CROP CRISIS CONTROL PROJECT (C3P) KENYA PROGRAM

REPORT ON-FARM VOUCHER EVALUATION IN BUSIA DISTRICT

NOVEMBER-DECEMBER 2006

BY

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ACRONYMS

BXW	Banana Xanthonomas Wilt
C3P	Crop Crisis Control Project
CBSD	Cassava Bacterial Disease
CMD	Cassava Mosaic Disease
CRS	Catholic Relief Services
FFS	Farmers Field Schools
Ha	Hectares
IITA	International Institute for Tropical Agriculture
KARI	Kenya Agricultural Research Institution
KEPHIS	Kenya Plant Health Inspectorate Services
MOA	Ministry of Agriculture
Mt	Metric Tones
NGO	Non Governmental Organization
OFDA	Office of Foreign Development Assistance
OFV	On Farm Vouchers
REFSO	Rural Energy and Food Security Organization
USAID	United States Agency for International Development
US $	United States Dollars

EXECUTIVE SUMMARY

This is the first time vouchers are used to distribute cassava planting materials to vulnerable and poor households whose cassava crops were devastated by Cassava Mosaic Disease in two divisions Funyala and Matayos in Busia District of western Province of Kenya. The distribution involved identification and registration of farmers with clean planting materials of improved CMD tolerant varieties. This was followed by inspection and certification for quality and trueness of the varieties by KARI, MOA and project staff. A community based selection criteria was used to select 500 poor farmers. The selected farmers were to be issued with eight 50 shillings vouchers for exchange with clean planting materials of CMD tolerant varieties from the identified and registered sellers within their locations.

In November 2006, an evaluation was conducted to determining farmers' perception on the use of vouchers to access CMD free planting materials. By the time of the evaluation in November 2006, only 221 instead of the 500 targeted beneficiaries had been issued with 1,888 vouchers to exchange with clean planting materials. Eighty four voucher beneficiaries were subjected to questionnaire interviews that explored their characteristics, crops grown, cassava cultivation, the individual households' responses to CMD, issues affecting Cassava production at the household levels and the use of On Farm Vouchers (OFV) in exchange for planting materials. This report presents the finding of the evaluation.

Households' characteristics

Of the 84 respondents, 54% were women and over 75% were people married and staying together. 19% comprised of widows. The age group of the respondents varied from 19 to over 60 years with the majority (46%) aged between 40 and 59 years. Seventy seven percent attained primary and secondary levels of education and can read and write. The fact that only 45% lived in mud walled grass thatched houses indicates that these were the poorest among the beneficiaries. Ranking of the crops grown in the area based on the area and importance revealed that food security in the two divisions is deeply rooted in maize, cassava, sorghum and bean in that order.

Cassava cultivation

All the respondents have been involved in cassava farming. Cassava is used in various ways including eating row, boiling, and making flour used in porridge and *ugali*. The area under cassava ranges from less than 0.25 to over 4 acres per household with majority of the respondents reporting planting cassava in between 0.5 and 1 acre. The source of planting materials in the traditional set up is mainly neighbors (69%) and relatives (12%). In most of the cases, planting materials are given free of charge. Some of the farmers reported conservation of planting materials by cutting and keeping under shade. Other farmers leave cassava plants in the field and cut when it is time for planting. Over 85% of the respondents indicated their knowledge on common symptoms of cassava diseases such as CMD, CBSD and Green mites related diseases. However, only 59% could positively describe the symptoms. On the control of the diseases, 43 reported practicing rouging, 13% using clean planting materials and 18% using a combination of clean materials together with rouging. The remaining 26% reported not practicing any control measures.

Prior to the introduction of OFV in October 2006, 58% of the respondents indicated having accessed and planting improved CMD tolerant varieties. The varieties commonly accessed in the region include Mygera, SS4, MM 96 series and MH 95/0183. However, over 40% of the respondents indicated accessing improved varieties they could not remember or identify by name or number.

On farm vouchers (OFV)

a) Targeting

The project aimed at targeting the poorest farmers with OFV. The criteria used for targeting the beneficiary as reported by project staff and opinion leaders included poor farmers, farmers' group members, farmers without clean planting materials, good farmers for bulking and finally vulnerable households such as those with members infected with HIV, Sick members, elderly, widows, widowers, orphaned children, etc. This targeting criteria did neither clearly define who a poor farmer is nor households that really need clean planting materials of CMD tolerant varieties. Thus only 39.3% of respondents attributed their selection to poverty, 22.6% said they were selected because they lacked clean planting materials and 17.9% attributed their selection to being good farmers in the area. Being a group member, sick and a widower were also given as reasons for selection to be issued with OFV by 6%, 3.6%, and 7.1% of the respondents respectively. Thus

attempts were made to target some specific groups (farmers lacking planting materials, good farmers and members of farmer groups) with vouchers yet this was not the aim of OFV which was to target poor farmers. In theory, targeting when the criteria are clearly set is easy in stable communities that live together and know each other well. In order to target the really planting material needy households, clear targeting criteria defining planting material needy households and which distinguishes between those experiencing shortages of planting material for just one season from those who experience shortages every season and requires outside help is required.

b) Voucher distribution

Selected households were issued with a number of 50 shillings vouchers ranging from 2 to 16. The number of vouchers issued depended on the size of land households had ready for planting cassava. Out of the 84 respondents 41% indicated receiving between 5 and 8 vouchers, while 25% received only 1-4 vouchers because they had prepared less land at the time of voucher distribution. The 25% group seemed to comprise of the poorest and the neediest. Those who received between 9 to10 vouchers (16%) and 11 to 16 vouchers (17%) were mainly group members and well endowed farmers targeted for bulking of the materials.

Majority of poor and vulnerable households usually prepare their land and plant late as they work in the relatively better endowed farmers farms to meet basic needs before settling to work on their own farms. Basing the number of vouchers on area ready for planting, ensures that the poor and most needy households get the least number of vouchers and planting materials. Selected beneficiaries should therefore be issued with the same number of vouchers irrespective of area of land they have ready for planting. To plant all materials received from vouchers issued, the poor farmers would struggle to prepare more acreage or share the planting materials with none voucher beneficiaries who are also needy.

c) Impact of OFV

By the last week of November 2006, a total 221 instead of the 500 targeted beneficiaries had been issued with 1,888 vouchers to exchange with clean planting materials. The beneficiaries exchanged the vouchers with a total of 150 bags of clean planting materials of CMD tolerant varieties enough to plant 130 acres of land. The coverage was only 44% of the targeted beneficiaries and area. This low coverage is mainly attributed to the process of confirming the area ready for planting and lack of clean planting materials.

Sensitization meetings improved farmers' knowledge on CMD pandemic and management through the use of clean planting materials and rouging the diseased plants in their field. Planting materials sellers also educated the beneficiaries about the advantages of the new varieties including high yield, early maturity and cooking qualities of the tubers apart from being CMD tolerant. Of most importance is the fact that OFV created awareness that cassava planting materials can be sold. All the planting materials suppliers agreed that the OFV have made the local farmers to realize that cassava planting can be sold to generate income. In fact, this was the biggest achievement of the project. Rating of the OFV approach by the 84 respondents based on very satisfied,

satisfied, unsatisfied and very unsatisfied revealed that 51.2% were very satisfied and 41.7% satisfied with the OFV. Only the 7.1% of the respondents comprising of those who did get desired varieties indicated their un-satisfaction with the approach.

d) Challenges and recommendations

Challenges

1. Writing of names and identification numbers of beneficiaries on vouchers was time consuming.
2. Confirming land is ready for planting was cumbersome and time consuming.
3. Lack of certified clean planting materials in most of the areas.
4. Majority of the beneficiaries did not understand that can be exchanged with more than one supplier and that they can bargain the value of the vouchers.

Recommendations

1. More efforts to be directed in the multiplication of clean planting materials.
2. Vouchers should be printed in various denominations i.e. of 50; 100; and even 200 shilling denomination.
3. Issue the same number of vouchers to selected beneficiaries. Each beneficiary should get 8 vouchers.
4. Consider planting material transport subsidy at one voucher for every 8 vouchers issued to each beneficiary.
5. There should be clarity between farmers identified for bulking planting materials and the voucher beneficiaries.
6. More efforts to be directed in identifying chronically planting material stressed households as opposed to those experiencing acute stress and including good farmers for bulking purposes to benefit from OFV.

