



Re-inventory of improved CMD-resistant cassava varieties in Kenya, Uganda and Tanzania

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The Catholic Relief Services (CRS) and International Institute of Tropical Agriculture (IITA) together with the National Cassava Programs of Uganda, Kenya and Tanzania conducted a second inventory survey following the recommendation of the review meeting held in December 2006 in Kenya. The activity was carried out from February to June 2007, aiming to capture data that might have been missed during the first inventory.

Kenya

Survey area: The survey was carried out in 11 districts in Western and Nyanza provinces including Busia, Teso, Bungoma, Siaya, Bondo, Kisumu, Nyando, Rachuonyo, Homabay, Kuria and Migori where cassava is important. These districts were part of the first survey but a different set of farmers were sampled during the second survey. Seventy one (71) farms were assessed, and GPS coordinates were recorded together with other farmer details using a simple questionnaire that had been designed for data collection. The second survey considered the same varieties as in the first survey, i.e. Migyera, SS 4 and MH95/0183 (Fig. 1 & 2). The amount of planting material available is estimated in number of cuttings or bags (allowing a packing average of 700 cuttings per bag).

Findings: An estimated total of 1,287,664 cuttings (1840 bags) were determined to be available for planting comprising of 229,073 cuttings of MH95/0183, 242,512 cuttings of SS 4 and 816,079 cuttings of variety Migyera. The cuttings were however not uniformly distributed. The districts with most cuttings are Teso, Busia and Bondo, while Kuria district had the least with about 6,573 cuttings. The most abundant variety in Kenya in terms of planting material was Migyera.

Uganda

Survey area: The survey covered 9 districts in the North and North Eastern regions including Soroti, Kaberamaido, Dokolo, Lira, Apac, Gulu, Amuru, Kitgum and Pader. These areas were not covered in the first survey apart from Apac District. Fifty six (56) farms were visited during the inventory and GPS data recorded. The same varieties were assessed as in the first inventory, i.e. Uganda MH97/2961 and TMS I92/0067 (Fig. 3 & 4).

Findings: Approximately 3,011,400 cuttings (4,302 bags) were identified as available for immediate planting comprising of 3,117 bags of TMS I92/0067 and 1,185 bags of MH97/2961. As in Kenya, the materials were not uniformly distributed in Uganda. Soroti district had the highest quantity followed by Lira District, while Pader and Amuru districts had none of the target varieties. However some of these districts have been experiencing insurgency over the past two decades and peace is just returning.

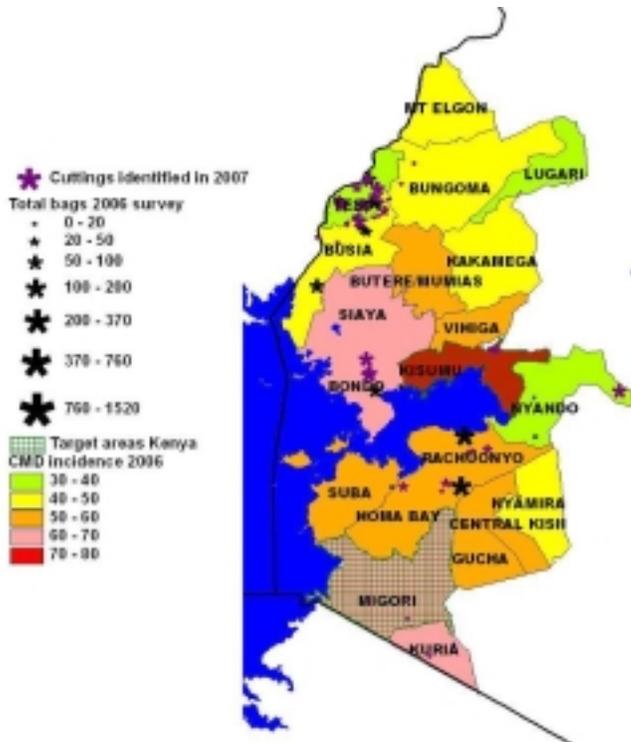


Figure 1: Cassava cuttings availability in Western and Nyanza provinces of Kenya (shown against CMD incidence in 2006).

