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PESTICIDE PROGRAM IN NORTH CAROLINA HAS STRENGTHS, WEAKNESSES

North Carolina's program for regulating pesticides has shortcomings that detract from its strengths, the N.C. Center for Public Policy Research says. The pesticide program needs to curb violations by crop dusters and exterminators, assess harsher fines on repeat violators, and achieve more balance on the boards that oversee pesticide use, the Center says.

The 50-state study is published in the September issue of the Center's journal, *North Carolina Insight*. The two-year study also found that North Carolina trails many states in record-keeping and training requirements for pesticide applicators.

"North Carolina's pesticide program is not a laggard compared to other states," says Tom Mather, associate editor of *Insight*. "But the program has some significant weaknesses that should be addressed."

The Center's study is based on a review of five years of pesticide enforcement records from the N.C. Department of Agriculture, a survey of pesticide program administrators in all 50 states, and extensive interviews. The special edition of *Insight* includes an overview of the benefits and hazards of pesticides and a summary of federal and state pesticide legislation.

The Center also identified strengths in the N.C. Department of Agriculture's regulation of pesticides. The 50-state survey found that North Carolina's pesticide program was among the most comprehensive in the extent of its statutory duties and regulatory powers. North Carolina also ranked high in its total budget for pesticide programs, total fines assessed on violators, applicator licenses suspended or revoked, and complaints investigated.

To improve pesticide regulation in North Carolina, the Center recommends that the state:

- * Revise its system for penalizing pesticide violators so that it assesses harsher fines for more serious offenses and repeat offenders;
- * Take steps to reduce the number of violations by aerial applicators, or crop dusters, who account for an undue proportion of pesticide violations;
- * Achieve a broader balance of interests on pesticide oversight boards, which are heavily weighted with representatives from

agriculture, industry, and state government agencies;

- * Compile records on pesticide use in order to deal with potential health or environmental problems, such as groundwater contamination; and

- * Increase training requirements for pesticide applicators, particularly aerial applicators and exterminators.

Some of these proposals mirror recommendations made in 1989 by the Legislative Research Commission's Committee on Pest Control. That study commission recommended tighter limits on aerial applicators and proposed that the state collect data on pesticide usage and sales.

Laws Seek to Balance Benefits and Hazards of Pesticides

Pesticides are substances used to kill or control insects, weeds, and other pests. In North Carolina alone, more than 12,000 pesticide products are registered with the Department of Agriculture.

Like medicinal drugs, pesticides can provide substantial benefits while posing serious potential hazards. Pesticides have important uses in increasing crop production, curbing insect-borne diseases, and preventing pest damage to buildings, food, and stored products. But the toxicity of many pesticides can cause health problems and damage the environment. The dual nature of pesticides is reflected in current laws, which direct government agencies to weigh the benefits against the hazards when regulating their use.

"The thrust of pesticide regulation has always been that they are necessary evils for the production of food and fiber," says John L. Smith, administrator of North Carolina's pesticide program.

Pesticides have been one of the focal points of the environmental movement ever since the 1962 publication of Rachel Carson's landmark book, *Silent Spring*.

Groundwater contamination is one of the most serious concerns about pesticides. An example of such problems can be found in the Pear Meadows subdivision near Fuquay-Varina in Wake County. Residents of the 38-home neighborhood have had to use bottled water since February 1994, when state investigators posted warnings on their doors. The neighborhood's well is contaminated by unsafe levels of ethylene dibromide (EDB), a suspected cause of cancer. State officials suspect the contamination resulted from agricultural use because the area was once a tobacco farm.

Exterminator treatments also can contaminate wells. One Stanly County family's drinking water was rendered undrinkable after a termite application tainted their well. High levels of the pesticide Dursban turned up in the family's water, even though the well was about 50 feet from their house and the exterminator apparently followed correct procedures.

"This is an underestimated problem," says Dr. Ken Rudo, a toxicologist with the state Environmental Epidemiology Section. "I've seen this happen a couple of dozen times over the past few years. And

these are just the cases we know about."

The state departments of Agriculture and Environment, Health, and Natural Resources are conducting a statewide groundwater monitoring study, which eventually will test more than 150 wells in 65 counties. Although the study won't be completed until 1995, preliminary tests have detected pesticides in about 6 percent of the wells sampled, with levels in two wells exceeding recommended health standards.