1.0 INTRODUCTION AND BACKGROUND

1.1. Introduction

Cassava is important crops in Kenya, grown by many poor households for both food and income. In cassava growing areas of Western Kenya, the Cassava Mosaic Disease has resulted over 80% yield losses estimated at 150,000 mt and valued at over 10 million US $. The CMD has caused yield declines from 10 mt to less than 3 mt per ha and reduced area under cassava production from 25,000 to less than 17,000 ha in western Kenya. This has rendered the poor small-scale farmers food insecure.

In the past decade, efforts to mitigate CMD impacts in Western Kenya have been coordinated by Kenya Agriculture Research Institute (KARI) based at Kakamega. Through funding from OFDA and USAID, KARI set up a national coordination steering committee comprising of MOA, KEPHIS, KARI and representative NGOs. The national steering committee has worked closely with the provincial stakeholders and district steering committees to coordinate multiplication and distribution of CMD free planting materials to farmers. A three tier multiplication system (primary, secondary and tertiary) has been used which resulted in farmers planting over 22,000 ha in western Kenya with CMD free materials by 2004. To enhance understanding and management practices of CMD, 124 extension agents and 1,264 farmers have been trained on rapid multiplication, distribution and management of CMD free materials.

Through C3P, CRS Kenya proposed to mitigate the effects CMD on the livelihoods of poor small-scale farmers in Western Kenya. The C3P is implemented by three partners the Catholic Diocese of Homabay covering Rachuonyo, Homabay, Kuria, Suba and Migori districts and the Arch Diocese of Kisumu covering Siaya, Bondo, Kisumu and Nyando districts. The two dioceses are CRS traditional partners of choice. A third partner the Rural Energy and Food Security Organization (REFSO) is implementing the program in activities in Busia district. In order to meet the project objectives of institutionalizing a coordinated response to CMD and BXW and to employing effective measures to control CMD and BXW, the entry points for the project activities will be the existing structures including the national, provincial, districts and divisional committees and the primary, secondary and tertiary multiplication structures.

The main project activities are to multiply and distribute CMD free planting materials to over 12,000 poor households. The expected C3P outputs in Kenya will include strengthening of CMD steering committee; training of 50 extension agents and 200 farmer group leaders on management and the multiplication of CMD free planting materials; and distribution of CMD free planting materials enough for 0.25 ha each of the targeted 6,000 poor households.

1.2. Background

In order to achieve the distribution of CMD free planting materials to over 6,000 beneficiaries CRS proposed the use pilot On Farm Vouchers (OFV) approach. This is a demand oriented approach where needy households are issued with vouchers of given amounts to exchange with CMD clean planting materials of improved varieties of their own choice. The vouchers approach has been used by CRS to distribute grains seeds to needy households in more than 16 countries all over the world.

During the short rainy season 2006 beginning in September 20, C3P project through its implementing partner REFSO conducted an OFV distribution of CMD free planting materials. RFFSO staff together with the Ministry of Agriculture staff and community opinion leaders identified farmers with quality CMD free clean planting materials in 3 locations in Funyula and Matayos divisions of Busia district. Using a community based participatory approach, 221 beneficiaries were identified to be issued with vouchers to be exchanged with planting materials. In the month of October and November 2006, the voucher holder exchanged their vouchers with the CMD clean planting materials from farmers certified to be having clean materials.

1.3. Purpose of the evaluation

CRS and its partner, REFSO in undertaking the evaluation of OFV in Busia district seeks to asses the relevance, performance and the impact on the targeted communities. As part of this objective, the assessment will also seek to identify problems and constraints and to work with local staff to develop actionable recommendations to improve in future design for OFV.

The evaluation will assess the performance of OFV by:

1. Determining farmers' perception on the use of vouchers to access CMD free planting materials.
2. Establishing best farmers practices
3. Quantifying the performance of the materials exchanged through the voucher system

1.4. Evaluation Timeline and Itinerary

The timing of the activities for each objective will depend on the cropping cycle in the district.

Objective 1, determining farmers' perception on the use of vouchers to access CMD free planting materials will be done in November 2006 immediately after the beneficiaries have accessed and planted CMD free materials.

Objective 2, establishing best farmers practices which will involve how much material were planted and established, determining farmers' practices such as spacing, method of

planting, times and types of weeding, intercropping, rouging etc. will be after crop establishment in January and February 2007**.**

Objective 3, Quantifying the performance of the materials exchanged through the voucher system by establishing the performance of the crop in the field in relation to availability of planting materials and determining the cassava characteristics that the communities prefer will be done by March-April when the crop is maturing.

Work schedule

No	Item/Activity	days	Comments
1	Questionnaire development and review for each of the three objectives		Not to be charged. Country C3P team members and the consultant.
2	Identification of enumerators		In Busia. To be done by the project staff in Busia
3	Training of enumerators and testing of the questionnaire per objective	2	In Busia by consultant
4	Data collection	4	In Busia with consultant providing support
5	Data entry and analysis	2	In Busia
6	Report Compilation	2	Consultant
	Total	10	

1.5. The Evaluation Team

The evaluation team comprised of Dr Paul Omanga as the external consultant, Mr. Bernard Odero (CRS Kenya), REFSO staff in Busia and ten enumerators to collect data.

2.0. METHODOLOGY

2.1. Locations and beneficiaries

In order to achieve the project objectives, household surveys were conducted using quantitative short closed-ended questionnaire (Annex 1). The survey was carried out in two locations in Funyala and one location in Matayos divisions of Busia district. The locations were selected on the basis of where OFV were distributed to farmers. These were locations where CMD impact on cassava was severe and farmers had not adopted planting of CMD tolerant clean materials in large numbers. The evaluation participants included 84 men and women who received OFV and selected at random from 221 beneficiaries.

2.2. Data collection and analysis

A questionnaire was administered on 84 randomly selected beneficiaries from the three locations to get a household based perception of the use of voucher to access CMD free planting materials. Ten enumerators were selected and trained to administer the questionnaires. The questionnaire was pre-tested within the local farming community prior to formal administration. Actual interviewing took place over a period of five days. The questionnaire explored households characteristics, crops grown, cassava cultivation, the individual households' responses to CMD, issues affecting Cassava production at the household levels and the use of On Farm Vouchers in exchange for planting materials.

Data from the questionnaire was analyzed using SPSS and presented as frequencies and percentages of the respondents reporting. During the evaluation, data from REFSO was reviewed to get information on number of vouchers actually distributed and amounts of planting materials accessed and planted.

3.0. RESULTS

3.1. Characterization of households

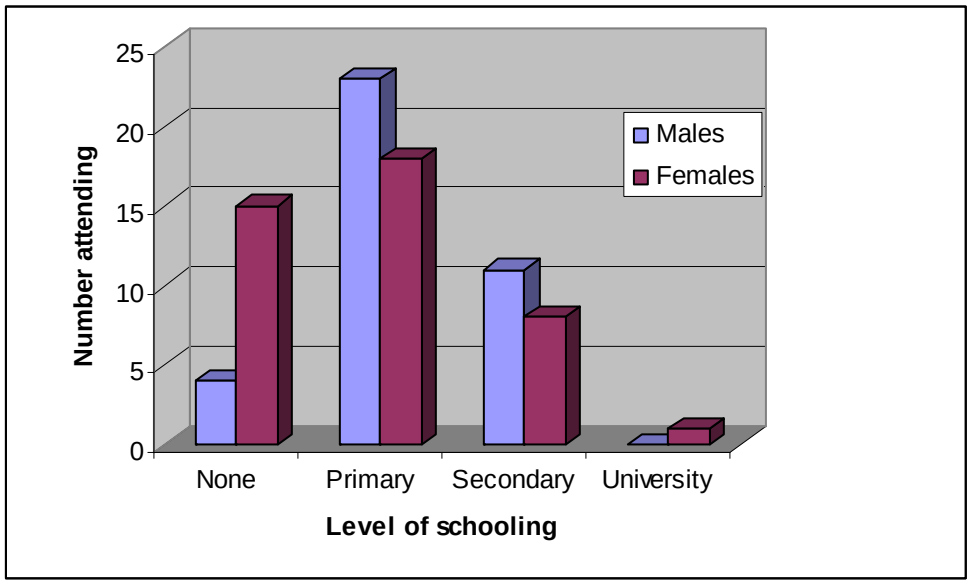
A total of 84 respondents out of 221 beneficiaries (40%) were interviewed to collect information on cassava production and use of OFV in two Divisions and three locations in Busia District. Women (54%) formed the majority of those interviewed clearly indicating that farming in the two divisions is dominated by women who are usually available at home. In the majority of homes visited, men were either out following something in local market centers or in the near towns. Amongst the respondents 50% were wives while 40% were husbands. The remaining 10% comprised of children and parents of the beneficiaries. Thus most of the respondents were those who benefited from the OFV. Over 75% of the respondents were people married and staying together, 19% were widows and 5% comprised of divorcees and single parents households.

