compass level.

•Rotate the plastic compass base until the red arrow points directly into the wind.

•With no further rotation of the base, turn the compass dial so the black arrow outline is "under" the greentipped, red compass needle.

•At the base of the *red arrow*, read the wind direction in degrees on the compass dial.

What is the current wind direction? Circle best choice: N, NE, E, SE, S, SW, W, NW

Wind direction in degrees

Turn the dial so that the reading of 220 degrees is at the base of the *red arrow*. Rotate the compass base until the green needle tip is over the black arrow. Write down what landmark you see in the direction of each bearing.

220 degrees	
315 degrees	
35 degrees	
180 degrees	

Orienteering Exercise

Stand at the "start" line or marker, take 3 paces north, 4 paces east, 2 paces northeast, and 2 paces northwest. If you've done this correctly, you'll find an object on the ground.

Handout: Best Management Practices Concerning Pesticide Drift

All nozzles produce a range of droplet sizes. The small, drift-prone particles cannot be eliminated but can be reduced and kept within reasonable limits. Here are some tips:

- 1. Select low or nonvolatile pesticides.
- 2. Read and follow the pesticide label. Instructions on the pesticide label are given to ensure the safe and effective use of pesticides with minimal risk to the environment. Each pesticide is registered for use on specific sites or locations. Many drift complaints involve application procedures in violation of the label.
- 3. Use spray additives within label guidelines. This will result in better pesticide effectiveness and less potential for drift.
- 4. Use nozzles with larger orifice sizes. This will produce larger droplets and increase the number of tank refills, but may improve coverage and effectiveness while reducing the potential for drift.
- 5. Avoid high spray boom pressures; high spray pressure creates finer droplets. Consider 45 PSI the maximum for conventional broadcast ground spraying.
- 6. Use drift-reduction nozzles. They will produce larger droplets when operated at low pressures. When using venturi nozzles, higher pressures will be required to maintain an effective pattern. As the pressure is increased with these nozzles, the drift potential will increase, but not as much as with other types of nozzles.
- 7. Use wide-angle nozzles, low boom heights, and keep the boom stable. Drive perpendicular to terraces rather than parallel to avoid having the boom ends high above the target surface or digging into the ground.
- 8. Drift is minimal when wind velocity is between 3 and 10 mph. Do not spray when temperature inversions are likely or when wind is high or blowing towards sensitive crops, gardens, dwellings, livestock, or water sources.
- 9. Use shielded booms. When banding, use shroud covers.
- 10. When possible, use lower application speeds. As application speed increases, there are often unintentional effects on other application parameters that may increase drift.

IPM - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

IPM - Activity: Name that Pest PowerPoint

Objective: Participants will be able to correctly identify common insect pests, plant diseases, weeds, and vertebrate pests.

Materials: "Name that Pest" Powerpoint. Add images of other pests found in your area.

Procedure: Divide participants into small groups. Use the "Name that Pest" Powerpoint. Award a point to the first group who correctly identifies each pest when you display its picture on the screen.

Alternative: Keep participants as a large group. Award a point to individuals who correctly identify the pest on the screen. You may wish to give a small "prize" for the person who gets the most points.

Pesticides - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Pesticides - Activity: PSEP Jeopardy Game

Use the PowerPoint Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a question from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly.

Pesticides – Demonstration: Pesticide Compatibility (Jar Test)

Objective: This will demonstrate how to perform a jar test.

Materials:

- 7 clear, clean 1-quart jars with lids.
- Teaspoon and cup-size measuring containers
- Tap water/distilled water
- Oil (vegetable, mineral)
- Liquid hand soap
- Baking powder
- Vinegar
- Isopropyl alcohol (rubbing alcohol)
- Moth flakes/balls
- Cascade dishwashing detergent (sodium carbonate)
- Epsom salts (magnesium sulfate)
- Betadine liquid (water-iodine) solution

- Cornstarch
- Glass marker, wax pencil, or jar labels

Procedure: Work with and test your materials before the demonstration to become familiar with the reactions. Plan your demonstration. You probably will want to show the reactions "live" in front of an audience, especially in situations where you want to show how the products differ before and after the reaction. In some cases, however, you may want to mix ingredients ahead of time and describe to your audience what you did.

