

# **Decomposition Rates of Biomass Obtained from Six Month-Old *Tephrosia vogelii*, *Tithonia diversifolia* and Natural Fallow Vegetation at Maseno, Kenya**

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## **Abstract**

Organic residues incorporated into soil release their nutrients through decomposition. This process may be slow or rapid depending on the biomass quality and environmental conditions. For a period of 8 months, an incubation study with litterbags was carried out in field conditions to determine the decomposition rate of *Tephrosia vogelii* Hook F., *Tithonia diversifolia* (Hemsley) A. Gray and natural vegetation fallows. Leaves, stems and roots of *Tephrosia*, *Tithonia* and natural fallow had high decomposition rates and less than 30% of the biomass remained undecomposed after 8 months of incubation. *Tithonia* leaves decayed within 1 month after incubation and *Tithonia* mixture released most of its N in mineral form during the first month. *Tephrosia* roots and leaves had a half-life ( $t_{50}$ ) of about 2 months, which is lower than that for *Tithonia* roots. *Tephrosia* stems and natural fallow roots were both low in N and decomposed slowly. Decomposition and nutrient release patterns were influenced by the quality of the material, in particular the N content, lignin and polyphenols.