



Sweetpotato for Profit and Health Initiative

Status of Sweetpotato in Sub-Saharan Africa

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Executive Summary

The 2017/2018 update period was both eventful and challenging. During the period, two more sweetpotato champions, namely Catholic Relief Services and Farm Africa joined the Sweetpotato for Profit and Health Initiative (SPHI) to contribute to the goal of reaching 10 million households by 2020. But the period also witnessed unfavorable weather conditions with several the 16 countries under the Initiative experiencing bad weather. At the same time, some of the large scaling up projects, such as the SUSTAIN project and the Jumpstarting Sweetpotato in West Africa through Diversified Markets project, ended. These challenges somewhat slowed down the progress in reaching more households with improved (vitamin A-rich) varieties of sweetpotato.

The more general (macro-level) trends, based in FAO data, however showed that sweetpotato emerged as leading crop in terms of growth in the share of area covered by major field crops, and overtook potato which it lost this position to in 2009. The growth in sweetpotato hectareage was higher than that of potato in 2016, the latest recorded data by FAO, demonstrating the continued importance of this crop. In West Africa, Nigeria continued to dominate the rest of the countries in terms of both hectareage and production while in Eastern and Central Africa, Tanzania led in both hectareage and production having overtaken Uganda. In the same region, Ethiopia has emerged as another major player in sweetpotato production, ranking second in both production and hectareage after Tanzania. In southern Africa, Malawi continued to lead the rest of the SPHI countries both in terms of production and hectareage.

In terms of progress in the breeding and release of improved sweetpotato varieties, a total of 14 varieties were released by 4 countries namely, Ghana and Nigeria which are in the West Africa breeding platform, Uganda in the Eastern and Central Africa breeding platform and Malawi in the Southern Africa breeding platform. Among releases, seven were bred in-country while three (released in Malawi) were selected from seed generated by the CIP population development program in Uganda. Five of the released varieties were orange-fleshed; one was purple-fleshed; one was dark yellow-fleshed and seven were cream-fleshed. Six varieties were released from the West Africa platform, making it the leading in terms of variety releases during this update period.

Significant progress was also made in terms of beneficiaries reached with improved sweetpotato vines during this update period. More than 1 million direct and indirect beneficiaries were reached, with majority being in Tanzania and Uganda, countries where Farm Concern International has a large-scale dissemination and outreach program under its SeFaMaCo project. These countries accounted for more than one-half of the beneficiaries reached during this update period, with the SeFaMaCo project continuing to lead the rest of the sweetpotato projects in the SPHI platform in terms of number of households reached. Rwanda and Mozambique also showed strong progress in dissemination and ranked 3rd and 4th in terms of direct and indirect households reached. Cumulatively, more than 5.3 million households have been reached to date, representing 53% of the targeted 10 million households to be reached by 2020. This translates to a cumulative number of more than 25 million individual beneficiaries reached to date (i.e., since 2009).

The positive stories of vine multiplication business inspired the SPHI/SASHA monitoring team to analyze and present the revenues earned by multipliers based on the data collected during this update period. The analysis showed that vine multiplication was indeed a very lucrative business in some countries. Vine multipliers in Uganda and Rwanda, for instance, collectively earned \$153,000 and \$144,000 respectively. The analysis further showed that group vine multiplication continued to expand with such scheme being established in Kenya for the first time during this reporting period. The projects also continued to pay greater focus in ensuring that women's participation in the vine multiplication business. Results of this update period's analysis indicated that participation by women in vine multiplication has continued to increase. In Tanzania, for instance, 53 out of the 80 multipliers registered during this update period were women while in Zambia about one-quarter of the multipliers were females.

One unique feature of this year's vine multiplier update process was the piloting of a phone-based system of multiplier registration. While there were challenges with this system, especially cause by non-functional phone numbers and poor phone network/connectivity, it proved much less expensive than the physical visits by project or regional staff used earlier. The team plans to continue to refine this phone-based system of multiplier updates/re-registration to make this activity sustainable but will continue to work with the project staff to register and collect more detailed socioeconomic data from the new multipliers.

I: Introduction

The 2018 update period, July 2017-June 2018, was both eventful and challenging. Two more sweetpotato champions, namely Catholic Relief Services and Farm Africa joined the Sweetpotato for Profit and Health Initiative (SPHI) during this period to contribute to the goal of reaching 10 million households by 2020. Since its establishment 10 years ago to reduce child malnutrition and improve incomes of small farm households in Africa through production and expanded use of sweetpotato, the SPHI has expanded significantly in terms of membership and achievement. Two more. champions, Catholic Relief Services and Farm Africa, joined the initiative following the award of 2016 World Food prize to three scientists in CIP and the Director of HarvestPlus for their work on biofortification. The Initiative specifically has four goals: i) building consumers' awareness of sweetpotato's nutritional benefits, ii) assuring that 10 million African households in 16 target countries get access to improved varieties of sweetpotato; iii) diversifying use of sweetpotato on the continent, and iv) expanding market opportunities for sweetpotato growers.

The current update period was challenging due to droughts or political unrest witnessed in several SPHI countries that complicated the efforts of raising and delivering quality sweetpotato vines to vulnerable households and individuals. Moreover, some of major scaling up projects wound up their operation as they closed. These include the CIP-led SUSTAIN project which was implemented in five SPHI countries, the Farm Concern-led SeFaMaCo in Tanzania, Ethiopia, and Uganda, the CIP-led VISTA in Tanzania and the sweetpotato component of the Accelerated Value Chain Development Project (AVCD) in Kenya and Feed the Future in Rwanda.

A few new projects, however, joined the Initiative during the reporting year. These include Irish Aid supported efforts in Inhambane, Mozambique and in Tigray and SNNPR Ethiopia, and the start of up of Technologies for African Agricultural Transformation (TAAT). These projects joined the on-going sweetpotato projects in the SPHI countries namely: Sweetpotato Action for Security and Health in Africa (SASHA)-Phase 2 (Ghana, Uganda, Mozambique, Ethiopia, Tanzania, Kenya), Viable Sweetpotato Technologies in Africa (VISTA) in Mozambique), Building Nutritious Food

Baskets (Tanzania and Nigeria), Meals for Nutrition (MENU) in Uganda, the Quality Diets for Better Health in Ethiopia, and the Root and Tuber Crops (RTC) project (Malawi).

As previously, this report presents an update of the status of sweetpotato in sub-Saharan Africa (SSA) with respect to overall progress during the reporting year towards achieving the goal of the SPHI ten million households by 2020. The update focuses on the countries where on-going and completed projects are operating since the SPHI was launched in 2009. The report highlights changes that have occurred during the year following the last update, that is, the period from July 2017 through June 2018. It also updates the sweetpotato production and acreage trends in the various SPHI countries and in Africa, using data published by FAO¹, which resumed its annual update of agricultural statistics after brief suspension. Its most recent data covers up to 2016. We also continued to estimate the number of individuals benefiting from household level vine distribution by country, following the recommendation of the SPHI Steering Committee in 2016.

The rest of this report is organized as follows: Section II provides an update on sweetpotato production, area and yields while Section III presents the progress in the vine dissemination to beneficiary households. Section IV highlights some of the evidence of improvement in diet quality; Section V, the evidence of improvement in sweetpotato production; Section VI, the location of the vine multipliers; and Section VII, the way forward.

II: Sweetpotato production update

Figure 1 presents the trends in sweetpotato acreage relative to other food staples in Africa from 1995 (base year) to 2016. As has been the past years, sweetpotato and potato maintained higher growth rates in hectareage relative to the other major crops, including maize. The data show that growth in sweetpotato hectareage overtook that of potato in 2015, demonstrating continued importance of this crop. The significantly high growth in area under these two crops is not

¹ The only exception is data for Malawi, because the FAO erroneously reports sweetpotato figures under potato. For Malawi, we use the National Agricultural Production Statistics from the Ministry of Agriculture, Irrigation and Water Development.

surprising as sweetpotato and potato have higher energy output per unit time per unit area than the staple cereal crops.

