



NITROGEN CONTRIBUTION FROM FORAGE LEGUME IN MAIZE FARMING SYSTEM IN WEST TIMOR, INDONESIA

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INTRODUCTION

- Maize is the most important food crops cultivated in West Timor
- Growing cereals (rice and maize) in the same site in more than 2 years results in reducing soil fertility
- Legumes can improve soil fertility especially for Nitrogen
- Which legume fits in maize farming system in West Timor, Indonesia to increase soil fertility and produce forage
- The aim of this project :
 - to evaluate biomass production of herbaceous forage legumes in West Timor environment
 - to quantify potential nitrogen contribution from forage legumes in Maize farming system in West Timor, Indonesia

METHODOLOGY

- The experiment applied Randomised Block Design
- There were 11 treatments and 4 replications.
- The treatments were
 - maize after maize,
 - maize after clitoria cut and remove,
 - maize after clitoria uncut,
 - maize after centrosema pascorum bunday cut and remove,
 - maize after centrosema pascorum bunday uncut,
 - maize after centrosema pascorum cavalcade cut and remove,
 - maize after centrosema pascorum cavalcade uncut,
 - maize after lab-lab cut and remove,
 - maize after lab-lab uncut,
 - maize after soybean cut and remove,
 - maize after soybean uncut

METHODOLOGY

2014

2015

2016

Agustus --January

February - Agustus

Des - April

Sorghum

Legum/Maize

Maize



REP 2

REP 3

REP 3

REP 1



Management :

- Fertiliser : No fertiliser at first and second crops and 50 kg/ha of Urea for the maize (third crops)
- Weed : Full control
- Irrigation : 6 times flood irrigation (72.6 mm)

