

North Carolina Department of Agriculture & Consumer Services

Steve Troxler, Agriculture Commissioner

**James W. Burnette, Jr.
Director**

**NC's Role in Protecting People, Pets, Wildlife,
& the Environment with the Safe Use of
Pesticides in Agriculture & at Home**

**10th One Medicine Symposium
December 12, 2013**

Pesticide Regulation

Federal Law

Environmental Protection Agency
(FIFRA)



State Law (SLA)

NC Dept. of Agriculture & CS
(Commissioner of Agriculture)



Structural Pest Control & Pesticides Division

Pesticides Section
(NC Pesticide Law of 1971)

Structural Pest Control Section
(NC Structural Pest Control Act of 1955)

Sleep Products Section
(NC Bedding Law)

NC Pesticide Board

NC Pesticide Advisory
Committee

Structural Pest Control
Committee

Board of Agriculture

Pesticide Section

“to protect the public health, safety and welfare ... , promote continued environmental quality, and promote continued availability of stable, inexpensive, high-quality supplies of food, fiber, and forest product, etc., by minimizing and managing risks associated with the legal use of pesticides.”

Administers and enforces the North Carolina Pesticide Law of 1971, Chapter 143, Article 52 of the NC General Statutes and Regulations adopted by the Governor-appointed NC Pesticide Board, Chapter 2 Subchapter 9L. NC Administrative Code

Structural Pest Control Section

“ to protect the health and safety of the public and the environment by regulating the structural pest control industry and the pesticide products used to improve the quality of structural pest control services and reduce fraudulent, unscrupulous activities.”

Administers and enforces the North Carolina Structural Pest Control Law of 1955, Chapter 106, Article 4C of the NC General Statutes and Regulations adopted by the NC Structural Pest Control Committee, Chapter 34, NC Administrative Code

Sleep Products Section

The Sleep Products Section transferred from the N.C. Department of Environment and Natural Resources and become part of the NCDA&CS Structural Pest Control & Pesticides Division on July 1, 2011.

- Originally enacted in 1937, North Carolina's General Statutes provide for regulation, inspection and licensure of all sleep products either sold or manufactured within the state. Especially important in today's increasingly global market place, the Sleep Products Section ensures that new products adhere to rigorous sanitary standards and regulates the sanitizing processes for used or second-hand bedding products.
- **Bed Bugs:** <http://www.ncagr.gov/SPCAP/sleep/Bedbugs.htm>

Services to the State

- Pesticide registration, Pesticide Label Review
- Licensing, Pesticide safety training
- Outreach, Education, Disposal Assistance
- Ag worker, consumer, public health and environmental protections
- Compliance Monitoring, Investigation, Emergency Response---CONSUMER PROTECTION

Pesticides, People & Pets

Rodenticides

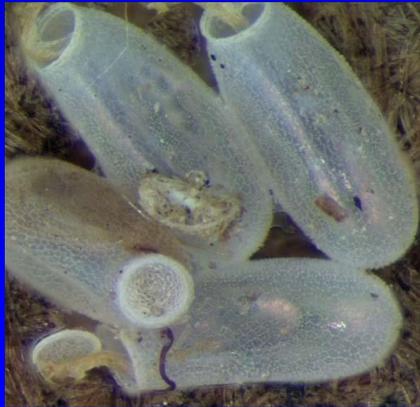
- 2008 EPA Risk-reduction measures to protect children, pets, & wildlife, restricting:
 - Bait stations instead of loose bait
 - Tamper-resistant (children & dogs)
 - Weather-resistant
 - Residential use of some 2nd gen. anticoagulants
 - Amount of active ingredient
- Failure to comply → NOIC 12 D-Con Mouse & Rat Control Products.

Food Safety

- Cooperation with Food & Drug Division concerning pesticide residues in food (e.g., watermelons & acephate)
- Food Safety Modernization Act (FSMA)
Proposed Rule for Produce
- Never store pesticides in used food containers
 - Paraquat poisoning in 8-year old boy via soda bottle in NC (Nov 2008)
 - Monocrotophos poisoning via cooking oil in India (July 2013)

Bed Bugs: Why are They Back?

