



PESTICIDE *Update*

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Pesticide Section / Food & Drug Protection Division
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Spring 1999

Board Decision Upheld By State Supreme Court

State Supreme Court Upholds Board Decision

After more than three years since the North Carolina Pesticide Board initially found that aerial applicator H. Ray Meads had violated North Carolina's pesticide regulations, the Supreme Court of North Carolina has upheld the Board's decision after it had been reversed by lower courts. At various stages of the appeals process the petitioner (Meads) challenged the Board's decision based on the petitioner's belief that the Board's action was not supported by substantial evidence, based on misinterpretation of North Carolina's pesticide regulations for aerial application, and based on regulations that were unconstitutional. The Supreme Court of North Carolina found that the Board acted properly on all counts and reinstated its original decision to fine Meads \$1,000 and revoke his aerial license for one year.

The Board found that Meads had violated N.C.'s pesticide law and regulations for aerial application by depositing a pesticide within 100 feet of a residence, within 25 feet of a roadway, within 300 feet of an occupied business; in a manner inconsistent with pesticide labeling; and in a faulty, careless, or negligent manner. The Supreme Court of North Carolina agreed with the Board that the evidence presented at the hearing was sufficient to show that these violations had occurred.

In addition, the Court agreed that the Board had acted properly in interpreting language on the pesticide label that prohibited exposure to workers or other persons. The Supreme Court of North Carolina agreed with the Board decision that Meads had violated the N.C. Pesticide Law of 1971 by applying

a pesticide inconsistent with its labeling by allowing an individual to be exposed to the pesticide or pesticide drift. Furthermore, the Court agreed with the Board's decision that Meads had operated in a faulty, careless, or negligent manner based on the facts presented in the case.

Lastly, the Court concluded that North Carolina's pesticide buffer-zone regulations for aerial application (i.e., 2 NCAC 9L .1005) do not violate Mead's constitutional right of due process and equal protection.

Since the decision, Meads has complied with the Board's findings, paid his fine and surrendered his aerial applicator pilot's license.

Pesticide Applicator Training and Certification in North Carolina

Pesticides contribute substantially to our quality of life. Their value as guardians of our crops, landscapes, dwellings, and health can easily be taken for granted. While the benefits of pesticide use are numerous, their misuse can pose a threat to human health and environmental quality. Training pesticide applicators in the proper use of pesticides thereby plays a critical role in ensuring the longevity and effectiveness of these products while protecting our valuable natural resources.

The Pesticide Applicator Training (PAT) Program is a federally supported program conducted in all 50 states. The primary purpose of this program is to develop and deliver educational materials to pesti-

cide applicators who use or supervise the use of restricted use pesticides. A pesticide bears a restricted use classification (with label statement shown atop following page) because it can cause adverse effect to the environment (e.g., leach into groundwater) or human health, if it is used incorrectly.

North Carolina, like most states, recognizes three types of restricted use pesticide applicators: (1) private applicators (farmers, foresters, greenhouse and nursery workers) who apply restricted use pesticides on land they own or rent for purposes of producing an agricultural commodity, (2) commercial applicators who apply pesticides for hire, and (3) public operators (See Pesticide training, Page 2)

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Pesticide Training (continued)

RESTRICTED USE PESTICIDE

FOR RETAIL SALE TO AND APPLICATION ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION

who apply or supervise the application of pesticides in their jobs for town, city, county, state, or federal governmental agencies. The North Carolina Pesticide Law requires commercial applicators to become certified and licensed before they apply any pesticide (restricted or general use) to the property of another for compensation. Certification of pesticide applicators refers to the process (training and/or testing) by which an individual becomes eligible to purchase and use restricted use pesticides. Therefore, a license may be obtained only after certification requirements are met. Private and commercial applicators and public operators must be certified in NC, however, licensing is required of commercial applicators and public operators only.

Program areas of the North Carolina Pesticide Applicator Training (NC PAT) Program include the certification and recertification of private applicators, commercial applicators, public operators (government workers), and dealers of restricted use pesticides. This program is coordinated by the Pesticide Education Specialist at NC State University and implemented by a network of 100 county agents (Pesticide Coordinators) with pesticide training responsibilities in each of NC's counties, Extension specialists at NCSU, and regulatory officials with the North Carolina Department of Agriculture and Consumer Services (NCDA&CS). Training provided within this framework enhances personal contact between certified pesticide applicators and staff of the NC Cooperative Extension Service and NCDA&CS.

