

Title

English

Abstract

Maize for food, feed, and fertiliser: a literature review on multiple uses of maize in mixed farming systems in East and Southern Africa

This review attempts to provide an overview of biophysical and socio-economic aspects that lead to the use of maize as food, feed and fertiliser, directly as incorporated crop residue or via manure, in East and Southern Africa. The maize plant is initially to be considered as grain and stover, where stover is defined as all above-ground plant parts except grain. Attention is then paid to the components of stover, their feeding value and impact on animal performance, manure value and soil fertility. The review also discusses the importance of maize stover for animal feed specially the green maize stover. Components of mature stover, nutrient content of stover and its constituent parts and degradability of maize stover are described. The review in addition examines livestock in East and Southern Africa and special emphasis is given to their numbers and distribution, forage availability, feed utilization and draught power. Lastly, manure as an essential component of soil fertility maintenance strategy for mixed smallholder dairy farmers is highlighted. In many cases, return of manure from stall fed dairy animals that is the main external source of N and P to the farm. Insufficient quantities of manure are available to fertilise the entire cropping area, and farmers selectively apply to priority crops. With poor quality animal feed, manure quality, as indicated by C : N ratio, will be low. Initially low quality manure may immobilise soil N, until soil microbes start to decompose organic matter. Thereafter, nutrient release will benefit crop growth with effects extending over several years. A combination of manure and inorganic fertiliser applications increases the N use efficient of the fertiliser, increasing returns to farmers.

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