



Doubled-Up Legumes in Malawi:

An Innovation for Sustainable Rain-Fed Cereal Production in Developing Countries

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Africa - 7 to 10 kg/Ha fertilizer







Two types of legumes

Annuals - for food



Bean, groundnut & soyabean

Perennials – agroforestry soil fertility & fuelwood



Gliricidia & *tephrosia* trees



A third way: doubled up legumes





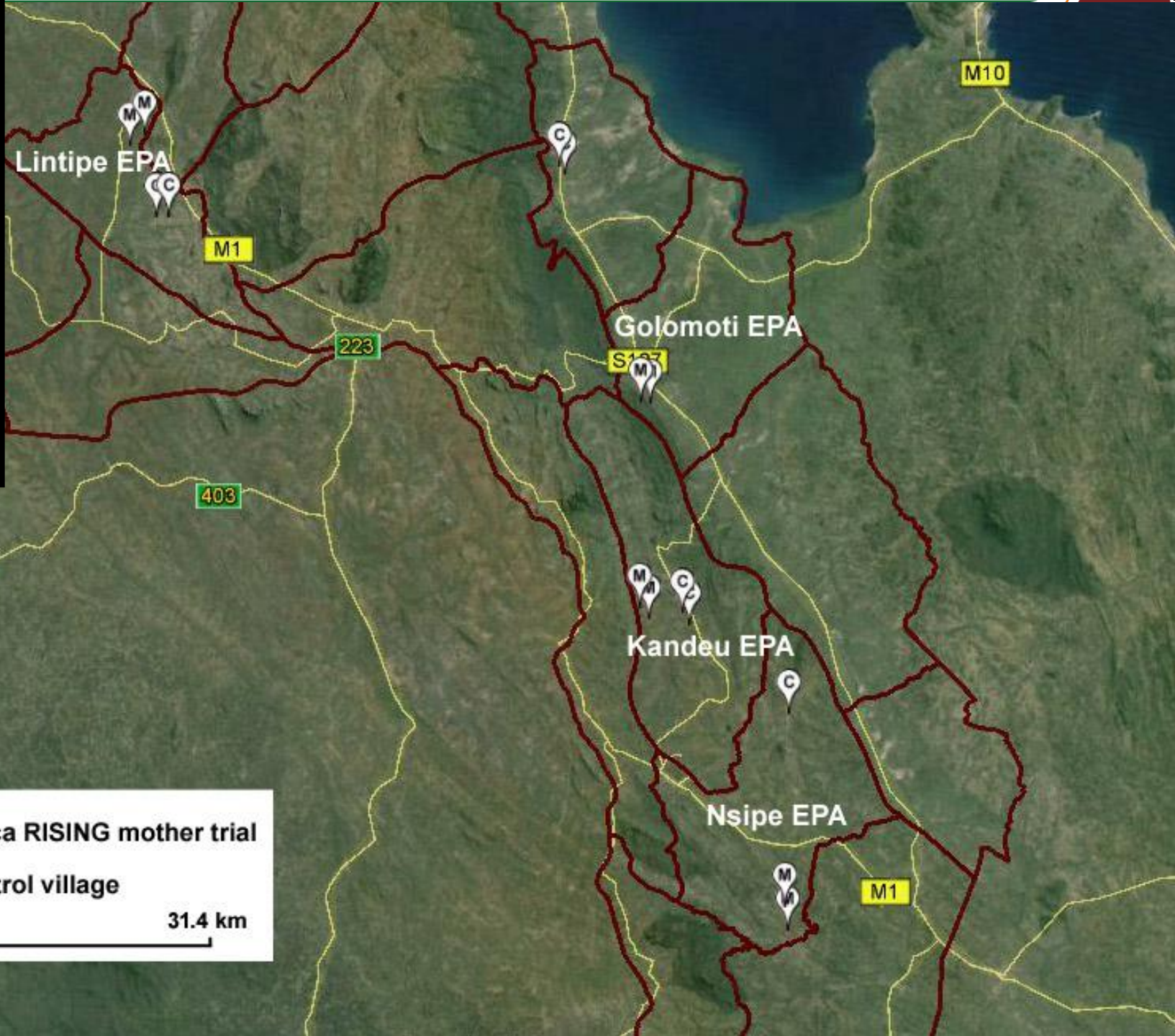
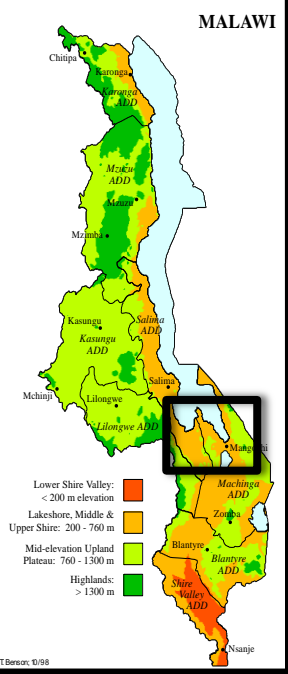
A third way: doubled up legumes



