

Technology Fact Sheet for Adaptation

F. Crop Diversification and New Varieties – Promotion of Drought-Tolerant and Early Maturing Food Crops (Cassava) ⁱ

F.1 Introduction

The promotion of early maturing cassava is meant to enhance resilience of crops to climate change hazards, particularly drought, extreme heat and shorter rain seasons.

F.2 Technology characteristics

This entails promoting 7 varieties of cassava released by the Root and Tuber Improvement Programme between 1993 and 2000 in Agro-Ecological Region I and II where the frequency of droughts is projected to rise due to climate change. The varieties have been developed to mature between 12 to 15 months compared to traditional varieties that took between 24 and 36 months.

F.3 Country specific applicability and potential

In areas where cassava is traditionally grown, its suitability is certain. The short maturing and high yielding varieties were specifically developed and adapted to the northern regions of Zambia. There may be doubts about its adaptability to plateau areas with extremely cold temperatures at times of central Zambia. However, Barrat, et al, (March 2006) report on farm research findings which show that with some modifications to management practices to those recommended in the cassava growing regions where the new varieties were developed, these varieties can do reasonably well in these areas as well.

F.4 Status of technology in country

Cassava is grown in most parts of the country and is a staple food in most parts of Agro-Ecological Region III as well as Zone II in Western Province. Cassava production which was on the decline up to the mid-1990s made a huge leap thereafter as the cost of inputs made farmers to look for crops that required less fertilizers and hybrid seeds. Its better drought resilience qualities compared to other crops like maize was increasingly getting appreciated. It was being promoted by a number of agencies as a food insurance after noting that cassava consuming regions of the country enjoyed relative stable food security status.

F.5 Benefits to economic / social and environmental development

In 2010, FAO conducted a *study on value chain mapping and cost structure analysis for cassava in Zambia*. The results indicate that the average yield per ha of early maturing cassava variety was 10.96 tonnes per ha while the average yield per ha of various traditional varieties was 4 tonnes.

F.6 Climate change adaptation benefits

The promotion of drought tolerant and early maturing food crops (like cassava) is meant to address the climatic hazards of short rainfall periods and prolonged dry spells. The small and medium scale farmers are vulnerable to such climatic hazards because of their dependence on rain-fed agriculture and long maturing food crops. The main benefit of this adaptation option is that it allows farmers to plant crops that demonstrate the qualities of early maturity, resilience to disease and greater nutritional value.

F.7 Financial Requirements and Costs

The total investment cost of cultivation of improved cassava variety using hand hoes on 1 ha plot of land is **\$ 151**. The key assumption on how the cost was derived are as follows: 1 ha piece of land by 1 small scale farming household; land is valued at zero due to unlimited supply in rural areas; farming household spends 5 hrs per day in the field; unit price of labour is \$2.3 per day/person; total of 78man-days; 10 Chaka hoes bought at USD \$ 4.7 (ZMK 25,000) each; yield for local cassava is 4,000 Kg/ha; unit price of cassava per Kg is \$ 0.0043 (ZMK 228); chaka hoes depreciate in 2 years; annual maintenance cost is 5% of hardware technology (Chaka hoes).

ⁱ **This fact sheet has been extracted from TNA Report – Technology Needs Assessment for Climate Change Adaptation –Zambia. You can access the complete report from the TNA project website <http://tech-action.org/>**