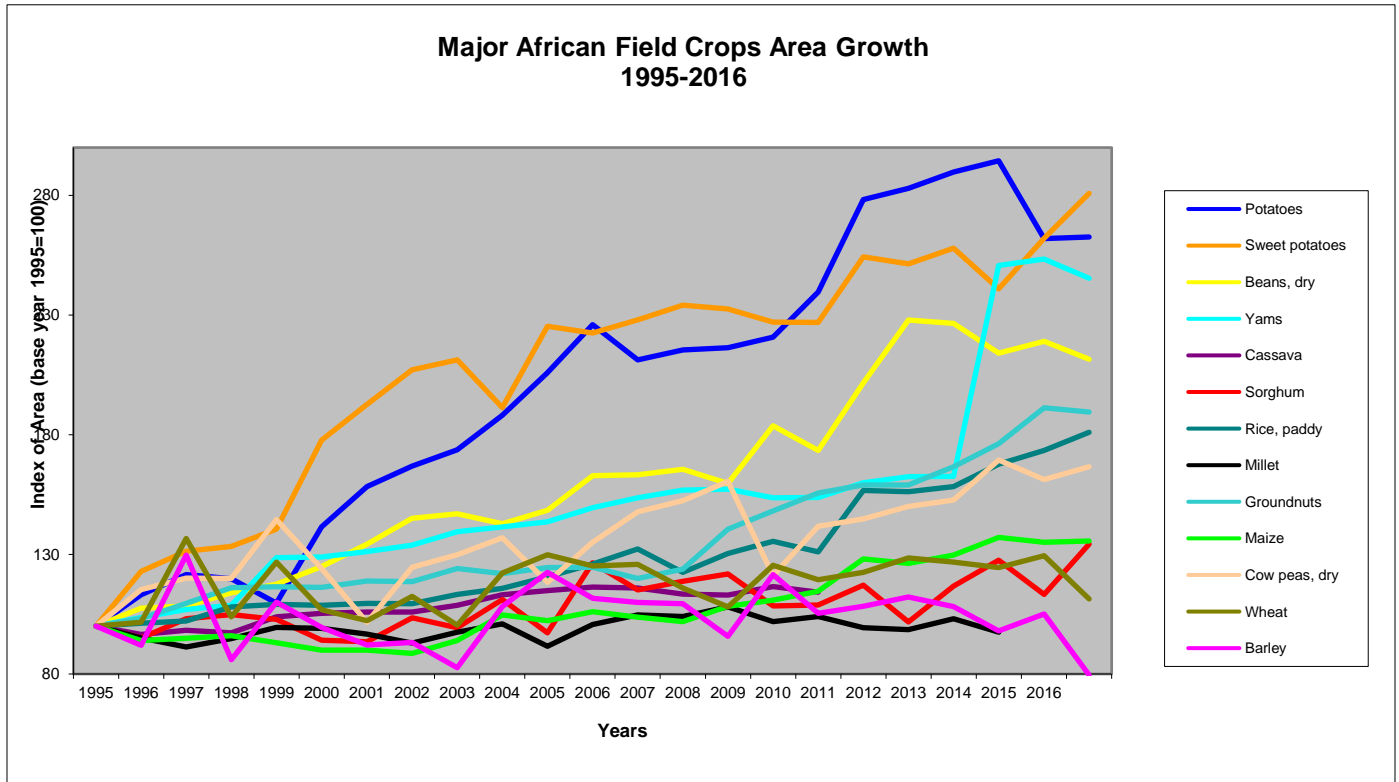


Figure 1: Growth in sweetpotato area (hectares) relative to major staples, 1995-2016

Source: FAOSTAT (2015), except for Malawi (Ministry of Agriculture and Food Security)

Figures 2, 3 and 4 present the area under sweetpotato in the East and Central African, West African and Southern African SPHI countries based on the revised FAO data. As previously seen in East and Central Africa, in terms of hectarage, Tanzania and Uganda have continued to dominate in sweetpotato production. The trends (Figure 2) show that sweetpotato area started rising in Uganda after almost six years of stagnation. The figure also shows that area under sweetpotato in Tanzania rose in 2015 and 2016 after a decline in 2013 and 2014. Similarly, sweetpotato acreage in Ethiopia and Burundi registered an increase, with latter recording a much stronger increase than the latter. Sweetpotato acreage however declined somewhat sharply in Kenya and stagnated in Rwanda over the period.

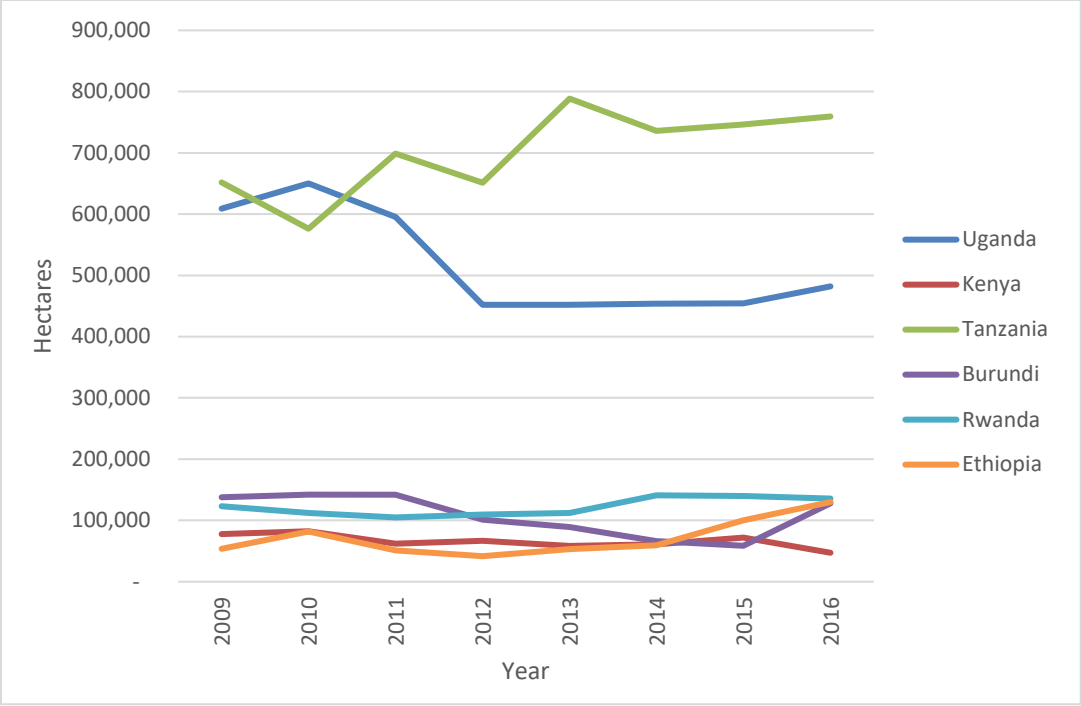


Figure 2: Trends in area (hectares) under Sweetpotato in the East and Central Africa SPHI countries.

Source: FAOSTAT (2017)

In West Africa, Nigeria still emerges as the leading West African country in terms of area under sweetpotato, followed distantly by Ghana. The data (see Figure 3) show that hectarage of sweetpotato in Nigeria has increased over time and continued to rise between 2015 and 2016. Area expansion for the other countries (especially Burkina Faso and Benin) has been virtually stagnant and there is a gradual decline in DR Congo. We note, however, that data collection on sweetpotato in West Africa is extremely poor.