- Greater International & Domestic Travel
- Increased resistance to available pesticides
- Pest control changes from spraying for roaches to use of baits, which bed bugs DO NOT eat
- Many pesticide products are ineffective because of product chemistry, bed bug biology & life history.



- Fumigation, Heat treatments - no residual activity

North Carolina Case study

- 65 yr. old female deceased (official cause of death--cardiac arrest), May, 2010. History of significant medical problems—including current dialysis treatments
- One week prior to incident--9 bombs of Hot Shot Fogger in unventilated, Double-wide Mobile Home
- Later that same week 9 bombs of Hot Shot Bedbug and Flea Fogger. No ventilation prior to re-occupancy.
- Ready to use Ortho Home Defense Max applied to baseboards, walls, etc.—hoarder—could not open windows
- Ortho Lawn & Garden Insect Killer, mixed at a rate of two capfuls to a gallon of water applied to the bed and bed box spring
- Hot Shot Bedbug & Flea Killer was applied by victim first to her hair and then she sprayed some of it on toilet tissues and applied to open sores throughout her body—Covered hair with plastic bag

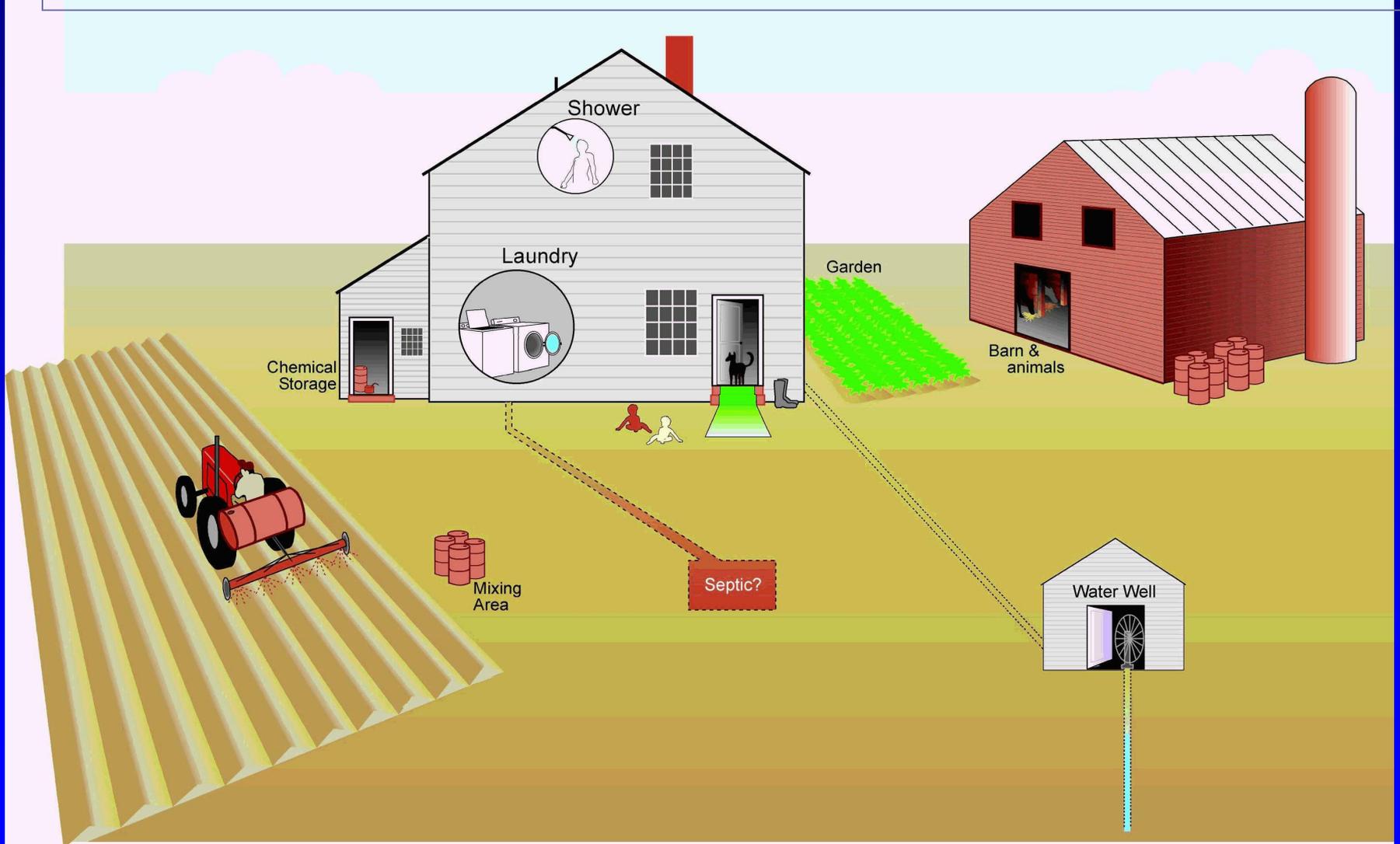
People will resort to desperate actions—heightened national concern about misuse of outdoor pesticides indoors