Stronger Penalties Needed For Serious Violations and Repeat Offenders

The Center's review of the N.C. Department of Agriculture's pesticide enforcement actions found numerous inconsistencies in the severity of fines and suspensions assessed on violators. These problems are most apparent with the Pesticide Board, which negotiates settlements with violators rather than using a standardized penalty system. Such inconsistencies give the impression that penalties are more related to the negotiating skill of violators or their lawyers than the severity of their offenses.

To dispel that notion, the Center recommends that the N.C. Department of Agriculture and the Pesticide Board revise their system for punishing violators of pesticide regulations to: (a) assess more consistent fines and penalties; (b) punish serious violations and repeat offenses more harshly; and (c) cease the current practice of negotiating penalties with violators. The Center says the Pesticide Board should develop a penalty system that is based on factors such as the severity of incidents, damages, illnesses or deaths, and number of previous violations.

This new penalty system would be comparable to the "point system" used for traffic violators, the Center says. Several Pesticide Board members have advocated such a point system while criticizing the current method of negotiating fines. The Department of Agriculture's Structural Pest Control Division already uses a similar penalty system -- resulting in more consistent fines and penalties.

"What you want to do is get the bad apples out," says board member Greg Smith, a physician with the N.C. Department of Environment, Health, and Natural Resources.

State law now limits pesticide fines to \$2,000 per violation, but the pesticide oversight boards rarely assess fines near this maximum. The Center's survey shows that the average pesticide fine in North Carolina is much lower than in many states, even though North Carolina is among the leaders in total fines. The average fine in North Carolina from 1990-92 was \$601 -- less than one-fifth of the average in other states, which was \$3,519 per fine.

Tighter Controls Needed on Aerial Application

Center research found that aerial applicators, or crop dusters, had the highest violation rate among pesticide users. From 1988 to 1992, aerial applicators were involved in 27 violation incidents per 100 applicators -- a rate four times higher than the next-highest

group, exterminators. Aerial applicators also accounted for more than a third of the repeat violators in this five-year period.

These findings show that the Pesticide Board should act to reduce the numbers of violations by aerial applicators, the Center says. Such actions should include imposing harsher penalties on repeat offenders and requiring aerial applicators to notify nearby residents by posting signs before spraying crops with pesticides.

Pilots who apply pesticides say their higher violation rate is due to the large amount of land they treat compared to other applicators and the strictness of North Carolina's regulations. But research shows that aerial spraying also is more prone to drift off-site than other types of pesticide application, thereby posing greater hazards to the environment and public health.

"North Carolina regulations already prohibit all drift from aerial spraying. It's hard to get much tougher than that," the Center's Mather says. "Yet more targeted action is clearly needed to reduce complaints and violations. Imposing harsher penalties on repeat violators is one step in that direction, and notifying residents before spraying is another."

Pilots have opposed notification requirements because of the difficulties involved in contacting residents by letter, telephone, or advertisement. The Center recommends instead that pilots notify nearby residents by posting signs around fields before spraying. Pesticide regulators in Massachusetts say they have reduced aerial application problems by requiring pilots to post such signs.

Pesticide Oversight Boards Need More Balance

The three panels overseeing the state's pesticide programs are heavily weighted with representatives from agriculture, industry, and state agencies, the Center found. These panels include the Pesticide Board, the Pesticide Advisory Committee, and the Structural Pest Control Committee. Of the panels' 34 total members, only two now represent environmental or conservation interests outside of state government. The Center says the legislature needs to ensure that these panels include more representation from other groups that have a stake in pesticide regulation, such as environmentalists, farmworkers, and farmers who use alternative methods of pest control.

The need for change also is apparent, the Center says, because the Pesticide Board's membership roster currently violates the state Pesticide Law. The law specifies that one at-large member of the Pesticide Board shall be a "nongovernmental conservationist," but no member meets that qualification. Of the two at-large members, board Chairman Jerry Coker is an engineer in Plymouth, and Lu Ann Whitaker is a Raleigh homemaker.

"The Pesticide Board, on paper, is fairly representative," says Allen Spalt, director of the Agricultural Resources Center, a Carrboro-based environmental group. "But if you ever look into the backgrounds of the people who fill those seats, there's never been a

conservationist appointed to that seat on the board."

