

No-Till Management of Agronomic Row Crops in Perennial Sod

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ABSTRACT

The senior author is not sure how true the story is, but it has been told that the first no-till crop planted into a perennial sod was by a professor at VPI. It was said that he punched holes into a fescue (*Festuca arundinacea*) sod with a soil sample tube, removed the plugs, deposited corn (*Zea mays*) seed, covered the seed with the soil plugs and found to his amazement that the corn came up and grew well. Corn has been researched more than any other agronomic row crop for planting into perennial grasses, such as orchardgrass (*Dactylis glomerata*), bluegrass (*Poa annua* or *Poa pratensis*), fescue, bermudagrass (*Cynodon dactylon*) and bahiagrass (*Paspalum notatum*). The senior author and cooperating scientists have researched no-till management of corn, grain sorghum (*Sorghum bicolor*) and soybean (*Glycine max*) in sod crops such as fescue, Bermudagrass, mixtures of fescue and bermudagrass and bahiagrass beginning in the mid to late 1970's to the early 1990's with various successes. Some of the senior authors research on this subject has been published (Gallaher 1975; Gallaher 1977; Gallaher 1978; Gallaher and Oclumpaugh 1980; Gallaher and Westberry 1980; Robertson et al. 1980; Stanley and Gallaher 1980; Gallaher and Laurent 1983; Baldwin and Gallaher 1985; Gallaher et al. 1992). This practice has been widely researched by others as well with only a small sampling of citations given (Jones et al. 1969; Shanholtz and Lillard 1969; Blevins and Cook 1970; Van Doren and Triplett 1973; Langdale and Leonard 1982).

This paper will show data verifying the tremendous soil and water conservation benefits from use of sod crops and mulches for growing crops. In addition examples of successful no-till and strip-till management of corn, grain sorghum and soybean will be discussed. Comparisons of crop response to nitrogen fertilizer will be made for different soil types in one county in Florida and between soil types in Florida and Florida and Tennessee. Data from the Georgia Piedmont will also be shown. Much of the senior authors experience with sod planting of agronomic row crops was about 20 years ago. Although realizing that this idea has great potential he has not pursued further development of this idea in recent years because of the lack of farmer interest and the need to pursue other priorities.

Some of the main conclusions from experience with sod based agronomic row crops are as follows: 1) Sod provides maximum erosion control and moisture conservation. 2) Crop responses will vary due to soil type and or location and fertilizer management. 3) Corn, grain sorghum and soybean can be grown successfully in sod with the likelihood of profitability. 4) Most research is farmer or industry driven and greater interest is needed by these end users in order to pursue greater management successes. 5)

Crops grown in bermudagrass fields could have great potential for growing supplemental grain or forage while maintaining the sod for forage use. 6) Planting into bahiagrass will require strip-till management to help ensure good soil/seed contact because of the living and/or dead organic residue interference in the seeding zone. 7) Rotating an annual agronomic crop into sod crops would be a good way to renovate pastures. 8) Irrigation would generally be essential for success when interplanting in Florida because of the low water holding capacity and sandy textured soils.

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