EPA's Ongoing Activities

- Encouraging registration of new pesticides & new uses of existing pesticides to control bed bugs
 - Expedited registration review of new reduced risk products
 - Reviewing new studies on previously registered products (Propoxur)
 - OCSPP 810.3900: *Laboratory Testing Methods for Bed Bug Pesticide Products* (EPA Guideline Draft; Feb 14, 2012)
- Web site promoting IPM & proper use of pesticides, includes searchable list of EPA-registered products
- 2nd National Bed Bug Summit, February 2011
- \$550K for Bed Bug Education/Outreach & Environmental Justice –awarded April, 2011

Pesticides & Agriculture

Grower, Worker, Family Risk Opportunities



The Worker Protection Standard (WPS - agriculture only)

- Employers must protect workers & handlers against possible harm from pesticides (farms, forestry, nursery plant production).
- Protection during applications
- Restricted-entry intervals (REI)
- Personal protective equipment (PPE)
- Notification to workers -- treated areas
- Decontamination supplies
- Emergency assistance



Soil Fumigants

Mitigation Measures

- Phase I- on labels late 2010
 - Agricultural Worker Protection
 - Handler Training Info
 - Good Agricultural Practices
 - Application method, practice, & rate restrictions
 - RUP Classification
- Phase II- on labels late 2012
 - Buffer zones & posting
 - Emergency preparation & response
 - Training for certified applicators
 - Fumigant Management Plans
 - Notice to State Lead Agencies

Livestock

- Grazing restrictions – toxicity to animal (cattle, goat, sheep) and/or illegal residues in meat, milk.



- Poultry – toxicity to animal and/or illegal residues in meat, eggs



Water Protection

- 1000 pesticide products with surface water and/or groundwater concerns registered for use in NC (leaching, drift, run-off, toxicity)
- Some pesticides (e.g., imazapyr, herbicide for ROW, aquatic vegetation, & rangeland weeds) may restrict:
 - Public water supply intake (1/2 mile set-back & 2 day interval restricting use)
 - Swimming; Fishing
 - Water for irrigation, livestock use
- NPDES Pesticide General Permit

Drinking Water Survey

- Free water testing offered since 1999 to certified private applicators who complete a survey form
- Water sample collection kit sent to over 1,700 farmers
- Atrazine & alachlor immunoassay test kits used by NCDACS laboratory to analyze samples
- 145 of 1,711 water sources tested positive with the test kits
- 97 of 145 water sources had pesticides and breakdown chemicals detected by conventional laboratory methods
- Exceeded the MCL: alachlor 3 wells & atrazine 1 well
- Registrants offered to replace well or install filtration system

Pesticide Container Recycling

- NCDACS Pesticide Environmental Trust Fund has awarded grants totaling over \$1.1 million to county agencies since 1995 to purchase collection containers, signage, & pressure rinse nozzles to implement & enhance recycling programs
- Ranked 5th in the US in 2012 with over 496,000 pounds recycled; 8th since 1995 with over 5.5 million pounds recycled
- Collection sites at solid waste, dealer, CE, & farm facilities



Pesticide Disposal Assistance Program

- NC was very 1st in Nation!
- Established in 1980 to assist Farmers and Homeowners with the safe & proper disposal of pesticides.
- Average collection of approximately 140K lbs pesticides /yr
- Approaching 3 MILLION pounds collected since program inception!