The following activities simulate the Compatibility Jar Test and represent possible pesticides/herbicide incompatibility reactions:

1. **Insoluble liquids/separation line**—physical incompatibility that would be impossible to apply, even with agitation. Fill a jar ½ full of water; add oil until a layer ¼ inch to ½ inch sits on top. Shake and demonstrate that a definite line remains.

2. Elimination of separation line—effect of incompatibility agents, which when agitated, can make the mixture capable of being applied through a sprayer. Use mixture from Activity 1, and add several drops of liquid hand soap. Shake the jar and notice that "beads" form in the oil. The beads will eventually float to the top and create a layer, but not immediately. This delay in layer formation allows the mixture to be applied with a sprayer.

3. Insoluble solid—physical incompatibility that demonstrates that insoluble substances, even if agitated, can clog a sprayer and cannot be distributed uniformly. Fill a jar ½ full of water; add moth flakes or crushed up moth balls. These do not dissolve in water and should remain on top. Add rubbing alcohol to change the density of the mixture, which will cause the flakes to sink, but still not dissolve.

4. Precipitate—a new product forms due to a chemical reaction. Obviously if something new is formed, it is a good idea not to try to tank mix such ingredients, as the precipitate could clog the sprayer and be unsafe to use.

Use three jars. Label them #1/Cascade (sodium carbonate), #2/Epsom salts (magnesium sulfate), and #3/Cascade + Epsom salts. Add distilled water to jars #1 and #2. Add 2 teaspoons of Cascade to jar #1 and 2 teaspoons of Epsom salts to jar #2. Stir and shake, and clear solutions will form in both cases. Then, pour about half the contents of each jar into the third jar, where the solution will become cloudy because of a low water-soluble substance forming due to a chemical change. The white precipitate will settle to the bottom of the jar.

Real life example of incompatibility: A common mixture is to add 28% N with 2,4-D and apply it prior to planting corn in order to provide nitrogen and control weeds. However, a 28% N solution is compatible with 2,4-D ester, but not with 2,4-D amine. If you combine the 28% N solution with 2,4-D amine, you will get a mixture the consistency of mayonnaise/salad dressing that is so thick you will need a spoon to remove it from your sprayer.

5. **Gas produced**—a new product formed due to a chemical reaction. Again, since something new is formed, it is not advisable to try to tank mix such ingredients. Put a cup of vinegar in a jar. Add a teaspoon of baking powder. A gas will be produced. The fizzing (and slight heat that is produced) indicates a chemical change that is occurring.

Real life example of incompatibility: Gas production will occur when the herbicide glyphosate combines with zinc. This is such a volatile reaction that glyphosate shouldn't be placed in a galvanized metal tank as it will react with the zinc in the metal, releasing hydrogen gas. This is dangerous since an explosion could © The Board of Regents of the University of Nebraska-Lincoln. All rights reserved

occur if any spark or flame is introduced. Applicators must be knowledgeable about not only what chemical reactions are possible with the pesticides or herbicides they are mixing, but in the types of tanks and storage they use to mix and load the materials.

6. **Color change**—a new product forms due to a chemical reaction. Again, since something new is formed in the jar test, it is not advisable to try to tank mix such ingredients. Mix a weak solution of water and cornstarch (ratio= ¼ -1 teaspoon of cornstarch to 2 cups water). This will form a milky white suspension. Add 5-10 drops of red-orange colored Betadine solution and the mixture will turn purple. Eventually the purple particles will sink and remain on the bottom.

We have provided "real life" examples for a couple of these demonstrations, but real incompatibility can vary a great deal depending on the circumstances. Encourage your audience to share their own bad experiences and describe what incompatibilities they might have come across in their professional lives. This is a great way to get your participants involved.

Equipment and Application - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Equipment and Application - Activity: PSEP Jeopardy Game

Use the PowerPoint Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a guestion from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly.

Calibration - Activity: Clicker Questions

Each PowerPoint includes 3 Turning Point clicker questions at the end of the presentation. With these, participants can test their knowledge, and the Extension Educator can see if participants know the concepts or information that was covered. Clicker questions provide a great opportunity for interaction.

Calibration - Activity: PSEP Jeopardy Game

Use the PowerPoint Jeopardy Game to cover or review topics from the training session. Divide the group into two teams and flip a coin to see which team goes first. That team will select a question from the screen. The second slide of the PowerPoint has directions for using the game. Consider providing an incentive for teams to answer quickly and correctly.