Legume performance

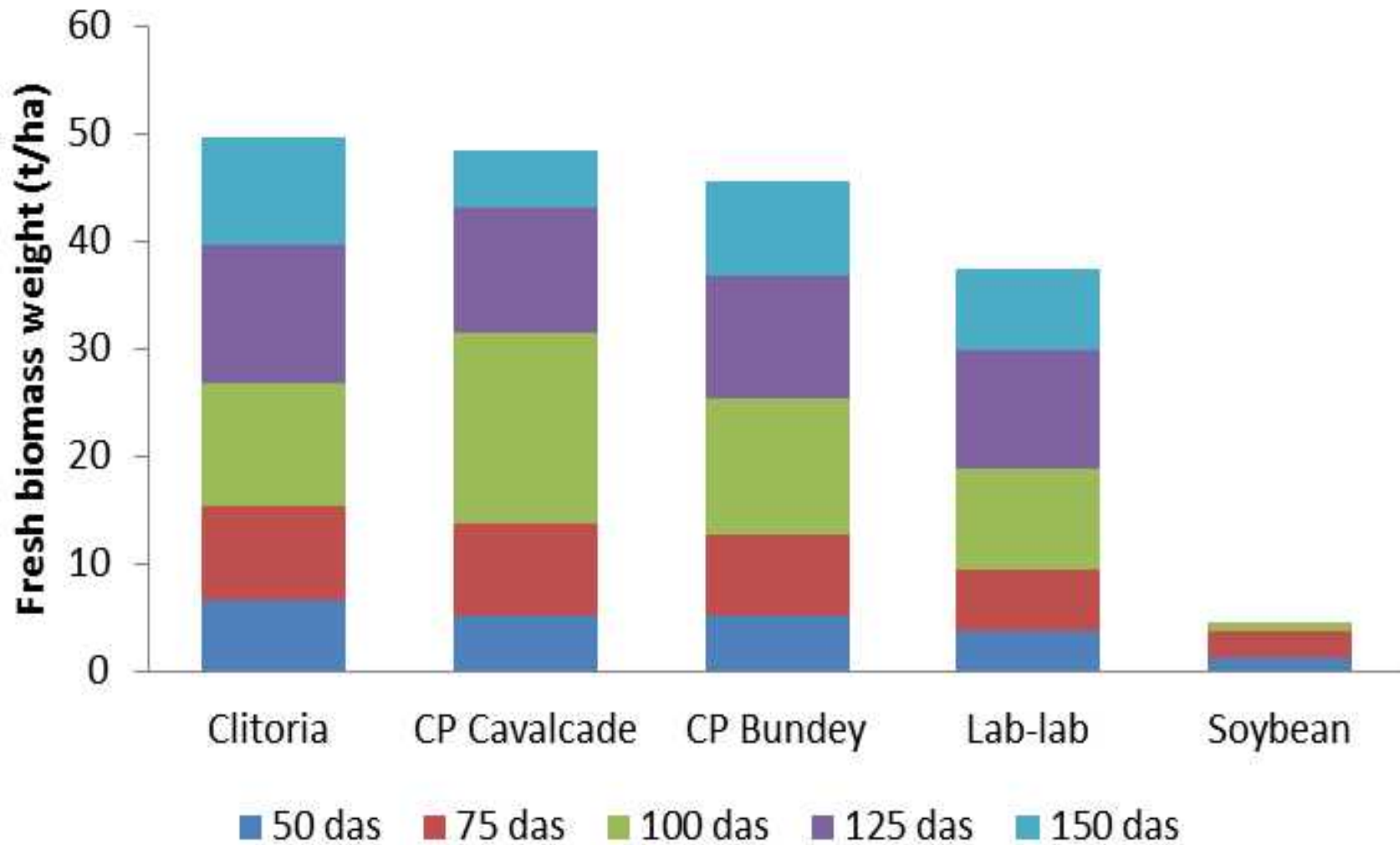


Data collection :

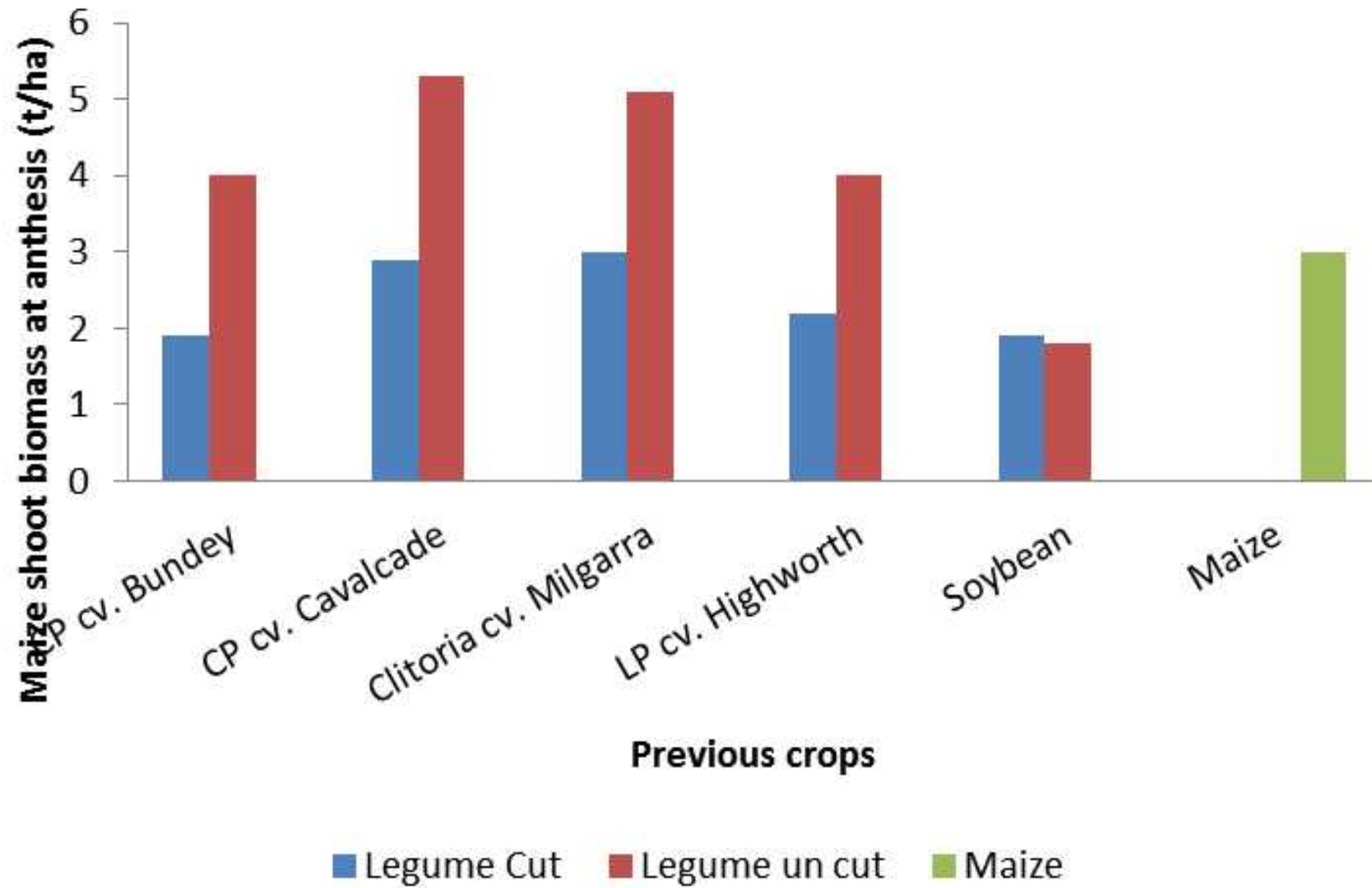
- Legume biomass production
- Maize biomass and grain yield after legumes
- Estimated N shoot uptake

