

Sincik M, Turan ZM, Goksoy AT (2008) Responses of potato (*Solanum tuberosum* L.) to green manure cover crops and nitrogen fertilization rates. Am. J. Pot. Res. 85:150-158.

Abstract

This study compared the effects of common vetch (*Vicia sativa* L.), faba bean (*Vicia faba* L.), and winter wheat (*Triticum aestivum* L.; control) cover crop green manures in combination with four rates of nitrogen (N) on tuber yield and quality of three potato varieties (Marfona, Hermes and Agria) during 2-years (2004–2005). Results over years were combined for final analysis. Above-ground dry matter for common vetch and faba bean green manure crops were 2,300 and 2,587 kg ha⁻¹, respectively. Mean root dry matter yield of faba bean (285 kg ha⁻¹) was higher than common vetch (120 kg ha⁻¹). Nitrogen (N) yields of common vetch and faba bean green manure crops were 49 and 58 kg N ha⁻¹ for above-ground and 2.0 and 5.0 kg N ha⁻¹ for root dry matter, respectively. Averaged over all nitrogen fertilizer rates, potato plants grown in plots following common vetch and faba bean green manure cover crops produced 12.7% and 15.0% more tuber yield ha⁻¹, respectively, compared with plants in the winter wheat plots. Potatoes following green manure legume cover crops produced approximately 36% to 38% higher tuber yields compared with potatoes grown following winter wheat when no nitrogen fertilizer was applied. Differences between tubers yields following cover crops decreased as N rates increased. Results over combined 2-years indicated that the economically optimum N rate (EONR) was an average of 30 kg N ha⁻¹ lower for potato following green manure legume cover crops compared with potato following winter wheat cover crop.