

Plant Species for Phosphorus Uptake

By Rudy G. Esquivel, Soil Conservationist
USDA-NRCS
Knox City Plant Materials Center
Knox City, Texas

Excess phosphorus in surface runoff near livestock facilities can be a problem if you're not using good management practices. A good management practice to consider would be to install some type of conservation buffer around the operation. Conservation buffers are small areas or strips of land in permanent vegetation that when placed in and around the operation can slow water runoff, trap sediments, and help remove excess nutrients and pesticides. Some buffers include filter strips, vegetative barriers, field borders, and grassed waterways. Filter strips and vegetative barriers work very well at intercepting runoff waters, thus keeping excess phosphorus and solids out of streams. To find a few plant species well suited for phosphorus uptake, a study was done at the USDA-Natural Resources Conservation Service (NRCS) Plant Materials Center located in Knox City, Texas.

Seven warm-season and two cool-season plant species were selected for the study. The plant species used were 'Aztec' Maximilian sunflower, 'Alamo' switchgrass, 'Coastal' bermudagrass, San Marcos Germplasm eastern gamagrass, 'Lometa' Indiangrass, 'Earl' big bluestem, T-587 old world bluestem, 'Jose' tall wheatgrass, and 'Rebel II' tall fescue. Over the duration of the study an average of 30.4 pounds of phosphorus was applied per acre. The top-three plant species for uptake and removal of phosphorus were 'Aztec' Maximilian sunflower, 'Coastal' bermudagrass, and 'Alamo' switchgrass collecting 19.9 lbs/ac, 12.7 lbs/ac, and 12.3 lbs/ac, respectively.

The 'Aztec' Maximilian sunflower and 'Alamo' switchgrass can be interseeded into bermudagrass stands commonly growing on a dairy or poultry farm. Both of these plant species are native and adapted to wet sites and can be integrated into any management

system to improve soil and water quality along with the added benefit of reducing excess phosphorus runoff.

These plants are readily eaten by livestock which makes haying and grazing good management tools for maintaining the health and performance of the buffer. Using buffers are good management practices and could possibly generate additional income through haying and/or seed production.

Please contact the USDA-NRCS Plant Materials Center in Knox City, Texas, at (940) 658-3922 or visit our web site at <http://Plant-Materials.nrcs.usda.gov> to learn more about plant species for phosphorus uptake, or information about NRCS and its mission to provide leadership in a partnership effort to help people conserve, improve, and sustain our natural resources and environment.

###