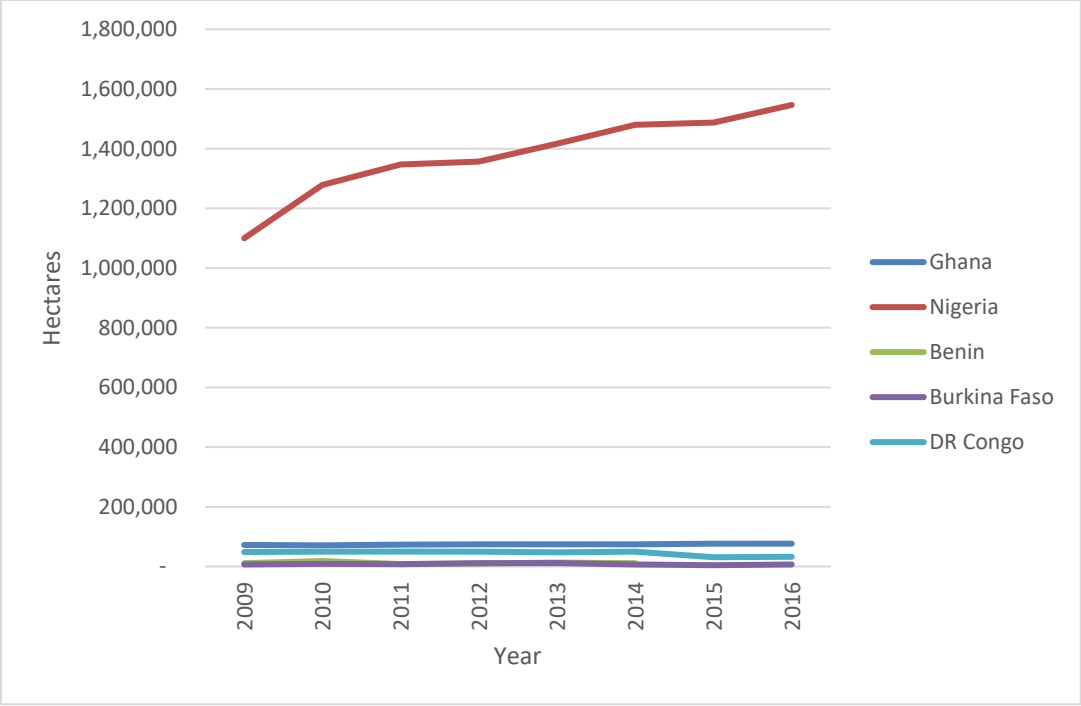


Figure 3: Trend in sweetpotato area (hectares) in West African SPHI countries, 2009-2016

Source: FAOSTAT (2018)

In Southern Africa, both Madagascar and Mozambique figures differ from previous years, due to the FAO data revision. Now they reflect a slow recovery in sweetpotato acreage in 2016 following the drop in the previous year as presented in Figure 4. Area under sweetpotato in South Africa, however, remained stagnant. The figure also shows continued domination of Malawi in terms of area harvested. It also shows that acreage under production in Angola has continued to increase since 2012, following the sharp decline the previous year (in 2011).

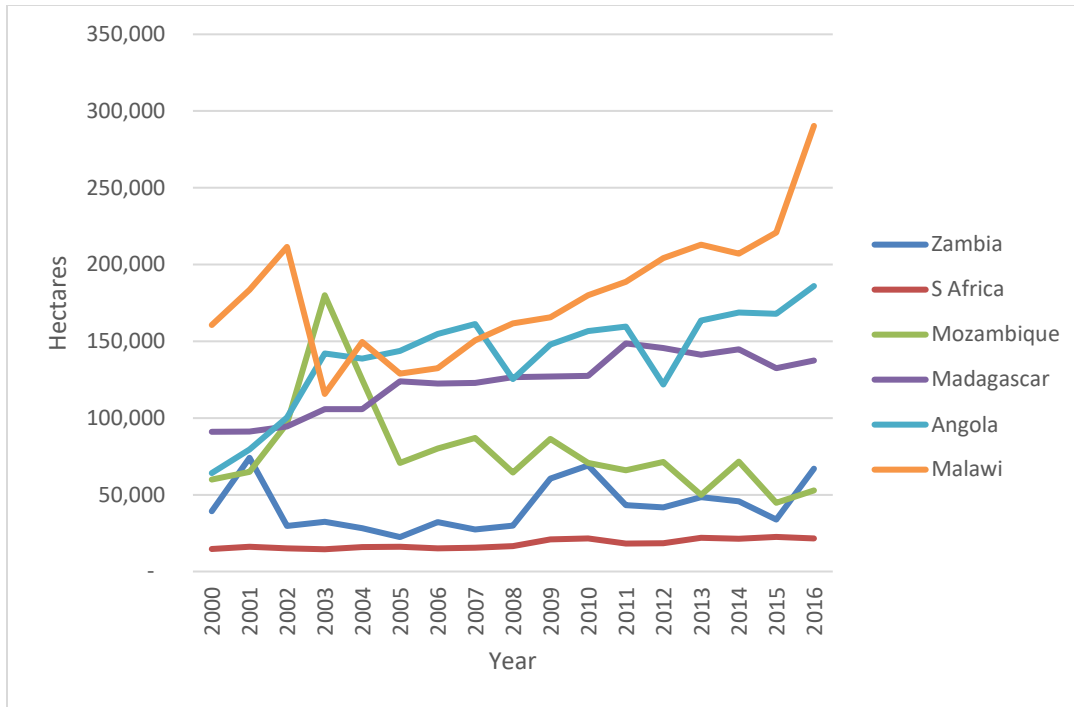


Figure 4: Trends in acreage (hectares) of sweetpotato in Southern Africa, 2009-2016

Source: FAOSTAT (2017), except for Malawi (Ministry of Agriculture, Irrigation, and Water Development)

Figure 5 presents the annual incremental expansion in sweetpotato area for each of the SPHI countries over the last eight years starting from 2009, the year SPHI was launched, based on the revised FAO data. Nigeria, Tanzania, and Uganda maintained their dominance in sweetpotato production over the rest of the SPHI countries in terms of area (in hectares) under sweetpotato. The figure shows steady increments in the area under sweetpotato over the 2009-2016 period, especially for Nigeria, indicating perhaps that the relevant country statistical office is using a formula to calculate annual progress.

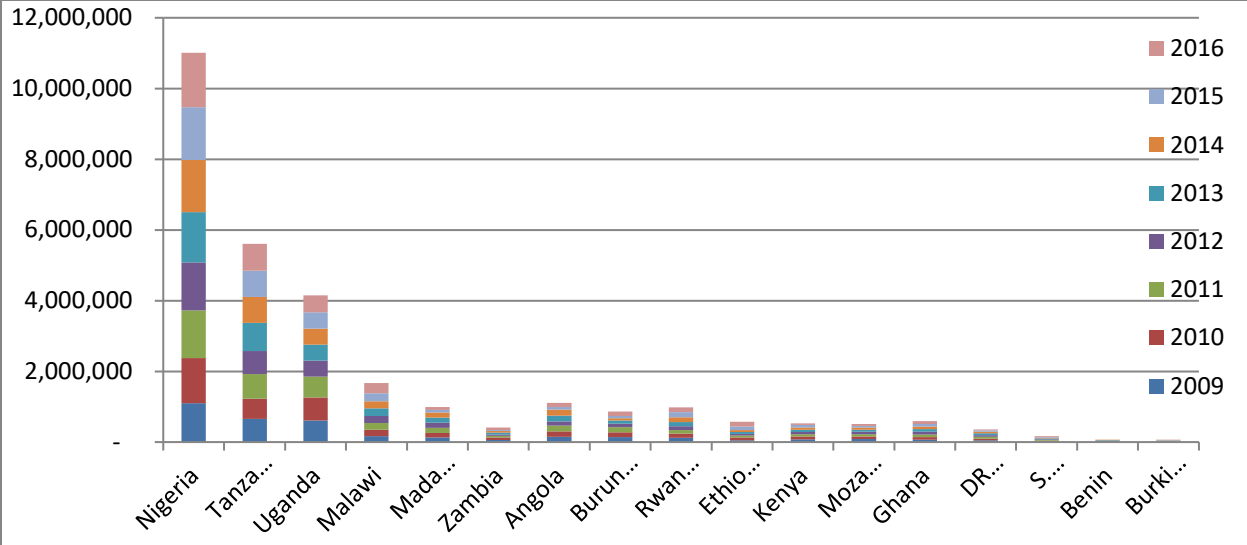


Figure 5: Trends in sweetpotato area (hectares) among the SPHI countries during 2009-2016

Source: FAOSTAT (2018), except for Malawi (Ministry of Agriculture, Irrigation, and Water Development)

Trends in sweetpotato production

Figures 6-8 present the recent trends in sweetpotato production (2000-2016) in the 17 SPHI countries based on FAO data. The figures show that Nigeria, Uganda, Tanzania, Malawi and Mozambique dominate the rest of the SPHI countries in their respective sub-regions. In Southern Africa, the three leading sweetpotato producers remain Malawi, Mozambique and Angola, with Angola having overtaken Madagascar in 2013. Zambia and South Africa are the least sweetpotato producing countries in this region. Mozambique suffered from a major drought in 2015. In Eastern and Central Africa, Uganda and Tanzania lead the rest of the countries. Ethiopia, which recorded a very strong growth in production between 2011 and 2014, registered a very sharp decline in 2015 due to drought. The recovery in 2016 still fell short of the 2014 production level. The data also show that Uganda has yet to from the very sharp decline in production in 2010 when it produced nearly 2.7 metric tons. Production levels in 2016 was only just above 2.0 metric tons.

