

# A Basic Guide on Maize-Legume Intercropping in Kenya

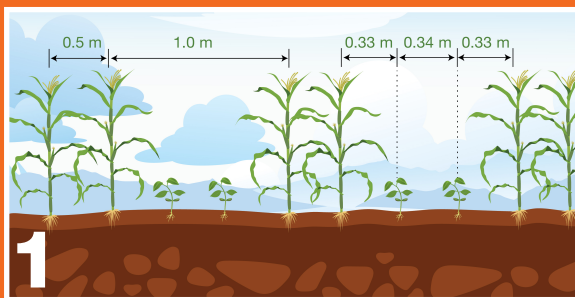
Intercropping is the growing of two or more crops in the same field simultaneously, or in sequence in the same cropping season. Success of an intercropping system depends on the design and crop arrangements to reduce competition, increase complementarity and achieve facilitation between different crop species.

Competition between companion crops can be reduced by intercropping compatible crop species with differing competitive characteristics (such as water, nutrient needs, and height), increasing the planting distance between species, or staggering the planting dates of the companion crops. Component crops should have different growth habits, canopy structure and rooting patterns. For example, maize can be intercropped with pigeonpea, cowpea and groundnuts.

## Benefits of intercropping

1. Increased dietary diversity, as maize and legumes contribute to a balanced family diet.
2. Risk reduction: intercropping reduces the risk of crop failure due to unfavorable climatic conditions. Staggered cropping may allow one crop to avoid dry spells.
3. Increased resource use efficiency: Intercrops are often associated with high productivity for both crops.
4. Soil fertility is replenished by legumes through biological nitrogen fixation (BNF).
5. Control of pests and diseases: intercropping alters the environment and helps to break disease cycles, and prevents pests finding their hosts. Intercropping also stimulates suicidal germination of parasitic weeds such as *Striga* spp.

## What arrangement of intercrops are recommended?



In Kenya, the MBI system characterized by two rows of a legume alternating with two rows of maize is preferred.



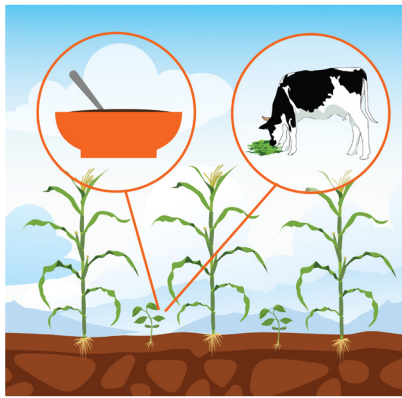
Alternating rows of component crops, that is, one row of maize followed by one row of the legume.



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# Tips on intercropping



1. To be successful, the main crop in the intercrop should always be maintained at the same yield levels as in the sole crop or have a small yield penalty.

The companion legume crop should be multi-purpose, that is for human consumption, fodder for livestock, and soil nutrient replenishment. Companion crops should have different growth habits, canopy structures, and rooting patterns to reduce competition.

Contact:  
CIMMYT–Kenya  
ICRAF House, United Nations  
Avenue, Gigiri

E-mail: [dtmass@cgiar.org](mailto:dtmass@cgiar.org)  
[www.cimmyt.org](http://www.cimmyt.org)



2. Maize will require mostly Nitrogen (N), Phosphate (P) and Pottasium (K) basal fertilizer, and N as top dressing. Legumes will require mostly PK, and micronutrients such as Zinc and Boron.



3. Operations such as mechanical weeding may be hampered in intercropping due to spacing, and care is needed for slow growing legumes such as pigeonpea.



4. Use of herbicides is discouraged, as it is difficult to apply selective herbicides in systems with both narrow and broad leaf crops.

When is the best time to plant cereal and legume crops in an intercrop system?

Cereals and legumes can be planted on the same day, or on different dates.

Planting on the same day may increase competition. However, when compatible component crops are selected, no negative effects on crop growth and yield are experienced.

With relay planting, or planting on different days, the cereal is often planted first, and the legume up to six weeks later.