B-62 Grass hedges for controlling soil erosion in the dry zone

P B Dharmasena
(*Field Crops Research and Development Institute, Maha Illuppallama*)

Adoption of mechanical measures and mulching for controlling soil erosion in the dry zone has been difficult due to cost of earth work and non-availability of mulch materials. A grass hedge which would serve both purposes has been assessed in the present study using 2 grass species (Citronella and Vetiver) on their performance in controlling erosion, biomass production and suppression of weeds. The study was carried out during the period 1993 to 1995 at Maha Illuppallama on plot basis. Tillage operation was also considered as a treatment as it is being practised by farmers for weed management and improving the soil tilth.

Runoff plot studies showed that introduction of Citronella and Vetiver grass hedges at 5 m spacing could cause reduction of runoff by 38 and 44% respectively. Citronella grass hedge could reduce soil erosion by 60% and, therefore, it is more effective than even the earth bund. Vetiver hedge reduced soil loss only by 36%.

Vetiver produces an annual biomass of 4.5 t/ha which is equivalent to biomass production of *Gliricidia* in alley cropping. In the case of Citronella it was 8.0 t/ha and can be considered more than adequate for both soil and moisture conservation. The study showed that Citronella hedge could increase sesame yield by 30 and 40% under no-till and tilled conditions respectively but not the Vetiver hedge under any condition.

Vetiver and Citronella mulches could suppress weed growth by 50 and 65% respectively. Effect of tillage operation was only distinct in the absence of hedges, and it suppressed weed growth by 85%. As tillage promotes soil erosion, Citronella hedge is the most suitable practice for rainfed farming in the dry zone.