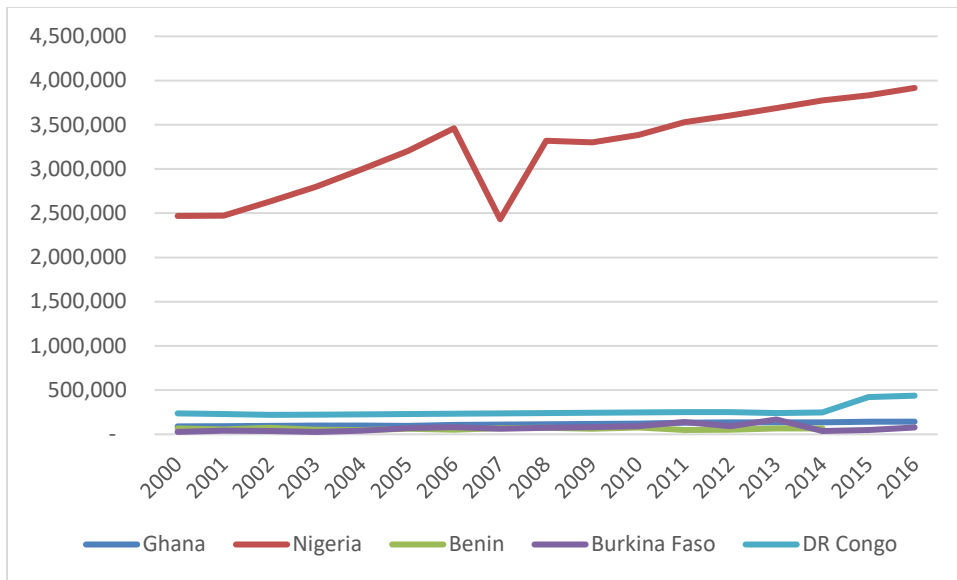


Figure 6: Trends in sweetpotato production (tons) in West Africa, 2000-2016

Source: FAOSTAT (2016)

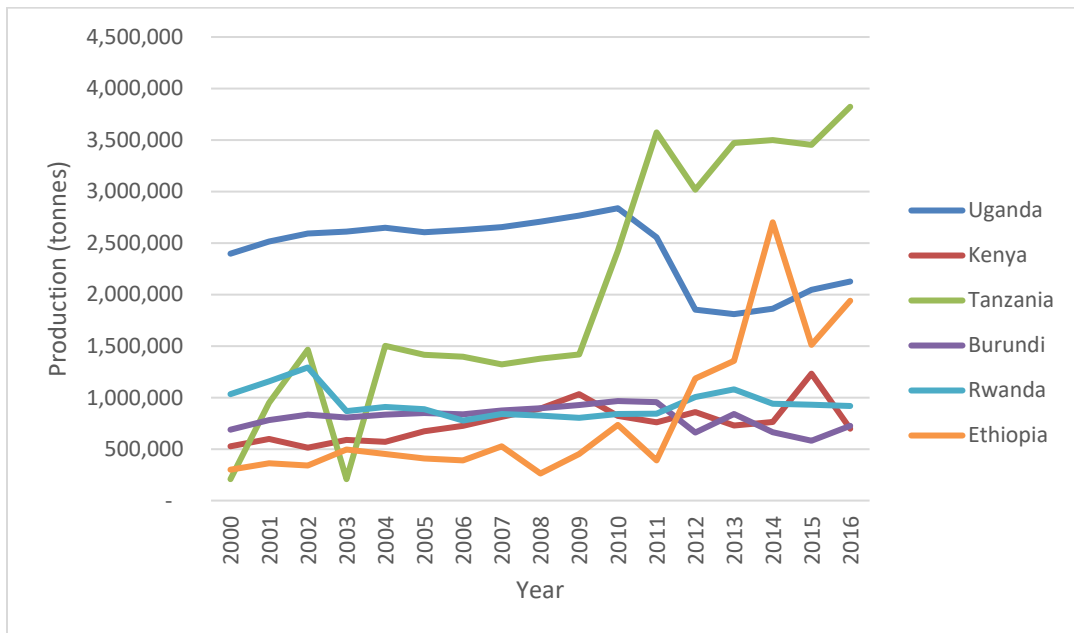


Figure 7: Trends in sweetpotato production (tons) in East and Central Africa, 2000-2016

Source: FAOSTAT (2017)

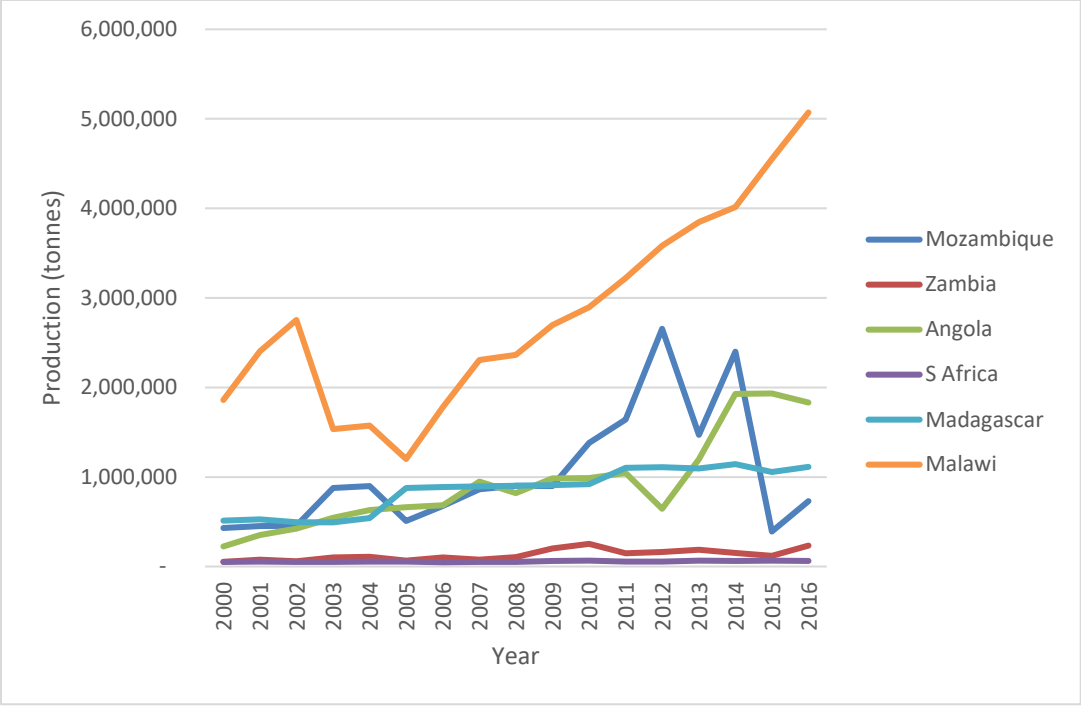


Figure 8: Trends in sweetpotato production (tons) in Southern Africa, 2000-2016

Source: FAOSTAT (2018), except for Malawi (Ministry of Agriculture, Irrigation and Water Development)

Figure 9 presents the annual increases in sweetpotato production in SPHI countries since the launch of the Initiative in 2009, based of FAO’s revised data. Malawi, Nigeria, Tanzania and Uganda continued to lead the other countries in production. As in the previous years, production increases were highest in Malawi, Nigeria and Tanzania, with Uganda being relegated to the fourth position. Thus, Malawi continued to lead the rest of the SPHI countries in production increases even though it had much lower land allocated to sweetpotato production. This difference is likely due to differences in yield due to use of improved, higher yielding varieties. Malawi has had a nationwide distribution of improved OFSP varieties.