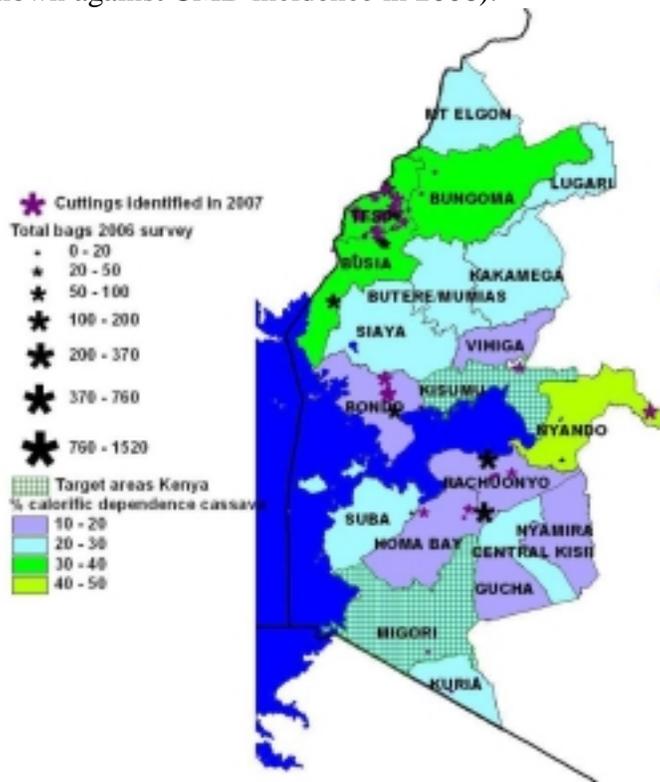


Figure 2: Cassava cuttings availability in Western and Nyanza provinces of Kenya (shown against % carolific dependence on cassava).

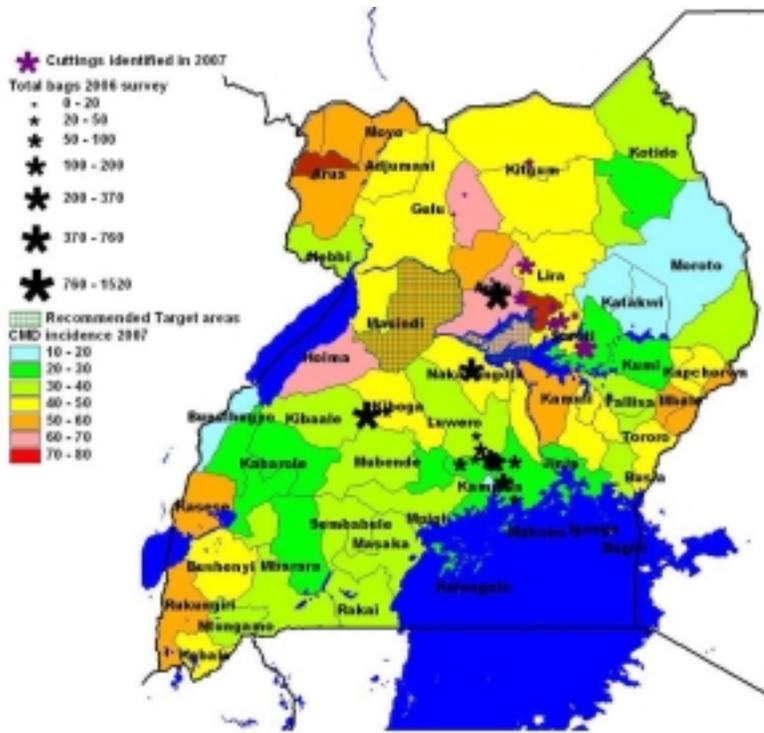


Figure 3: Cassava cuttings availability in surveyed districts in Uganda (shown against CMD incidence in 2006).

