

# Assessing Your Fertilizer Storage & Handling Practices

## Protecting Your Water Quality Through a Farm & Home Assessment



### Why should you be concerned?

Fertilizers play a vital role in agriculture. They have increased crop production dramatically.

Runoff from non-point pollution sources such as agriculture is receiving a great deal of attention. National studies indicate that agricultural pollution adversely affects portions of more than two-thirds of the nation's river basins.

Commercial fertilizer, when applied to fields, lawns, and gardens, is a major source of nitrate that can impact groundwater. The other major components of commercial fertilizer, phosphorus and potassium, are generally not a groundwater contamination concern but can affect surface water quality.

The public health standard for nitrate-nitrogen in drinking water is 10 milligrams per liter (mg/l, equivalent to parts per million for water measurement). Nitrate levels exceeding this standard have been found in many wells and can pose a risk to infants.

### What can you do?

This chapter has been designed to provide information to questions you have answered **Yes, or do not know** the answer to in the **Assessing Your Fertilizer Storage and Handling Practices** section of your "Farm and Home Water Quality Assessment." This chapter will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A Partnership Program for Voluntary Pollution Prevention

USDA Natural Resources  
Conservation Service

USDA Cooperative State Research,  
Education and Extension Service

USEnvironmental  
Protection Agency

# **1 Has it been longer than three years since you had your soil tested (i.e., fields, lawns, and gardens)?**

A key first step in any nutrient plan is to identify existing levels of soil nutrients. You should test your soil at least once every three years and maintain a record of previous soil tests by fields. If you use a more intensive cropping system such as double cropping, you may want to consider testing every year.



# **2 Is your soil sandy or gravelly (does your soil drain quickly)?**

Coarse textured soils such as sands are more susceptible to groundwater contamination. Sandy soils have larger pore spaces between soil particles. Water soaks in quickly to percolate and the risk of carrying contaminants to groundwater increases.

Finer textured soils such as silt loams and clays slow water movement and provide greater filtering. They act as a natural filter, allowing bacteria and other soil organisms to break down contaminants before they reach groundwater. These types of soils are more susceptible to surface water runoff and may put surface water bodies at risk of contamination.

Soils high in organic matter also help to reduce risk to groundwater.

If you do not know what soil types are on your property, contact your local Natural Resources Conservation Service Office, Conservation District, or Extension Office to get a detailed soils map. Manage your soil testing and nutrient applications by soil types. Keep accurate records of fertilizer applications by soil type for each crop and for each field.

### **3 Do you apply animal manures and/or crop residues to your fields, lawns, and gardens?**

Include all sources of applied nutrients. If you are applying animal manure or are incorporating residues from a previous crop you will need to adjust your current nutrient budgets to include these inputs. Organic matter and previous crop residues will affect nutrient availability. See your local Extension Service office, NRCS, Conservation District, or crop consultant to adjust for these inputs.

### **4 Do you apply animal manure without knowing or testing it for nutrient content?**

Manure can provide all or a key portion of your crop's nutrient needs. Be sure to credit nutrients from all manure applications (from this year as well as previous years) in nutrient budgets. Store manure in a facility that will prevent contamination to both ground and surface water.

Use accurate testing to determine the nutrient content of your manure. Monitor changes in analysis when emptying out storage facilities. Be sure application equipment is properly calibrated and is functioning properly.

### **5 Do you make fertilizer applications based on maximum crop yields rather than historical crop yields?**

Use realistic yield goals. Yield estimates that are too high will result in soil nutrient levels beyond those needed by the crop and could result in excess nutrient ground and surface water pollution.

Do not base nutrient recommendations on yields greater than 10-20 percent above the average crop yield from the last three years. Keep accurate records.



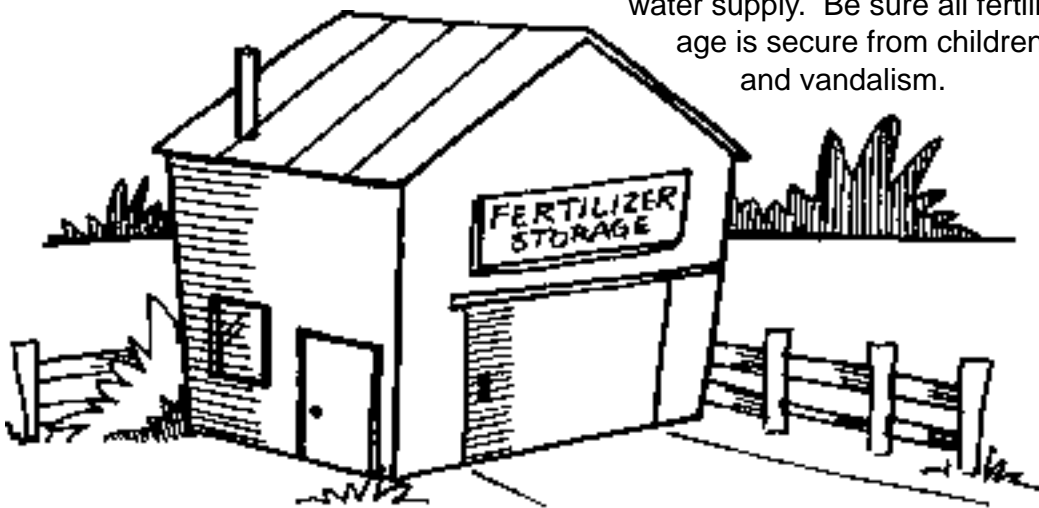
## **6 Do you apply all the fertilizer needed for the whole growing season at one time?**

If you over fertilize your fields, lawns, or garden areas with manures, crop residues, and/or commercial fertilizers you are potentially impacting your drinking water quality. Whenever possible, time your fertilizer applications to fit crop needs. Apply fertilizer when the crop is actively growing. Use split applications of nitrogen on sandy soils. Keep accurate records of all fertilizer applications.

## **7 Do you store fertilizer products on your property?**

If stored properly in a secure location, fertilizers pose little danger to groundwater or surface water. You should store all liquid fertilizers on an impermeable floor such as concrete. The floor should have a curb that will hold up to 125% of the volume stored in case of a spill. A mixing and loading concrete pad with secondary containment should be provided for all liquid fertilizers.

Store piles of dry bulk fertilizer on an impermeable surface under cover or in a building. Treat a fertilizer mixed with a pesticide as a pesticide. Locate fertilizer storage areas at least 100 feet downhill from your water supply. Be sure all fertilizer storage is secure from children, animals, and vandalism.



## **8 Has it been longer than one year since you updated your nutrient management plan?**

If you over fertilize your fields, lawns, or garden areas you are potentially impacting the water quality in your area. If you do not have a detailed nutrient management plan, you need to develop one. The plans should be realistic and need to include all potential sources of nutrients (including animal manures).

## Assessing Your Fertilizer Storage and Handling Practices

If you answered "Yes" to the following questions.	What to do	Who to call	Other References	What you did
Question 1	Soil test at least every 3 years.	Your local Extension Service office or crop consultant.		
Question 2	Get a detailed soils map of your fields.	Your local NRCS office, Conservation District office or Extension Service office.		
Question 3,4	Test your manure. Credit all nutrient sources.	Your local Extension Service office, NRCS office, Conservation District office or crop consultant		
Question 5,6,8	Use realistic crop yield goals. Apply fertilizer based on crop growth needs.	Your local Extension Service office, NRCS, Conservation District or crop consultant.		
Question 7	Develop a properly designed fertilizer storage system.	Your local Extension Service office, NRCS office, Conservation District office or your State Department of Agriculture.		