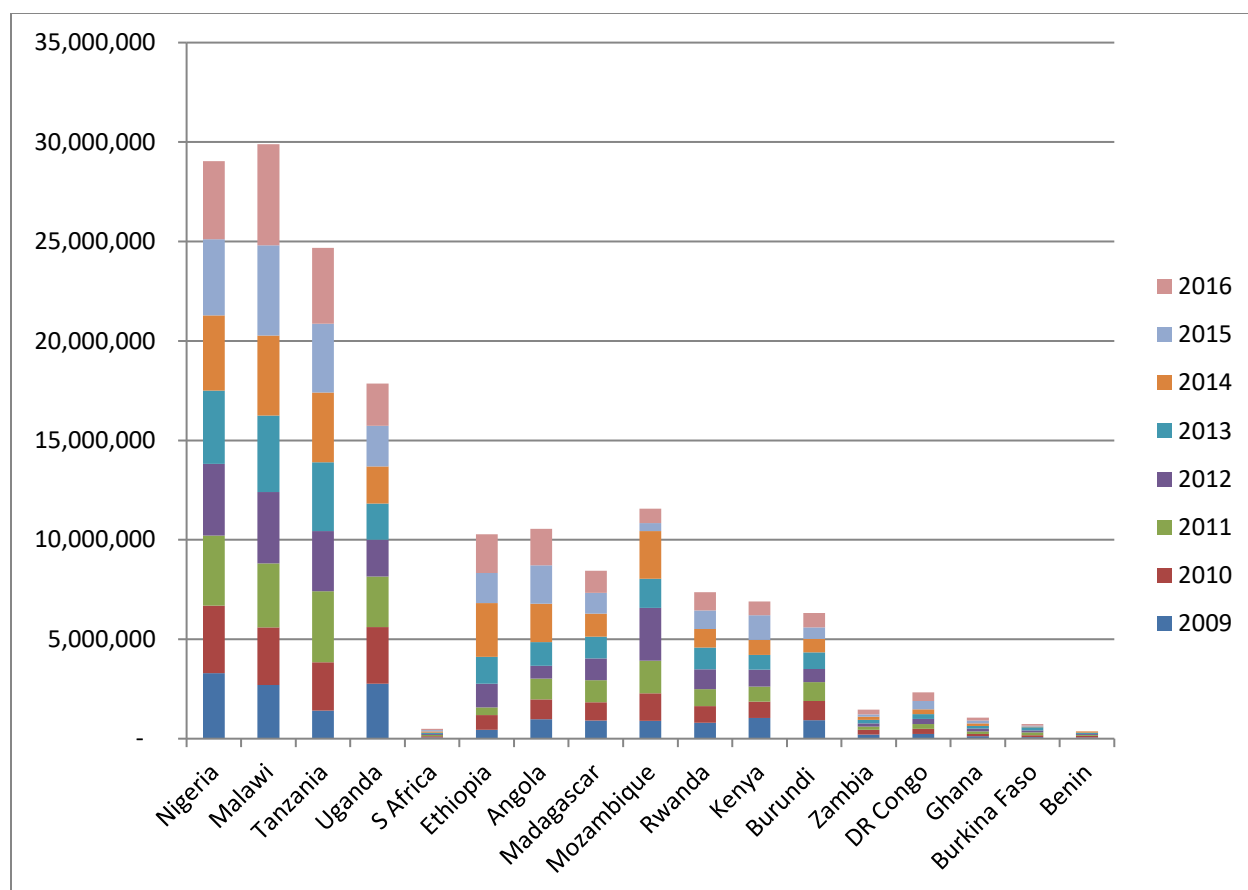


Figure 9: Trends in sweetpotato production (tons) among the SPHI countries over, 2009-2016
 Source: FAOSTAT (2018), except for Malawi (Ministry of Agriculture, Irrigation and Water Development)

III. Progress in variety release and dissemination

a) Variety release

Breeding for biotic and abiotic stresses has continued in the various sweetpotato breeding platforms established to coordinate sweetpotato breeding efforts that support the various SPHI target countries. During the period July 2017-June 2018, 14 varieties were released by 4 countries (Table 1). Among these, seven were bred in country and the three released in Malawi were selected from seed generated by the CIP population development program in Uganda. Five of the released varieties were orange-fleshed; one was purple-fleshed; one was dark yellow-fleshed, and seven were cream-fleshed.

Table 1. Sweetpotato varieties released in SSA from July 2017 through June 2018

Country	Variety	Flesh Color	Status	Year Released
Ghana	CRI-GAVANA	Dark yellow	Bred	2017
	CRI Mbofara	Cream	Landrace	2017
	SARI-NAN	Orange	Landrace	2018
	SARI-Numingre	White	Landrace	2018
	SARI-Diedi	Purple	Introduced from (Tuskegee-USA)	2018
Malawi	BV11/131	Orange	Seed (CIP-Uganda)	2018
	BV11/106	Orange	Seed (CIP-Uganda)	2018
	BV11/150A	Orange	Seed (CIP-Uganda)	2018
Nigeria	UMUSPO/4-Solo Gold	Orange	Bred	2018
Uganda	NAROSPOT 1 (New Dimbuka)	Cream	Bred	2017
	NAROSPOT 2 (Naspot 7/2006/1139)	Cream	Bred	2017
	NAROSPOT 3 (Naspot 7/2006/1160)	Cream	Bred	2017
	NAROSPOT 4 (NK318L/2011/5695)	Cream	Bred	2017
	NAROSPOT 5 (SPK004/2006/229)	Cream	Bred	2017

CRI = Crops Research Institute; SARI = Savanna Agricultural Research Institute; I = Introduction (+ institution of origin); S = Selection from seed (+ country from which seed was obtained).

CIP and national breeding programs have mainstreamed beta-carotene content as a key trait, with national breeders committed to having at least 50% of the clones submitted for release being orange-fleshed. Jointly, these efforts are aimed at making quality sweetpotato planting materials of robust, market-preferred sweetpotato varieties available and more accessible to farmers in the target countries through the establishment of a network of decentralized vine multipliers. Many orange-fleshed varieties have been released in 15 countries since January 2009. To date:

- i) A total of 131 varieties (including repeat releases) have been released in 15 SPHI countries since January 2009, of which 81 are orange-fleshed (62% of releases), 5 are purple-fleshed, with the rest yellow or white-fleshed.
- ii) 76 unique varieties of sweetpotato, bred in one of the 11 countries in Africa with breeding programs, have been released since 2009. Of these, 51 are orange-fleshed; 3 are purple fleshed.

iii) 12 unique varieties **not** bred in Africa have been released since 2009 by one of the target SPHI countries. Of these materials, 9 are orange-fleshed, and one is purple-fleshed. Of the 12 non-bred materials, 9 came from CIP. The receiving countries were Ghana, Nigeria, South Africa, Madagascar, and Angola.

A more detailed summary update of sweetpotato variety release, by SPHI countries and by the flesh color, to date is presented in Figure 10 and Table 2, respectively. The figure shows a strong progress in varietal development since 2009 with several releases in 2010-2013 and again in 2015/2016.