The Center recommends that the General Assembly rewrite the statutes regarding appointments to the state's three pesticide oversight and advisory panels to ensure that each board includes a broader balance of interests. The Center also says the Governor and the Pesticide Board should closely follow the requirements of the state Pesticide Law when making any new appointments to these boards.

Better Records Needed on Pesticide Usage

Neither North Carolina nor the federal government require pesticide applicators to report the amounts of chemicals they use. Therefore, there are no solid numbers on the amounts of pesticides applied in each county or state. The same is true for pesticide-related health records.

The Center recommends that the N.C. Department of Agriculture start compiling data on the amounts of pesticides used statewide in order to identify potential health and environmental problems, such as groundwater contamination. North Carolina also should require hospitals and physicians to report pesticide-related illnesses, injuries, and deaths -- as do 13 other states, the Center says.

Despite the lack of federal reporting requirements, at least 10 states already collect pesticide usage data. States with reporting requirements have used their records to monitor and deal with health and environmental problems.

"I just think we need to remove a lot of the mystery from all of this," says David Moreau, chair of the N.C. Environmental Management Commission and director of the UNC Water Resources Research Institute. "From an environmental standpoint, we clearly want to identify and study those chemicals that are widely used -- and hazardous."

Critics say compiling pesticide-use data would be a burden for farmers and would sap resources from regulatory programs. "Collecting [pesticide] use data from all over the state at this point would be of questionable value given the costs and other environmental issues," says George Everett, director of the Chemical Industry Council of N.C.

Federal law already requires applicators to keep records on their use of restricted-use pesticides. Applicators must supply those records upon request to regulators, inspectors, or licensed health-care professionals. But the law does not require pesticide users to report that information to the states or to the federal government.

"Farmers and other pesticide users are required to keep records, but they send them to no one," Mather says. "That's a recipe for future problems, such as groundwater contamination."

Stronger Training Requirements Needed For Pesticide Applicators

North Carolina's pesticide training program is much less extensive than most states, the Center found. For example, Colorado's

annual requirements range from 12 hours for commercial applicators to more than 50 hours for exterminators. Most North Carolina applicators need less than two hours per year to keep their certifications. Some pesticide applicators, such as lawn-care and exterminator technicians, receive virtually no formal training at all.

"North Carolina is among the leaders in penalizing pesticide violators, but our survey suggests that the state could do a better job of preventing violations," Mather says. "Stronger educational requirements are an effective way to put more emphasis on prevention."

The Center recommends that the Pesticide Board and the Structural Pest Control Committee increase the training requirements for pesticide applicators. At a minimum, the state should require all applicators to complete 10 hours of training every three years. Stronger training requirements are particularly important for aerial applicators and exterminators because of their higher violation rates and potential to affect public health and the environment.

The N.C. Center for Public Policy Research is an independent, nonpartisan, nonprofit organization created to study public policy issues facing North Carolina and to evaluate state government. The Center receives general operating support from the Z. Smith Reynolds and Mary Reynolds Babcock Foundations, 150 corporate contributors, and about 850 individual and organizational members. Grants from the W.K. Kellogg Foundation of Battle Creek, Mich., and the Kathleen Price and Joseph M. Bryan Family Foundation of Greensboro provided additional support for the Center's study of state regulation of pesticides and related public education activities.

In addition to publishing *North Carolina Insight*, the Center also publishes book-length research reports. It has conducted studies on topics such as voter participation, nursing home regulation, and how the University of North Carolina system evaluates and rewards teaching performance. The Center also publishes *Article II*, a citizen's guide to the legislature, as well as rankings of the effectiveness of all 170 legislators and rankings of the 50 most influential lobbyists.

Copies of the issue of *Insight* magazine containing the Center's research on the state regulation of pesticides can be obtained from the Center for \$14.75, which includes tax, postage, and handling. To order, call (919) 832-2839, or write the N.C. Center, P.O. Box 430, Raleigh, NC 27602.

For more information, call *Insight's* associate editor, Tom Mather, at the Center at (919) 832-2839.

