



AGRICULTURAL CHEMICALS AND GROUNDWATER PROTECTION

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BMP Fact Sheet

BEST MANAGEMENT PRACTICES FOR WATER QUALITY

Public concern regarding drinking water quality and the environment has increased the need for urban and rural agricultural chemical applicators to modify some common practices. Preventing groundwater contamination is particularly important because, once contaminated, it is very difficult and expensive to clean up. The Colorado legislature addressed this concern by passing the Agricultural Chemicals and Groundwater Protection Act (SB 90-126) which declares that “the public policy of Colorado is to protect groundwater and the environment from impairment or degradation due to the improper use of agricultural chemicals, while allowing for their proper and correct use.”

Rather than legislate overly restrictive measures on farmers and related industries, Colorado has elected to encourage the voluntary adoption of Best Management Practices (BMPs) which suit the agricultural chemical user’s specific managerial constraints, while still meeting environmental quality goals. The BMPs will be determined by the Colorado Department of Agriculture and CSU Cooperative Extension with significant input from local producers and chemical applicators. Voluntary adoption of these measures by agricultural chemical users will help prevent contamination of water resources, improve public perception of the industry, and perhaps eliminate the need for further regulation and mandatory controls.

Best Management Practices

Best Management Practices are recommended methods, structures, or practices designed to prevent or reduce water pollution. Implicit within the BMP concept is a voluntary, site specific approach to water quality problems. Many of these methods are already standard practices, known to be both environmentally and economically beneficial.

The actual BMPs selected for use at the local level must ultimately be determined by agricultural chemical applicators because of the site specific nature of groundwater protection. Site characteristics such as depth to water table, soil type and water holding capacity, and the climate affect groundwater vulnerability.

Select the BMPs that help you achieve the goals of your operation.

Consider:

- potential leaching hazard of the application site
- overall costs and benefits
- short-term and long-term effects on water quality
- most suitable practices for your site and your farm management plan

Examples of BMPs for Groundwater Protection May Include:

Wellhead Protection

- Implement minimum setbacks (at least 100’ from wellhead) for mixing, loading, and storage of agricultural chemicals.
- Monitor well water quality periodically and know site-specific variables affecting aquifer vulnerability.

Irrigation Management

- Schedule irrigation according to crop needs and soil water depletion.
- Upgrade irrigation equipment to improve application efficiency.

What Can Homeowners Do?

Homeowners and urban chemical applicators can also help protect our environment and minimize groundwater problems by adopting Best Management Practices. Various publications are available at your local Cooperative Extension office outlining proper lawn and garden management techniques. The local Master Gardeners program can also help you determine how to properly fertilize and control pests.

Best Management Practices For Lawn Care

- Apply all chemicals at the lowest effective labeled rate.
- Time chemical application for optimum effectiveness. Do not apply immediately prior to rain or irrigation.
- Apply only enough irrigation water to satisfy plant needs. Do not leach soils after any chemical application.
- Store all chemicals in a safe, dry place with labels intact.
- Check with your county Department of Natural Resources prior to disposing of any lawn care chemical.

Nutrient management

- Sample soil to a minimum depth of 2 ft. to determine residual N.
- Establish crop yield goals for each field based upon a documented 5 year average plus no more than 5%.
- Credit all sources of residual N toward crop N requirements, including: organic matter, previous crop residues, irrigation water nitrate, subsoil nitrate, and manure.
- Split N fertilizer into as many applications as economically and agronomically feasible.
- Avoid fall application of nitrogen on sandy soils and over vulnerable aquifers.
- Avoid manure application on frozen or saturated soils and always incorporate any surface applied nutrients after application.
- Employ grass filter strips around erosive crop fields to catch and filter nutrients in surface runoff.

Pest Management

- Monitor pest and predator populations to determine economic thresholds for any pest control measures.
- Select crops and varieties which are resistant to pests.

- Employ beneficial insects and other non-toxic controls.
- Time planting and harvest dates to minimize pest damage.
- Spot treat or band herbicides instead of using broadcast treatments.
- Use the lowest effective labeled rate.

Pesticide Management

- All agricultural chemical applicators should receive thorough training and certification prior to any unsupervised use.
- Application equipment should be inspected, calibrated, and maintained on a regular basis.
- Records of all pesticides and fertilizers applied should be maintained by business operators.
- Store and dispose of all pesticides and empty containers according to state and local guidelines.

For more in-depth information or specific inquiries about BMPs, contact CSU Cooperative Extension or the Colorado Department of Agriculture. They have publications, programs, and specialists that can help you prevent water pollution.