



## Introduction

Cassava (*Manihot esculenta* Crantz) is mainly grown for its storage roots, used as food and raw material for the industry. In Africa it plays a major role in food security because it can produce on marginal soils and with erratic rainfall. Cassava roots remain viable in the soil for a long period, providing adequate flexibility to schedule planting and harvest and thus the option to develop systems allowing continuous supply year-round. While targeting consistent supply, it is vital to attain high root and starch yields to achieve additional economic benefits for growers. This study investigated the effects of expanding the planting and harvesting periods and fertilizer application on root yield and starch accumulation of two different varieties.

## Materials and Methods

This study was conducted in Oyo state, southwestern Nigeria by setting up Researcher-Managed Trials (RMT) on-farm in Oyo state at three different sites (Figure 1). At each site, the RMT was planted at three different times during the year. Early planting = May, Middle planting = July, Late planting = September. Second factor is variety at 2 levels, TMS-0581 and TME 419; third factor is fertilizer at 4 levels, F0 = Control, F1 = 75:20:90, F2 = 75:20:135 and F3 = 75:20:180 and fourth factor is harvest date at 3 levels: 9, 11 and 13 months after planting (Table 1), resulting in 24 treatments. All treatments were replicated four times.

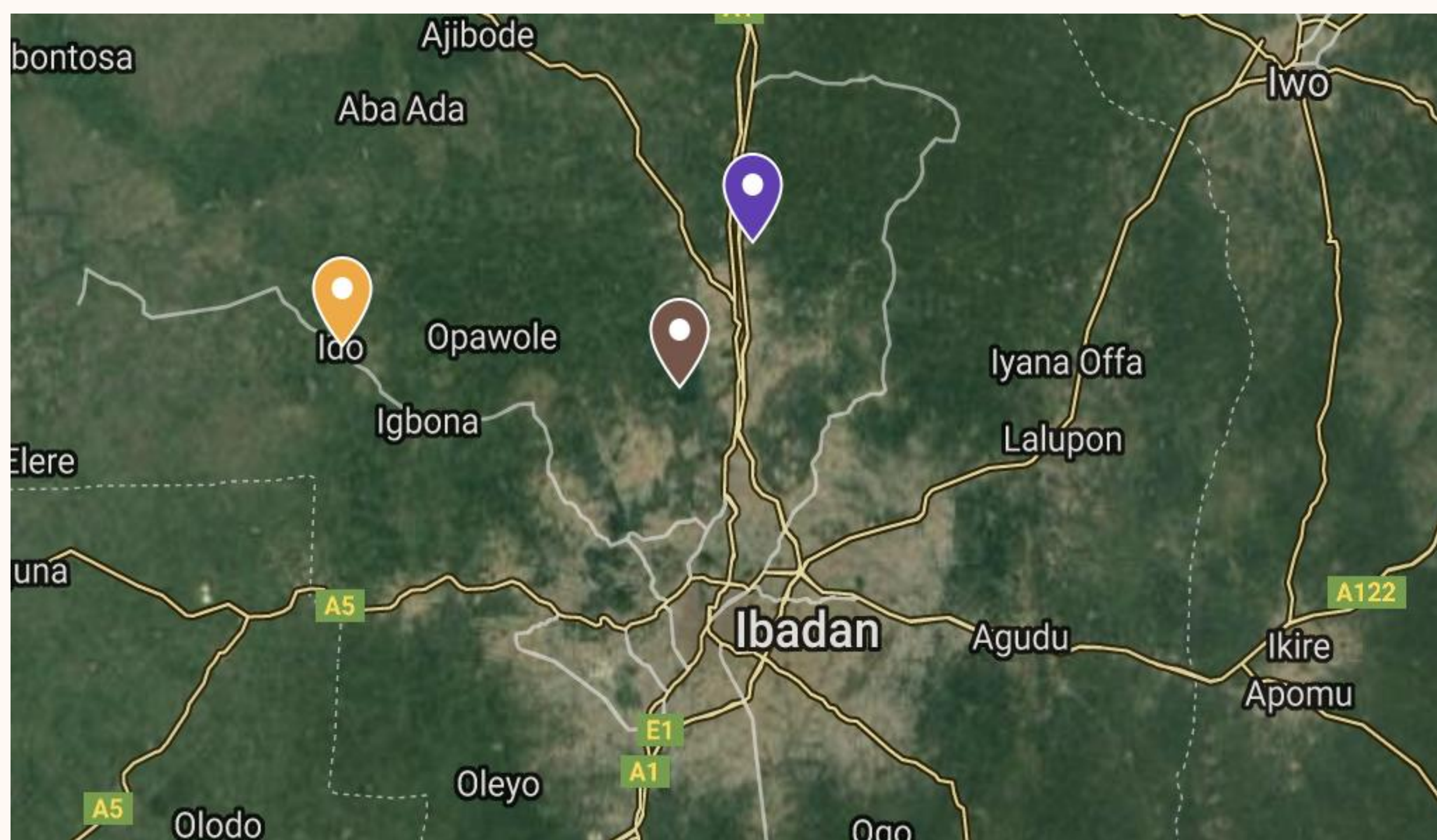


Figure 1: Location of Researcher Managed Trials

## Results and Discussion

Increased crop age produced higher root yields and starch contents across planting dates (Fig. 2A&B). The largest increase was found between 9 and 11 MAP in yields of all planting dates. Starch content followed a similar trend.

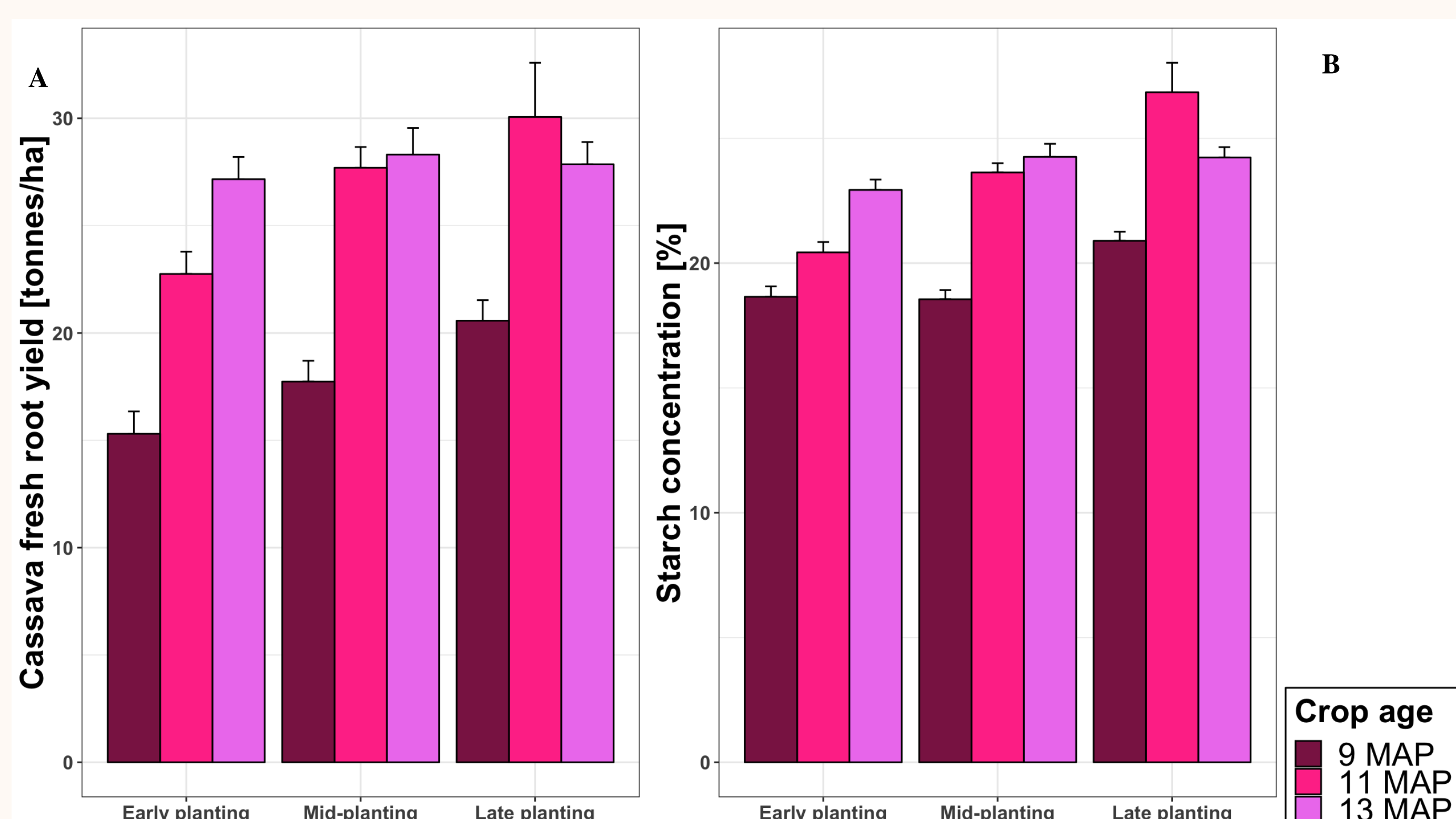


Figure 2: The effect of different plantings and crop age on cassava fresh root yield (A) and starch concentration in roots (B).