Calibration – Activity: Sample Problems

The end of the Calibration PowerPoint has a variety of story problems on calibration and math. Use these or develop your own to increase understanding of calibration.

Calibration – Demonstration: Measuring Pesticides

Objectives: This demonstration will expose participants to the following concepts.

1. When measuring liquids, always use fluid ounce measuring container.

2. Measure dry ounces with a scale. Do not use product-specific dry ounce measuring containers because the product-specific cups are not accurate.

3. Do not use a fluid ounce measuring container for dry pesticide measurements. © The Board of Regents of the University of Nebraska-Lincoln. All rights reserved

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Materials:

- Scale that weighs to the ounce
- Measuring container for fluid ounces
- Two product-specific dry ounce measuring containers

Procedure:

- 1. Weigh out 8 ounces of sugar in product-specific cup on scale (Before weighing product, make sure the scale is "tared" with the measuring container on the scale so the scale says "0" with the measuring cup on it)
- 2. Measure out 8 ounces of sugar in another product-specific measuring container (based on volume).
- 3. Compare the 2 product-specific measuring containers. Note if volume levels are the same or different.
- 4. Shake/pound the volume-measured container on the table.
- 5. Compare the 2 product-specific measuring containers again. Note if volume levels are same or different. Remember that products with larger/looser granules become compacted when someone pounds the measuring container on the table.
- 6. Measure out 8 ounces of sugar in a liquid measuring container. Line up the 3 measured containers and make comparisons.
- 7. Pour 8 fluid ounces into a liquid measuring container. Line up the 4 measured containers and make comparisons.
- 8. Bottom line: The best way to measure dry products is by weight, with a scale.

Calibration – Activity or Demonstration: SpotOn Sprayer Calibrator

Equipment needs: SpotOn Sprayer Calibrator; sprayer, backpack sprayer, or water faucet to test flow rate; labels (Nozzle 1, Nozzle 2, Nozzle 3, and Nozzle 4); and Calibration Example and Data Sheet. If using a sprayer that has held pesticides, practice what we preach and provide chemical-resistant gloves. View a video demonstrating its use at http://youtu.be/kJglx6-qWBU

Procedure: One option is to demonstrate the calibrator, using the "Instructions for SpotOn Calibrator" below. Another option is to have participants use the calibrator and collect data as follows: Photocopy and hand out the Calibration Example and Data Sheet. Using a sprayer with a number of nozzles, have participants collect the discharge from each nozzle, record the results, and complete the math to determine if flows from nozzles are $\pm 5\%$ of the average of the flow rates, as applicators would when checking nozzle performance. If you don't have access to a sprayer, use four water sources (water fountain, backpack sprayer, faucets) and label each Nozzle 1, Nozzle 2, Nozzle 3, and Nozzle 4. Instruct groups of participants to collect water and record the flow rates on the data sheet in ounces per minute, imagining these are nozzles from one sprayer. They will find the average, then determine if any of the nozzles are not within $\pm 5\%$ of the average of the flow rates. Nozzles that are outliers should be cleaned or replaced.

Instructions for SpotOn Calibrator:

- 1. To set measurement units on the SpotOn Sprayer Calibrator: The meter can display readings in gallons per minute, ounces per minute, or liters per minute. To change the display units, the user must first turn the meter off. Then press and hold the START button. Keep holding the START button until the display shows "____" (about 3 seconds). When the display shows "____", release the START button and the display will start flashing "_" above the unit type that is currently selected. Press the START button to change this selection. Once the correct unit type is selected, wait without pressing the START button for 5 seconds. The meter will then enter the new setting and shut off. From that point forward, the meter will display readings in those units until reset. *For this demonstration, use ounces per minute.*
- 2. To take a reading: Press the START button to turn the meter on. The LCD will flash "000" momentarily, indicating it is working properly. The LCD will then show a "_" marker to indicate the type of measurement units the meter will use when displaying readings. The meter will then show "- -" on the LCD, indicating the meter is ready to take a new measurement. Once the meter shows "- -", you have 60 seconds to place the meter under the nozzle to be tested. Quickly place the meter under the nozzle so that all the flow from the nozzle is transferred to the meter. The most accurate measurements are made with the meter held at a slight angle to vertical as seen in Fig. 1. This keeps the water flowing down into the meter along the back side of the meter and keeps it from accidentally falling on and triggering the meter's sensors.
- 3. As the meter fills with water, the display will start flashing "- -"; this indicates that the reading is in progress. As soon as water reaches the meter's upper sensor, the flashing will stop and the flow rate will be displayed on the LCD (See Fig. 2). This flow rate will continue to be displayed on the meter for 90 seconds or until the START button is pressed to start a new reading. Write down the reading displayed on the LCD.
- 4. Once the reading has been displayed, the water can be poured out of the open top of the meter (See Fig. 3). Pouring out the contents of the meter will not affect the reading being displayed on the LCD. If a reading must be re-started for some reason, just empty the meter and re-press the START button to take a new measurement.