RESULT AND DISCUSSION

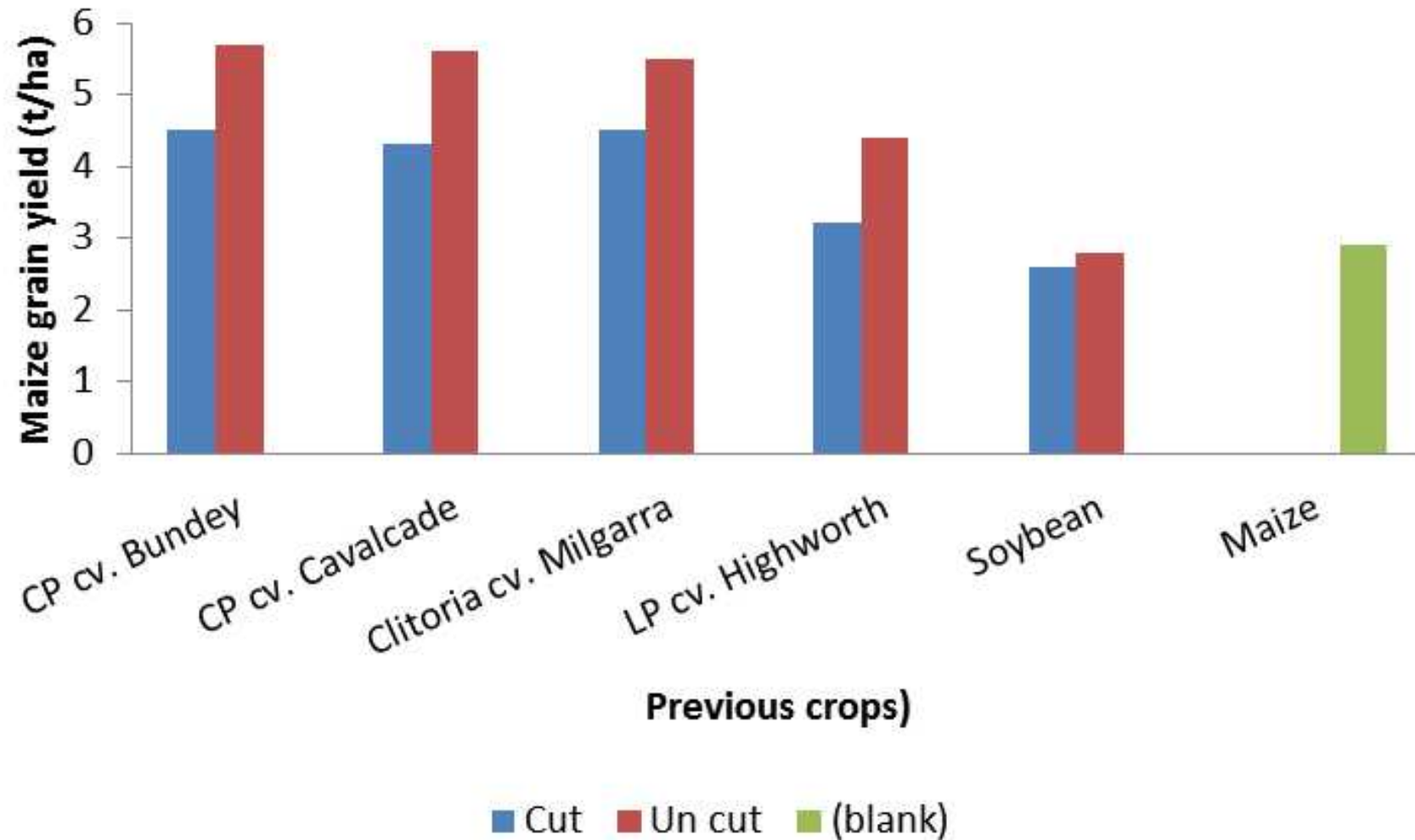
Legume biomass grown in West Timor prior to a subsequent maize crop



Maize shoot biomass at anthesis (52 das)