Majority (46%) of the respondents were aged between 40-59 years, 31% between 19-39 years while about 20% were 60 years. This indicates that in Busia District, cassava cultivation is mainly by farmers aged over 40 years who understands the importance of

the crop in relation to food security. More than half (52%) of those interviewed attended school up to primary level and can write and read, 24% reached secondary level of education, 23% never attended school, and only 1 respondent (1%) reached university level of education.

Level of schooling of both male and female respondents (Fig 1) clearly indicates that more male respondents reached primary and secondary levels of education compared to females. More women never went to school compared to men. Among the respondents, there was only one female graduate

Figure 1 Number of respondents and level of schooling segregated by gender



Property owned by a household in most cases is a determinant of wealth or poverty levels. Interviews with the respondents revealed that 45% of the respondents own mud walled grass thatched houses while 46% own houses iron roofed houses with mud walls. Only 8% owned permanent houses. Over 59% of the respondents own a radio. The fact that only 8% of the respondents owned permanent house indicates that majority of farmers selected to benefit from vouchers were poor farmers. Out of these poor farmers, over 45% seemed to be among the poorest since they lived in mud walled grass thatched houses, which is a sign of abject poverty in the area. Although 46% of the farmers owned mud walled iron sheet roofed houses, the iron sheets used to build these houses could have been purchased by their working children, but life in these houses is that of survival. It is important to not that the 8% farmers living in permanent houses were not selected because they were poor but to multiply the planting materials for further distribution.

Land ownership varied from 1 to 5 acres with the majority (37%) of the respondents owning 1-2 acres. About 30% of the respondents indicated renting between 1-2 acres of land to other farmers for farming. On the other hand, only 13% of respondents reported renting between 0.5 to 1 acres of land from other farmers.

3.2. Crops grown in the target divisions.

During the survey, the respondents were given a list of 10 crops including maize, sorghum, millets, cowpea, bean, green gram, pigeonpea, cassava, and sweet potato and asked to rank them based on the area and importance in their households. In this ranking, the more respondents ranking the crop number 1, 2 or 3, the more important the crop is to them in terms of area and food security.

In the two divisions, intercropping and mixed cropping are common. The ranking of the various crops based on area and importance to the households (Table 1) clearly indicates the food security of the households in the two divisions is deeply rooted in maize, cassava, sorghum and bean in that order. These are followed in importance by sweet potato, millets and cowpea. Other crops grown in the area but not prioritized by the respondents include groundnut, cotton, and soybean. Although pigeonpea and green gram were included in the list, in the farmers' perception, the two crops are of low priority in area cultivated and in term of food security and cash needs. Pigeonpea and green gram were not ranked 1 to 3 indicating the two crops are of low priority in area in terms food or cash. Other crops that were not included but appeared between 4 to 7 ranks were groundnuts, soybean and cotton.

Maize was ranked 1, 2 and 3 by 92% of the respondents. Maize being the most important crop is supported by the fact that farmers in the targeted divisions generally practice intercropping where maize and sorghum are the main cereals intercropped with other crops. The survey established that in fields planted with both maize and sorghum, cassava was the common intercrop. Although an important food crop, maize is easily sold in market places to meet other household basic needs. In the market places visited, most of the traders were found selling maize.

A total of 68 respondents out of 84 (81%) ranked cassava 1, 2 and 3 making it second only to maize in area and importance. The importance of cassava is shown by 31 out 84 respondents ranking it first, 19 second and 18 third amongst the crops they grow. This leaves only 16 respondents (19%) ranking cassava fourth and fifth crop. Farmers interviewed agreed that cassava is a widely grown crop in the two divisions as a food security. The crop is planted at the onset of the long or short rains in April and September. Because of its slow initial growth, cassava is smothered by fast growing cereals (maize, sorghum) and only become clearly visible in March after harvesting of the cereals and left in the field alone before planting of the long rains crop.

Discussions with the respondents revealed that cassava is a very important household food security crop. It is drought tolerant and once established can grow to maturity where other crops fail as a result of drought. Harvesting of cassava is not time specific. Farmers may withhold harvesting of cassava tubers from the field (field storage) and harvested only when the household requires food or for sale to get money for other household needs. In the area, cassava tubers are boiled, and used for breakfast, lunch and even dinner or as snacks at any time of the day. However, most of cassava is chopped, dried

and milled to be mixed with sorghum, millets or maize flour used in making *ugali or* porridge. However, majority of the respondents agreed that cassava production in the area went down as a result of cassava mosaic disease. Apart from maize and cassava, sorghum and beans were also ranked in positions 1, 2 and 3 by 36 and 32% of respondents respectively indicating their importance as food crops in the area.

Table 1 Crops grown by rank

Crop	Number of farmers ranking the crops as number 1, 2 &3			Total Number of respondents ranking the crops 1, 2 &3	Percent of respondents ranking the crops as 1, 2 &3
Maize	37	29	12	78	92
Cassava	31	19	18	68	81
Sorghum	3	15	12	30	36
Bean	3	12	12	27	32
Sweet potatoes	3	6	13	22	20
Millets	1	3	15	19	22
Cowpea	1	0	0	1	1
Others	0	0	2	2	3

Source: Generated from question 15 which asked the respondents the crops they usually plant in order of priority.

3.3. Cassava cultivation

3.3.1. Area under cassava by each household

Over 98% of the respondents indicated they have been involved in cassava farming as a food security crop. Discussions with opinion leaders (chiefs, assistant chiefs and welfare group leaders) revealed that nearly all farmers in the divisions plant cassava. The majority of which, grew up with cassava until the crop was devastated by the CMD. Area under cassava in each household as reported by the respondents is presented in Table 2. Most (49%) of the respondents indicated growing cassava in less than one acre which may seem to be low. However, this is mainly due to the fact that cassava is not grown in pure stands but intercropped with maize and sorghum. By observation, the area under cassava seems to be underestimated by the farmers as the crop is planted in most parts of their farms. In fact a number of farmers when asked the acreage under cassava did not give the figure necessitating the enumerators to estimate the acreage in the field. Discussions with the respondents revealed that area under cassava has been on the increase since 2000 after the outbreak of CMD in the late 80's and 90's.

Table 2. Area under cassava by household as reported by the respondents.

