

# CHEMIGATION SAFETY



Tips on Working Safely with Pesticides in North Carolina

Chemigation--the application of pest control chemicals to field crops, indoor or outdoor nursery stock, golf courses, or sod farms through an irrigation system-- is gaining in popularity because of the conveniences it offers. Without proper safety and control measures, however, irrigation water containing pesticides can unintentionally flow backward from the pumping system into the irrigation water supply, contaminating the supply for future uses.

## Back-Siphoning is the Problem

When a pump that is moving water through a delivery system ceases to operate, negative pressure is created and the water in the system at the time is siphoned backward to the original water source, aided by the negative pressure and gravity. Without properly functioning antipollution devices installed in the correct locations within the chemigation system, contamination of water sources such as ponds, lakes, streams, or wells can occur.

## North Carolina Laws and Rules Govern Chemigation

- The pesticide label is the law and it is illegal to use pesticides in violation of label instructions.
- Read the label carefully for chemigation allowances and restrictions.** Some pesticide labels prohibit application through any irrigation system, while others allow application through a specific system.
- Users of chemigation in North Carolina must comply with the chemigation rules adopted by the North Carolina Pesticide Board (2 NCAC 9L Section .2000). A copy of this regulation can be obtained by calling the North Carolina Department of Agriculture and Consumer Services Pesticide Section at 919-733-3556.
- It is illegal to use an irrigation system that is directly connected to a public water system to apply pesticides. In order to use water from a public water system it must first be released into a storage tank and a defined space must be maintained between the fill pipe and the storage tank.



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## Maintenance and Inspection of Chemigation Systems

North Carolina Chemigation Regulations include the following requirements for operational maintenance of chemigation systems and provisions for state inspections:

- ❑ System operators must inspect anti-siphon devices and the functional systems interlock during periods of chemigation to ensure that they are functioning properly.
- ❑ If parts of the system are defective, they must be repaired or replaced before chemigation proceeds.
- ❑ Representatives of the Pesticide Section of the North Carolina Department of Agriculture and Consumer Services may inspect an irrigation system at any time to make certain that it complies with the regulations.
- ❑ If the system is not in compliance, the Department will issue a stop-use order.
- ❑ The system must be inspected by a departmental representative before the stop-use order can be removed.
- ❑ Upon request, the Pesticide Section will provide technical assistance and will inspect a system to determine if it is in compliance with the regulations.

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A revised chemigation brochure which includes drawings of various types of chemigation systems and more detailed explanations of these anti-pollution devices is available from the Pesticide Section of the North Carolina Department of Agriculture and Consumer Services (919-733-3556).



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The information in this document is for educational purposes only. Individuals who use agricultural chemicals are responsible for ensuring that the intended use conforms to the product label and complies with current regulations.

## Anti-Pollution System Components

The design of chemigation systems may vary depending on the type of pollution control devices used. The following safety devices are commonly required components of these systems:

### ❑ Check Valves:

**(1)** installed between the outlet side of all media filters and the point of pesticide injection into the irrigation mainline to keep filters free of pesticides.

**(2)** located on the pesticide injection line between the point of chemical injection into the irrigation system and the injection unit to prevent overflow of the pesticide supply tank or container. On systems using a proportional injector on a bypass line, a check valve must be located on the main irrigation line immediately downstream of the bypass line.

❑ **Double Check Valves:** located between the irrigation pump discharge and the point where the pesticide is injected into the irrigation pipeline.

❑ **Inspection Port:** located between the irrigation pump discharge and the inlet side of the mainline check valves.

❑ **Vacuum Relief Valve:** located between the discharge side of the irrigation pump and the inlet side of the double check valve.

❑ **Automatic Low Pressure Drain:** located between the discharge side of the irrigation pump and the inlet side of the double check valves, and at least 20 feet from any water supply, so that drain discharges will not re-enter the water supply.

❑ **Flow Interruption Device:** located in the pesticide supply line between the chemical injection unit and the pesticide container or supply tank, this valve prevents flow of pesticides or contaminated water in either direction during shutdown or in case of chemical injection system failure.

❑ **Functional Systems Interlock:** can shutdown the pesticide injection unit if interruption of the irrigation water flow occurs.