Maize grain yield following maize or 5 forage legumes



Maize performance after Legumes



Clitoria – uncut plot

Clitoria – cut plot

Maize growth in uncut Clitoria plot
is better than them in cut plot

Maize performance after Legumes



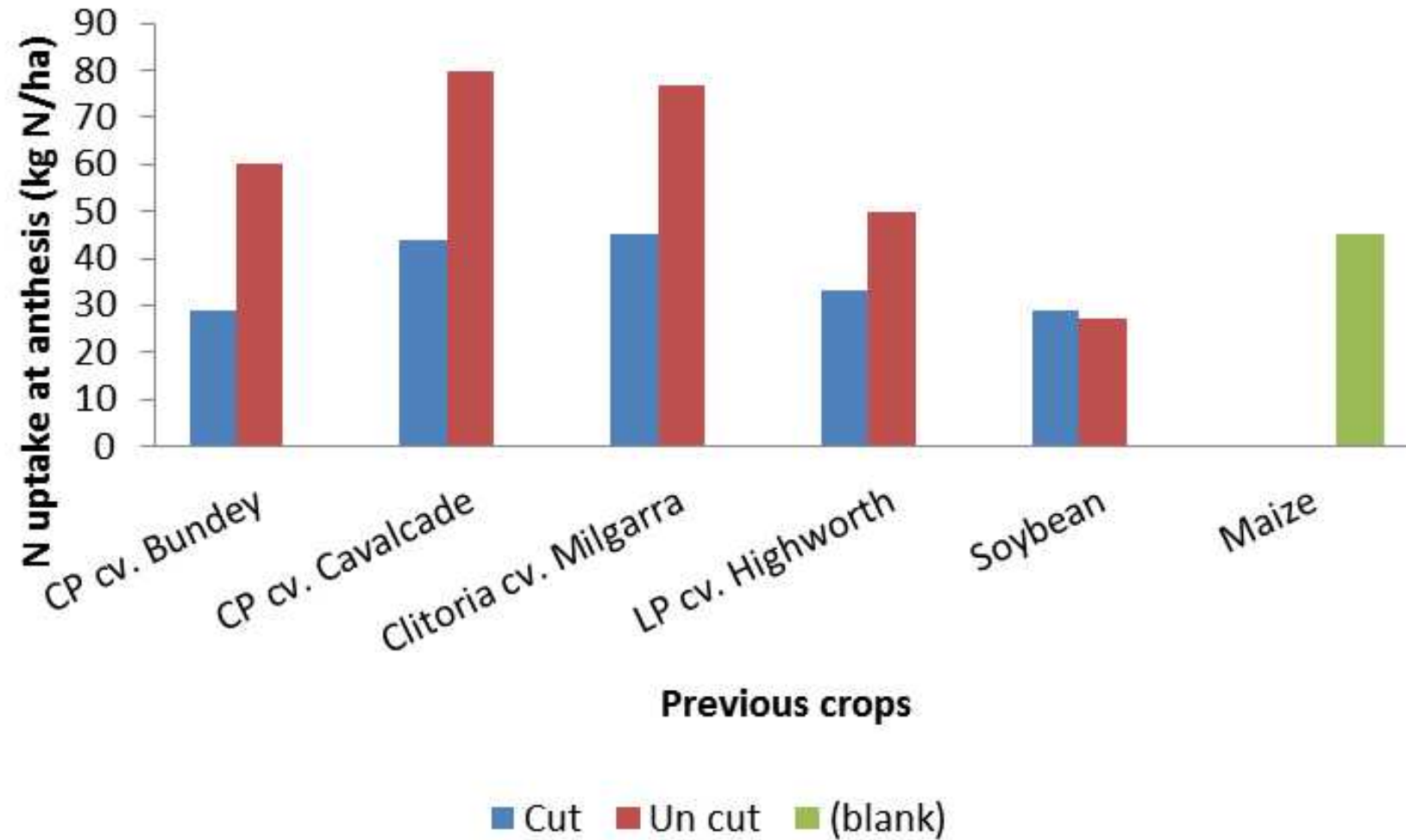
Centrosema – uncut plot



Centrosema – cut plot

Maize growth in uncut Centrosema plot
is better than them in cut plot

Estimated N uptake at anthesis (52 das)



Conclusion

- Clitoria milgara, Lab-lab, CP Cavalcade and CP Bunday grow well in West Timor, Indonesia
- Clitoria milgara, CP Cavalcade and CP Bunday are forage legumes that have highest contribution of nitrogen to maize crops
- Uncut legumes, as mulch, performs much better than legume cut and remove in terms of nitrogen contribution to maize crops

THANK YOU