

Well-A-Syst

A voluntary program to assist private drinking well users evaluate and modify practices to protect their drinking water supply

Fertilizer Management

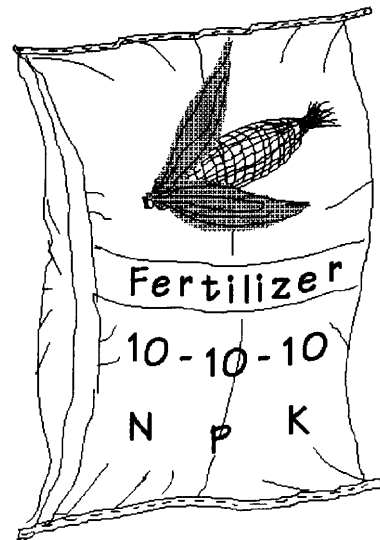
Why should you be concerned?

Fertilizers play a vital role in agriculture by increasing crop production. However, commercial fertilizer and manure may be a source of nitrate contamination in ground water.

The public health standard for nitrate–nitrogen in drinking water is 10 milligrams per liter. Nitrate levels exceeding 10 milligram per liter can pose a risk to some infants. This can result in a kind of slow suffocation known as blue-baby syndrome (methemoglobinemia), as excessive nitrates deplete oxygen in the bloodstreams of infants.

1. Has it been longer than three years since you had your soil tested (i.e., fields, lawns, and gardens)?
2. Is your soil sandy or gravelly (does your soil drain quickly)?
3. Do you apply manure to your fields, lawns, or gardens?
4. Do you make fertilizer applications based on maximum crop yields rather than historic crop yields?
5. Do you apply all the fertilizer needed for the whole growing season at one time?
6. Do you store fertilizer products on your property?
7. Do you have an up-to-date nutrient management plan?

If you answered “yes” or you do not know the answer to any of these questions, use this worksheet to address those issues. The information will help you develop a voluntary plan of action to reduce the contamination risk to your well.



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

Test your soil at least once every three years to identify existing levels of soil nutrients and maintain a record of previous soil tests by fields.

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

Coarse textured soils such as sands have larger pore spaces between soil particles. As a result, contaminants can easily move to ground water. If you do not know what soil types are on your property, contact the Natural Resources Conservation Service, Soil Conservation District, or CSU Cooperative Extension Office to get a detailed soils map of your property.

3. Do you apply manure to your fields, lawns, and gardens?

Use calibrated equipment for manure applications. Store manure in a facility that will prevent contamination to ground and surface water. Test the nutrient content of your manure and credit nutrients from all manure applications in crop nutrient budgets.

4. Do you make fertilizer applications based on maximum potential crop yields rather than historic crop yields?

Use realistic yield goals. Use of high yield estimates will result in excessive fertilizer applications which may pollute the ground water. In general, a realistic yield goal is 5 percent above your 5 year average. Each field should have an individual history and yield goal.

5. Do you apply all the fertilizer needed for the whole growing season at one time?

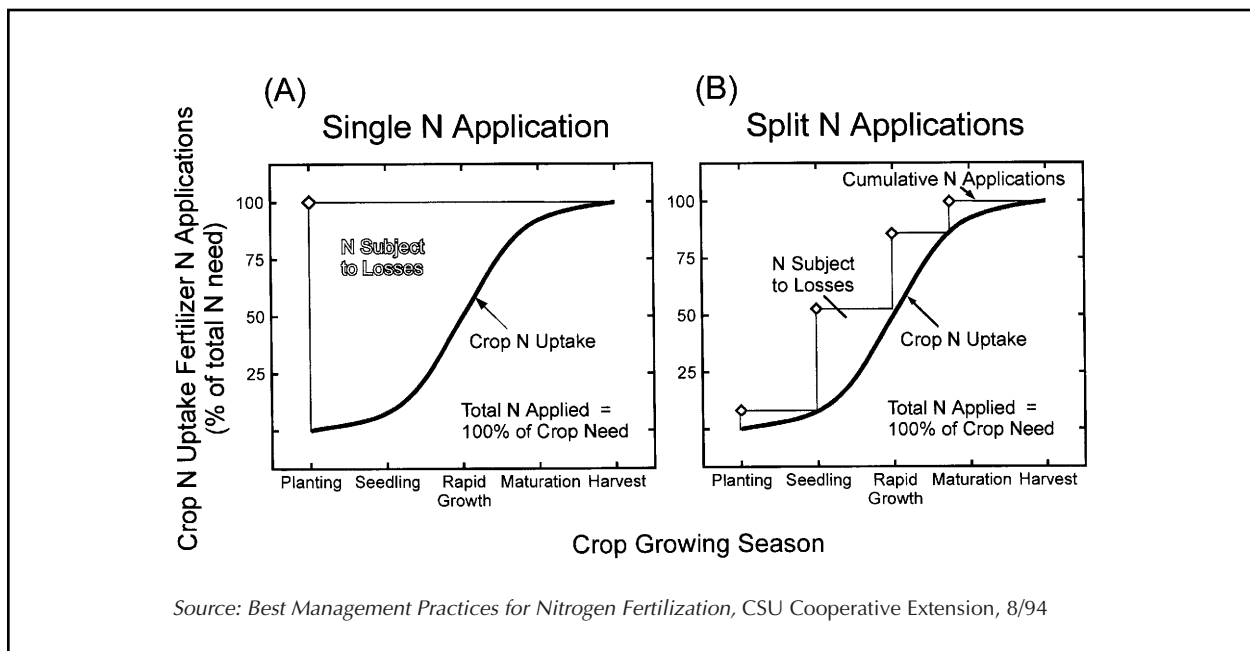
You should generally split applications of fertilizer and apply according to soil and crop needs.