Source of Variation	Fresh root yield Pr(>F)	Starch Pr(>F)
Planting	0.00***	0.00***
cropage	0.00***	0.00***
Fertilizer	0.00**	0.03*
Variety	0.00***	0.00***
Location	ns	0.00***
Planting:cropage	0.00**	0.00***
Planting:Fertilizer	0.04*	ns
cropage:Fertilizer	ns	ns
Planting:Variety	ns	0.00***
cropage:Variety	0.00***	ns
Planting:Location	0.00***	0.02*
cropage:Location	0.04*	0.00***
Planting:cropage:Location	0.00***	0.00***
Planting:Fertilizer:Variety	ns	ns

Table 1 : Levels of significance of all factors and interactions affecting fresh cassava root yield and starch content.

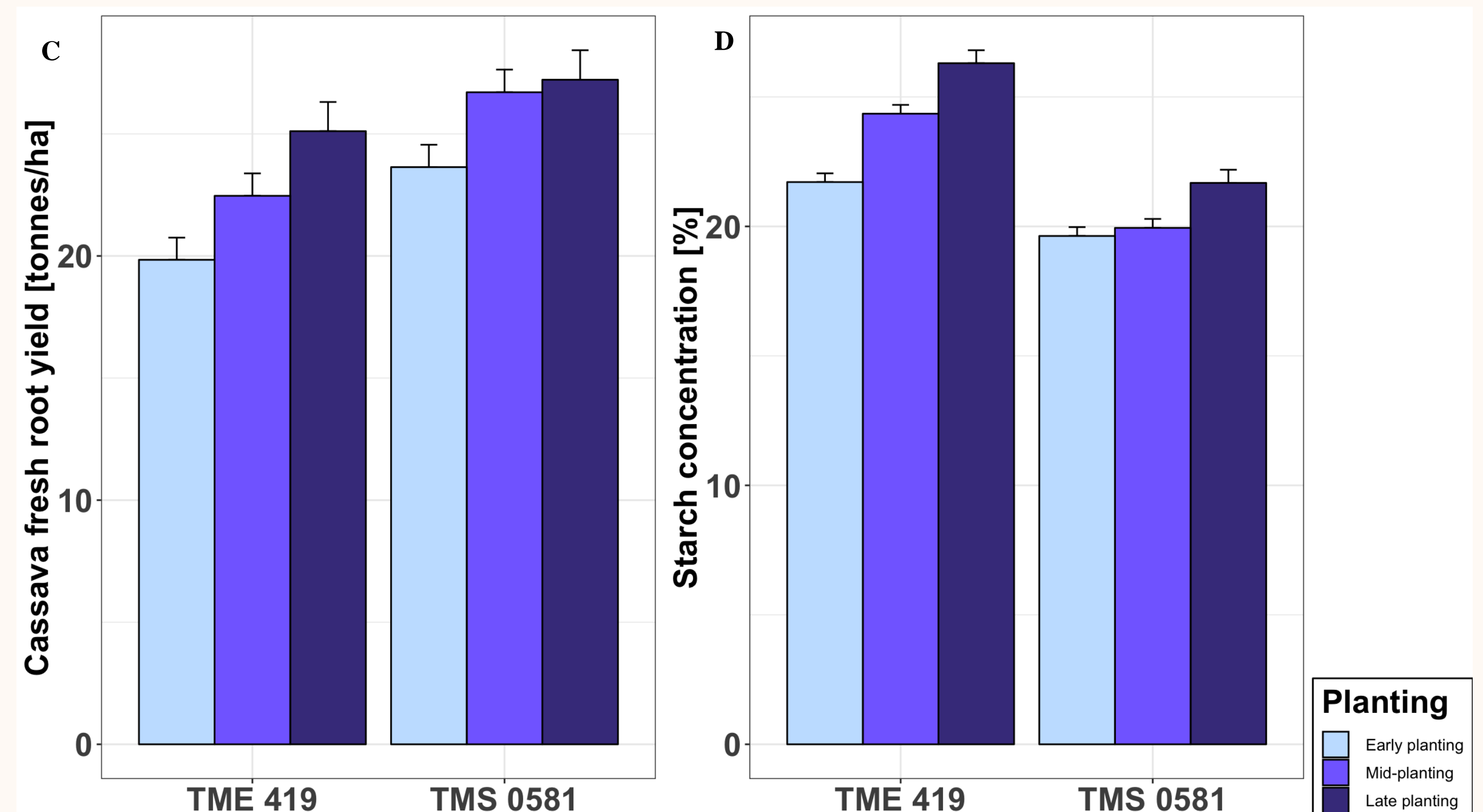


Figure 3: The response of variety to different planting times

Fresh root yields were higher in TMS 0581 than TME 419 for all planting dates (Fig 3 C). However, starch content in roots was higher in TME 419 than TMS 0581 (Fig 3 D). Starch content and root yield increased with delayed planting in both varieties.