Pesticide Disposal Assistance Program

- Statewide hosting of collection events
 - Special case onsite evaluation
- Household hazardous waste assistance



For a collection site near you go to:
www.ncagr.com/pdap
For Pesticide Disposal Assistance Call:
919-733-7366 or 919-733-3556

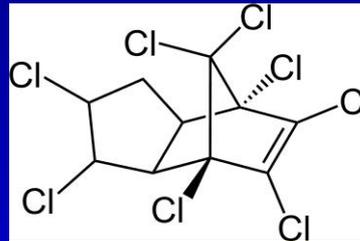
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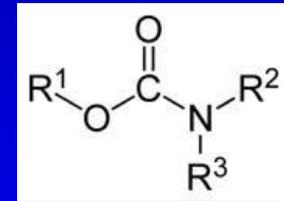
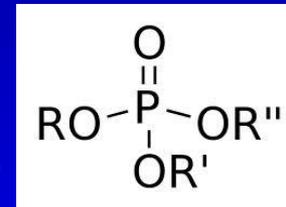
Pesticides & the Environment

History Lessons of Pesticide Development

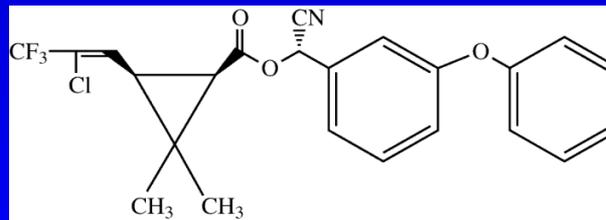
- Organochlorines



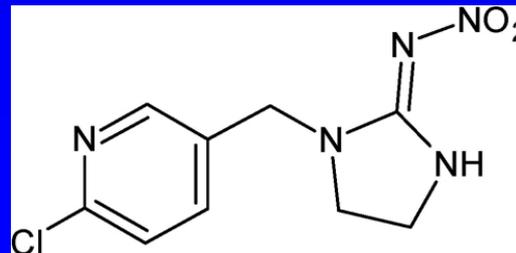
- Organophosphates & Carbamates



- Pyrethroids



- Neonicotinoids



Organochlorines

- Organochlorines (e.g., DDT) came into widespread use as insecticides after WWII.
- Very effective insecticides.
- Persistent in environment and body.
- Biomagnification up the food chain.
- Populations of birds at top of food chain declined almost to extinction.



DDT & Egg shells



- High levels of DDT in these birds interferes with the calcium secreted into eggs.
- Egg shell thickness during DDT use was 10-20% lower than pre-1940 measurements.
- For peregrine falcons, # egg clutches w/ broken eggs ↑10-fold (4% to 39%).
- Populations recovered following 1972 ban.



Organophosphates & Carbamates

- Degrade rapidly in sunlight, air, & soil; therefore preferred over persistent organochlorines.
- Greater acute toxicity than organochlorines.
- Mode of action for target pest (inhibit AChE) also occurs in non-target species (humans, other animals).
- Higher risk of accidental or intentional poisoning.

NC Case: Temik in Watermelons

- On July 21, 2009, 7 workers at hog farm at Lenoir/Jones Co. line hospitalized after eating watermelon from personal garden at hog farm.
- Farm manager suspected use of Temik b/c he found a bucket (unlabeled) of what he thought was Temik in storage building.
- Inspector found grayish granules on the ground around the watermelon vines.

NC Case: Temik in Watermelons

- Analytical tests of melons confirmed presence of aldicarb & its metabolites.
- Systemic pesticide: applied to soil → taken up through roots and travels through stem to leaves & fruit.
- Oral toxicity does not have to be due to direct ingestion of the pesticide. Reason for specific label uses and sites.

Pyrethroids

- Pyrethroids exhibit much lower toxicity to humans & most wildlife compared to insects.
- However, highly toxic to fish and aquatic invertebrates → buffer zones, run-off, drift.



- 2012 Case of bifenthrin run-off from cotton field into canal → killed 2000 blue crabs in neighbor's soft-shell crab operation.