6. Do you store fertilizer products on your property?

With secure storage, fertilizers pose little danger to ground water or surface water. Store all liquid fertilizer tanks (and dry bulk fertilizer) on an impermeable floor such as concrete. The floor should have a curb that holds at least 125% of the volume of the largest tank in case of a spill. A mixing and loading pad with secondary containment should be provided when large volumes of liquid fertilizers are handled. Locate fertilizer storage areas at least 100 feet downhill from your water supply. Treat a fertilizer mixed with a pesticide as a pesticide.

7. Do you have an up-to-date nutrient management plan?

If fertilizer is improperly applied to your fields, lawns, and gardens, the water quality in your area could be impaired. Develop a detailed nutrient management plan, which includes all potential sources of nutrients, including animal manures and irrigation water.



Glossary

contaminant

a substance which makes another substance impure or unsuitable for its original use; may include a chemical material, organic material, live organism, radioactive material or heated or cooled water

ground water

all water below the surface of the land; ground water usually refers to subsurface water in a zone of saturation that can be pumped from a well or that flows from a spring or seep

nitrate

a water soluble and mobile form of nitrogen; a necessary compound for plant growth but can produce health risks when excess amounts reach drinking water supplies

permeability

the property of a material which permits movement of water through the material

sandy soil

a soil having a high sand content, high infiltration rate, and a high rate of water transmission

Contacts

Natural Resources Conservation Service,
Colorado State Office
(303) 236-2886

CSU Cooperative Extension, State Office
(970) 491-6172

Colorado Department of Agriculture
(303) 239-4140

Colorado Association of Soil Conservation
Districts
(303) 232-6242

Well*A*Syst Worksheets

Private Drinking Water Well Management
Cistern Management
Site Assessment
Septic System Management
Household Hazardous Waste Management

Livestock Management
Fertilizer Management
Pesticide Management
Petroleum Storage Management

Well*A*Syst is a joint project developed for Colorado by the USDA Natural Resources Conservation Service; Colorado State University Cooperative Extension; Colorado Department of Agriculture; the Colorado Department of Public Health and Environment, Water Quality Control Division; the Colorado Department of Natural Resources, State Soil Conservation Board; and the U.S. Environmental Protection Agency.

Illustrations used in this publication are taken from *Home*A*Syst: An Environmental Risk Assessment Guide for the Home*, developed by the National Farm*A*Syst/Home*A*Syst Program, in cooperation with NRAES, the Northeast Regional Agricultural Engineering Service. Permission to use these materials was granted by the National Farm*A*Syst/Home*A*Syst Office.

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Assessing Your Fertilizer Management

If you answered “Yes” or did not know the answer to the previous questions

What you did

Who to call

What to do

1	Test your soil every 3 years.	CSU Cooperative Extension; Crop consultant	
2	Obtain a detailed soils map of your field.	Natural Resources Conservation Service; CSU Cooperative Extension office; Soil Conservation District office	
3	Test manure and credit nutrient sources.	Natural Resources Conservation Service; CSU Cooperative Extension; Soil Conservation District; Crop consultant	
4, 5	Use realistic crop yield goals and apply fertilizer based on crop growth needs.	Natural Resources Conservation Service; CSU Cooperative Extension ; Soil Conservation District; Crop consultant	
6	Determine need and build a fertilizer storage system.	Natural Resources Conservation Service; CSU Cooperative Extension; Soil Conservation District; Colorado Department of Agriculture	
7	Develop a nutrient management plan.	Natural Resources Conservation Service; CSU Cooperative Extension; Crop consultant	