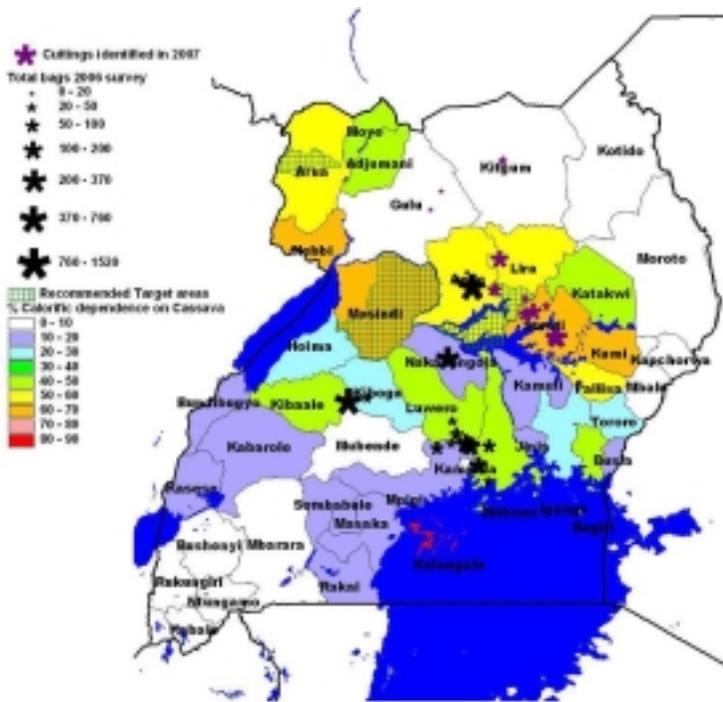


Figure 4: Cassava cuttings availability in surveyed districts in Uganda (shown against % carolific dependence on cassava).

Tanzania

Survey areas: The inventory survey was carried out from 21st May to 16th June 2007 covering 5 major cassava growing regions of Kagera, Mwanza, Mara, Shinyanga and Kigoma. A total of 21 districts were surveyed including Biharamulo, Bukoba, Karagwe, Misenyi, Muleba, Ngara, Kasulu, Kibondo, Kigoma, Bunda, Musoma, Serengeti, Tarime, Geita, Kimbwa, Magu, Misungwi, Nyamagama, Sengerema, Bukombe and Maswa. A total of 132 fields (plots) were sampled over a four week period (Figure 5& 6).

Findings: The majority of the fields surveyed were mono cropped (84.8%) while 13.7% of fields were intercropped with either maize, trees, beans, bambara nuts or cowpeas. A total 12 improved varieties were identified that are being promoted, which exceeds the nine varieties that were targeted in the first inventory. The varieties are I91/00063, I91/0057, I91/0067, MM96/0876, MM96/3075B, MM96/4619, MM96/4684, MM96/5725, MM96/8233, MM96/8450, SS4, and Kachaga (a local variety showing good resistance to CMD). A total of 8,455,974 cuttings (12, 066 bags) were estimated to be available. Kigoma district had the highest amount of cuttings with 2.9 million cuttings followed by Kibondo and Biharamulo district with 2.3 million and 1.4 million cuttings, respectively. The variety SS 4 had the highest number of cuttings available (2.7 million) followed by TMS 4(2)1425 and MM96/4684 with 2.2 million and 0.8 million cuttings, respectively. The main sources of the cuttings were Maruku Research Centre which accounted for 43 % (57 fields).

Most multiplications were either at primary or secondary sites in big areas established by NGOs or Government agencies like Research, Local Government or Prison farms. The management was good, and the farms attracted farmers by their good quality. The improved cassava varieties were well spread across the regions surveyed.

Plant Health aspects

CBSD: No cases of cassava brown streak (CBSD) were observed during field surveys on the varieties targeted for C3P in Uganda, Kenya and Tanzania. However brown streak was noted in Busia and Migori in Kenya in one improved variety other than MM96/5280 and one local variety. In Uganda CBSD was not observed even on non-targeted varieties.

CMD: In Kenya, varieties Migyera and MH95/0183 seemed to be breaking down as they had average incidence of 18.3 and 17.5%, respectively. Variety SS 4 remained resistant with about 1% incidence. Migyera had CMD incidence of up to 50% in some fields and only 14.5% of Migyera fields were CMD free while 16.6% fields of MH95/0183 were CMD free. These results show an increase in CMD incidence on the two varieties as compared to the previous survey.

