Native vegetation improves water quality.

**Reduced soil erosion** – Native vegetation possesses significantly greater root mass than non-native grasses, providing reinforcing structure to hold soil in place. The above ground biomass of native grasses intercepts and dissipates the energy of falling rain. Native grasses hold from 50% to 97% of the rain that falls, keeping it from impacting the soil.\(^1\) Accumulated leaf and stem material protects the surface as well.

**Increased nutrient/sediment retention** – Native grasses trap up to 50% of coarse sediments, many of which are nutrient and pesticide laden. In studies, switchgrass removed significantly more N and P that cool-season filter strips.\(^2\) Native grasses are known to facilitate microbial breakdown of organic matter, pesticides and heavy metals.\(^3\)

**Reduced water flow velocity and runoff** – Accumulated residual leaf and stem material on the ground surface retards runoff, slowing flow functioning the same as miniature runoff retention ponds. Tall, stiff-stemmed native grasses are resistant to flow and slow water velocity and maintain their effectiveness as filters longer than short, sod-forming grasses.\(^4,5\)

Native vegetation promotes soil conservation.

**Reducing soil erosion** – The extensive root mass, rainfall interception and leaf/stem material at the ground surface protect the soil from erosion.

**Increased soil organic carbon** – Native perennial plants eliminate cultivation which depletes soil organic carbon. As much as 70% of native grasses root systems die and regenerate annually,\(^1\) increasing soil organic carbon and native vegetation sequesters carbon from the atmosphere and stores it as organic matter in the soil.\(^6\)

Native vegetation improves air quality.

**Carbon sequestration** – Native vegetation sequesters more carbon than introduced grasses.\(^8\) Due to the annual death and regeneration of parts of the extensive root system, more than 95% of the carbon in native grasses is below the ground in soil organic matter.\(^6\)
Native vegetation improves soil function.

**Increased infiltration rate** – Increased soil organic matter and macropore space in native vegetation increases the infiltration rate. Accumulated leaf and stem material at ground level retard runoff, allowing more time for infiltration.

**Increased water-holding capacity** – The increased soil organic matter in native vegetation acts like a sponge and increases the water holding capacity. Micropore space created by decaying fine root structure and mycorrhizae create capillary action in the soil which increases water holding capacity.

**Increased soil fertility** – Decay of fine root masses increase soil organic matter and deep roots access nutrients otherwise inaccessible by shallower rooted plants.

**Reduce soil compaction** – Deep roots reduce soil compaction.

References