- 5. The meter can be turned off in two ways.
 - a. Press and hold the START button for about 3 seconds and as soon as the LCD goes blank, release the START button.
 - b. The meter will automatically shut itself off after 9 seconds of inactivity. This means that the user does not have to shut off the meter after use since it will eventually shut itself off.

This is an easy way to measure flow rates from nozzles on a sprayer for calibration, as well as to check that all nozzles are within the recommended $\pm 5\%$ of the average flow rate.

Nozzle #	Reading in	Total / Number of Nozzles = Average		_/4 =	
	Minute	Average / 10 = 10% deviation		_/10 =	
1		10% deviation / 2 = 5% deviation		_/2 =	
2		Average + 5% deviation = upper limit		_+	=
3		Average - 5% deviation = lower limit			=
4		Any nozzles that fall outside the upper a cleaned or replaced.	and lowe	r limits sho	ould be
	Total				

Handout: Calibration Example and Data Sheet

Example:

Nozzle #	Reading in
	Ounces per
	Minute
1	12.3
2	14.4***
3	12.5
4	12.7
	Total 51.9

Total / Number of Nozzles = Average	51.9 / 4 = 12.975
Average / 10 = 10% deviation	12.975/ 10 = 1.3
10% deviation / 2 = 5% deviation	1.3 /2 = 0.65
Average + 5% deviation = upper limit	13.225 +0.65 = 13.875
Average - 5% deviation = lower limit	13.225 - 0.65 = 12.575
Any nozzles that fall outside the upper a cleaned or replaced. ***	nd lower limits should be

Data sheet

Nozzle #	Reading in Ounces per Minute
1	
2	
3	
4	
	Total

Total / Number of Nozzles = Average	/4 =	
Average / 10 = 10% deviation	/10 =	
10% deviation / 2 = 5% deviation	/2 =	
Average + 5% deviation = upper limit	+=	
Average - 5% deviation = lower limit	=	
Any nozzles that fall outside the upper a cleaned or replaced.	and lower limits should be	
		-

Handout: Driftwatch

- 1. Go to the website Driftwatch.org
- 2. Login or Sign Up (it's free) login/sign-up is in the top right hand corner of the browser (the triple horizontal bar button on the mobile site).
- 3. If you're signing up, fill in the required information: your name, address, phone number, and commercial applicator license number. Also be sure to identify if you're an applicator, grower, or beekeeper. For this example, I selected applicator (steps 4-7 below correspond to selecting "applicator").
- 4. Sign up for notifications to be informed of new sensitive sites added to the map. These can be in your state, county, or you can define a custom region. Click 'Finish'.
- 5. Check/uncheck what you want to see on the map and click "View Map". Zoom in and out and explore a bit.
- 6. Click the button "Go To My Location" to see if there are any sensitive sites currently nearby.
- 7. Find your property or the areas where you spray pesticides and see if any sensitive sites are nearby. If so, click the pin on the site for more information. Think about drift issues that could cause problems for any of these sites and consider speaking with the grower/neighbor about any drift concerns.
- 8. Click the "DriftWatch" logo at the top of the screen to return to the DriftWatch home page.
- Scroll down and explore the other buttons "View my sites and my account information," "Map Fields," "Map Beehives," and "Applicators" (where you just were). If you are raise sensitive crops or bees, consider mapping your field(s) and/or apiaries.
- 10. Continue to scroll down and you will see a list and a map of all states that participate in the DriftWatch program. DriftWatch maps are available for Colorado, Delaware, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Wisconsin, and Saskatchewan (Canada).

Activity: Water Quality (pH, hardness, and turbidity)

Objective: This activity shows methods to test the pH and hardness of water.