Area (Acres)	Number reporting	Percent reporting
< 1 acre	41	49
1 acre	25	30
2 acres	9	11
3 acres	6	7
> 4 acres	3	3

Total	84	100

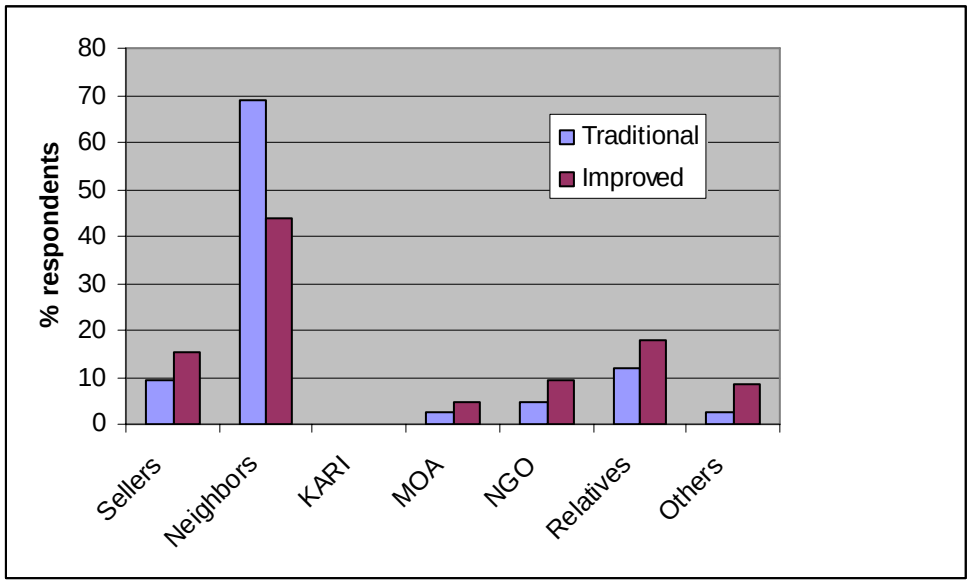
Source of data: Response to question 17 in the questionnaire: what area in your farm do you plant with cassava?

3.3.2. Source of planting materials in the traditional set up

Cassava planting material is a mature stem cut into 1 foot length. To get information on the source of planting materials, the respondents were asked where they generally get planting materials. In the traditional set up (Fig 2), planting materials are mainly sourced from neighbors (69%) and relatives (11.9%). Other minor sources are planting material sellers within the community (9.5%), NGOs (4.8%) and MOA (2.4%). As opposed to grain seeds, where sellers take seeds to market centers for sale, majority of the respondents indicated that cassava planting materials are mainly sourced from the farms. Cash payment for cassava planting materials is limited only to a few farmers and for improved varieties as reported by only 9.5% of respondents. Locally cassava planting materials are rarely available in market places and are mainly sourced from neighbors and relatives farms if not from own farm.

Preservation of planting materials is a common practice by households in Busia district. Over 83% of the respondents indicated that they preserve own materials for planting. Of those who preserve planting material, 70% indicated that they cut planting materials and keep under shade or cover with grass. This preservation method requires frequent watering of the materials and is suitable for only 2 to 3 weeks before planting. In the absence of water, the planting materials may easily dry resulting into poor emergence and establishments. 30% of the respondents leave the materials in the field and cut at planting time. Although leaving materials in the field is a suitable preservation method, sometimes damage by livestock can reduce the availability and quality of planting materials. Even though own source was evident as an important source of cassava planting material, most of the respondents indicated that their cassava field were infected by CMD and therefore not good for planting materials and had to source planting materials from neighbors and relatives.

Figure 2. Percent respondents of farmers indicating receiving planting materials from various sources in a traditional set up and for improved varieties



Source of data: Question 18 and 25 from the questionnaire

3.3.3. Knowledge of symptoms of cassava diseases.

The most common diseases of cassava include CMD, CBSD and green mites caused diseases. In an effort to determine farmers' knowledge on symptoms of cassava diseases, a series of questions were asked. These included whether they can identify any cassava disease in the field and which disease, common visible symptoms of CMD, and the common control measures of the diseases especially CMD. Results from the survey (Table 3) revealed that 80% of the respondents could clearly identify cassava diseases while 20% can not. Of the 80% (67 respondents) that can identify cassava diseases, 85% can identify CMD and only 15% can identify other diseases. Although majority (80%) of respondents said they could identify CMD, only 59.5% positively described the symptoms. Thus more efforts are required to educate the farmers on the symptoms and management of CMD.

Table 3. Frequency and percent respondents' that can identify various cassava diseases in the field.

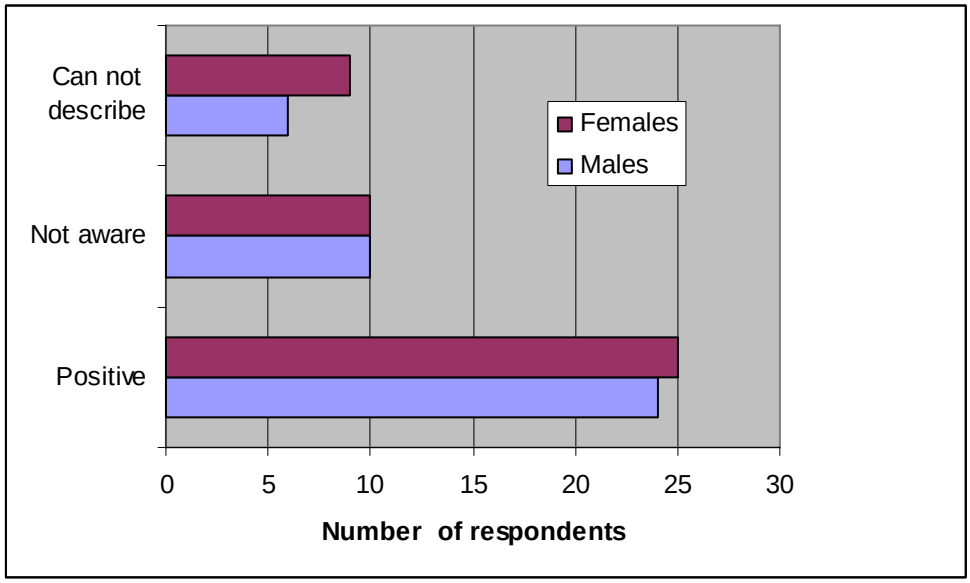
Disease	Number of respondents	% respondents
CMD	57	85
CBSD	5	6
Green mite related diseases	3	4
Others	4	5

Source: Question 20 of the questionnaire.

Analysis of data on those who can identify cassava diseases revealed that out of 40 males 33 can identify the diseases. Of the 33 respondents, 29 can identify CMD. Of the 44

females, 32 respondents reported that they can identify cassava diseases of which 22 can identify CMD. When the respondents were asked to describe CMD symptoms, the number of males and females that could positively describe CMD and those not aware were similar (Fig. 3). However, more women were not able to describe the symptoms compared to men. This may be due to the low level of education for some of the women.

Figure 3: Number of respondents that can describe CMD symptoms by gender



3.3.4. Control of CMD

The use of clean planting, disease tolerant varieties and roughing of diseased plants has been promoted as a control measure for CMD. However, only 43% of respondents indicated that they practice roughing (Table 4). The fact that after almost 10 years of promotion only 13% of the respondents reported that use of clean planting material is an effective method of controlling CMD is of concern. It is also a concern that 23% of respondents do not use any method to control the disease. Control of CMD should start from the use of disease tolerant clean planting materials. More efforts should be directed to encourage farmers to use clean planting materials with tolerance to CMD. The efforts should include ensuring availability of CMD tolerant clean planting materials within the locations and educating the farmers on control measures.

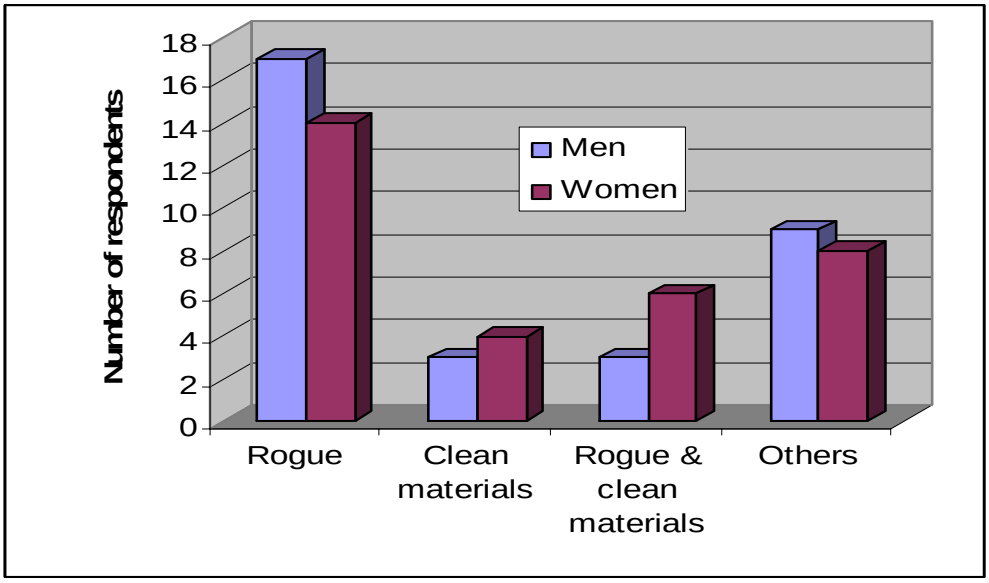
Table 4. Respondents indicating using different CMD control methods

Control method	Frequency of respondents	% respondents
Rouging	36	43
Use of clean materials	11	13
Rouging and clean materials	18	21
None	19	23
Total	84	100

Data source: Question 22 of the questionnaire.

