

The rotation of leguminous shrubs and crops is being tested on farms and recommended as a means of improving soil fertility and increasing crop yield in eastern and southern Africa, including western Kenya. However, this improved fallow practice may also increase the nematode population in the soil. An experiment was conducted to monitor the effects of plant-parasitic nematodes on crops after improved fallow. Soil was collected from a maize (*Zea mays* L.)/bean (*Phaseolus vulgaris* L.) field, a natural fallow, a *Crotalaria* (*Crotalaria grahamiana* Wight & Arn.) fallow, a *Tephrosia* (*Tephrosia vogelii* Hook. f.) fallow and a *Crotalaria* — *Tephrosia* mixed fallow and used to fill plastic pots placed in a shade. Three successive crop cycles of 2 months were tested in these pots using maize and beans, the most important staple foods in western Kenya. In the first cycle, beans grew poorly on the *Tephrosia* and *Crotalaria* — *Tephrosia* soil due to the high incidence of root knot nematodes, *Meloidogyne* spp., while maize did not suffer any loss. Although the populations of root knot nematodes reduced drastically in the second and third cycles, both maize and beans experienced heavy losses on the soil under improved fallow probably due to the spiral nematodes, *Scutellonema* spp., which became dominant in the nematode communities. Despite the use of fertilisers (N, P, K), both crops became highly sensitive to spiral nematodes in the third cycle because of the degradation of the soil physical properties. The study showed that the benefits of improved fallows in terms of crop production may be limited by the high number of plant-parasitic nematodes they help develop in the process.