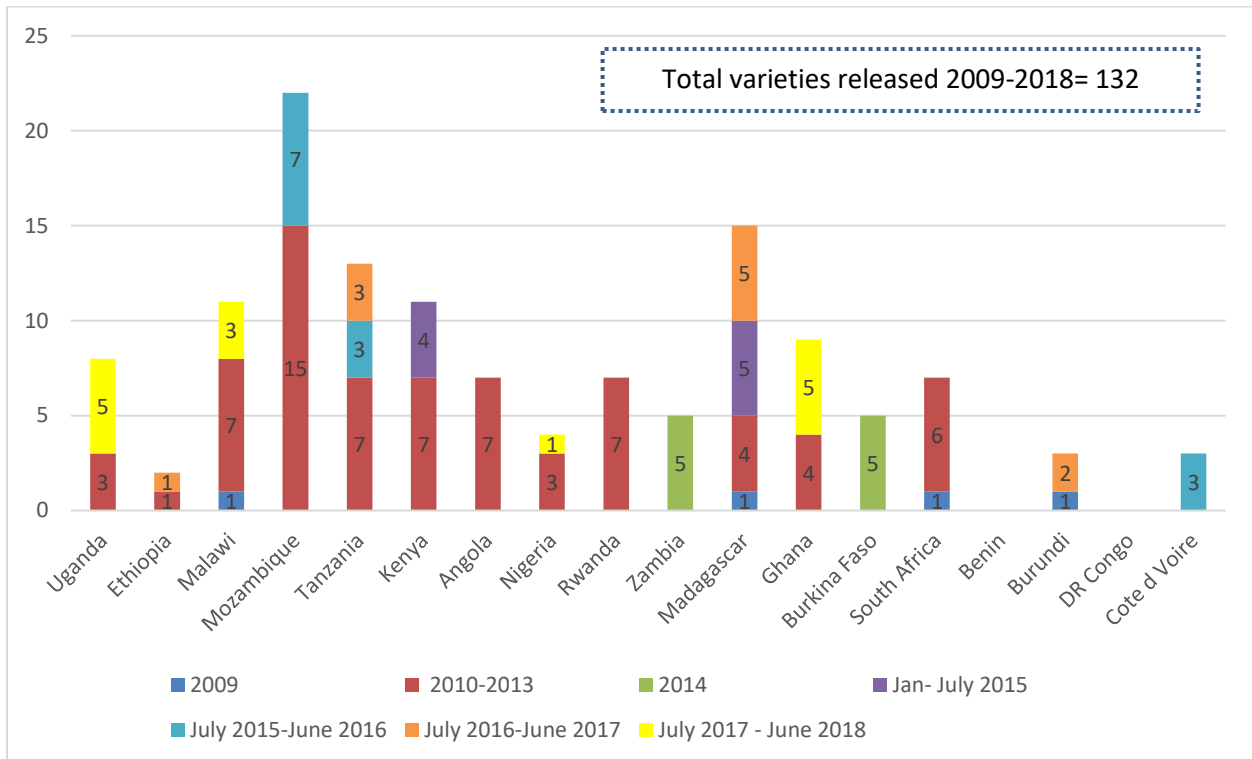


Figure 10: Sweetpotato varieties released in SPHI target countries, 2009-June 2018
 Source: Compilation from various countries

Table 2: Number of varieties released, by country and sweetpotato flesh color type (2009-2018)

	2009		2010-2014		2015		Jan-June 30, 2016		July 2016-June 2017		July 2017-June 2018		TOTAL	
	Non-OFSP	OFSP	Non OFSP	OFSP	Non OFSP	OFSP	Non-OFSP	OFSP	Non-OFSP	OFSP	Non-OFSP	OFSP	Non-OFSP	OFSP
Tanzania			3	6			1	2	2	1			6	9
Burkina Faso													0	0
Malawi		1	2	5								3	2	9
Ghana			3	1							4	1	6	2
Kenya	1	1	2	3	3	1							6	5
Mozambique				15			2	5					2	20
Uganda			1	2							5		6	2
Nigeria			2	1								1	2	2
Zambia			1	4									1	4
Ethiopia			1						1				2	0
S. Africa		1	5	1									5	2
Angola				5									0	5
Madagascar		1	1	2	3	2				5			4	10
Rwanda			6	2									6	2
Burkina Faso				5									0	5
Cote d'Ivoire					1	2							1	2
Burundi	1									2			1	2
Total	1	4	27	52	7	5	3	7	3	8	9	5	50	82

Source: Compilation by sweetpotato breeders from various countries (2009 – July 2018)

This phenomenal achievement is due to the funding SPHI secured from the Bill & Melinda Gates Foundation for CIP's three population development programs, and from support from the Alliance for Green Revolution in Africa (AGRA) to national breeders in 10 breeding programs in the region. The AGRA funding supported national breeding programs in Kenya, Uganda, Tanzania, Rwanda, Malawi, Mozambique, Zambia, Nigeria, Burkina Faso and Ghana.

b) Progress in reaching the 10 million beneficiaries

Figure 11 presents the number of direct and indirect beneficiaries reached with improved varieties of sweetpotato, during the reporting year. Compared to the previous reporting year, there was a decline in the number of beneficiaries reached. The total number of beneficiaries reached during this reporting period was 1,053,261, a figure 25% lower than during the previous year. The decline is due to drop in vine delivery activities resulting from closure of some larger dissemination projects, such as the SUSTAIN project which was implemented in four African countries during the four years. In terms of country contributions to the total beneficiaries

reached, Tanzania and Uganda led the others with approximately 276,000 and 243,000 direct and indirect beneficiaries, respectively, attained during this reporting period alone. The exceptional performance of these countries is mainly due to the active development/dissemination work led the Farm Concern International (FCI) through its SeFaMaCo project.

Figure 11 also shows that Rwanda and Mozambique continued to make substantial progress in reaching the targeted beneficiaries during this update period. Both countries reached more than 217 thousand households. It should also be noted that this year’s contribution to overall SPHI goal of reaching 10 million households came from only 12 out of the 17 countries initially targeted by the platform. Among the countries that made, the biggest jump in delivery of vines was in Ghana (with 307% increase in households reached compared to the previous year’s 6,643 beneficiaries).

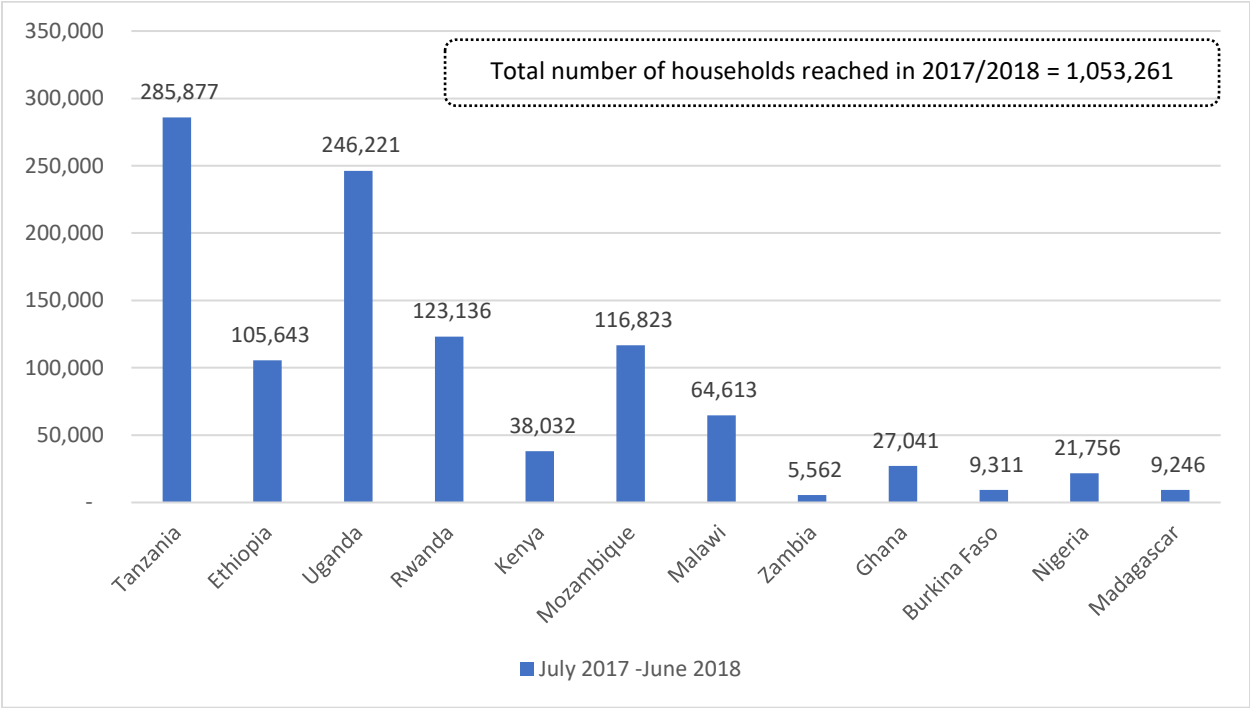


Figure 11: Number of beneficiaries of improved vines reached in the SPHI countries during 2017-2018 update period

The graph in Figure 12 illustrates the contribution of various projects towards the goal of reaching 10 million households by 2020. Only 21 projects in the 12 countries, compared to last year's 26 projects, reported implementing activities that included disseminating vines of improved sweetpotato varieties during this update period. There was also a significant decline in contribution by FCI to the total tally of beneficiaries reached during the update period. The number of beneficiaries reached by FCI was 461,304, compared to last year 733,440. SeFaMaCo nonetheless still had more beneficiaries than any other project this year. Other projects with substantial contribution to the total number of beneficiaries during this update period were MENU, led by HarvestPlus in Uganda, USAID-FtF led by CIP in Rwanda and the VISTA-Nampula project led by CIP in Mozambique.