Figure 4 compares the number of men and women who indicated practicing various CMD control methods. Rouging was reported to be mainly done by men while use of clean materials and a combination of rouging with the use of clean materials was mainly practiced by women. Since there are no significant differences between men and women, campaign strategies should target both the sexes.

Figure 4. Respondents reporting practicing CMD control measures segregated by gender.



3.3.5. Access to improved varieties before OFV

Several CMD tolerant varieties have been distributed to farmers in Western Kenya by KARI, MOA and NGOs. The promoted varieties include SS4, Mygera, MM 96 series and MH 95/0185. 58% of the respondents indicated they had previously accessed and planted improved varieties while 42% had not. This show that despite the efforts made in promoting the improved CMD tolerant varieties, 58% have been reached. The number reached could have been influenced by the availability of the improved varieties, planting materials and extension efforts.

The varieties accessed by the 58% of respondents are presented in Table 5. Several improved varieties have been promoted in Busia district. The varieties have not been officially released and only known by numbers and not names which are confusing. Thus it is not unique for about 30% of the respondents to indicate that they have accessed Mygera (locally nicknamed Nigeria) since it is the only variety with a name and not a number. From the Table 5, about 40% of the respondents accept accessing and planting improved varieties but could not remember or identify the varieties by name or number.

Table 5. Percent of respondents accessing improved varieties previously.

Varieties accessed	Number of respondents	Percent accessing
SS4	4	8.5
Mygera	14	29.8
MM 96 series	5	10.6
MH 95/0183	5	10.6
Other varieties	19	40.4
Total	84	100

Source: Question 24 of the questionnaire

Reason given for not accessing improved CMD tolerant cassava varieties by 36 respondents (Table 6) was mainly lack of knowledge of where to get the materials (88%). This is an indication of the few farmers or institutions that multiply CMD clean materials within the two divisions. In fact, farmers in Matayos division had to travel about 20 km to get the planting materials. The fact that only 6% of the respondents said the materials are too expensive is an indication that farmers can purchase the improved CMD tolerant clean planting materials if locally available.

Table 6. Reasons for not accessing the new varieties

Reason	Frequency	Percent
Lack of knowledge of where to get the varieties	32	88
Too expensive	2	6
Others	2	6
Total	36	100

Data source: Question 29 of the questionnaire

3.3.6. Sources of improved varieties

Although sources of improved planting material followed a similar trend as in the traditional set up, with neighbors (44% respondents) and relatives (17.9% respondents) remaining the major sources, there is a significant reduction in percent of respondents indicating neighbors as the major source from traditional set up (69%) to improved varieties (44%) and more respondents indicated getting improved planting materials from sellers, MOA, NGOs and relatives (Fig. 2). Thus the institutions have started playing an important role in ensuring farmers get improved planting materials. No respondent indicated getting planting materials from KARI which has the mandate to develop and disseminate improved cassava planting materials in Kenya. Discussion with KARI staff in Kakamega revealed that the research center collaborates with MOA and NGOs to disseminate the improved planting materials, in conducting on-farm trials and bulking of improved varieties in farmers fields. None of the beneficiaries of the OFV directly received materials from KARI. However, majority of planting materials sellers indicated getting materials from KARI. They also said that KARI staff usually visit them to inspect their planting materials bulking plots to ensure quality.

3.3.7. Payment for planting materials

Out of 54 respondents that indicated accessing the improved planting materials before the introduction of OFV in November 2006, 76% said that they got the materials free of charge from neighbors, relatives and sometimes from NGOs and MOA. Only 24% (13 respondents) said they purchased the materials from farmers selected by MOA and KARI to bulk clean planting materials. This confirmed the observation from the sellers that most of the farmers seek planting materials for free. Of those who purchased the planting materials, only 2 did not attend school, 7 educated up to secondary level, and 3 were educated up to primary level. Majority of the 13 respondent own iron roofed mud walled houses.

The purchase price reported by the 13 respondents varied from 150 to 400 shilling per bag of clean cutting materials. Depending on how the planting materials are arranged, and the size of the cutting, a bag can carry 300 to 500 one foot planting materials. Two of the respondents indicated purchasing clean planting materials at one shilling per stick of 1 foot length. Two farmers indicated purchasing a bag at 150 and 200 shillings respectively. However, the majority (9 respondents) of those who purchased planting materials got it at 400 shillings per bag. The variation in price of planting materials was determined by the varieties. Although most of the respondent did not indicate the varieties they purchased, it was clear that Mygera, MH 0183 and MM 96/5280 were in high demand and fetched better prices.

3.4. On farm vouchers for purchase of CMD planting materials

3.4.1. Information about OFV

Over 70% of the respondents knew about OFV in October 2006. The main source of information about OFV was REFSO (38% of the respondents) and Local administration indicated by 48.8% of respondents. Although MOA played a role together with REFSO in passing information to farmers, only 3 respondents indicated receiving information about OFV from MOA staff. Other sources of information were neighbors (4%) and relatives indicated by 2% of the respondents.

3.4.2. Sensitization of communities

In September 2006, REFSO together with the MOA contacted local administration (Chiefs and Assistant Chiefs) in the target locations to mobilize community members for sensitization on OFV. The local administration organized sensitization meetings during the month of October. In these meetings, REFSO and MOA staff educated the communities on:

- The importance of cassava as a food security crop in the area
- The effect of CMD on cassava production
- Identification of CMD symptoms
- Control and management of CMD especially the use of clean planting materials and roughing.

- On the use of On Farm Vouchers to access clean planting materials
    - Value of the voucher
    - Validity of the voucher
    - Who to get the voucher
    - Where to exchange the vouchers with planting materials
    - How to use the voucher
    - Redemption of vouchers.

3.4.3. Selection of the beneficiaries

Discussion with REFSO, MOA and Local Administration (Chief and Assistant Chief) revealed that a community based targeting approach was used to identify the voucher beneficiaries. In this approach, the community together with their opinion leaders developed criteria to select needy households to be issued with vouchers. The criteria include and not limited to:

1. Poor farmers to whom cassava is a priority crop but can not access clean planting materials.
2. Groups of farmers such as FFS of up to 20 members who can be targeted for further bulking of clean planting materials.
3. Farmers without clean planting materials but are serious cassava growers.
4. Vulnerable households such as those with members infected with HIV, Sick members, elderly, widows, widowers, orphaned children, etc.

Based the criteria, each community (sub-location) prepared a list of farmers for receiving the vouchers. The list was confirmed by REFSO and MOA staff before issuance of vouchers. RESFO / MOA staff and local opinion leaders visited most of the selected beneficiaries to confirm whether they were really needy and to determine the amount of land they had ready to plant with CMD tolerant cassava varieties. A total of 221 beneficiaries of which, 44% were females and 56% men were selected to benefit from the OFV (Table 7) in the various locations.

Table 7. Number of beneficiaries by division and location segregated by sex.