Pigeon pea
(*Cajanus cajan*)



Soyabean



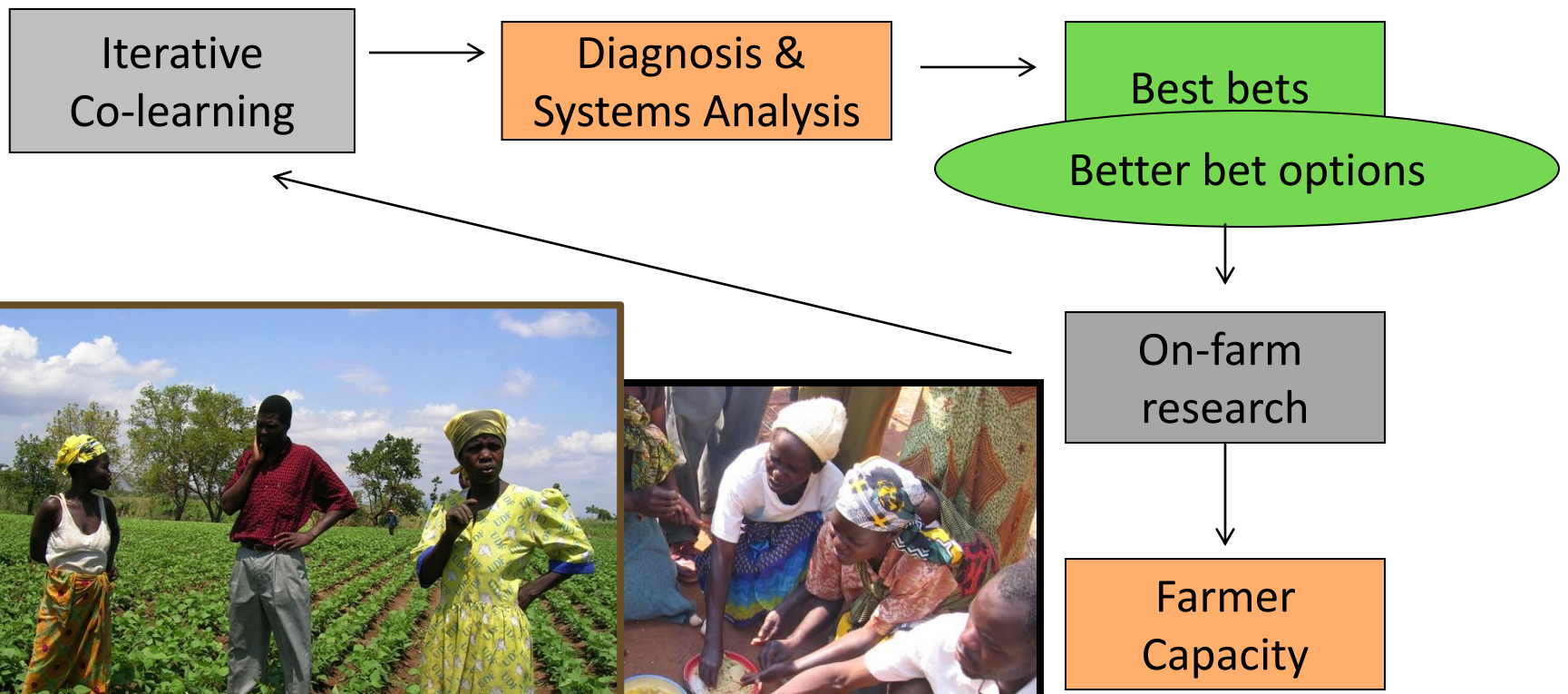
= Africa RISING mother trial
 = Control village

