

## **Dry matter yields and hydrological properties of three perennial grasses of a semi-arid environment in east Africa**

Mganga, Kevin Z.; Musimba, Nashon K. R.; Nyariki, Dickson M.; Nyangito, Moses M.; Mwang'ombe, Agnes W; Ekaya, Wellington N.; Clavel, Daniele; Francis, Judith; Kaufmann, Ralph von; Verhagen, Jan; Muiru, William M.

Date: 2010

### **Abstract**

*Enteropogon macrostachyus* (Bush rye), *Cenchrus ciliaris* L. (African foxtail grass) and *Eragrostis superba* Peyr (Maasai love grass) are important perennial rangeland grasses in Kenya. They provide an important source of forage for domestic livestock and wild ungulates. These grasses have been used extensively to rehabilitate denuded patches in semi-arid environment of Kenya. This study investigated the dry matter yields and hydrological properties of the three grasses under simulated rainfall at three phenological stages; early growth, elongation and reproduction. Laboratory seed viability tests were also done. Hydrological properties of the three grasses were estimated using a Kamphorst rainfall simulator. Results showed that there was a significant difference ( $p > 0.05$ ) in dry matter yields and soil hydrological properties at the different grass phenological stages. Generally, all the three grasses improved the soil hydrological properties with an increase in grass stubble height. *C. ciliaris* gave the best soil hydrological properties followed by *E. macrostachyus* and *E. superba*, respectively. *E. macrostachyus* recorded the highest seed viability percentage. *C. ciliaris* and *E. superba* were ranked second and third, respectively. *C. ciliaris* yielded the highest biomass production at the reproductive stage followed by *E. superba* and *E. macrostachyus*, respectively.