Neonicotinoids

- Selectively more toxic to insects vs warm-blood animals by blocking nicotinic AChE receptor (more abundant in insects).
- Some highly toxic to pollinating insects (bees)
- New guidance for Inspecting Alleged Cases of Pesticide-Related Bee Incidents (5/2013)
- Recent label changes to protect honeybees & native pollinators by restricting application of some neonicotinoids when blooms are present (8/2013)

Neonicotinoids

- Lethal effects (neurotoxic)
- Sublethal effects (behavioral): disorientation → affected navigation, decreased foraging, feeding larvae, & tending of hive).
- 2^o effects (immune → infection: microsporidian *Nosema*; parasitic mite *Varroa destructor*; parasitic fly *Apocephalus*).



Pesticide Product w/ Bee Warning

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Do not apply when weather conditions favor drift from treated areas. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not apply where runoff is likely to occur. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

This product is toxic to bees exposed to treatment and for more than 5 days following treatment. Do not apply this product to blooming, pollen-shedding, or nectar-producing parts of plants if bees may forage on plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

Notify Beekeepers

“Any person who hires the services of an aerial applicator to apply a pesticide labeled as toxic to bees shall notify the owner or operator of any registered apiary located within one-half mile of the target area not less than twenty-four hours nor more than ten days prior to the beginning of a single application”

➤ NC Pesticide Rule 02 NCAC 09L .1009

- Registered apiaries: only 16 in NC in 2012
- NC Beekeeper Association: >2000 members
- Many more beekeepers than members

Endangered & Threatened Species

62 species in NC

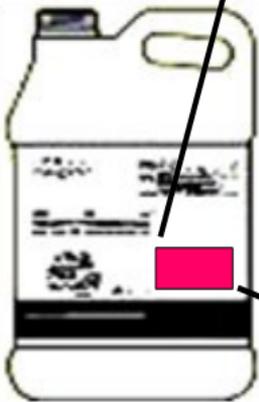


95 products with E/T species alerts registered in NC

(Jan. 30, 2012).

Endangered Species Protection Statements

“This product may have effects on endangered species. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the county in which you are applying the product. To obtain Bulletins, consult www.epa.gov/espp, or call 1-800-447-3813 no more than six months before using this product. You must use the Bulletin valid for the month in which you will apply the product.”





Quick Resources

- Search by active ingredient or by State

Bulletins Live!

Protecting Endangered Species

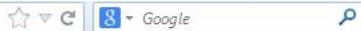


Choose a state

Choose a county

Directions: To access your Endangered Species Protection Bulletin, either use the drop-down menu to select your state and county OR use the map to select the state you wish to view.

NC Structural Pest Control & Pesticides Web Site

www.ncagr.gov/SPCAP/ 



NORTH CAROLINA
DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES

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[Pesticides Section](#)
[Sleep Products](#)

STRUCTURAL PEST CONTROL & PESTICIDE division



The L. Y. Ballentine Building
2109 Blue Ridge Road
Raleigh, NC

Structural Pest Control Section

Phone: (919) 733-6100
FAX: (919) 733-0633

Structural Pest Control Section
Mission Statement

To protect the health and safety of the public and the environment by regulating the structural pest control industry and the pesticide products used, to improve the quality of structural pest control services and reduce fraudulent, unscrupulous activities.

[Visit The Structural Pest Control Section](#)

Pesticides Section

Phone: (919) 733-3556
FAX: (919) 733-9796

Pesticides Section
Mission Statement

To protect the public health, safety and welfare, and to promote continued environmental quality by minimizing and managing risks associated with the legal use of pesticides through administration and enforcement of the N.C. Pesticide Law of 1971 and pursuant regulations adopted by the N.C. Pesticide Board.

[Visit The Pesticides Section](#)

Sleep Products Section

Phone: (919) 733-3556

Sleep Products Section
Mission Statement

To protect the public health, safety and welfare and to promote continued environmental health quality for the citizens of North Carolina by minimizing health risks associated with the illegal manufacture, registration of and/or the sale of unsanitary bedding and bedding products. By enforcing the laws and regulations to sell, manufacture and sanitize bedding and bedding products in this State.

[Visit The Sleep Products Section](#)

Happy Holidays!

