# An Economically Sustainable Riparian Buffer to Promote Bank Stability and Reduce Phosphorus Loss in the Loess Hills. (A05-kelly084834-Poster)

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## Abstract:

Until recently, little information has been collected on the ability of streamside vegetation to retain or slow the movement of P. The objective of this study is to determine the suitability of a buffer strip containing a high-value timber species, rapidly growing nurse trees, and harvestable grasses as a means to capture excess P from a loess based hydrologic source area soil. The buffer, composed of parallel strips of cottonwood and walnut trees, alfafa/smooth brome, and switchgrass was established in the spring of 2001. A previously established smooth brome filter strip was used as a control. At the end of the 2001 growing season biomass and soil samples were collected from each cover type. After one growing season total biomass in g/m2 for each cover type was: walnut (132), cottonwood (305), switchgrass (737) and control (2014). Total root surface area ranged from 4 (walnut) to 83(smooth brome) m2/m3. Exchangeable soil P levels in the 0-5 cm layer ranged from 49 (switchgrass)to 55 (control)mg/kg. Total P ranged from 984 (switchgrass)to 1084 (cottonwood) mg/kg. At 15-30 cm exchangeable and total P values did not differ with cover type and averaged 22 and 829 mg/kg respectively. Plant P content will also be compared.

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**Presentation Information:**
Presentation Date: Monday, November 11, 2002
Presentation Time: 2:00-4:00 pm
Poster Board Number: 332

**Keywords:**
riparian buffers, high value tree species, phosphorus retention, stream bank stability