Table 10.
Violations of North Carolina Pesticide Regulations by
License or Certification Type, 1988-92

License or Certification Type	Number of Licenses ¹	Total Incidents ²	Percent of Total ³	Violation Rate ⁴
Aerial Applicators	194	53	7.9%	27.3%
Structural Pest Applicators ⁵	3,428	252	37.4%	7.4%
Pesticide Dealers, Producers	986	30	4.5%	3.0%
Commercial Pesticide Applicators	3,509	74	11.0%	2.1%
Pest Control Consultants	65	1	0.1%	1.5%
Public Operators	2,443	14	2.1%	0.6%
Certified Private Applicators	28,650	81	12.0%	0.3%
Unlicensed Violators ⁶	NA	169	25.1%	NA

¹ Source: N.C. Department of Agriculture. Average annual number of licenses or certifications by category, 1988-92, except private applicators, which are averaged from 1991-92. The number of private certifications per year dropped about 50 percent in 1991, when the N.C. Pesticide Board began requiring periodic renewals of certifications. (Previously, they had been permanent.)

² Total violation incidents per category, 1988-92, that culminated in regulatory actions such as hearings or settlement agreements.

³ Percent of total violation incidents per category, 1988-92.

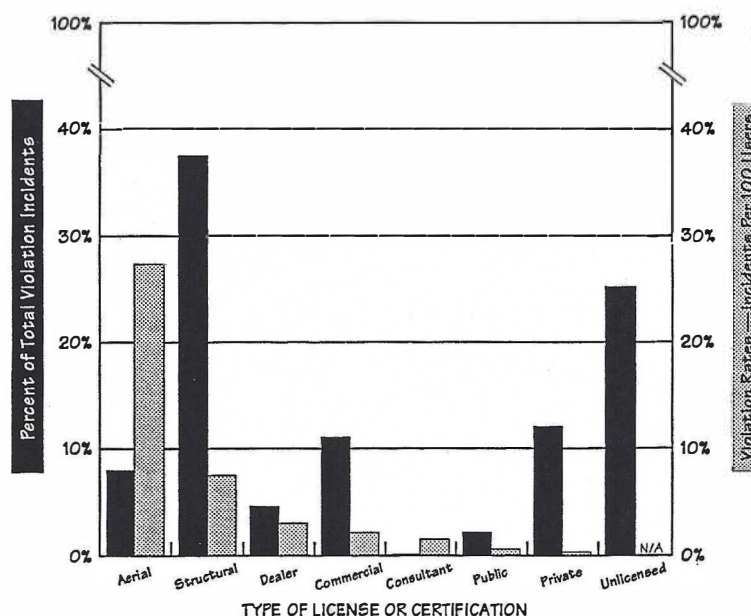
⁴ Violation Rate = Total Violations/ Number of Licenses x 100.

⁵ Average annual number for all registered structural pest control applicators (exterminators), including licensees, certified applicators, and technicians.

⁶ Includes unlicensed or uncertified users cited for violations by the Pesticide Board or the Structural Pest Control Division.

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Figure 5.
Violations by Pesticide Applicator Types, 1988-92



Source: N.C. Department of Agriculture

Table 11.
Top Repeat Violators of North Carolina Pesticide Regulations, 1988-92¹

Name	Number of Violation Incidents ²	License Type ³	Total Fines	Other Penalties
Roy W. Wood, Wood Spraying Service, Raeford (Hoke)	6	Aerial	\$3,950	6 months suspension
Herman Ray Meads, Elizabeth City (Pasquotank)	6	Aerial	\$2,800	none
Dudley Carroll Vann, Vann Aero Service, Greenville (Pitt)	5	Aerial	\$1,700	1 month suspension
S. Alan King, King Exterminating Co. of the Coast, New Bern (Craven) ⁴	4	Structural	\$9,900	3 months probation
Henry F. Kessler, Southern Pest Control, Charlotte (Mecklenburg)	3	Structural	\$2,000	18 months probation
Boyd W. Childers, C&C Exterminating Co., Hickory (Catawba)	3	Structural	\$1,400	none
Richard V. Hanson Jr., Spiritine Exterminators, Wilmington (New Hanover)	3	Structural	\$1,050	none
Isaac Floyd Jr., Floco Pest Control Inc., Rocky Mount (Edgecombe) ⁵	3	Structural	\$900	none
Randall A. Hill, Ranger Helicopter Services, Roanoke, Va.	3	Aerial	\$700	16 months suspension
John W. Fleming Jr., Fleming Pest Control, Mount Airy (Surry)	3	Structural	\$600	license revoked
Arvel R. Hill, H&L Pest Control, Dallas (Gaston)	3	Structural	\$500	18 months probation
Farmway Chemical Corp., Farmingdale, N. Y.	3	NA ⁶	\$400	NA
Alvin R. McCraw, Hendersonville (Henderson)	3	Private	\$300	1 month suspension
John Steve Newsome, Newsome Spray Service, Woodland (Northampton)	3	Aerial	0	3 months suspension