There are more than 28,400 private applicators in NC. Private applicators can choose one of three options to become certified: attend a four-hour class, complete a workbook, or pass a written exam administered by the NCDA&CS. County Pesticide Coordinators serve as primary contacts and instructors for private applicators.

Training topics include principles of integrated pest management, applicator safety, environmental protection, pesticide mixing and loading, and laws pertaining to pesticide use. In order to maintain their certification, private applicators must recertify every three years. The purpose of recertification is to encourage pesticide applicators to stay abreast of new regulations, developments and techniques, and to maintain high standards for the certification program. The county Pesticide Coordinator

schedules a number of two-hour training sessions each year for private applicator recertification. Private applicators that fail to get recertified by the retraining must pass a written exam to regain their certification.

North Carolina has over 13,000 commercial applicators and public operators, and more than 1,000 restricted use pesticide dealers. Commercial applicator certification is attained by close-book examination only. This test is comprised of multiple choice questions derived from the 'Applying Pesticides Correctly' manual, 'North Carolina Pesticide Laws and Regulations' and a manual specific to the applicant's field of professional interest. The 15 specialty categories and subcategories of commercial pesticide applicators in NC are: Aquatic (and TBT Paints), Public Health, Forest, Right-of-Way, Regulatory, Agricultural Pest Control-Animal (Small Animal Pets and Poultry), Ornamental and Turf, Seed Treatment, Demonstration and Research, Agricultural Pest Control-Plant, and Wood Treatment. The five commercial pesticide applicator license types include Consultant, Dealer, Commercial Ground Pesticide Applicator, Public Operator (same as ground applicator except employment by government or public utility), and Aerial Pesticide Applicator. Specific requirements for licensing vary by license type; however, all require the passing of at least one exam.

The Cooperative Extension Service conducts two-day "Pesticide Schools" to prepare prospective applicators for the commercial exam. About 20 Pesticide Schools per year are offered at various locations in the state. During the first day of the school, Extension and NCDA&CS staff present topics from 'Applying Pesticides Correctly' and Pesticide Law manuals, respectively. In the morning of the second day, specialists in the various category-specific areas provide training. Exams are given later in the afternoon. NCDA&CS offers exams throughout the year for those individuals who choose not to attend a Pesticide School.

Unlike private applicators, commercial applicators can become recertified by attending workshops, field days, or other meetings that are approved for credit by the NCDA&CS. Commercial ground applicators must recertify every five years by obtaining 3-10 hours (depending on their chosen specialty area) of "Continuing

Certification Credit Units", or by retesting. Aerial applicators must recertify every two years. The NC Cooperative Extension Service, community colleges, and private industry typically conduct training sessions approved for recertification.

Most questions regarding pesticide certification and licensing can be answered by accessing the NC PAT website. The address is <http://ipmwww.ncsu.edu/ncpat/personnl.html>. The website includes a registration form for Pesticide Schools, times and locations of certification exams, a list of county Pesticide Coordinators, and a current schedule of recertification opportunities for commercial applicators and dealers. As more instructional resources are revised and compiled, the website will be expanded to include information on pesticide safety, regulations, and educational materials, such as training manuals and study guides. Inquiries about study manuals for pesticide exams can be made to Dr. Wayne Buhler, Dept. of Horticultural Science, NCSU, (919)515-3113. Questions regarding certification and licensing requirements should be addressed to Dr. Colleen Hudak, NCDA&CS, (919) 733-3556.

In summary, pesticide training and certification is an integral part of the regulatory process designed to protect the applicator and the environment from the possible harmful effects of pesticides. The NC PAT program, through the activities of the Cooperative Extension Service and NCDA&CS, provides educational resources to help pesticide applicators succeed in becoming certified and gain the knowledge they need to increase productivity, improve safety practices, and enhance their professional image.

