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Effects of Staggered Planting Periods and Potassium Fertilisation on the Performances of Cassava Cultivars in South-Kivu, Democratic Republic of Congo

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Abstract

Cassava is the most important crop in DRC, where it is serving as a staple and a cash crop. Over the last years, cassava production seems increasingly constrained by disturbances due to climate change.

To respond to these more frequent climate disturbances, farmers adjust the planting period in order to cope with erratic events that are most crucial during the first 100 days after planting. While this period coincides normally with the most regular rainfall, even during these 100 days some untimely interruptions for fairly long periods can occur which affects the performance of cassava.

A full-factorial field experiment was conducted in two contrasting sites in South-Kivu (DR-Congo) including the highland and forest region (i.e., Kalehe) versus the dry savannah at medium altitude (i.e., Uvira). Effects of planting period (3 different planting dates), two cultivars (landrace versus improved), and fertiliser (NP versus NPK) on yields of cassava were tested. Yield components were collected at 12 months after planting by determining the above-ground biomass (stems and leaves), fresh storage roots yield, and harvest index.

Cassava yield was influenced by location, in favour of the highland, the cultivar, being larger for the improved cultivar coinciding with the better harvest index. The yield was also influenced by the planting periods. The earlier the planting was done, the larger was the yield. As far as fertilisation was concerned, the presence of K led also to the highest yield levels. Interacting with planting time, the presence of K was able to mitigate the negative effect of late planting on yield.

Keywords: Biomass, Cultivar, Fertilisation, Harvest index, manihot esculenta Crantz (Cassava), Planting period, Potassium (K)