¹ *Source:* N.C. Department of Agriculture. Based on enforcement records from the N.C. Pesticide Board, which primarily regulates agricultural uses of pesticides, and the N.C. Structural Pest Control Division, which primarily regulates exterminators.

² Total number of settlement agreements and hearings in which applicator was cited from 1988 to 1992.

³ Aerial = Aerial applicators of pesticides; Structural = Exterminators or structural pest control applicators; Private = Private certified applicators, including most farmers.

⁴ King is also affiliated with King Exterminating Co. of Rocky Mount (Nash), which was not responsible for the violations listed above.

⁵ Floyd is now affiliated with Mantis Pest Control of Rocky Mount, which was not responsible for the violations listed above.

⁶ Not applicable — company not registered in North Carolina.

Table 12. Highlights of Lead Pesticide Programs by State¹

State	Type of Lead Pesticide Agency ²	Total Budget, FY 92-93	Total Budgeted Staff, FY 92-93	Total Product Registration Fees ³	Over-sight Board? ⁴	Total State Population, 1990 ⁵	Acres of Crops Harvested 1990 ⁶
Alabama	Agriculture	NA	18	\$870,000	No	4,041,000	2,342,000
Alaska	Environment	\$307,000	4	0	No	550,000	NA
Arizona	Agriculture	\$1,621,164	29	\$180,000	No	3,665,000	802,000
Arkansas	Agriculture	NR	NR	NR	NR	2,351,000	8,080,000
California	Environment	\$44,050,000	372	\$2,054,000	No	29,760,000	4,797,000
Colorado	Agriculture	NA	NA	NA	No	3,294,000	5,862,000
Connecticut	Environment	\$895,600	14	\$499,080	No	3,287,000	129,000
Delaware	Agriculture	\$450,167	8	\$182,118	Yes	666,000	496,000
Florida	Agriculture	\$5,877,858	121	\$2,897,300	Yes	12,938,000	1,076,000
Georgia	Agriculture	\$2,502,610	35	NA	Yes	6,478,000	3,793,000
Hawaii	Agriculture	\$1,100,000	25	NA	Yes	1,108,000	79,000
Idaho	Agriculture	NR	NR	NR	NR	1,007,000	4,281,000
Illinois	Agriculture	NR	NR	NR	NR	11,431,000	22,759,000
Indiana	University	NR	NR	NR	NR	5,544,000	11,485,000
Iowa	Agriculture	\$1,800,000	22	\$1,600,000	Yes	2,777,000	23,276,000
Kansas	Agriculture	\$1,196,296	25	\$236,460	Yes	2,478,000	20,978,000
Kentucky	Agriculture	NA	37	NA	No	3,685,000	5,505,000
Louisiana	Agriculture	\$2,579,274	4	\$2,000,000	Yes	4,220,000	4,367,000
Maine	Agriculture	\$773,685	12	\$510,340	Yes	1,228,000	361,000
Maryland	Agriculture	\$1,317,628	25	\$619,940	Yes	4,781,000	1,552,000
Massachusetts	Agriculture	NA	13	\$600,000	Yes	6,016,000	135,000
Michigan	Agriculture	\$2,994,300	41	\$855,300	No	9,295,000	6,510,000
Minnesota	Agriculture	\$2,650,000	40	\$3,300,000	No	4,375,000	18,779,000
Mississippi	Agriculture	\$762,053	19	\$366,050	Yes	2,573,000	4,723,000
Missouri	Agriculture	\$547,720	17	\$148,290	No	5,117,000	12,685,000
Montana	Agriculture	\$1,360,850	32	NA	No	779,000	8,926,000
Nebraska ⁷	Agriculture	\$85,000	2	\$68,500	Yes	1,578,000	18,044,000
Nevada	Agriculture	\$500,000	5	\$125,000	Yes	1,202,000	520,000
New Hampshire	Agriculture	\$450,000	7	\$260,000	Yes	1,109,000	91,000
New Jersey	Environment	\$3,000,000	45	\$2,180,000	No	7,730,000	364,000
New Mexico	Agriculture	NR	NR	NR	NR	1,515,000	881,000
New York	Environment	\$2,850,000	51	\$1,190,000	No	17,990,000	3,538,000
North Carolina	Agriculture	\$4,149,424	79	\$371,730	Yes	6,629,000	4,370,000
North Dakota	Agriculture	\$1,141,483	8	\$765,000	Yes	639,000	21,229,000
Ohio	Agriculture	\$1,764,000	25	\$580,000	Yes	10,847,000	10,132,000
Oklahoma	Agriculture	\$1,069,085	20	\$420,150	Yes	3,146,000	9,688,000
Oregon	Agriculture	NA	14	NA	No	2,842,000	2,290,000
Pennsylvania	Agriculture	\$1,750,000	9	\$1,057,000	Yes	11,882,000	4,094,000
Rhode Island	Agriculture	\$270,000	5	\$300,000	Yes	1,003,000	10,000

