

**Evaluation of annual medics (*Medicago* spp.) as living
cover crop mulches in vegetable production systems
in the Midwest.**

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Annual medics (*Medicago* spp.) with their less invasive, dense, low growth habits and drought tolerance make them potential candidates as spring-sown living cover crop mulches in alternative vegetable production systems. Some of the potential benefits of using annual medics in vegetable production include reducing soil erosion, fungicide run-off, vegetable disease, and N loss. Annual medics have been studied as emergency forage crops, smother crops and N contributors in corn and soybean systems in the upper Midwest. The use of annual medics in vegetable production has not been fully studied.

In 2000 and 2001 *M. truncatula* var. 'Sephi', 'Carpet' and 'Parabinga', *M. polymorpha* var. 'Polygraze', 'Serena' and 'Santiago', *M. scutellata* var. 'Sava' and 'Kelson', *M. littoralis* var. 'Harbinger' and *M. rotata* var. 'Highlander' were evaluated in field plots in Columbus, Wooster, Fremont and South Charleston, OH for ground coverage, growth rate, and above ground biomass production. The general trend of performance was *M. truncatula* > *M. scutellata* > *M. polymorpha* > *M. rotata*. The best performing annual medic varieties over the 2 years were 'Carpet', 'Sephi', 'Harbinger', 'Kelson' and 'Sava'. The poorest performing varieties were 'Polygraze', 'Santiago', 'Serena' and 'Highlander'. Observational data from annual medic field plot evaluations indicate that Powdery Mildew is an important limiting factor in using annual medics as living mulches in vegetable production in Ohio. Other foliar diseases associated with annual medics in Ohio include Rust, Common Leaf Spot, and *Leptosphaerulina* leaf spot.

Concurrently, annual medics have been evaluated as potential living cover crop mulches in commercial pumpkin production in Ohio. In 2000 pumpkin yield was significantly reduced when pumpkins were directly seeded into spring-sown living cover crops of annual medic varieties 'Sephi', 'Santiago' and 'Serena'. In 2001 spring-sown living cover crops of either annual medic variety 'Sephi' or 'Polygraze' significantly reduced yield in strip tillage pumpkin production with drip irrigation.

In 2001, yield of processing tomato Peto '696' grown on black plastic mulch with annual medic variety 'Sephi' seeded at 40 lb/A between rows was comparable to tomatoes grown on black plastic mulch with bare soil between rows. In 2002, this study is being repeated in Columbus and South Charleston, OH.

M. truncatula var. 'Parabinga' is currently being evaluated as a living mulch between black plastic mulch in commercial pumpkin production.