Background: The pH and hardness of mix water can vary, and influence the effectiveness of the pesticide with which it is mixed. The PowerPoint "Water Quality...." gives background information. What are the options if you have mix water that is too acidic or too basic? Add the opposite (acid or base) to bring the mixture to the desired pH or use the spray mix immediately; do not store in the sprayer. As for hardness, a water conditioner could be added.

Materials: Needed per station (use one station and demonstrate, or ask some participants to use the test strips as a demonstration):

- pH and water hardness test strips (pH testers, paper strips, or meters) with directions.
- A watch or clock with a second hand for timing the test.
- Sets of water samples in plastic cups (test with pH strips prior to the program and adjust with baking soda or lemon juice to make basic, neutral, or acidic):
 - Acidic sample (add a drop of lemon juice to 1 cup of tap water)
 - Neutral (1 cup of tap water)
 - Basic (add ¹/₄ tsp baking soda to 1 cup of tap water)
- Three 5-gallon buckets of water •
- Three quarters (one per bucket) •
- 1 cup of clay or silt for one bucket (labeled Bucket A)
- 1/4 cup of clay or silt for one bucket (labeled Bucket B) •
- Remaining bucket with clear water (labeled Bucket C)

Procedure:

Option: As an activity, separate participants into groups of 4 or 5. Give each group a copy of the handout with the pH/hardness test chart. Tell them that the pH and hardness of their mix water may influence the effectiveness of the pesticide product they use. Pesticides that are weak bases may hydrolize if mixed with acidic water; a chemical reaction occurs between the acids and bases, forming water. This may make the pesticide less effective or even ineffective. On the other hand, pesticides that are weak acids may hydrolize if mixed with basic water.

Water hardness can have a negative effect on some pesticides. For magnets, opposite charges attract. The same applies in the chemistry of pesticides: negatively charged pesticide molecules attach to the positively charged iron, magnesium, and calcium molecules in hard water. This results in molecules that cannot enter the target pest, enter at a much slower rate, or precipitate out of solution.

Turbidity is the haziness of water due to suspended soil particles, especially silt and clay, organic matter, or microorganisms such as fungi or bacteria. Turbidity can reduce the effectiveness of many pesticide active ingredients, especially those with a high soil binding potential (KOC), including Diquat; Permethrin; Paraguat: Bifenthrin; and Glyphosate. These pesticides are very susceptible to inactivation by suspended soil particulates so applicators should always use clear, clean water in spray tanks. Also, soil particulates will plug nozzles and screens, leading to uneven spray patterns and lost time repairing equipment.

An applicator can have water tested at a water testing laboratory, or get an idea of the pH and hardness by using a test kit. The pH of water from a well may change over time. Test kits vary in quality and ease of use: pH and hardness test strips are very simple to use, but you may get a range of results. The more expensive pH testers require you to calibrate them periodically. This involves testing them with purchased liquids with © The Board of Regents of the University of Nebraska-Lincoln. All rights reserved

a known pH of 4, 7, and 10) at least once a year and adjusting the testers to get accurate readings. The testers must be stored in a neutral buffer solution, as well.

pH and Hardness: For ease of use (and reduced cost), the participants will test each of the samples with test strips and record the results. After everyone has completed the chart, compare the results. Variations will be due to care or lack of care taken when following the test strip directions, as well as inaccuracies with the strips. In all cases, if the same source of water is used, the hardness should not be affected by the change in pH.

Turbidity: An easy method to check turbidity is to have a 5-gallon white bucket of the water and drop a quarter into it. If you cannot see the quarter at the bottom, the water is too turbid. Find an alternate water source or consider investing in a filtration system.

Option: Demonstrate the test strips and turbidity test, or ask volunteers to do so.

Handout: Water Quality (pH, hardness, and turbidity)

Read and follow the directions on the pH/hardness test strips. Failure to follow them may give inaccurate readings; the color of the strips will change with time, as the strip dries. Some kits require you to shake the strip and others don't. Some may direct you to get a reading 10 seconds after removing from the water; others may direct you to wait 20 seconds.
 Number of seconds to wait before taking the reading: ______ seconds

Samples 1, 2, and 3 came from the same source (tapwater). Does a change in pH cause a change in hardness? _____Yes ____ No

2. Drop a quarter into each of the buckets. If you cannot see the quarter, the water is too turbid for use as pesticide mix water. Sediment may make the pesticide less effective or clog nozzles and filters.