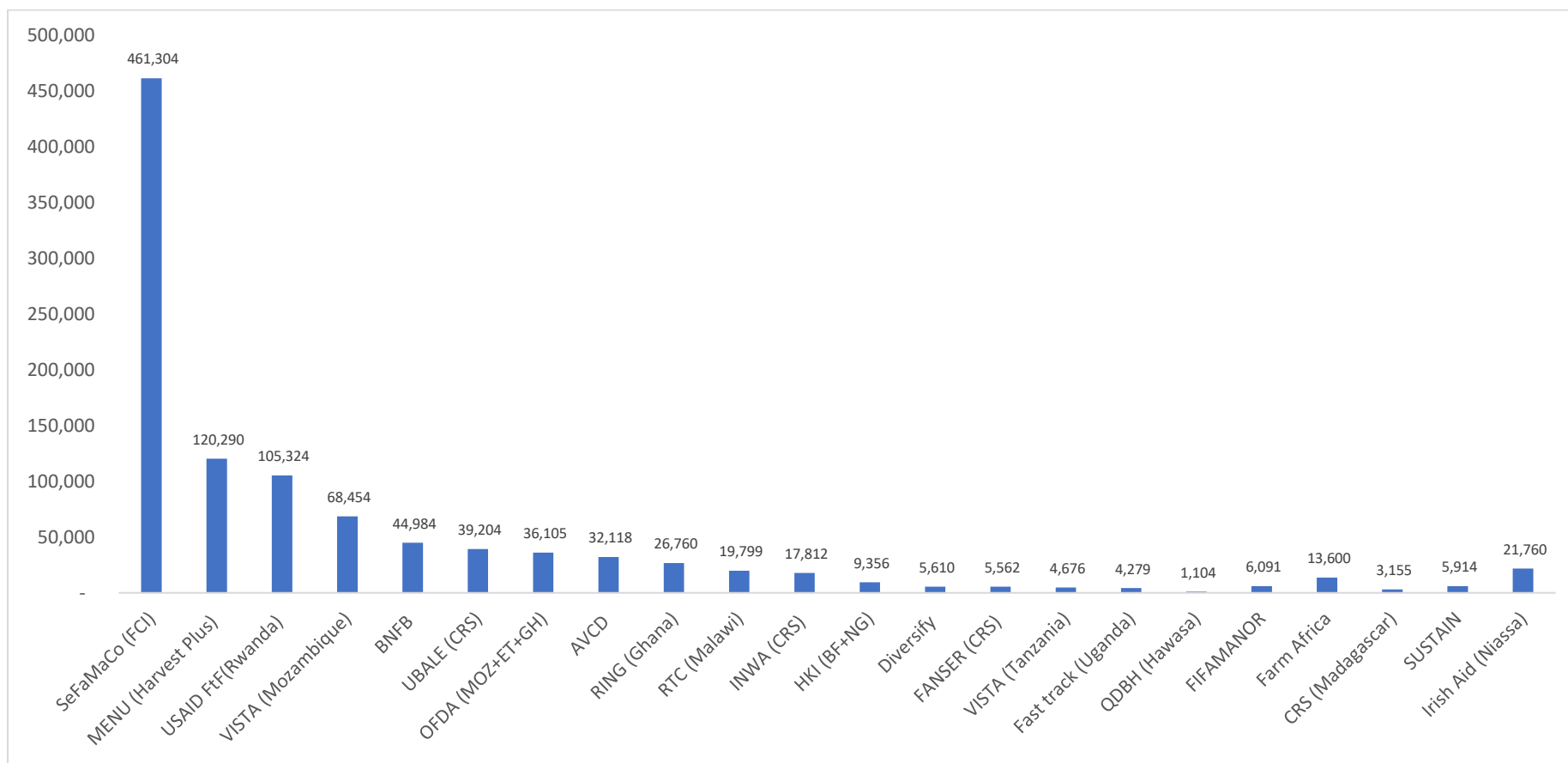


Figure 12: Number of improved sweetpotato vine beneficiary households reached by various projects during the July 2017- June 2018 update period

The graph in Figure 13 presents the number of beneficiaries reached during the reporting year, disaggregated by the gender of the person receiving the vines for the household, whenever that information was available (79% of households²). A total of 822,507 persons (488,388 males and 337,719 females) received vines during the reporting year.

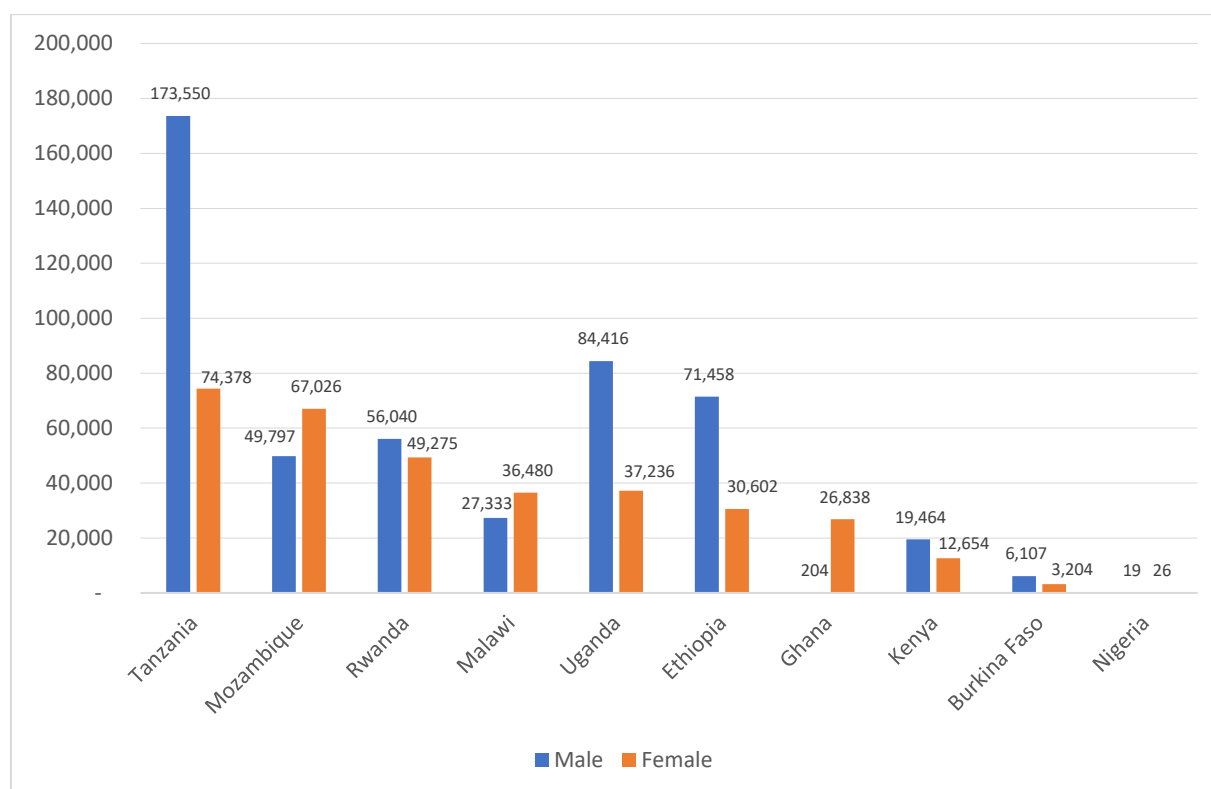


Figure 13: Number of beneficiaries reached with improved sweetpotato vines during the update period, beneficiaries disaggregated by gender of the recipient of the vines

The Figure 14 and Table 3 summarize the estimated number of direct and indirect³ beneficiary households reached by the different projects in each of the SPHI countries between July 01, 2017

² Note that often projects do not gather information on the gender of the indirect beneficiaries.

