

TILLAGE EFFECTS ON THE GROWTH OF REDVINE

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REFERENCE: J.E. Hook (ed.) *Proceedings of the 22nd Annual Southern Conservation Tillage Conference for Sustainable Agriculture*. Tifton, GA. 6-8 July 1999. Georgia Agriculture Experiment Station Special Publication 95, Athens, GA.

Abstract. Redvine (*Brunnichia ovata*) is a perennial plant that can reproduce through seed and vegetative propagation. Its distribution is from south Illinois and Missouri to South Carolina, Florida, and Texas. It is capable of producing an extensive underground stem (rhizome) and root system, and it is a problem in many agricultural fields. Research has shown that deep tillage with a moldboard plow provides good control of redvine while other tillage methods, especially no-till, can increase redvine infestations. The morphology of redvine stem growth can account for these responses to different tillage practices.

The redvine with shallow tillage (2-4 in.) has a taproot system with adventitious buds at the top of the taproot. These buds give rise to underground rhizomes as well as above ground stems. Deep tillage with a moldboard plow severs the connection of the plant with its deep roots about 8 to 14 in. deep. If the resultant pieces of stem and root either freeze or dry, they will not survive. This leaves only the roots deeper than the plowing depth to regenerate. With no tillage, underground rhizomes become established right up to the soil surface and continue to grow below ground every year without pruning. As a result, redvine infestations seem to “explode” under no-till culture.