In Uganda the two varieties exhibited resistance to CMD with MH97/2961 having no diseased plants while TMS I92/0067 had 1% incidence. This result was similar to that of the previous survey.

In Tanzania the average CMD incidence was low (1.9%) with mean severity score of 1.3 for all cassava varieties surveyed. Four improved varieties TME 14, I91/0067, MM96/0876 and MM96/3075B and the local variety Kachaga had no CMD.

Other pests and diseases: In Kenya and Uganda Cassava green mite (CGM) and cassava bacterial blight (CBB) were generally high in term of incidence, each having over 50% incidence. No cassava mealybug was observed in both countries. In Tanzania, CGM was the most prevalent among the three major cassava pests assessed. CGM average incidence was 40.6% with severity score of 2.4. A few cases of attack by cassava mealybug (CM) were mostly observed on the local Kachaga variety. In Tanzania CBB incidence was quite high averaging 26.1% and score of 2.6, probably due to the humid conditions experienced in some of the districts. Variety TMS 4(2)1425 had the highest incidence of 51.3% while MM96/0876 had no CBB observed. The severity was generally mild and did not affect the quality of cuttings.

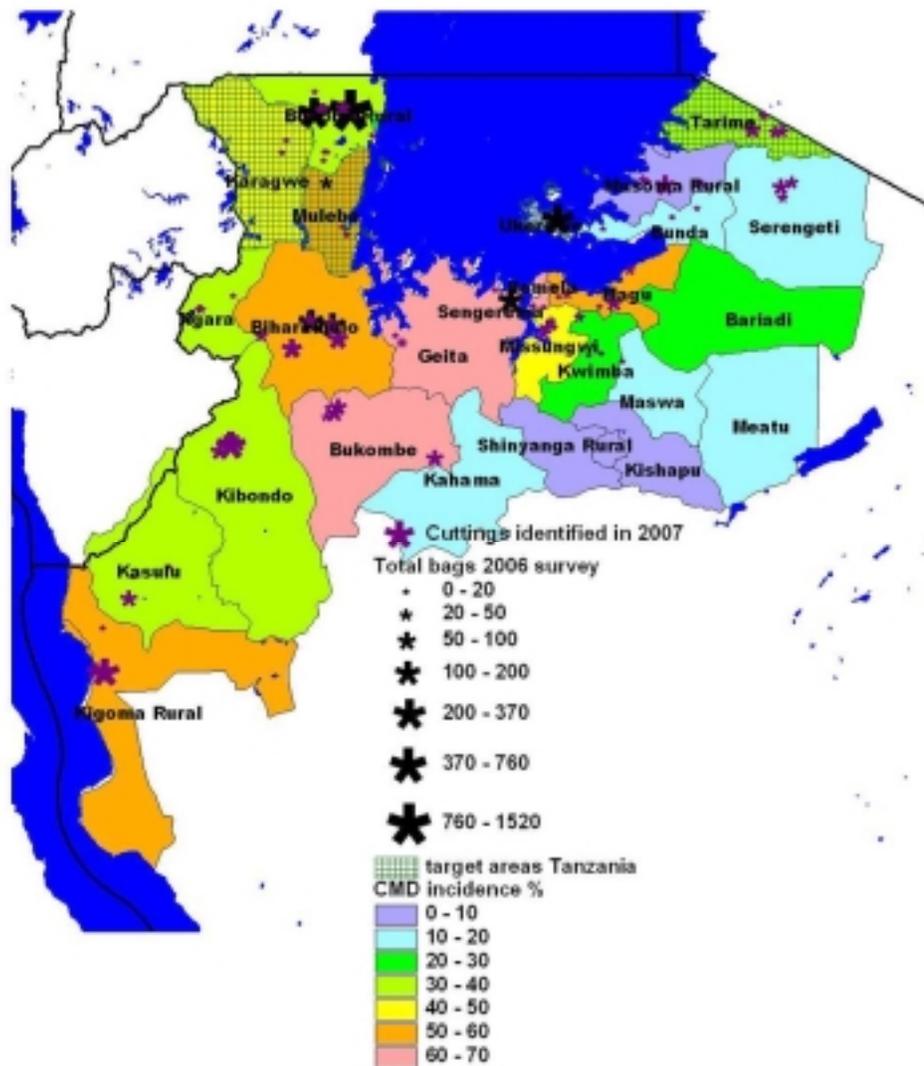


Figure 5: Cassava cuttings availability in surveyed regions in Tanzania (shown against CMD incidence).