Turbidity Bucket	Can see the quarter		
A	YesNo		
В	YesNo		
С	YesNo		

Samples 1, 2, and 3 came from the same source (tapwater). Does a change in pH cause a change in hardness? _____Yes ____ No

Appendix B

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ANSWERS TO QUESTIONS FOR "NEBRASKA PRIVATE PESTICIDE APPLICATOR SELF STUDY MANUAL" SECOND EDITION, AUGUST 2011

Laws and Regulations	Pesticide Labeling	Pesticide Toxicity	Using Pesticides Safety
1. B	11. C	19. B	30. D
2. C	12. B	20. C	31. B
3. A	13. A	21. A	32. B
4. C	14. A	22. C	33. D
5. D	15. D	23. B	34. A
6. C	16. A	24. A	35. D
7. D	17. A	25. B	36. B
8. B	18. C	26. B	37. B
9. D		27. B	38. D
10. B		28. B	39. C
		29. C	
Environmental Hazards	Storage, Disposal, and Transportation	General Pests	Integrated Pest Management
40. B	50. D	60. C	73. Å
41. D	51. A	61. C	74. B
42. D	52. B	62. D	75. D
43. B	53. C	63. A	76. D
44. A	54. B	64. A	77. C
45. B	55. D	65. D	78. B
46. C	56. D	66. A	79. C
47. A	57. B	67. D	80. A
48. A	58. A	68. D	81. A
49. C	59. D	69. B	82. B
		70 B	
		71. C	
		72. C	

Pesticide Classification	Basic Application	Application Equipment and
83. B	95. B	Calibration
84. A	96. A	105. B
85. A	97. C	106. D
86. B	98. D	107. B
87. D	99. B	108. C
88. B	100. D	109. B
89. B	101. B	110. A
90. D	102. A	111. C
91. B	103. A	112. B
92. C	104. C	113. A
93. A		114. B
94. C		115. B
		116. B

ANSWERS TO REVIEW QUESTIONS IN "NEBRASKA PRIVATE PESTICIDE APPLICATOR SELF STUDY MANUAL

(Older Version)

Chapter I: Pesticide Laws and Regulations	Chapter II: Pests	Chapter III: Pest Management Techniques	Chapter IV: Pesticides	Chapter V: Recognize Pesticide Hazards	Chapter VI: Management of Common Agricultural Pests in Nebraska
1. B 2. C 3. C 4. D 5. D 6. D 7. B 8. A 9. A	10 .C 11. D 12. D 13. C 14. B 15. C 16. C 17. B	 18. D 19. C 20. B 21. C 22. A 23. B 24. D 	25. B 31. D 26. A 32. B 27. A 33. D 28. A 34. B 29. D 35. D 30. D	36. C 43. D 37. B 44. A 38. B 45. A 39. D 46. D 40. B 47. B 41. D 48. C 42. D	49. C 55. C 50. A 56. D 51. C 57. A 52. D 58. B 53. B 59. D 54. B
Chapter VII: Application Equipment 60. A	Chapter VIII: C Application E	Calibrating quipment		495 X Gallon	s per minute
61. B 62. C 63. D 64. B	66. C 67. A 68. D		Gallons per acre =	Miles per hour X Tot	al width sprayed (ft)
			Gallons per acre =	495 X 1 5 X 20	= 4.95 gallons/acre

69. A By reducing your speed from 4 to 2 mph, it takes twice as long to travel the same distance, therefore, you would apply 2 times the amount of liquid.

70. B Rate is usually expressed as gallons per acre, by increasing your speed it takes less time to travel the same distance, therefore, you would apply fewer gallons of liquid (rate of application also becomes less).

71. A You must travel 2178 feet with a 20 foot boom in order to cover one acre. If you only traveled 528 feet, you would first divide 2178 by 528, and then multiply by the number of gallons applied (30). In this example: 2178 / 528 = 4.125; then, 30 gallons X 4.125 = 123.75 gallons applied per acre.

