

EFFECT OF SOIL MULCHING ON NODULATION AND YIELD
OF COWPEA (Vigna unguiculata(L)WALF) VARIETIES

By

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A B S T R A C T

The use of mulch for moisture conservation is practiced for many crops in the tropics benefiting from soil temperature reductions. However, the effect of mulch on biological nitrogen fixation and yield of crop is not known.

Research was undertaken to study the effect of mulches, at two rates, with two cowpea cultivars, on Reddish Brown Earth (Agricultural Research Station, Maha-Illuppallama) and Non Calcic Brown soils (Regional Research Centre, Karadian-arua), during Yala and post Yala season respectively. Three mulches paddy husk, paddy straw and ipil ipil leaf (all forms dried to a constant weight), at 4 t/ha and 8 t/ha, were tested against no mulch, for each cultivar.

Mulching definitely had a positive effect on yield. In Non Calcic Brown soil, the ipil ipil mulch treatment, showed an yield increase of 55% over the paddy husk treatment, with the cultivar MI-35, and straw mulch gave 49% increase in yield, with the cultivar TVX 33-01J. Varieties interacted significantly, with different mulches and rates of mulch in Non Calcic Brown soils.

In Reddish Brown Earth the ipil ipil mulch at 8 t/ha gave the highest yield in both cowpea cultivars.

In Non Calcic Brown soil the number of active nodules and dry weight of nodules were also high under ipil ipil mulch in MI-35, and, in the straw treatment, with TVX 33-01J. The dry weight of nodules was also high under ipil ipil mulch in MI-35, and under straw mulch in TVX 33-01J. In Reddish Brown Earth, ipil ipil mulch gave a higher number of active nodules in both cultivars.

In Non Calcic Brown soil plant dry weight and plant height were higher under ipil ipil mulch in MI-35 while straw gave good results with TVX 33-01J. Leaf number and leaf area index also followed the similar trend as in plant dry weight and plant height.