31.4 km





Participatory research and education





Annual Food Legume



Pigeon pea

Groundnut

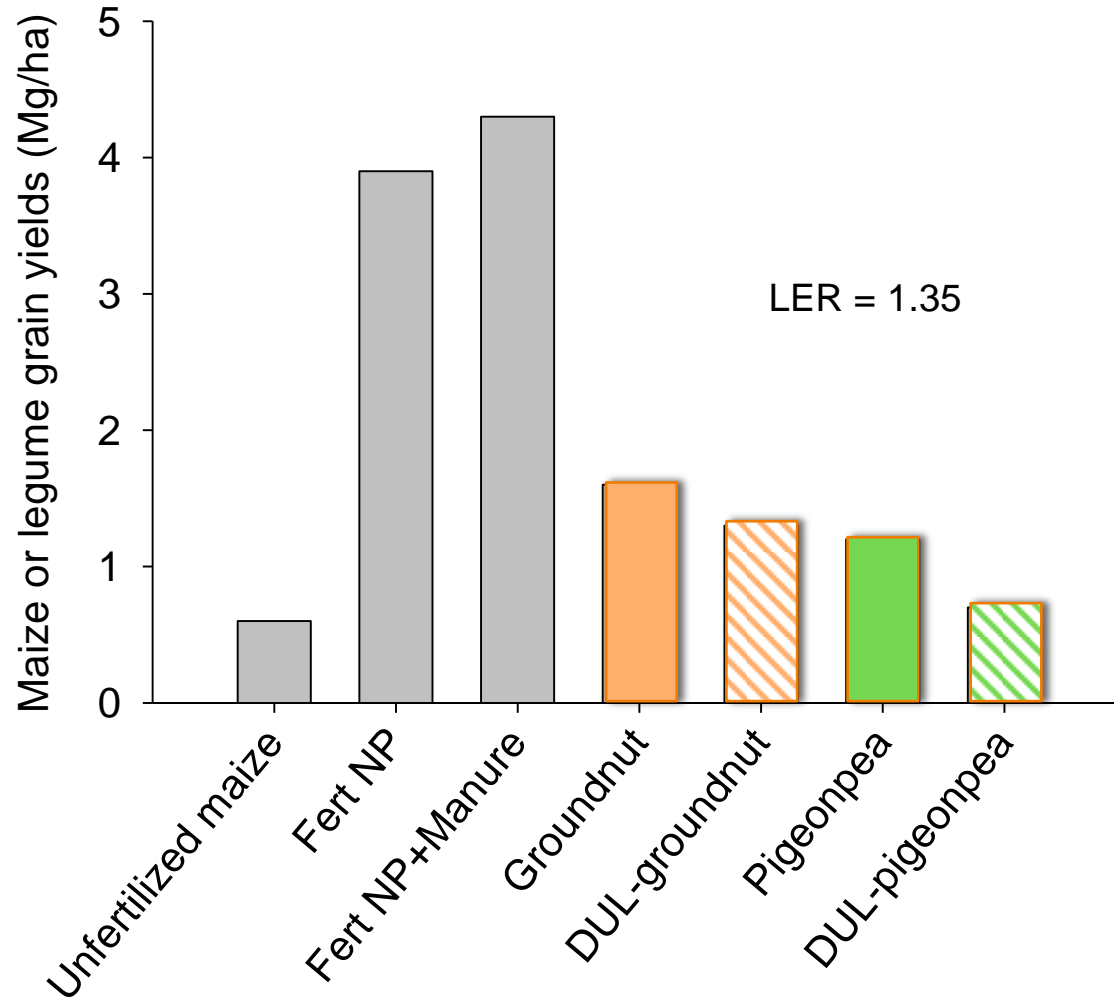