Division	Location	Males	Females	Total
Funyala	Bwiri	49	57	106
	Nambuku	24	18	42
Matayos	Nangoma	51	22	73
Totals		124	97	221

When the respondents were asked who selected them to participate in the OFV program, only 17% said they were selected through a community based criteria (Fig 5). Majority (39%) indicated they were selected by REFSO while 24% and 20% respectively indicated being selected by opinion leaders and chiefs (local administration). We had expected that majority would indicate they were selected by the community. However, this was not so. The beneficiaries viewed those who organized them to attend community meetings where their names were proposed as the ones who selected them to benefit from the vouchers.

The response that they were selected by the chiefs, opinion leaders and REFSO is therefore not surprising.

Reasons given for selection are presented in Table 8. The project aimed at targeting the poorest farmers with OFV. The targeting criteria did neither clearly define who a poor farmer is nor households that really need clean planting materials of CMD tolerant varieties. Thus only 39.3% of respondents attributed their selection to poverty, 22.6% said they were selected because they lacked clean planting materials and 17.9% attributed their selection to being good farmers in the area. Being a group member, sick and a widower were also given as reasons for selection to be issued with OFV by 6%, 3.6%, and 7.1% of the respondents respectively. Thus attempts were made to target some specific groups (farmers lacking planting materials, good farmers and members of farmer groups) with vouchers yet this was not the aim of OFV which was to target poor farmers.

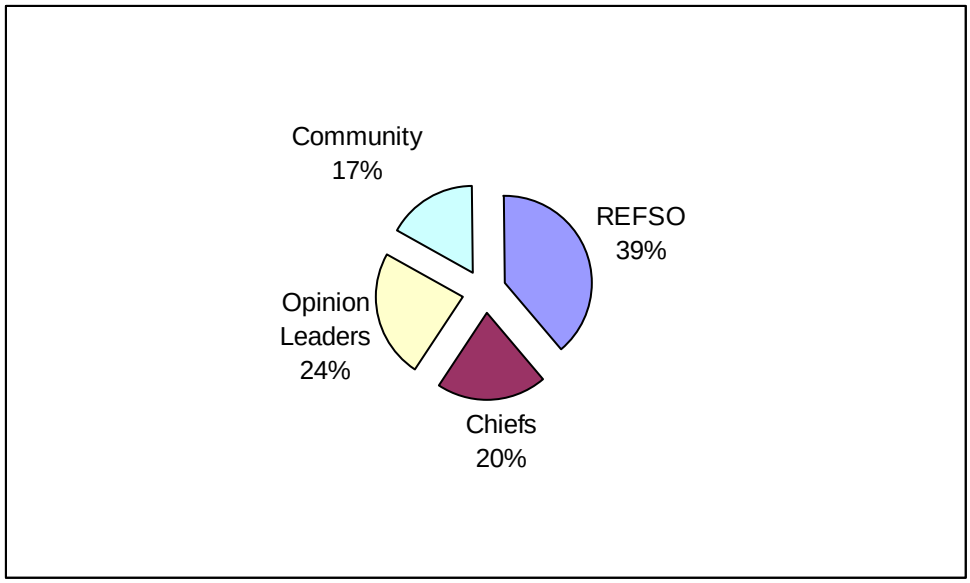
In theory, targeting when the criteria are clearly set is easy in stable communities that live together and know each other well. In order to target the really planting material needy households, clear targeting criteria defining planting material needy households and which distinguishes between those experiencing shortages of planting material for just one season from those who experience shortages every season and requires outside help is required.

Poverty was not the main selection criteria for selection of the beneficiaries. Some of the beneficiaries especially the good farmers and members of farmer groups were issued with vouchers to get planting materials for further bulking. These formed the majority of beneficiaries who got 16 vouchers. Farmers selected for bulking of CMD tolerant clean materials were not to benefit from the vouchers. The project reserved funds for bulking of materials which were to be used to buy planting materials and distribute to selected farmers or farmer groups for bulking.

Table 8. Reasons given by respondents for selection for issuance with OFV.

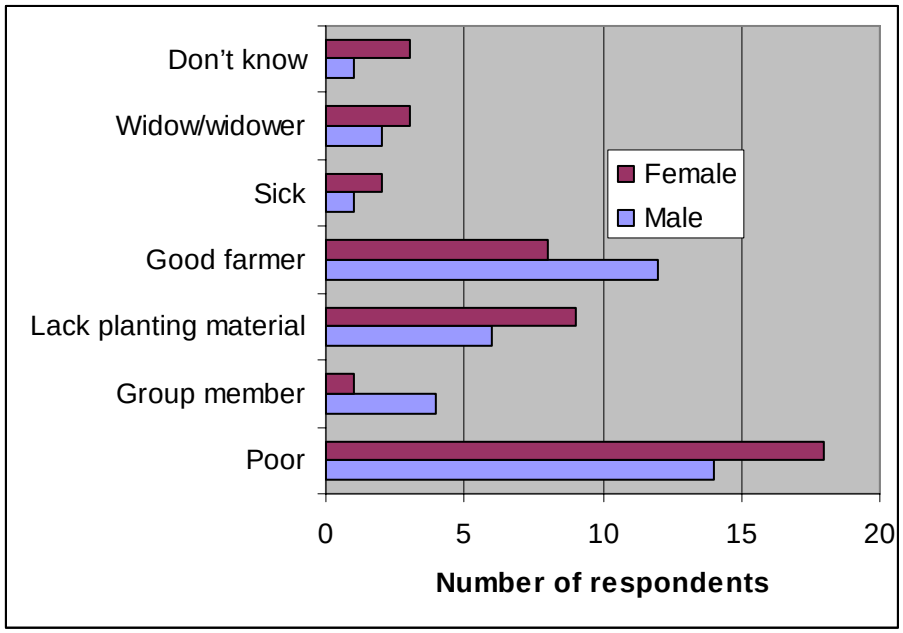
Reason	Percent respondents
Poverty	39.3
Group member	6
Lack planting material but have land	22.6
Good farmer	17.9
Sick	3.6
Widow/widower	7.1
Don’t know	3.6

Figure 5. Percent respondents indicating who selected them to participate in the OFV program.



The reason given by respondents segregated by gender is presented in Figure 6. More women compared men gave poverty, lack of planting materials, being a widow and sickness as the reasons why they chosen to participate in the OFV. On the other hand, more men compared to women indicated they were chosen because of being good farmers and group membership

Figure 6. Reasons for selection segregated by gender



3.4.4. Issuance of vouchers

A total of 4,000 fifty shillings vouchers worth 200,000 Kenya shillings were sent to REFSO in early October to be distributed to 500 beneficiaries. Each beneficiary was supposed to get 8 vouchers worth 400 shillings that was estimated to be enough for one bag of planting materials for half an acre of land. REFSO delivered vouchers to the local administration (chiefs and assistant chiefs) that together with local opinion leaders and MOA staff wrote the names and identification number of the beneficiary on the voucher before issuance. Data available from REFSO revealed that only 1,888 instead of 4,000 vouchers (47%) were distributed. The 221 beneficiaries reached represented only 44% of the targeted 500. The low coverage is attributed to the fact that vouchers were received late and the process of confirming the area ready for planting was time taking. At the time of this survey distribution was still going on. Lack of clean planting materials also contributed to low coverage. The project only targeted areas where beneficiaries can access materials.

The number of 50 shillings vouchers issued to each beneficiary was tagged to the amount of land ready for planting (Table 9). Although 41% of the beneficiaries received between 5 and 8 vouchers enough to buy materials to plant in 0.26 to 0.50 of an acre of land, a significant number (25%) of beneficiaries received only 1-4 vouchers because they had prepared less land at the time of voucher distribution. This group seemed to comprise of the poor and the neediest. Those who received between 9 to10 vouchers (16%) and 11 to 16 vouchers (17%) were mainly group members and well endowed farmers targeted for bulking of the materials.

Although tagging the number of vouchers to area of land ready for planting ensured immediate planting, it had some disadvantages:

- It limited the area under improved clean CMD tolerant cassava varieties by each household only to that already prepared at the time of selection.
- Majority of poor and vulnerable households usually prepare their land and plant late as they work in the relatively better endowed farmers farms to meet basic needs before settling to work on their own farms. Thus if voucher issuance is based on area ready for planting, the poor and vulnerable households could have not prepared much of their farms resulting into fewer voucher and limiting the area to be planted by this class of farmers.
- It targeted relatively better endowed households that are able to prepare their land early.
- It may be prone to abuse and misuse as some members of the communities could be wrongly targeted with more vouchers.