For information regarding structural pest control certification and licensing, call (919) 733-6100



Wayne Buhler, Ph.D., Assistant Professor and Pesticide Education Specialist, Dept. of Horticultural Science, NCSU

FQPA UPDATE

During 1998, the implementation of the Food Quality Protection Act (FQPA) met challenges from all fronts, and it isn't over yet. Four activities involving FQPA implementation ran concurrently last year. These four were: 1) the formation and the activities of the Tolerance Reassessment Advisory Committee (TRAC); 2) the activities of the Endocrine Disruption Screening and Testing Advisory Committee (EDSTAC); 3) the development and release of a draft of the brochure on Pesticide in Food; and 4) the crop profiles developed and submitted by NCSU faculty.

Tolerance Reassessment Advisory Committee (TRAC). The year began with the rumored EPA suggested cancellations of all organophosphates by summer, and then slowly allowing pesticide companies to add uses to refill the theoretical risk cup. Commodity groups began to petition Congress to put pressure on EPA to slow down and explain the tolerance reassessment process, which no one but the EPA understood. As a result, Vice President Al Gore encouraged EPA Administrator Carol Browner and Agriculture Secretary Dan Glickman to make the reassessment process more "transparent" and more accessible to the public. Browner and Glickman concurred, and the Tolerance Reassessment Advisory Committee (TRAC) was formed in May of 1998. The TRAC is composed of 45 members representing industry, commodity groups, environmental groups, and academia.

The TRAC's purpose was to develop a process for making tolerance reassessment decisions, to recommend policy framework, and to suggest ways to increase the pace of decision making. In addition, the TRAC was to recommend strategies for decreasing risk, to assure the priority of children's food, and to improve communication and public participation.

In September, the TRAC released preliminary risk assessments on nine organophosphates: cadusafos (not registered in this country); ethoprop (Mocap); dimethoate (Cygon); fenitrothion (Baytex); sulfotep (Plantfume); temephos (Abate); tribufos (DEF 6); terbufos (Counter), and profenofos (Curacron). Future risk assessments and risk reduction strategies, which could include cancellation of registrations, are expected in 1999.

The TRAC has been assigned the task of resolving certain key science issues such as: applying the 10X factor in tolerance setting to protect infants and children; using the Monte Carlo Analysis to determine cumulative exposures; interpreting what "no residue detected" may really mean; and estimating dietary (food) exposure to pesticides. Other key science issues to be resolved include estimating dietary

chance includes the risk and benefits of pesticides, a list of pesticides that are carcinogenic and the foods on which they are used, and recommendations to consumers on how to reduce dietary exposures to residues. The brochure was recently distributed to retailers and will be available in large grocery stores.

Crop Profiles. Crop profiles are summaries of actual products and use rates used in the production of an

"Crop profiles can modify risk assessments currently based on residue trials conducted under EPA guidelines."

(drinking-water) exposure to pesticides, assessing residential exposure to pesticides, aggregating exposures from all non occupational sources, conducting cumulative risk assessments for pesticides with a common mechanism of toxicity, and selecting appropriate toxicity endpoints for risk assessment of organophosphates. Decisions on these issues should be available in 1999 and 2000.

Endocrine Disruption Screening and Testing Advisory Committee. The Endocrine Disruption Screening and Testing Advisory Committee (EDSTAC) began meeting in 1998, in an attempt to identify testing protocols and a set of priorities from which to work. Endocrine disruption has become an issue in pesticide safety assessment after the publication of *Our Stolen Future*, by Theo Colborne. This book suggests that certain pesticides and their metabolites may produce effects on the endocrine, or hormonal, systems in animals and humans. As a result, the FQPA required that testing be done for all pesticides to determine which may have endocrine disrupting effects. The EDSTAC was to or has provided guidance for that testing. The EDSTAC released its final report in September of 1998.

