



# Arrangement, timing, and synergy

## rethinking maize-soybean intercropping for productivity gains in southern Africa

### CONCLUSION

Early and medium sowing dates of maize-soybean intercropped (1-1, 2-2, 4-4 strips) are more resource-efficient and productive than sole cropping, supporting food security and protein supply. If sowing is delayed, intercropping becomes more valuable.

### Introduction

Intercropping improves resource-use efficiency and crop synergy. In Southern Africa, soybean can be introduced into current maize systems to increase total yield, land productivity and protein production.

### Materials and methods

Fields in Chitedze (Malawi), Villa Ulongue (Mozambique) & Msekera (Zambia) (2022-2024); Three sowing windows: Early, Medium, Late. Arrangement: Sole crops (SC), within row (WR), intercrop (1-1, 2-2, 4-4).



Maize-soybean intercropping in Chitedze, 2025.

### RESULTS

#### Maize Grain Yield

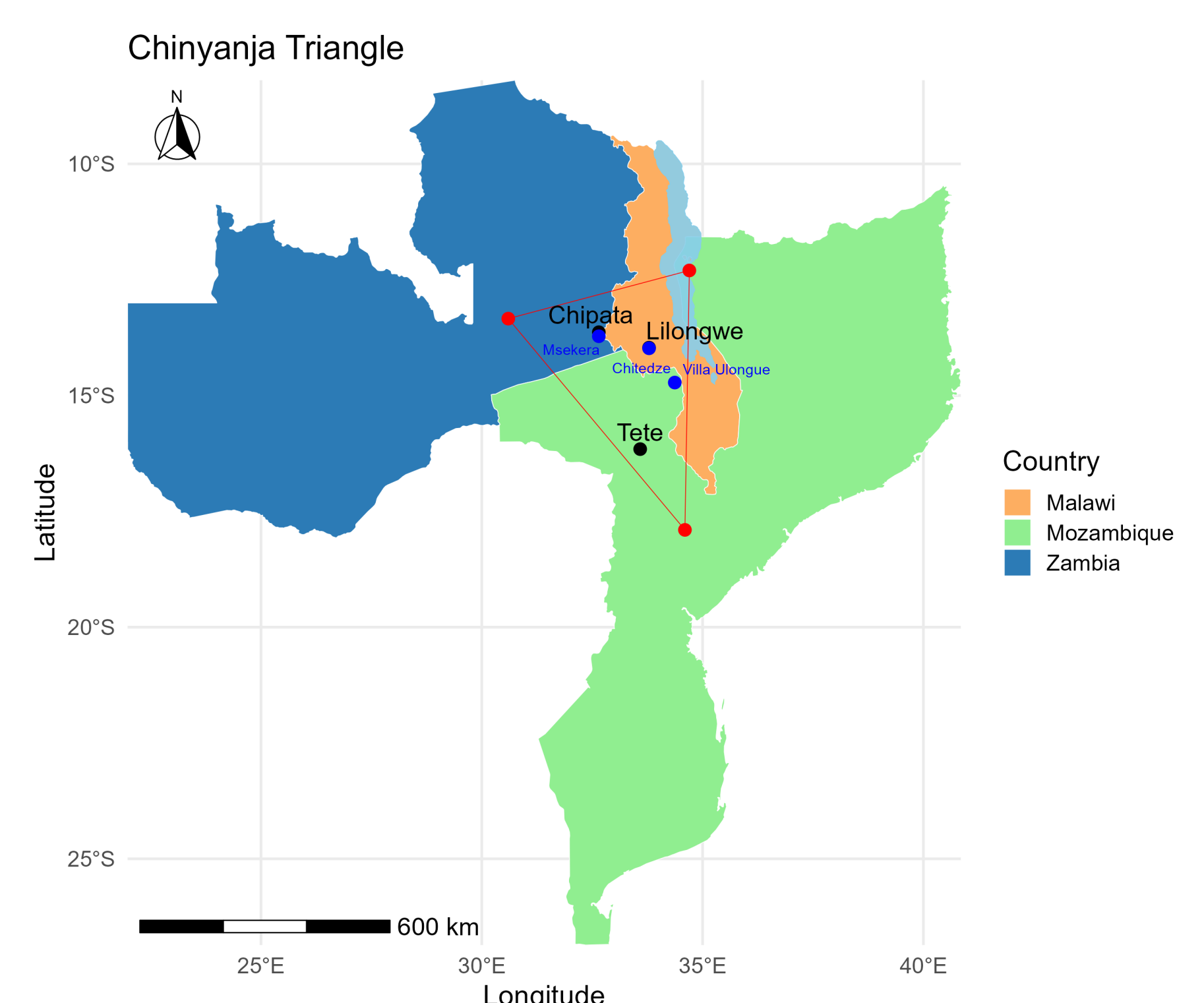
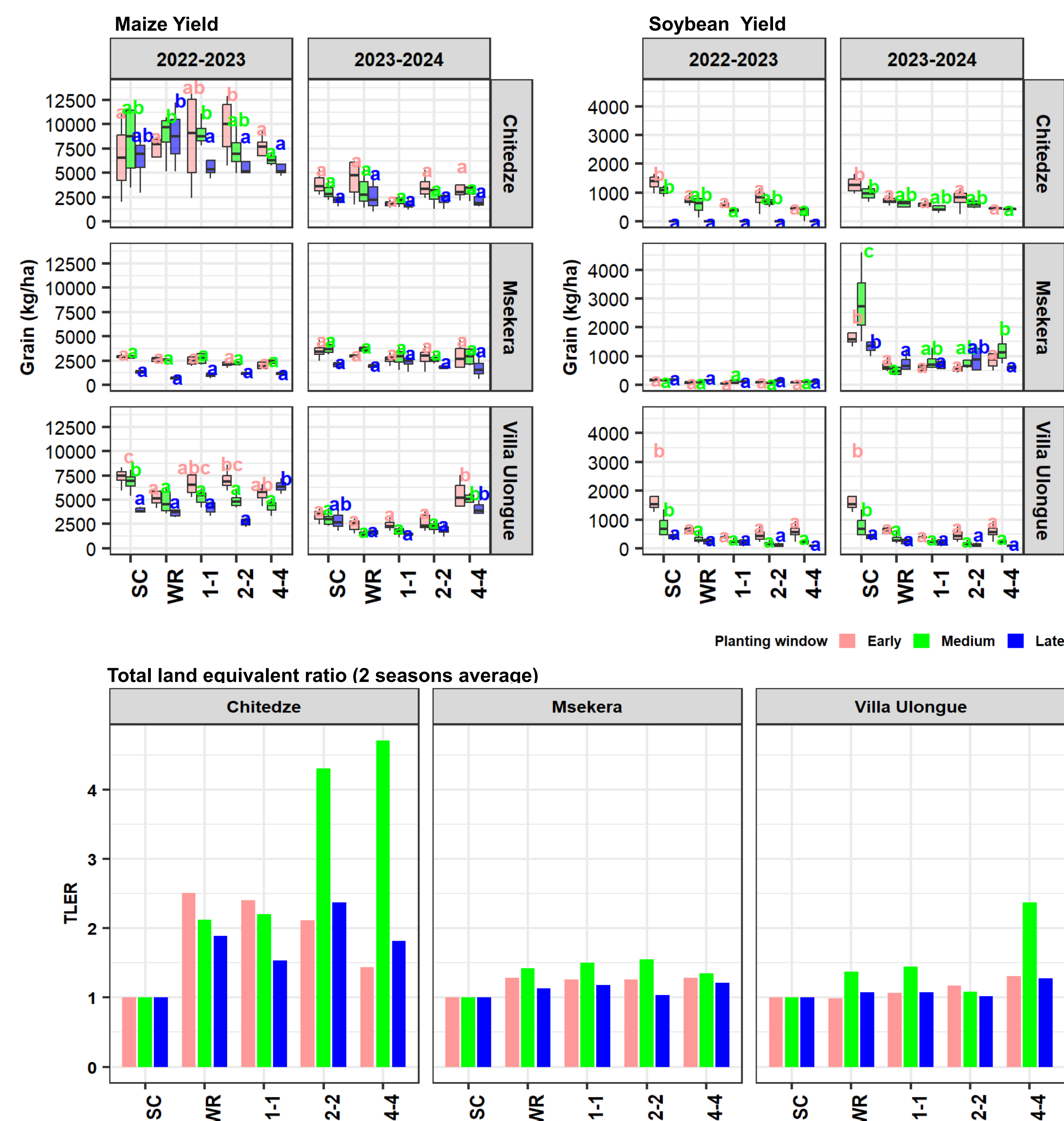
Early sowing gave the highest maize yields. Early: +40-50% vs Medium; +100-150% vs Late. In most cases, sole vs intercropping yields were similar.

#### Soybean Grain Yield

Sole soybean in early and medium sowing dates gave higher yields compared to intercropping. Early sowing: +25-30% vs Medium; +150-200% vs Late.

#### Total Land Use Efficiency (TLER)

Strips resulted in higher TLER:  
Chitedze: up to 4.7 TLER (4-4)  
Villa Ulongue: up to 2.4 TLER (4-4)  
Msekera: up to 1.6 TLER (2-2)



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