72. B	300 gallons / 25 gallons/acre = 12 acres

Cha	apter E	IX: P Equipr	erson nent (al Prot PPE)	tective		Chapter X: Minimizing Pesticide Hazards							Chap Pesti and I	oter XI: icide Storage Disposal								
73. 74. 75.	D B A	76. 77. 78.	D C D	79. 80. 81.	D A C	82. 83. 84.	D B D	85. 86. 87.	D A C	88. 89. 90.	D C C	91. 92. 93.	C D A	94. 95. 96.	D D B	97. 98. 99.	A C D	100. 101. 102.	B C D	103.	A	104. 105. 106.	B C D

The Pesticide Label Exercise – Answers

1. What is the signal word on this label and what does it indicate?

Caution – hazardous to humans and domestic animals (page 2)

2. What should you do if the concentrated product comes in contact with your skin or clothing?

Remove clothing immediately if pesticide gets inside, wash thoroughly, and put on clean clothing (or throw clothing away - not listed on label – but works for the situation) (page 2)

3. List the Personal Protective Equipment (PPE) that must be worn when applying and/or handling this product.

Long-sleeved shirt and long pants, shoes and socks. This is an example of a pesticide label that doesn't require gloves. However, we always want to ensure the safety of handlers and applicators and always recommend wearing gloves during handling or application of any pesticide. (page 2)

4. What potential hazards to the environment exist when using this pesticide?

Water contamination, buildup of product in animal waste (page 2)

5. What are the storage requirements for this product?

If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40 degrees Fahrenheit and agitated well to dissolve any crystallized active ingredient prior to use. (page 2)

6. If a restricted-entry interval (REI) is present, what is the REI?

48 hours (page 2)

7. How do the empty pesticide containers need to be cleaned and disposed?

To clean containers, triple rinse or pressure rinse. After containers have been cleaned, they can be punctured and disposed of in normal trash that gets delivered to an approved waste disposal facility such as a sanitary landfill, or offered for recycling. Incineration may be an option as well (discuss incineration - this is not a burn barrel). (page 2 and 3)

8. List the different methods of application that can be used.

Ground broadcast, aerial, high-volume foliar, spot (page 4)

9. What pest(s) does this product aim to control? List at least three pests controlled.

Weeds (musk thistle, diffuse knapweed, oxeye daisy, etc.) (page 5, 6, 7)

10. Describe the sites where this pesticide can be used. List two sites that are allowed by this label and one site that is not allowed.

Allowed: Conservation Reserve Program (CRP) acres, rights-of way, rangelands, permanent grass pastures, non-cropland areas, non-irrigation ditch banks, and natural areas (including: wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails). Not allowed: Water sites, areas where surface water is present or to intertidal areas below the mean high water mark. (page 1, 3)

11. What problems may arise from feeding cattle hay that has been treated with Milestone?

Manure and urine from animals consuming treated grass or hay may contain enough aminopyralid to cause injury to sensitive broadleaf plants. (page 3)

2015 Private Pesticide Safety Education Program Evaluation University of Nebraska–Lincoln Extension

Training session town:		Date:
County:	Circle one:	Initial Certification / Recertification

Have you attended pesticide safety education training session(s) in the past?

Yes_____ (if "Yes," please continue with question 1) No_____ (if "No," please skip to question 2)

This evaluation helps us improve the program. Your input is important. Thank you!

1.

As a result of <i>previously</i> attending pesticide safety education training session(s), I:	Never	Rarely	Occasionally	Frequently	Very frequently
(please check one)					
Reduced my pesticide use					
Used regular monitoring to correctly identify pest problems					
Used safe storage, handling, and application practices for pesticides					
Calibrated my equipment at least once per year					
Used Integrated Pest Management (IPM) methods					

2.

As a result of my participation in today's pesticide safety education training session, my knowledge level about is:	Not knowledgeable	Somewhat knowledgeable	Moderately knowledgeable	Knowledgeable	Very knowledgeable
Personal Protective Equipment (PPE)					
Reading and complying with the pesticide label					
IPM methods					
Calibrating application equipment					
Drift prevention					

3.

	Never	Rarely	Occasionally	Frequently	Very
As a result of today's pesticide safety education training session, I will:					nequentiy
(please check one)					
Use multiple IPM approaches to manage pests					
Use drift reduction nozzles or other methods to prevent drift					
Use PPE to protect my health					
Make pesticide applications according to the pesticide label					
Take steps to prevent carrying pesticide residues inside my home					
Take appropriate steps to prepare for pesticide spills					
Share pesticide safety information with family members					

4. List the crop(s) and number of acres where you apply pesticides:

Сгор	Acres
Сгор	Acres
Сгор	Acres

5. Pesticide Exposure:

A. In the past year, did you have a pesticide exposure that affected your health? (circle one)

Yes No

B. If yes, how did the exposure occur? (mark all that apply) If no. skip to 6. Driftwatch

N/A	Eye contact	Skin contact	Breathing dust or fumes	Swallowing product	Unknown
	(ocular)	(dermal)	(inhalation)	(ingestion)	