Food Safety Brochure. In January of 1998, a draft of the brochure on the pesticides in food required by FQPA was distributed for public comment. The brochure sparked debate not only by the public but by parties within EPA itself. The intent of the brochure was to provide information to consumers about pesticides in food. Information required to be in the bro-

agricultural commodity. Faculty at NCSU have put together profiles for eighteen commodities in the state so far. Crops submitted to date are: cotton, apples, cabbage, cucumbers, Christmas trees, grapes, peaches, pecans, peppers, Irish potatoes, sweetpotatoes, tobacco, tomatoes, turf, watermelon, soybeans, corn and sorghum, and residential and industrial pest control. Crop profiles can modify risk assessments currently based on residue trials conducted under EPA guidelines. In addition, they can be used to compare actual uses to maximum label rates and can illustrate the diverse chemistry of products used by growers in the state. Crop profiles will be factored into cumulative assessments of pesticides, as well as factored into setting priorities for which pesticides may be critical for production. Copies of these assessments may be viewed on NC State University's Pesticide Impact Assessment webpage. The address is: <http://ipm.www.ncsu.edu/napiap/homepage.htm>. The EPA will be making more decisions in 1999 concerning the fate of certain organophosphate and carbamate pesticides. In addition, registrants may decide to cancel some uses, or even entire product registrations, due to the increase testing requirements of FQPA. We will inform you of label changes, product cancellations, and opportunities to comment on proposed product changes as they occur.



Congratulations Farmers (Environmental Stewards)!

Since 1990, various counties across the state have been recycling plastic pesticide containers. At present, 78 local governments participate in this statewide effort. Congratulations to growers, commercial applicators, cooperative extension service and local governments who are actively participating in this beneficial environmental stewardship project. You are all responsible for the success we have seen in North Carolina's container recycling program. A remarkable 500,000 containers were collected for recycling in 1998.

Collecting containers is important but collecting clean containers is more important. With the beginning of the growing season upon you, participants should remember the importance of doing the following to avoid having containers rejected by the recycler:

- Proper rinsing - Either triple or pressure rinse containers ensuring all product is removed.
- Cap removal - Caps are not the same type of plastic and cannot be recycled with the containers.
- Label removal - Labeling and labels cannot be recycled with the plastic.
- Weatherproof - Rainwater can be mistaken for rinsate or residue in the container, thus causing the container to be rejected.

If you would like more information about a collection site near you and participation requirements specific to your county, contact your local Cooperative Extension Service.

NCPB Actions

In October and November of 1998 and January and February of 1999, the NC Pesticide Board approved the following settlements totaling \$10,500 for alleged violations of the NC Pesticide Law of 1971. Respondents agreed to settlement terms to avoid litigation. Consent to settlement terms by a respondent is not considered an admission of guilt to any of the alleged violations. Settlements were approved as follows:

James I. Brown, Jr., Southport, for alleged violations of applying a pesticide in a manner inconsistent with its labeling and failing to supervise and guide the activities of personnel applying pesticides.

BWI-Greenville/Spartanburg, Greer, SC; Orgill, Inc., Memphis, TN; Smith Seeds, Inc., Danville, VA; Southern States Cooperative, Cloverdale, VA; and Tru Serv, Chicago, IL, for alleged violation of distributing, selling or offering for sale an unregistered pesticide.

O. Max Benton, Kinston; Thomas W. Braswell, Tyner; William E. Burch, Faison; R. Joseph Freeman, Laurel Springs; and W. Fred Owens, Jr., Pisgah Forest, for alleged violation of applying a pesticide in a manner inconsistent with its labeling.

David V. B. Pike, Durham, and Timothy A. Stoeckle, Raleigh, for alleged violations of applying a pesticide in a manner inconsistent with its labeling, failure to supervise and guide the activities of personnel applying pesticides and applying pesticides under such conditions that drift from pesticide particles or vapors results in adverse effect.

Harold B. Thompson, Tarboro, for alleged violations of applying a pesticide in a manner inconsistent with its labeling, depositing a pesticide within 100 feet of a residence, and depositing a pesticide onto a nontarget area in such a manner that it is more likely than not that adverse effect will occur.

Ralph D. Campbell, Statesville; Richard G. Mobley, Greenville; and William A. Turner, Leasburg, for alleged violation of engaging in the business of pesticide applicator without a license.

Charles H. Brothers, Jr., Cofield; Giles E. Byrd, Lake Waccamaw; and Heber A. Respass, Plymouth, for alleged violations of using a pesticide in a manner inconsistent with its labeling and applying a pesticide under such conditions that drift from pesticide particles or vapors results in adverse effect.