Table 12, *continued*

State	Type of Lead Pesticide Agency ²	Total Budget, FY 92-93	Total Budgeted Staff, FY 92-93	Total Product Registration Fees ³	Over-sight Board? ⁴	Total State Population, 1990 ⁵	Acres of Crops Harvested 1990 ⁶
South Carolina	University	\$1,580,000	34	NA	Yes	3,487,000	2,049,000
South Dakota	Agriculture	\$593,116	8	\$304,601	No	696,000	15,552,000
Tennessee	Agriculture	\$998,398	30	\$285,000	No	4,877,000	4,477,000
Texas ⁸	Agriculture	\$2,300,000	64	\$1,070,000	No	16,987,000	18,550,000
Utah	Agriculture	NA	6	NA	Yes	1,723,000	992,000
Vermont	Agriculture	\$512,000	8	\$239,000	Yes	563,000	441,000
Virginia	Agriculture	\$1,926,158	28	\$838,817	Yes	6,187,000	2,726,000
Washington	Agriculture	\$2,432,106	54	\$570,863	Yes	4,867,000	4,168,000
West Virginia	Agriculture	\$490,000	11	\$156,000	No	1,793,000	668,000
Wisconsin	Agriculture	\$4,346,969	20	\$3,519,475	Yes	4,892,000	8,550,000
Wyoming	Agriculture	\$100,000	2	0	Yes	454,000	1,735,000
Number of States Responding	(50)	39	44	37	45	(50)	(49)
Average Among Survey Respondents	—	\$2,694,724	33	\$862,973	—	—	—
Total Count	Agriculture 43 Environment 5 University 2	—	—	—	Yes 27 No 18	—	—

¹ Information based on responses to the N.C. Center for Public Policy Research's survey of state pesticide programs, except populations and crop acreages, which are based on U.S. Bureau of the Census data. NR = State did not respond to survey; NA = State did not answer question on survey.

² States responses when asked to describe the lead agency in which their pesticide programs are located. Lead pesticide agency for the five states that did not respond to survey was determined from: R. Steven Brown and Karen Marshall, *Resource Guide to State Environmental Management, Third Edition*, The Council of State Governments, Lexington, Ky., 1993.

³ Total receipts of pesticide product registration fees in FY 1992-93.

⁴ State responses to the question: Does your state have a lead board or commission that oversees your pesticide program?

⁵ Populations as reported for 1990 by the U.S. Bureau of the Census, *Statistical Abstract of the United States: 1992* (112th edition), Washington, D.C., 1992, p. 22.

⁶ *Ibid.*, p. 660.

⁷ At the time of the Center's survey in August 1993, Nebraska's pesticide regulation was enforced by the U.S. Environmental Protection Agency. Since then, the Nebraska legislature has authorized the state's Department of Agriculture to regulate pesticides, with an initial annual budget of \$750,000.

⁸ Budget and staff figures for Texas are incomplete; they do not include money for inspections and enforcement.