The root yield response to fertilizer was better in early and mid plantings. Root yields were not significantly different between fertilizer treatments when planted late (Fig. 4).

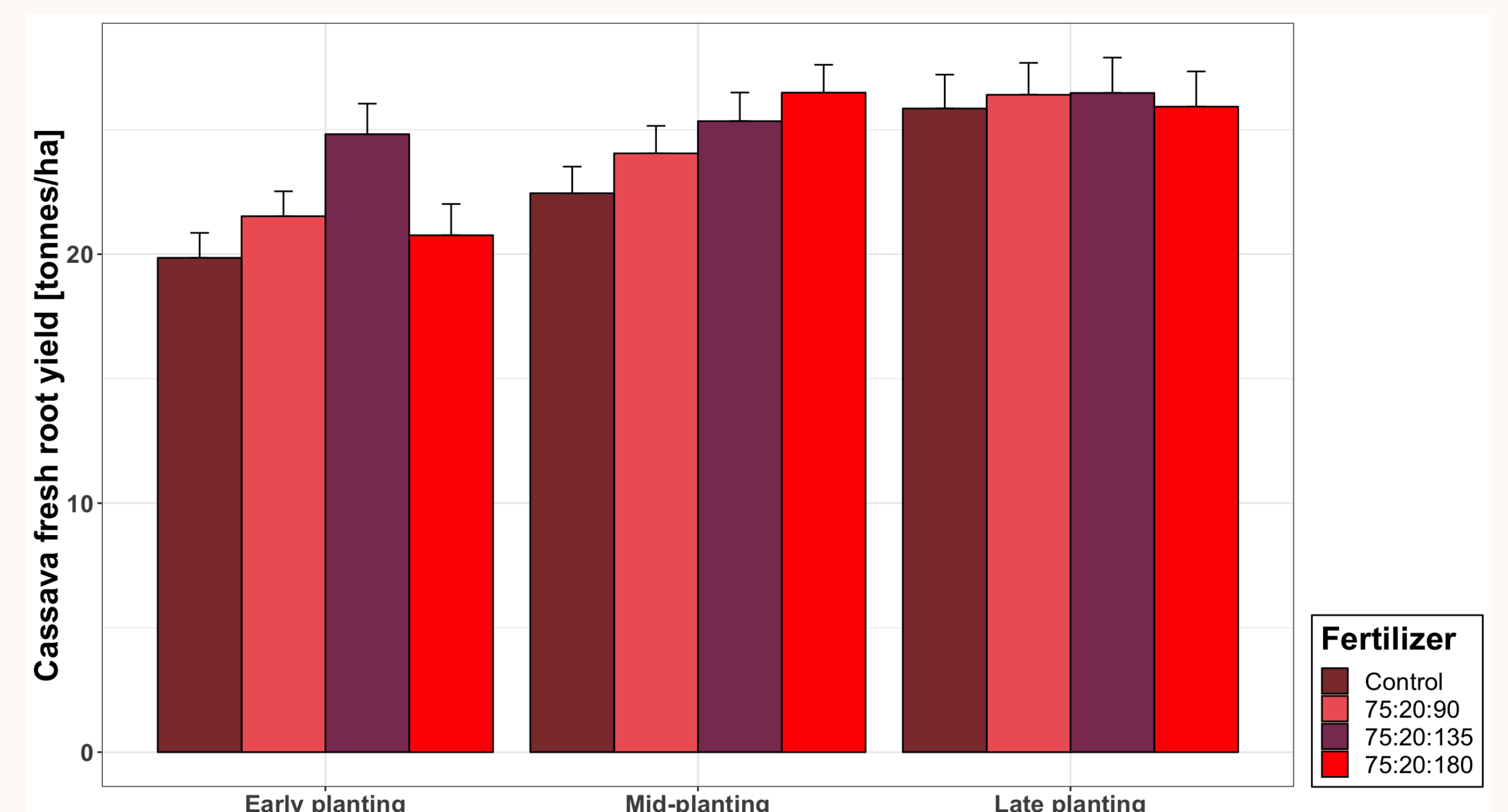


Figure 4: The effect of planting dates and fertilizer on fresh root yield

## Preliminary Conclusion

- Fresh root yields and starch content increased with delayed harvest irrespective of planting date.
- TME 419 can be recommended to processors because it has a higher starch content.
- Fertilizer use did not compensate for shortened growing time.
- Planting late is recommended but it is not profitable to apply fertilizer to late planted cassava