Year 1: Doubled Up Legumes



Year 2: Maize

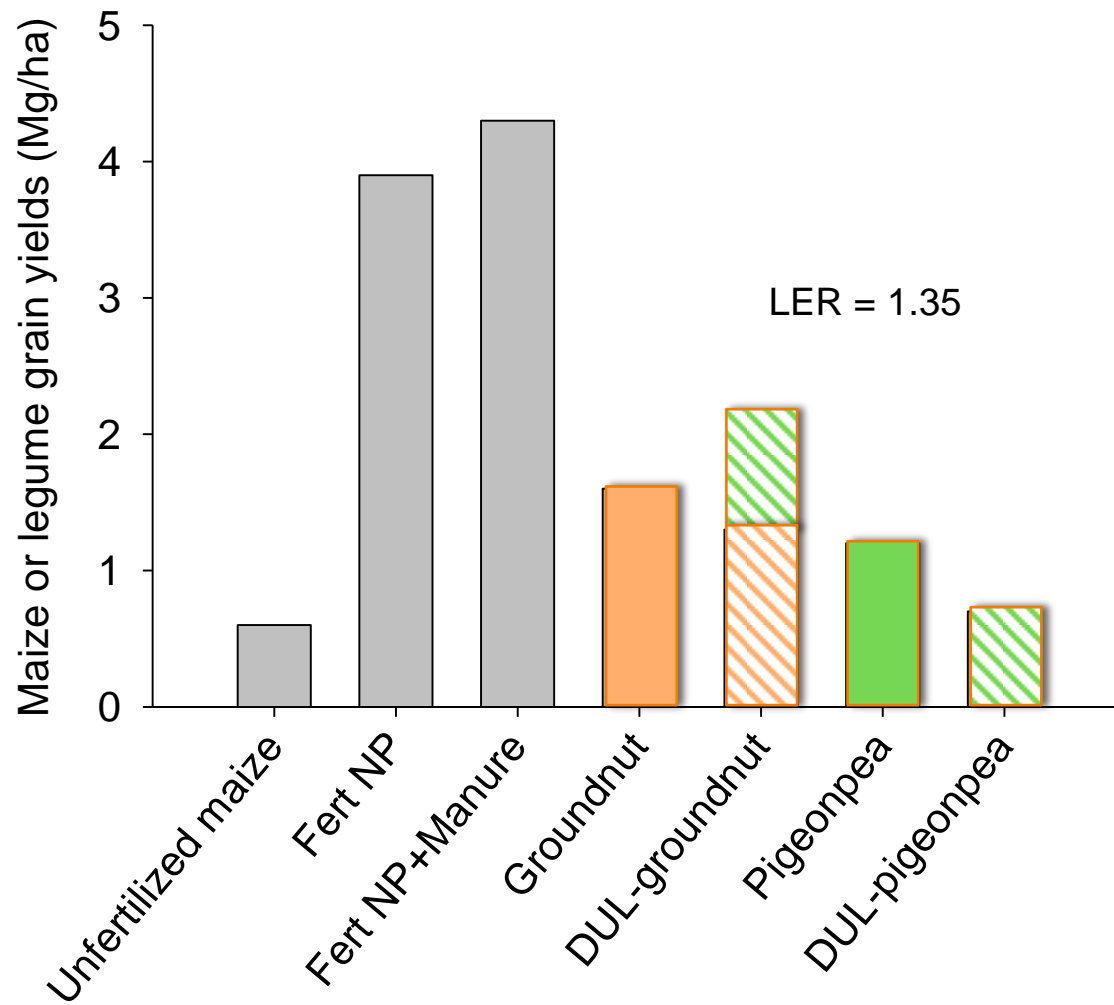


YEAR 1: Sole or doubled-up legumes in maize based systems (4 sites, n=12)



