



ENVIRONMENTAL EDUCATION SERIES

ENVIRONMENTAL QUALITY Agriculture & Natural Resources

EXTENSION ENVIRONMENTAL EDUCATION, AUBURN UNIVERSITY, AL 36849-5647

Concerns When Mixing And Loading Chemicals

ANR-728, 1992. By **Charles Ogburn**, *Extension Agricultural Engineer (Retired)*, Agriculture, Auburn University

Farmers may unknowingly contaminate groundwater simply by the way they wash their sprayer. Dumping unused chemicals, flushing tanks and booms, washing sprayers, or even letting them sit in the rain can cause a chemical build-up in the soil that could result in groundwater contamination.

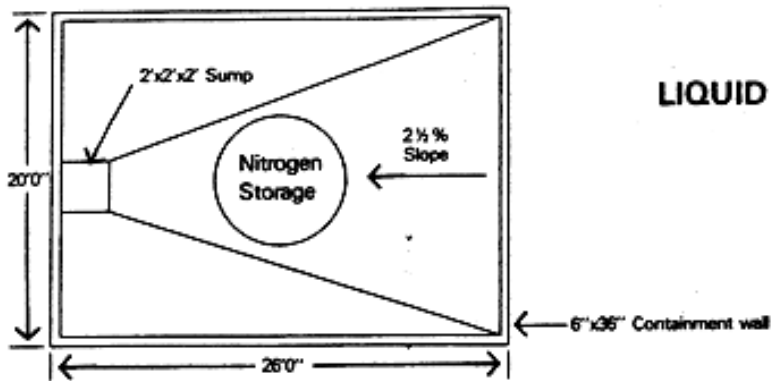
A barren area in the grass where a sprayer has been cleaned is an indication of a poor sprayer cleanup program. If the sprayer is cleaned in the same place year after year, the soil bacteria that normally break down chemicals are killed. This allows the chemical concentration to build up. Ultimately, these chemical residues can find their way into the water table.

The presence of chemicals in groundwater is a major concern. Farmers are subject to the same EPA regulations as custom applicators and commercial suppliers. Consequently, farmers are liable for the massive cleanup costs that might result from improper disposal of chemical wastes.

EPA regulations generally say that when spraying hazardous chemicals, water used to rinse the inside of the spray tanks or plumbing is hazardous waste. Even the material washed off the outside of the sprayer is classified as hazardous. Options for disposing of hazardous waste include reusing it, bottling it up and taking it to a hazardous waste disposal site, or running it through a charcoal filtration system. The only practical method for farmers is to reuse the material, applying it at label rates.

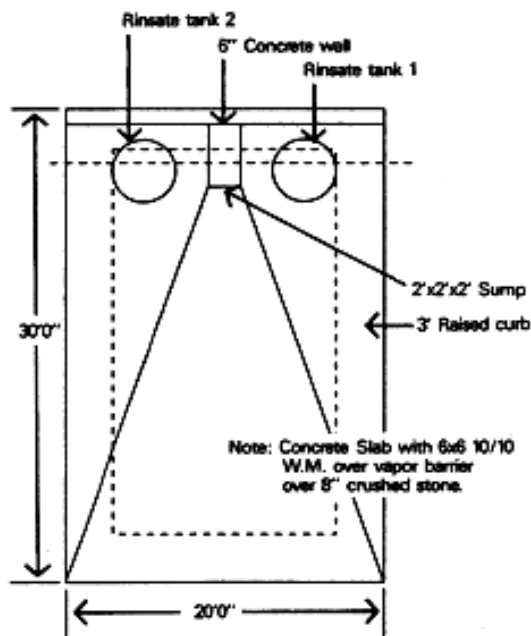
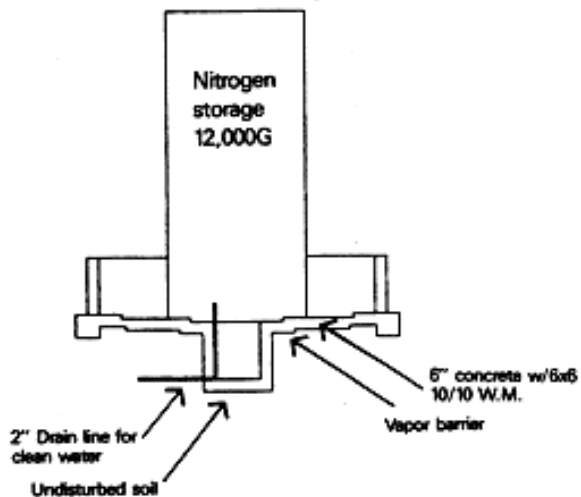
Reuse, however, is not as simple as it sounds. It requires a system to catch and contain the unused chemical and rinsate until it can be applied. The diagrams below illustrate these types of systems. They consist of a concrete loading and mixing pad of liquid nitrogen storage. Also, a roof construction over the loading and mixing area is desirable for the southeast. If a roof is not used, then washing the pad area after each use is a must. A one inch rain on a 20 feet by 30 feet concrete pad results in 328 gallons of water. If the pad area was contaminated, then the 328 gallons would be hazardous waste.

An alternative to the concrete loading and mixing area is to mix and load in the field. Have at the field site a nurse tank for water to fill the sprayer tank, and add chemicals as needed. This will eliminate any build up of residue from rinsate being deposited on one site. When spraying from the last tank, mix only the amount required to finish spraying the field. Finish by adding at least 10 percent by volume of water to the emptied tank, and spray this material back over the field or the field borders. Exterior washing should be conducted at the same time. This will leave the residue in the field of pesticide destination.



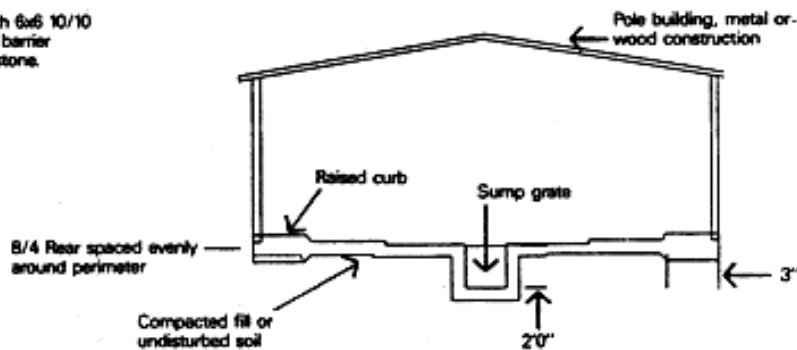
LIQUID NITROGEN CONTAINMENT

NOTE: Concrete Specifications—Type 1 cement. Minimum of 28 day strength of 4,000 psi. Air Content: 6% ± 1%. 0.4 water/cement ratio. Slump less than 4". Super plasticizer administered for improved plasticity. Maximum aggregate size 1".



MIXING AND LOADING PAD

NOTE: Concrete Specifications—Type 1 cement. Minimum of 28 day strength of 4,000 psi. Air Content: 6% ± 1%. 0.4 water/cement ratio. Slump less than 4". Super plasticizer administered for improved plasticity. Maximum aggregate size 1".



For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, and other related acts, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.