Cape Fear Chemicals, Inc., Elizabethtown, and Voluntary Purchasing Groups, Inc., Bonham, TX, for alleged violation of distributing, selling, or offering for sale a pesticide that was adulterated or misbranded.

Great Smokies Hotel Associates, a North Carolina limited partnership, Asheville, for alleged violations of storing pesticides in such a manner as to endanger man and his environment, failing to store pesticides to prevent unauthorized access, and failing to store pesticides in an area that is dry and ventilated.

Julius D. Scott, Zionville, for alleged violation of acting in the capacity of a pesticide dealer without a valid license.

Alberta A. Watts, Asheville, for alleged violations of using a pesticide in a manner inconsistent with its labeling, disposing, discarding, and storing pesticides in such a manner as may cause injury to humans, vegetation, crops, livestock, wildlife, or to pollute any water supply or waterway, and failing to store pesticides in an area that is dry.

Timothy R. Winstead, Rocky Mount, for alleged violations of disposing, discarding, and storing pesticides in such a manner as may cause injury to humans, vegetation, crops, livestock, wildlife, or to pollute any water.

Dr. Leilani P. Sabin, Rougemont, for alleged violation of making a pesticide recommendation or application not in accordance with the label.

Attention Wellowners Who Responded to Free Well Sampling Survey

If you are a private certified applicator or commercial applicator (specializing in golf course applications) who responded to NCDA&CS' recent offer for free well testing, you should know that response to the survey was overwhelming. As a result, it will take considerable time for NCDA&CS to follow up with all interested parties who meet the sampling criteria. More than 1,800 individuals accepted the offer of free well testing for certain pesticides that have been identified by the U.S. Environmental Protection Agency as having the potential to impact ground water resources. To effectively budget laboratory personnel and supplies, NCDA&CS staff are limited to mailing 40 sampling kits per week to eligible wellowners. NCDA&CS is asking participants to be patient because at this rate, it may be some time before you receive a response by program staff.

Start Keeping Records NOW!

Keeping pesticide records is required by the USDA and the NC Pesticide Board under the NC Pesticide Law of 1971 (NCPL). The Pesticide Section of the NCDA&CS administers and enforces record keeping provisions under state law and via a cooperative agreement with the USDA. Records must be kept for certain lengths of time and made available to representatives of the NCDA&CS and USDA upon request. Dealers, certified applicators, licensed aerial and ground applicators, and agricultural employers all have some responsibilities for recording certain pesticide information.

Pesticide records are many times the best data pesticide dealers or applicators can have to show proper sale, use or storage of pesticides. They are also vital sources of information in case of an emergency, such as accidental human exposure. NCDA&CS advises all farmers and commercial applicators to maintain pesticide application records.

If you need more information on the requirements for pesticide record keeping, please contact the Pesticide Section at (919)733-3556.

Workshops for Small Quantity Generators of Hazardous Waste

Workshops are being offered to small generators of hazardous waste, that will address several issues of concern. The workshops will be held in Raleigh and New Bern, Spring 1999.

The businesses that are categorized as small generators includes: vehicle maintenance, dry cleaners, printing, hospitals, laboratories, furniture/wood manufacturing and refinishing, pesticide users, and educational and vocational shops. Pending approval, pesticide applicators will receive three hours of recertification credit.

Workshops scheduled for this Spring will incorporate a revised manual along with up-to-date regulations. Issues to be discussed include the identification of what is a hazardous waste, managing hazardous waste onsite and shipping off-site, proper packaging and labeling for shipping, planning and training requirements, land disposal restrictions, disposal of used oil, record keeping, and waste minimization.

Workshop dates are as follows: April 20, 1999, Raleigh, 8:30 am - 4:30 pm and June 8, 1999, New Bern, 8:30 am - 4:30 pm. The cost to attend the one-day workshop is \$125, which includes the new manual.

For more information, contact Linda Taylor at (919)515-5958.

