From Field to Faucet: Managing for healthy water quality in our drinking water supply

Tap into pure, clean water.

Clarence Cannon Wholesale Water Commission

Is your farm or property in the North Fork Salt River watershed (outlined area on adjacent map)? If it is, then water draining off of your property flows downstream to the North Fork of the Salt River, which is used by the Clarence Cannon Wholesale Water Commission (CCWWC) as a source of public drinking water. The CCWWC operates a water treatment plant that can treat up to 10 million gallons a day to make it safe for drinking water. The CCWWC is located on the North Fork of the Salt River near Florida, MO. The water treatment plant draws in water from the North Fork arm of Mark Twain Lake. After treatment, safe drinking water is distributed to over 74,000 people in 14 counties.

How does runoff from the watershed affect the quality of the drinking water?

Atrazine, pesticides, and other chemicals are washed over the land down to the intake of the water treatment plant. The maximum level for Atrazine in drinking water is very low due to health concerns: 3 parts per billion! When the raw water has high Atrazine, expensive powdered activated carbon is added to absorb the chemical to reduce it below the maximum allowed. Nutrients, that can also be washed into water, feed algae that multiply or "bloom" which results in poor water quality, a musty taste and has a potential for unsafe cyanotoxins produced by algae (which can be dangerous to people and livestock). Pesticides and other contaminants must also be removed from the water prior to consumption.

Better Management Practices, such as field borders, buffers, and cover crops help reduce flooding and runoff of nutrients and pesticides, and provide for a cleaner source of drinking water for the CCWWC service area.

Cover crops such as turnips help improve infiltration of water into soil and reduce runoff from fields.

Field borders or buffers reduce flooding and runoff of pesticides and nutrients.

CCWWC treats water from the North Fork Salt River to provide water to a 14 county service area in Northeast Missouri.

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How can I reduce atrazine runoff from my farm fields?

- **Atrazine runoff is reduced when overall water runoff from a field is reduced.** Practices that reduce overall runoff from a field by increasing water infiltration into the ground include cover crops, vegetative buffers (such as field borders and waterways), and terraces. For vegetative buffers, it is recommended that there is at least a 50 foot buffer of grass, shrubs, and/or trees between a crop field and a drainage or stream.
- **Continuous no-till is the preferred management tool for long term improvement in soil health**, including increasing infiltration of water and reducing soil erosion from the field.
- **Don't apply atrazine, other pesticides, or fertilizers when the field is saturated or when rain is forecasted.**
- **If tillage is planned for the field,** apply atrazine up to 14 days before planting and incorporate atrazine into the top two inches of the soil with a field cultivator. Incorporating atrazine into the soil reduces atrazine losses up to 75%.
- **Use post-emergence atrazine applications at reduced rates.** Use soil-applied herbicide for grass control followed by a post-emergence application of atrazine, or atrazine mixed with other herbicides. Postponing atrazine application to a post-emerge time frame can reduce the amount needed up to 67%
- Use an **Integrated Pest Management Strategy** (IPM), which includes field scouting for insects and weeds, field mapping, and record keeping. Natural Resource Conservation Service (NRCS) and Soil and Water Conservation District (SWCD) programs are available to assist.
- **Follow herbicide labels and don't mix within 50 feet of a water body or well.** Don't over-apply. Calibrate equipment to ensure measurement accuracy, triple rinse empty containers and reuse according to label directions, and install backflow prevention devices to prevent back-siphoning so drinking water is not contaminated.
- **Refer to "Atrazine Management and Water Quality, A Missouri Guide"** published by MU Extension, University of Missouri-Columbia, Missouri Manual 167. **Available on-line at http://muextension.missouri.edu/publications/.**

Are there any incentives to install buffers between fields and creeks on my property? What about for cover crops?

Yes, the Soil and Water Conservation Program and NRCS have cost-share programs to help landowners plant field borders, filter strips, buffers, and cover crops on their property. Soil and Water Conservation Program cost share practices provide up to 75% of the estimated cost to establish the practice and also pays a per acre incentive: N386 (Field Border, $600), N393 (Filter Strip, $1,000), N391 (Riparian Forest Buffer, $1,200), and N340 (Cover Crop, $30-$40). To learn about these practices and other conservation cost-share or incentive programs, visit your county USDA office.