Furthermore, visiting every beneficiary to document area of land ready for planting was time consuming, required more staff and not cost effective and therefore could be avoided. Having a uniform number of vouchers issued to beneficiaries will avoid the time consuming visits to farmer field to document acreage ready for planting and the biasness associated with determining number of vouchers to be issued to each beneficiary. This would also improve coverage and area planted.

Table 9. Distribution of vouchers based on area of land available and ready for planting CMD clean cassava materials.

Area (acres)	# of vouchers	Number of beneficiaries in targeted locations				% beneficiaries
		Bwiri	Nambuku	Nangoma	Total	
< 0.25	1-4	19	22	16	57	25
0.26-0.50	5-8	43	14	34	91	41
0.51-0.75	9-10	20	2	13	35	16
0.76-1.00	11-16	24	4	10	38	17
Total		106	42	73	221	

The number of vouchers distributed, planting materials accessed in bags and estimated area in acres planted is given in Table 10. More vouchers were distributed in Bwiri compared to Nambuku and Nangoma locations. The project increased the area under improved CMD tolerant clean planting materials by 116 acres. Most important is that 38.2 acres of clean planting will now be available in Matayos Division where farmers had to travel over 20 kms to get planting materials.

Table 10. Amount of vouchers distributed, planting materials accessed and estimated area planted by end of November 2006.

Division	Location	No. of Vouchers	Amount of planting materials (bags)	Estimated area planted (acres)
Funyala	Bwiri	998	85.2	61.4
	Nambuku	271	26.5	16.9
Matayos	Nangoma	619	37.7	38.2
Total		1888	149.4	116.5

3.4.5. Planting material suppliers

In August and part of September 2006, REFSO in collaboration with KARI and Ministry of Agriculture conducted a survey to identify farmers and institutions with CMD free clean planting materials. A total of 13 cassava planting materials suppliers (Table 11) were identified in Funyula and Township divisions of Busia and registered with REFSO and KARI to supply voucher holders with clean planting materials. The conditions for registration to supply clean planting materials included having:

1. Pure stands of clean planting materials of SS4, Mygera, MH 95/0183 and MM series.
2. Materials inspected and certified by KARI and REFSO to be clean.
3. Registered with REFSO as planting material supplier.
4. able to provide information on the performance of the varieties and management aspects to the voucher holder

Table 11. The names of the suppliers, their locations and varieties supplied.

Division	Location	Sub-location	Village	Name	Variety supplied
Funyula	Bwiri	Namuduru	Namasongo	Sylvester Ouma	SS4, Mygera, MM 96 series, MH 95/0183
	Bwiri	Namuduru	Namakhudu	Peter Odhiambo	MM96/5280
	Bwiri	Namuduru	Kapili	Patrick Oundo	MM96/5280
	Bwiri	Namuduru	Kapili	Roselyn Auma	Mygera
	Bwiri	Namuduru	Nyaboya	Wanyama Oduki	Mygera
Township	Town	Township	Mayenje	Jason Were	SS4, Mygera
	Town	Township	Mayenje	Agness Maya	MM96/5280
	Town	Township	Mayenje	Evalyne Ouma	SS4, Mygera
	Town	Township	Bwamani	Julias Ojwang	MM96/5280
	Town	Township	Mayenje	Winslass Ojiambo	Mygera
	Town	Township	Mayenje	Gedion Juma	MM96/5280
	Town	Township	Mayenje	Dickson Masete	MM96/5280, Mygera
	Town	Township	Mayenje	Fredrick Ouma	Mygera

The majority of the planting material suppliers are farmers who have been planting CMD tolerant materials in their locations since 2000. They received initial planting materials from Farmers Training Centers, KARI Kakamega, Alupe, FFS groups and through field days organized by Ministry of Agriculture. Although the materials were given free of charge, some of the suppliers mentioned buying the planting materials.

All the suppliers visited indicated that their materials were inspected by REFSO/KARI/MOA staff in September 2006 before selling the planting materials to vouchers holders. Two of the suppliers indicated KARI/MOA have been inspecting their planting materials on an annual basis.

Since the project promotes CMD tolerant clean materials, identification of farmers or institutions with CMD tolerant clean planting materials is essential for the success of the project. Until majority of farmers are able to identify clean planting materials, it is the project staff and the collaborating institutions such as MOA. KEPHIS and KARI to ensure the source of planting material are clean. The procedure followed by the project therefore ensured that beneficiaries accessed CMD clean planting materials.

3.4.6. Improved planting materials.

The common improved varieties promoted in the district include SS4, Mygera, MH95/0183, MM96/5280, MM96/3868 and other varieties in the MM series. Data from REFSO (Table12) shows amounts of various improved varieties the beneficiaries purchased with the vouchers. A total of 149.5 bags were purchased by beneficiaries using

vouchers. Majority of the beneficiaries exchanged their vouchers with MH95/0183 followed by Mygera.

Table 12. Amount of planting materials distributed by varieties

Location	Mygera	SS4	MH 95	MM96 5280	MM96 3868	MM 96 4466	UNKNOWN
Bwiri	16.70	4.00	7.00	19.50	19.75	17.70	0.5
Nambuku	6.50	2.25	12.00	2.25	2.00	1.50	0
Nangoma	6.50	16.65	14.75	0	0	0	0
Total	29.75	22.75	33.75	21.75	21.75	19.25	0.5

Results from interviews with the respondents indicated that out of 84 respondents, 41% purchased 1 bag whereas 31% purchased half a bag of planting materials of various improved varieties. The fact that 79 out of 84 respondents used all vouchers issued to them showed the availability of planting materials. However, this availability was location specific. In one of the location Nangoma in Matayos Division, the beneficiaries had to travel over 15 kms to Township village of Mayenje to get planting materials.

3.4.7. Distances OFV holders traveled to access planting materials

Two divisions (Funyula and Matayos) in Busia district were identified for the OFV. In Funyula two locations (Bwiri and Nambuku) were selected for distribution of CMD free planting materials. In Matayos only one location Nagoma was selected.

Discussions with REFSO staff revealed that

1. Beneficiaries from Nangoma location in Matayos Division got materials from Township Division where the beneficiaries traveled between 20-30 kms to get the materials. The most common transport means was by bicycle.
2. Beneficiaries from Nambuku location in Funyala Division got planting materials from Bwiri and Nangosia locations within Funyala division and had to travel for between 2-4 kms to get the planting materials.
3. Beneficiaries from Bwiri location in Funyala got planting materials within Bwiri location and had to travel 2-3 kms to get the materials.

Even though some of farmers indicated using their own bicycles or sending their children to get the planting materials, the Majority of the beneficiaries hired bicycle taxis commonly known as "*boda boda*" to collect planting materials from sellers. The bicycle taxis were costing the beneficiaries between 50 to 200 shillings depending on the distance and amount of materials. The project only issued farmers with the vouchers for planting materials but did not consider transportation costs. It would appropriate if the project subsidizes the costs of transportation for the farmers by allocating at least one voucher for transportation for every 8 vouchers of planting materials. The fact that over 58% of the beneficiaries viewed the distance traveled is an indication lack of clean CMD planting materials within the reach of most farmers also indicate that they have to be assisted to get planting materials into their locations.

3.4.8. Reasons for choosing planting material suppliers

Table 13 shows the reasons respondents gave for choosing the suppliers. Majority (52.4%) of the beneficiaries choose suppliers because of the availability of desired varieties (Table 13). In locations where desired varieties were not available within the locations, beneficiaries traveled long distances to seek for them. This true for Matayos Division where 73 beneficiaries with 619 vouchers had to travel to township division to get varieties of their choice. 34. % of the respondents indicated choosing sellers within their locations who are known to them. It is interesting to note that with vouchers, none of the respondent indicated choosing his or her relative to exchange vouchers with for planting materials. It may indicate that relatives and close neighbors did not have clean planting materials. It also mean that the beneficiaries are well aware of the CMD tolerant clean planting materials and ready to seek them wherever they can be found.