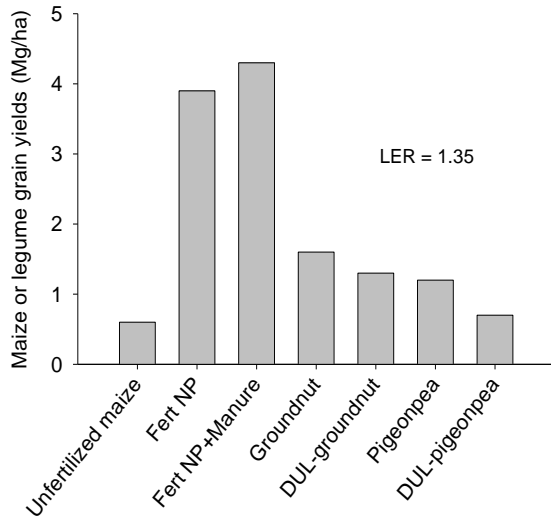


YEAR 1: Sole or doubled-up legumes (DUL) with maize

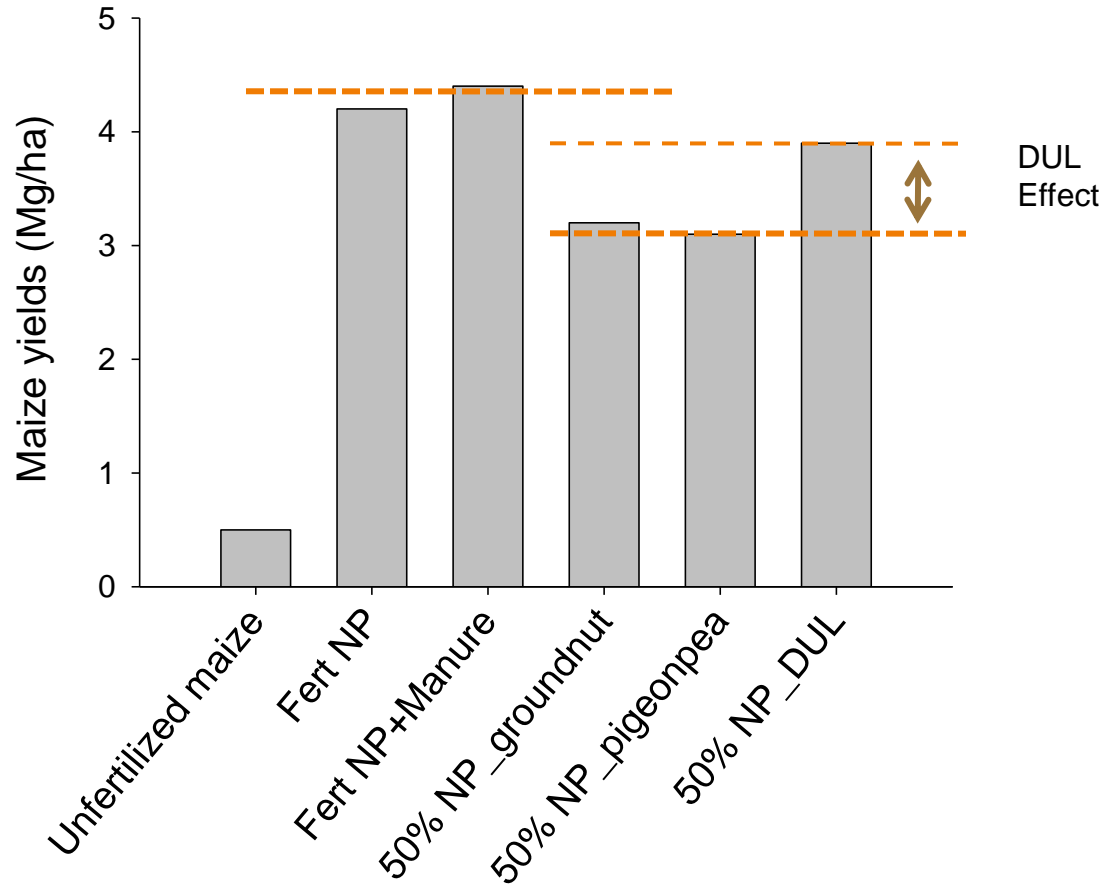




YEAR 2: Rotational effects of sole or doubled-up legumes sequenced with maize



Year 1





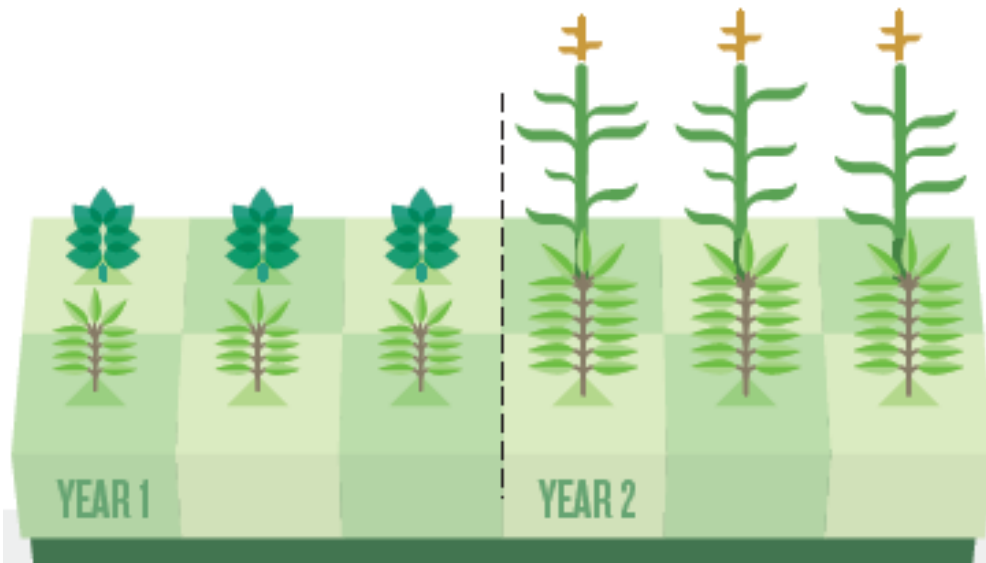
Mz+Fert	Mz+Pp ea +Fert	Mz+Comp	Mz+Beans	Mz+Gnuts	PPea+Beans	PPea+Gnuts	PPea+Soy
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Year 2: Maize intercropped with ratooned pigeon pea



COMBINE complementary life forms



DOUBLED-UP LEGUME SYSTEM

- ◆ Increases plants' efficiency of fertilizer use
- ◆ Improves yield of protein-rich grains
- ◆ Decreases labour requirements
- ◆ Improves families' diets

Glover et al., 2012

Pulse plus!





Thank You

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