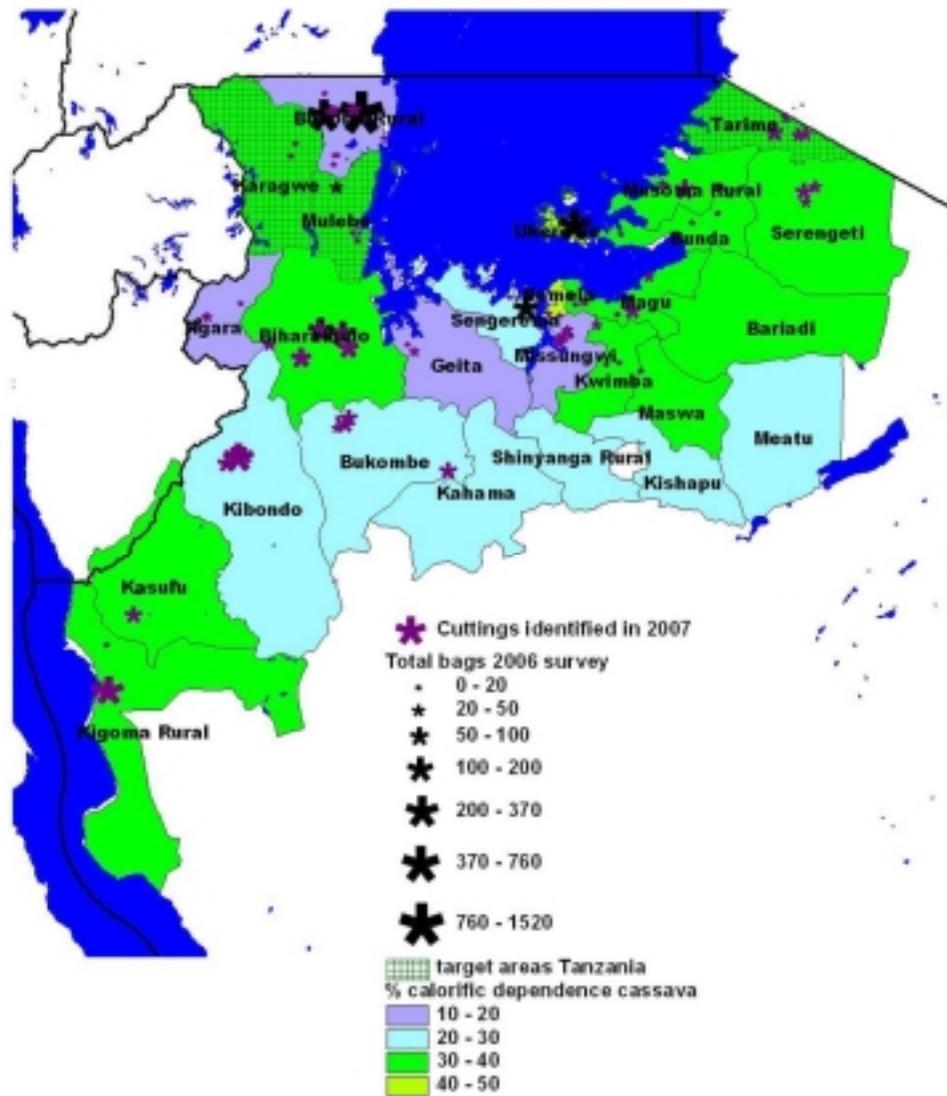


Figure 6: Cassava cuttings availability in surveyed regions in Tanzania (shown against % calorific dependence on cassava).