Pesticide Disposal Collection Day Schedule Spring, 1999

Ashe County
Contact: Scott Hurley
By Appointment
336-246-3721
Call for Details

Cumberland County
Contact: Charles Whittenton
By Appointment
910-437-1907
Call for Details

Guilford County
Contact: Debra Meurs
By Appointment
336-373-2167
Call for Details

Cabarrus County
Contact: David Goff
April 24, 1999
704-792-0430
Call for Details

Rutherford County
Contact: Jan McGuinn
May 11, 1999
828-682-6187
10:00 - 2:00

Yancey County
Contact: Stanley Holloway
May 12, 1999
828-682-6187
10:00 - 2:00

Watauga/Avery County
Contact: Mike Pittman
May 13, 1999
(Watauga) 828-264-3061
(Avery) 828-733-8270
10:00 - 2:00



Bee Pollen Traps Show Promise

In an earlier edition of the *Pesticide Update*, readers were informed of a project sponsored by the Pesticide Environmental Trust Fund that aimed at reducing honey bee kills in situations where microencapsulated pesticides are used in apple orchards. A final report of this project, conducted by entomologists at NCSU, was presented at the March meeting of the NC Pesticide Board.

Bee kill investigations conducted by the Pesticide Section found a link between microencapsulated methyl parathion used to control apple pests and the death of honey bees and bee colonies located near the orchards. At the request of NCDA&CS, researchers at NCSU looked for ways to reduce bee kills caused by pesticide use in apple orchards. The final report for this project revealed that many of the foraging bees were not killed since the pollen mix was not ingested, however, when the hive bees processed and fed the pollen/pesticide mix to the larval stages, both adult hive and larval bees died over a period of time.

When researchers used pollen traps during or shortly after pesticide application they observed a significant reduction of pesticides entering the hive. Substantial amounts of pesticide were found in all of the traps. The colonies without traps suffered signifi-

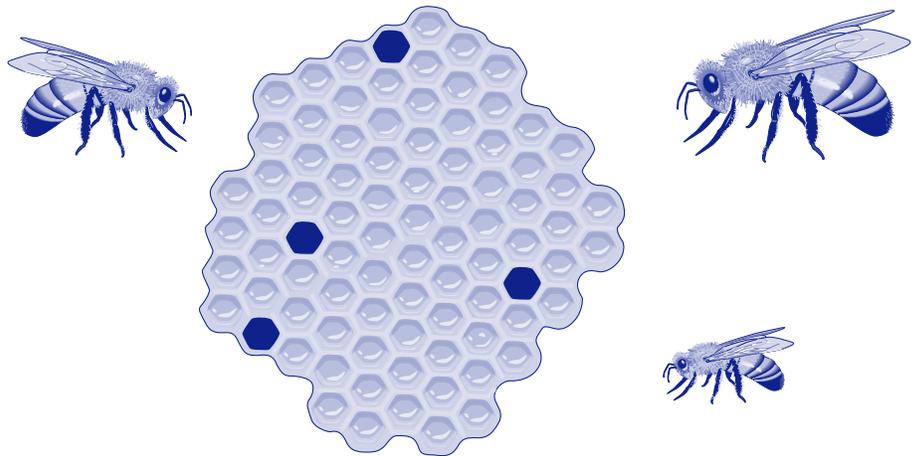
cantly from being exposed to pesticide laden pollen. The report noted that in most cases worker bees and ultimately the queen bee died from exposure in hives where traps were not used. Usually, loss of the queen results in colony death if the queen is not replaced. In this project, researchers did replace the queens when necessary.

The results indicate that use of the pollen traps was effective in reducing the amount of microencapsulated pesticides entering the

hive resulting in fewer bee deaths. Findings from this work may benefit other growers for other crops where microencapsulated pesticides

are used and where bee kills have been reported. Apple growers and bee keepers will be informed of the findings of this project and encouraged to adopt advances in pest management and bee protection strategies that are mutually compatible such as those identified in this project.

For additional information about this project, contact Dr. John T. Ambrose, Dept. of Entomology, NCSU at 919-515-1660.



CHEMIGATION

The North Carolina Pesticide Board adopted regulations involving chemigation, or the application of pesticides to land, crops, and/or plants through irrigation systems both indoors and outdoors. The purpose of these regulations is to protect water resources from pesticide pollution by reducing the potential for back-siphoning or direct injection of pesticides into the water sources.

North Carolina's chemigation regulations went into effect January 1, 1987 and apply to all pesticide users. There are many different types of chemigation systems and/or irrigation systems that are being used. Some are large systems, such as center pivots in fields, and some are small units/systems, such as positive pressure (venturi) types used in greenhouses/nurseries. Regardless of the size or type of irrigation equipment, they all must adhere to the chemigation regulations.



