

Tithonia diversifolia

Compositae (Asteraceae)

Central America

COMMON NAMES: Embu: Kirurite; **English:** Mexican sunflower, *Tithonia*; **Kamba:** Ilaa, Mulaa; **Kikuyu:** Maruru; **Kisii:** Amaua amaroro; **Luhya:** Maua amalulu; **Luhya (Bukusu):** Kamaua, Kiming'ulie; **Luo:** Maua makech, Akech, Maua madongo, Mauwa; **Teso:** Emaua.

DESCRIPTION: A woody herb or climbing shrub 1–3 m.

LEAVES: Opposite or alternate along most of the stem, 3–5 lobed (upper leaves usually unlobed), margin toothed, 5–17 x 3–12 cm, with a pointed tip. Leaves with many hairs on the lower side giving them a grey appearance. Leaf veins parallel. **FLOWERS:** Yellow, on terminal heads. Similar to the well-known sunflower but smaller. The flower disc is about 3 cm in diameter and has yellow petals 4–6 cm long. Each mature stem may bear several flowers at the top of the branches. **FRUIT:** The lightweight seed can easily be dispersed by wind, water and animals.

ECOLOGY: Introduced from its area of origin in Central America to many other parts of the world. In Kenya, it is found in Western and Central Provinces as well as in coastal areas and parts of Rift Valley; 550–1,950 m. Initially introduced as an ornamental garden plant, but escaped and now grows in hedges, along roads and on other disturbed ground. Agroclimatic Zones II–IV. Flowers and seeds throughout the year.

USES: Fodder (leaves for cattle and goats during the dry season), medicine (leaves), ornamental, live fence, boundary marking, mulch, soil improvement.

PROPAGATION: Cuttings, wildings, seedlings, direct sowing at site. For direct sowing, care should be taken so that the tiny seeds are not washed away. The best method is to make a furrow for the seeds and then cover them lightly with sandy soil and finally apply mulch to protect soil and retain moisture. Cuttings (20–30 cm long) from mature wood can also be used.

SEED: There is rarely any need to raise seedlings in a nursery. It is cheaper to use wildings, cuttings or direct sowing; a prolific seeder.

treatment: None.

storage: Seeds can be stored for long periods.

MANAGEMENT: *Tithonia* has been tried extensively in research as a plant for green manure with encouraging results. It is recommended to harvest leaves and soft twigs, chop them into pieces, spread them on the soil and either leave them to decompose on the soil surface or incorporate them into the soil. Wait at least a week after application before crops are planted. Maize and other seed may not germinate well if planted immediately. The leafy biomass contains good amounts of several nutrients (notably phosphorus), and application has resulted in a significantly higher yield (usually doubled) as compared with controls without application. The impact on bean yields is even more significant. A constraint to implementation is that collecting and spreading the required amounts of biomass is labour demanding. The plant coppices.

REMARKS: Scientists recommend increased use of *Tithonia* as green manure with or without addition of inorganic sources of phosphorus (TSP, DAP or rock phosphate). The plan is invasive, hence a potential weed.

FURTHER READING: <http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm>; Backes and Ahenda, 1998; Beentje, 1994; Blundell, 1987; Kokwaro, 1993.