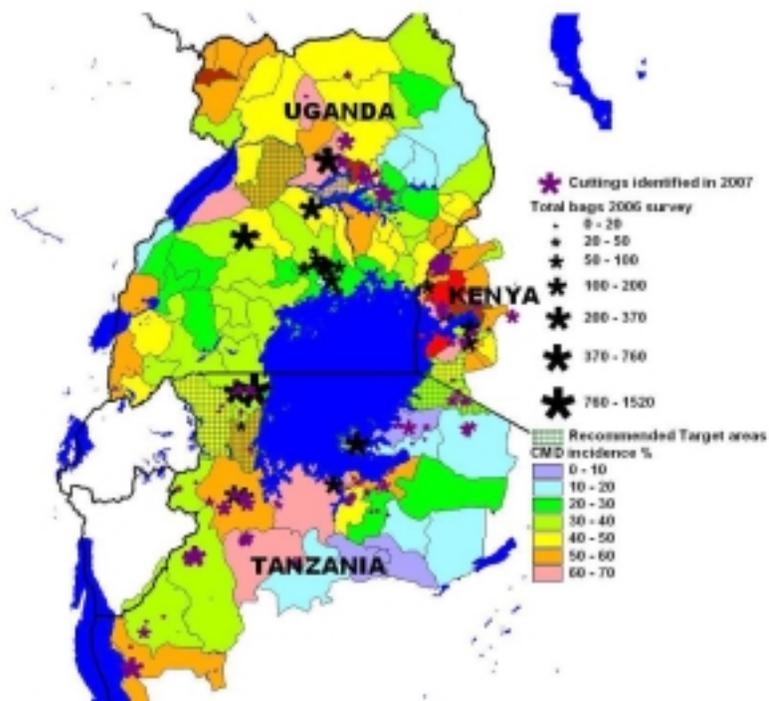


Figure 7: Cassava cuttings availability in surveyed areas in Kenya, Uganda and Tanzania (shown against % CMD incidence).

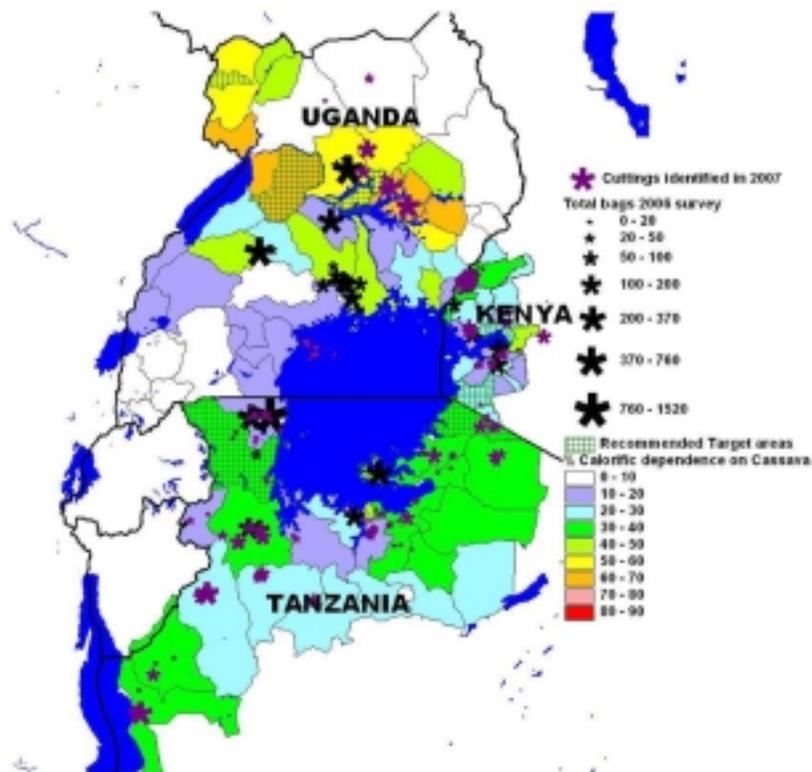


Figure 8: Cassava cuttings availability in surveyed areas in Kenya, Uganda and Tanzania (% caloric dependence on cassava).