Table 13. Reasons for choosing suppliers

Reason	Percent of respondents
Seller within my location and known to me	34.5
Seller with desired variety	52.4
Relative	0
Seller I know very well	2.4
Seller with better price	2.4
Chosen for me	8.3

3.4.9. Quality of the planting materials

The physical quality of planting material was acceptable to most beneficiaries. Over 85.5% the respondents were satisfied with the general physical qualities of the planting materials accessed. However, out of the 84 respondents interviewed, 33 (39.3%) did not get their desired varieties which included SS4 (11 respondents), Mygera (9) MM series and MH95/0183 mentioned by 5 respondents each. The desired characters of the varieties not received are high yield (mentioned by 19%) and earliness (11.9% of the respondents).

Generally, clean planting materials were not available in Matayos and Butula Divisions. Intensive bulking of clean planting materials is recommended for these two divisions during the LR 2007.

3.4.10. Understanding of OFV system

The respondents were asked whether they understand the OFV system in terms of value of the voucher, whether the voucher can be exchanged with more than one supplier, whether a beneficiary can use vouchers to purchase more than one varieties and finally whether the beneficiaries can bargain voucher value. The understanding from the respondents view is given in Table 13. Clearly, the beneficiaries were much aware of the value of the vouchers. There was confusion on whether a beneficiary can exchange vouchers with more than one supplier with 48.8 of respondents saying (yes) and 51.2% saying (no). Majority of suppliers had clean planting materials of only one CMD tolerant

variety. Restricting the use of vouchers to one supplier limits the beneficiaries to variety/ies available with that supplier. This may also result into supplier selling the planting materials at whatever prices he/she wishes. Awareness should therefore be by educating beneficiaries to understand that the use of vouchers is not restricted to one supplier. The fact that most of the beneficiaries (61.9%) are aware that they can use vouchers to purchase more than one variety, can only become real if they exchange the vouchers with more than one supplier.

Majority (63.1%) of the respondents were not aware that they can bargain the value of the vouchers with the suppliers. Vouchers are like cash and in order to reap maximum benefits, beneficiaries should be encouraged to bargain for their value.

Table 13. Understanding of the vouchers in terms of use.

Whether understand voucher	**Percent indicating**	
	Yes	**No**
Value	81.0	19.0
Can be used with more than one vendor	48.8	51.2
Can be used to purchase more than one variety	61.9	38.1
Beneficiary can bargain voucher value with supplier	36.9	63.1

3.4.11. Rating of the OFV by respondents.

The beneficiary rating of the OFV system is presented in Table 14. The result clearly shows that the beneficiaries were satisfied with the voucher approach of planting material distribution.

Table 14. Beneficiary satisfaction with OFV system

Level of Satisfaction	**Percent respondents**
Very satisfied	51.2
Satisfied	41.7
Unsatisfied	7.1
Very unsatisfied	0

4.0. IMMEDIATE IMPACT OF OFV SYSTEM

Through the OFV approach, 221 poor farmers in Funyala and Matayo divisions in Busia district accessed 150 bags of CMD tolerant clean planting materials worth over 60,000 Kenya shillings. Another 50 bags of clean planting materials was also distributed to farmer's group members for bulking purposes. The planting material distributed was enough to plant about 130 acres of land.

Sensitization meetings improved farmers' knowledge on CMD pandemic and management through the use of clean planting materials and roughing the diseased plants in their field. Planting materials sellers also educated the beneficiaries about the

advantages of the new varieties including high yield, early maturity and cooking qualities of the tubers apart from being CMD tolerant.

It is important to note that the introduction of OFV created awareness that cassava planting materials can be sold. All the planting materials suppliers agreed that the OFV have made the local farmers to realize that cassava planting can be sold to generate income. In fact, this was the biggest achievement of the project. One of the sellers Boniface Omolo from Bwiri Location commented: "*prior to OFV, most of farmers in my location used to come and cut planting materials free of charge. They never paid for the materials. Most of my materials were purchased by organizations sent by Ministry of Agriculture staff and never benefited the local communities. The introduction of OFV enabled the local farmers to realize that cassava planting materials can be purchased. I sold planting materials to 24 local farmers and received a total of 8,400 shillings. I used part of the money for land preparation and part to meet basic household needs.*

Mr. Dickson Masete, a supplier from Mayenje Village in Township Division sold planting materials worth 3,400 shillings and used the money to buy a goat in remembrance of the Vouchers approach. He could not believe that one could buy cassava planting materials from his farm. His farm was picked because of availability of clean planting materials of Mygera and MM96/5280.

5.0 CHALLENGES AND RECOMMENDATIONS

5.1. Challenges

- Denominations of voucher were in 50 shillings. This took a lot of time to write the names of beneficiaries on the vouchers. Higher denomination vouchers were recommended.
- Confirming the area in acres available by each beneficiary and whether the land is ready for planting was cumbersome and took a lot time.
- Determining the number of vouchers issued to the beneficiaries based on the prepared land ready for planting is a major challenge that should be avoided.
- Lack of certified clean planting materials in most of the areas. The project and MOA staff had to visit selected planting material farmers to certify the planting materials.
- Limited planting materials in some locations. Farmers had to travel long distances to look for the materials (Over 20 kms). Some suppliers did not give farmers enough planting materials.
- Majority of the beneficiaries did not understand that can be exchanged with more than one supplier and that they can bargain the value of the vouchers.

5.2. Recommendations

- More efforts to be directed in the multiplication of clean planting materials. Individual farmers or farmers groups be identified for bulking purposes in the various target location. The project should take the advantage the current short rains to multiply more materials for planting.

- Vouchers should be printed in various denominations i.e. of 50; 100; and even 200 shilling denomination. This may reduce the amount of work put on writing the vouchers.
- Due to the fact that only 221 out of the estimated 500 beneficiaries were reached by December 2006, and considering the fact that meteorological department has predicted that the current short rains will continue up to January, I recommend a continuation of voucher distribution in December 2006.
- Issue the same number of vouchers to selected beneficiaries. The project document targeted 8 vouchers for every beneficiary.
- Consider planting material transport subsidy at one voucher for every 8 vouchers issued to each beneficiary.
- There should be clarity between farmers identified for bulking planting materials and the voucher beneficiaries. Farmers or institutions for bulking should not benefit from the vouchers.
- More efforts to be directed in identifying the real planting material needy households. A criteria that accurately identifies the poor and needy households should be developed together with the communities. This criteria should include and not limited to 1) households with grass thatched mud walled houses, 2) exclude households with any employed member or doing business and can purchase planting materials, 3) widow/widowers households, 4) exclude households with whatever community considers as a sign of wealth (livestock, equipments etc) and finally, 5) households with vulnerable members of the society (orphaned children, sick, elderly etc).

6. CONCLUSION

In conclusion, the findings of this survey confirms that vouchers system can be effectively used to distribute clean planting materials of CMD tolerant varieties to the poor and vulnerable households who lost their planting materials as a result of cassava mosaic disease. The approach used in Busia district in Western Kenya can easily be replicated in other parts of the country or in the region. However, for the voucher system to be successful:

1. a simple and effective criteria of identifying the poor and vulnerable households must be established by the communities. The criteria must be able to differentiate households that are in chronic from those in acute need of planting materials.
2. The good farmers either individually or in farmer groups should be excluded from the vouchers targeting the poor and vulnerable. They should be candidates for planting material bulking programs.
3. Bulking of the clean planting materials of CMD tolerant should be emphasized in each location to ensure availability.
4. Sensitization of farmers on the advantages of the use of clean planting materials, disease identification, disease control and conservation of planting material is paramount to the success of the vouchers system.
5. Free distribution of cassava planting materials should be avoided except in really deserving situations. When farmers purchase planting materials, they value it more and are therefore more likely to plant and retain it.

6. In future, planting material bulking farmers (sellers) should use different channels to reach needy farmers. The planting materials should be bundled and taken to local markets for sale to maximize the number of farmers reached and have access to the clean planting materials of new varieties.
7. Finally but not all, quality of planting material must be ensured by all means.