The Following Chemigation Practices Are Illegal:

- X DIRECT CONNECTION OF AN IRRIGATION SYSTEM TO A PUBLIC WATER SUPPLY WHEN APPLYING PESTICIDES.
- X INJECTION OF A PESTICIDE INTO AN IRRIGATION SYSTEM ON THE SUCTION SIDE OF THE IRRIGATION PUMP.
- X APPLYING A PESTICIDE IN AN IRRIGATION SYSTEM IF SUCH APPLICATION METHOD IS PROHIBITED BY THE LABEL.

The following safety devices must be installed on an irrigation system or chemigation system that is applying one or more pesticides:

- 1) Double Check Valves - located between the irrigation pump discharge and the point of pesticide injection into the irrigation pipeline. The valves must be within 10 degrees of horizontal.
- 2) Vacuum Relief Valve - located on the top of the horizontal irrigation pipeline between the discharge side of the irrigation pump and the inlet side of the double check valves. The orifice size of the valve shall not be less than 3/16 the diameter of the irrigation pipe.
- 3) Inspection Port - located between the irrigation pump discharge and the mainline check valves. In some cases, the vacuum relief valve can serve as the inspection port if one can observe water movement through the pipe at this location.
- 4) Automatic Low Pressure Drain - located on the bottom of the horizontal irrigation pipeline between the discharge side of the irrigation pump and the inlet side of the double check valves. This device shall be level and have an orifice size of not less than 3/16 the diameter of the irrigation pipe. The drain shall discharge at least 20 feet from any water supply, including the irrigation supply.
- 5) Flow Interruption Device - located in the pesticide supply line between the pesticide injection unit and the pesticide supply tank or container. A normally closed solenoid-operated valve or other similar device is an acceptable method to positively prevent flow of pesticide or water in either direction during pesticide injection system failure or shutdown.
- 6) Check Valve - located on the pesticide injection line between the point of pesticide injection into the irrigation system and the pesticide injection unit to prevent the overflow of the pesticide supply tank or container.
- 7) Functional Systems Interlock - capable of causing the shutdown of the pesticide injection unit if interruption of the irrigation water flow occurs.

If you have questions or would like additional information regarding chemigation, contact John B. Dalley, NCDA&CS at (919)733-3556.

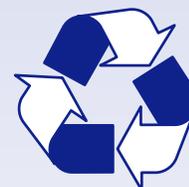


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PESTICIDE CERTIFICATION EXAM SCHEDULE

The testing site for commercial license and private applicator certification examinations is the McKimmon Center, located at the corner of Gorman Street and Western Boulevard in Raleigh. These examinations are given every month. **Reservations must be made two weeks prior to test date.** Contact Mike Williams at (919) 733-3556 to make reservations or for further information.

PLEASE NOTE: Picture identification such as driver's license must be shown at the time of an exam.

The monthly examinations do not include the exams given at the end of the pesticide schools conducted by the North Carolina Cooperative Extension Service. A schedule of these schools and training materials may be obtained from: Dr. Wayne Buhler, Dept. of Horticultural Science, Box 7609, NCSU, Raleigh, NC 27695. Telephone: (919) 515-3113.

For More Information

RECERTIFICATION CLASSES

CONTACT: Your county Agricultural Extension Agent

EDUCATIONAL PROGRAMS AND MATERIALS FOR CERTIFICATION AND RECERTIFICATION

CONTACT: Dr. Wayne Buhler, Dept. of Horticultural Science, Box 7609, NCSU, Raleigh, NC 27695 (919) 515-3113

PESTICIDE WASTE DISPOSAL

CONTACT: Royce Batts, Food and Drug Protection Division, NCDA&CS,
P.O. Box 27647, Raleigh, NC 27611 (919) 733-7366 or (919) 715-9023.

CERTIFICATION, LICENSING, AND RECERTIFICATION CREDITS OR PESTICIDE CONTAINER RECYCLING

CONTACT: Pesticide Section, NCDA&CS, P.O. Box 27647, Raleigh, NC 27611 (919) 733-3556

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