C. What symptoms did you experience following the exposure to a pesticide(s)? (mark all that apply)

N/A	Nothing	Dizziness	Headache	Skin discoloration	Coughing	Nausea	Other (please write in)

D. What did you do following the pesticide exposure? (mark all that apply)

N/A	Nothing	Sought advice from friend or internet	Called Poison Control Center	Visited doctor	Visited ER	Called ambulance	Other (please write in)

6. Driftwatch:

A. Prior to today's pesticide safety education training session, were you aware of the Driftwatch web site?

(circle one)

Yes No

If you answered "Yes" please proceed to B. (if "No," please skip to comments)

B. Have you accessed Driftwatch to see if sensitive crops were near one of your application sites? (circle

one)

Yes No

If you answered "Yes" please proceed to C. (if "No," please skip to comments)

C. If sensitive crops were adjacent to your site, did you take extra steps to avoid drift at this application site? (circle one)

No sensitive sites nearby No extra steps taken

Yes, extra steps were taken

Comments:

2015 Extension Educator In-service

2015 Commercial/Noncommercial PSEP Evaluation For use following General Standards Recertification Sessions University of Nebraska–Lincoln Extension

Training session location: _____ Date: _____

Have you attended pesticide safety education training session(s) in the past?

Yes_____ (if "Yes," please continue with question 1) No_____ (if "No," please skip to question 2)

This evaluation helps us improve the program. Your input is important. Thank you!

1.

As a result of <i>previously</i> attending pesticide safety education training session(s), I:	Never	Rarely	Occasionally	Frequently	Very frequently
(please check one)					
Reduced my pesticide use					
Used regular monitoring to correctly identify pest problems					
Used safe storage, handling, and application practices for pesticides					
Calibrated my equipment at least once per year					
Used Integrated Pest Management (IPM) methods					

2.

As a result of my participation in today's pesticide safety education training, my knowledge level about is:	Not Knowledgeable	Somewhat knowledgeable	Moderately knowledgeable	Knowledgeable	Very knowledgeable
(please check one)					
Personal Protective Equipment (PPE)					
Reading and complying with the pesticide label					
IPM methods					
Protecting endangered species					
Calibrating application equipment					
Drift prevention					

3.

As a result of today's pesticide safety education training session, I will:	Never	Rarely	Occasionally	Frequently	Very frequently
(please check one)					
Use multiple IPM approaches to manage pests					
Use drift reduction nozzles or other methods to prevent drift					
Use PPE to comply with the label and to protect my health					
Make pesticide applications according to the pesticide label					
Take steps to prevent carrying pesticide residues inside my home					
Take appropriate steps to prepare for pesticide spills					
Share pesticide safety information with family members					

2015 Extension Educator In-service

4. Pesticide Exposure:

A. In the past year, did you have a pesticide exposure that affected your health? (circle one)

Yes No

B. If yes, how did the exposure occur? (mark all that apply)

If no, skip to 5. Driftwatch

N/A	Eye contact (ocular)	Skin contact (dermal)	Breathing dust or fumes (inhalation)	Swallowing product (ingestion)	Unknown

C. What symptoms did you experience following the exposure to a pesticide(s)? (mark all that apply)

N/A	Nothing	Dizziness	Headache	Skin discoloration	Coughing	Nausea	Other (please write in)

D. What did you do following the pesticide exposure? (mark all that apply)

N/A	Nothing	Sought advice from friend or internet	Called Poison Control Center	Visited doctor	Visited ER	Called ambulance	Other (please write in)

5. Driftwatch:

A. Prior to today's pesticide safety education training session, were you aware of the Driftwatch web site?

(circle one)

Yes No

No

If you answered "Yes" please proceed to **B.** (if "No," please skip to comments)

B. Have you accessed Driftwatch to see if sensitive crops were near one of your application sites? (circle one)

Yes

If you answered "Yes" please proceed to C. (if "No," please skip to comments)

C. If sensitive crops were adjacent to your site, did you take extra steps to avoid drift at this application site? (circle one)

No sensitive sites nearby	No extra steps taken	Yes, extra steps were taken
---------------------------	----------------------	-----------------------------

Comments:__



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