³ We define an indirect beneficiary as a household that receives vines from sources other than the project or its implementing partners— e.g., a neighbor, friend, or an agency (or organization) that has no partnering relationship with the project. A direct beneficiary, on the other hand, is a household that receives cuttings for planting directly from the project lead organization or it's implementing partner(s).

and June 30, 2018. During this period, there were 747,420 direct beneficiaries and 295,883 indirect beneficiaries. Uganda and Mozambique reported the largest numbers beneficiaries reached indirectly through farmer to farmer exchange.

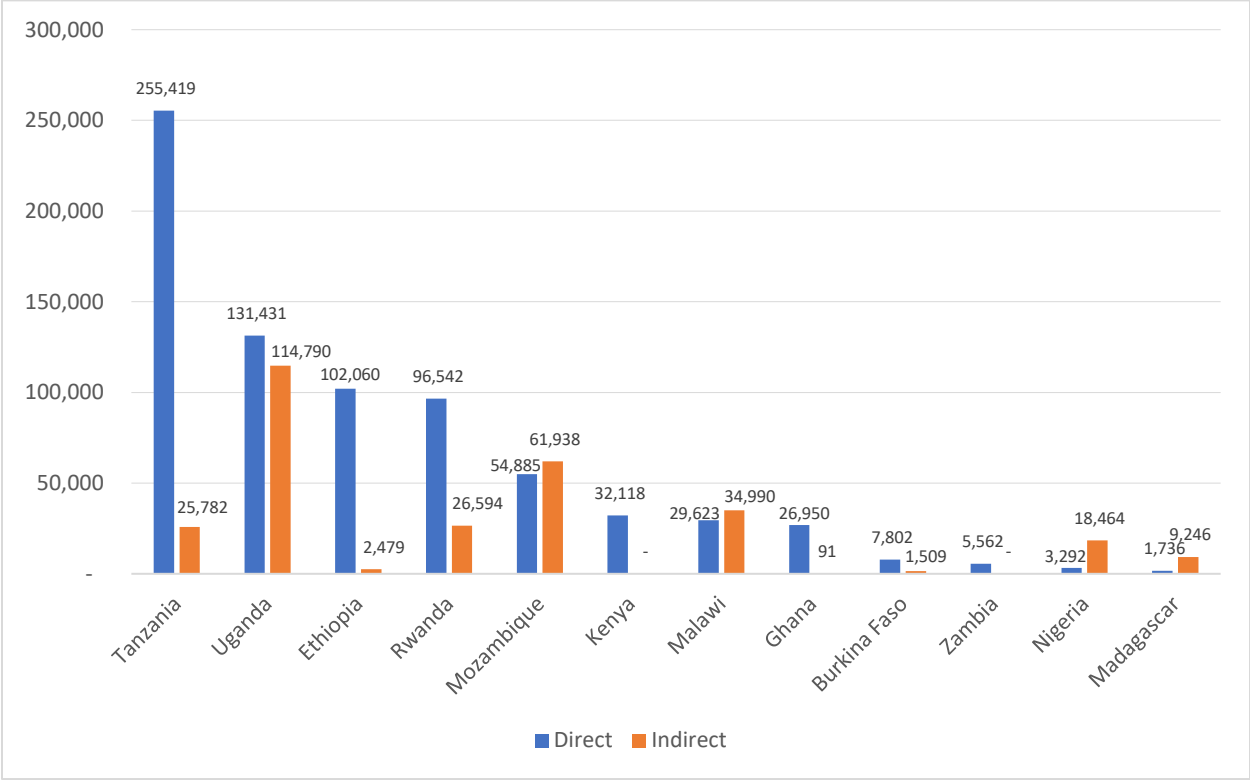


Figure 14: Number of 2017-2018 beneficiaries of improved sweetpotato vines reached during the current update period, by beneficiary type

Table 3: Number of households receiving sweetpotato vines by country and beneficiary type, July 01, 2017 - June 30, 2018

COUNTRY	Some project (s) operating in the countries	Lead Institution	Male	Female	Total direct	Male	Female	Total indirect	Project total	Country Total	Partners
West Africa											
Nigeria	Building Nutritious Food Baskets (BNFB)	CIP			3,247			18,464	21,711	21,756	Catholic Relief Services (CRS)
	Helen Keller International (HKI)	CIP	19	26	45	0	0	0	45		
Ghana	MEDA /GROW(USAID)	MEDA	133	74	207	54	21	74	281	27,041	USAID RING, MEDA, MoFA, ENVAC
	RING (Triple S)	Global Communities	0	26,743	26,743	17	0	17	26,760		
Burkina Faso	AGRANDIS (HKI)	HKI	5,486	2,316	7,802	621	888	1,509	9,311	9,311	ARFA (NGO); Provincial Directorate of Agriculture, Gourma; AVIDERA (NGO); ANSD (NGO)
East & Central Africa											
Tanzania	VISTA	CIP							4,676	275,877	SRI, SUGECO
	BNFB	CIP			3,491			19,782	23,273		
	SEFAMACO	Farm Concern			247,928				247,928		
Kenya	SUSTAIN/CIP Partners	CIP							5,914	38,032	Ministries of Health and Agriculture
	AVCD	CIP	19,464	12,654	32,118				32,118		
Uganda	MENU	HarvestPlus			8,380			93,910	102,290	242,621	SOSSPA; VEDCO
	Fast Track	SRI (Tanzania)							4,279		
	SEFAMACO	Farm Concern	82,636	35,416	118,052				118,052		
Rwanda	Gikuriro program (INWA)	CRS			17,812				17,812	123,136	CARITAS; DUHAMIC ADRI, WIF, FVA, YWCA; Action Pour le Development Integre
	FtF/USAID	CIP	51,491	27,239	78,730	4,549	22,036	26,594	105,324		
DR Congo											
	Quality Diets for Better Health	CIP							1,104	105,643	People in Need; BoANRD KMG Ethiopia; WODA; SARI

COUNTRY	Some project (s) operating in the countries	Lead Institution	Male	Female	Total direct	Male	Female	Total indirect	Project total	Country Total	Partners
Ethiopia	Emergency (OFDA)	CIP	4,731	2,005	6,736	0	0	2,479	9,215		
	Irish Aid project; Better Potato for a better life	CIP									
	SEFAMACO	Farm Concern	66,727	28,597	95,324				95,324		
	Emergency (OFDA)	CIP	4731	2005	6736	0	0	2479	10,319		
<i>Southern Africa</i>											
Malawi	DIVERSIFY	CIP	1,153	1,013	2,166	1,616	1,828	3,444	5,610	64,613	Government, Iman, United Purpose CADECOM: FAO; Concern Worldwide; Department of Agriculture and Research service Welt Hunger Hilfe; DARs
	UBALE	CRS	3,014	3,844	7,658	13,864	17,682	31,546	39,204		
	RTC	CIP	7,686	12,113	19,799				19,799		
Mozambique	Niassa (Irish Aid)	CIP	2,511	2,947	5,458	7,493	8,809	16,302	21,760	116823	SDAE; ILAM, SNV, World Vision; IIAM, Save the children
	VISTA (FtF)	CIP	11,430	11,388	22,818	22,860	22,776	45,636	45,636		
	Inhambane (OFDA)	CIP	5,503	21,106	26,609	0	0	0	26,609		
Zambia	FANSER	CRS			5,562				5,562	5,562	Caritas - Chipata
Madagascar	Minor SASHA support	FIFAMANOR			1,211			4,880	6,091	9246	FIFAMANOR
Madagascar	CRS	CRS			525			2,630	3,155		

Figure 15 presents historical trends in the number of households reached with improved sweetpotato vines since 2010. It is based on the reported sum of direct and indirect beneficiaries reached by the various sweetpotato projects in each of the SPHI countries during the different reporting/update periods. Ethiopia, Tanzania, Uganda and Mozambique continued to lead the rest of SPHI countries in terms of beneficiaries reached and progress towards the initial set targets. Nearly 3.8 million beneficiaries have been reached in these four countries since 2010. Ethiopia has surpassed its target by more than 190% this reporting year (see Figure 16 & 17). On the other hand, Tanzania, Mozambique and Uganda have attained 78%, 58% and 53% of their target number of households, respectively, as also shown in Figure 18. In addition, Burkina Faso has met more than 95% of its target, although compared to the other four countries above, it was assigned a relatively low target of 51,300 households.

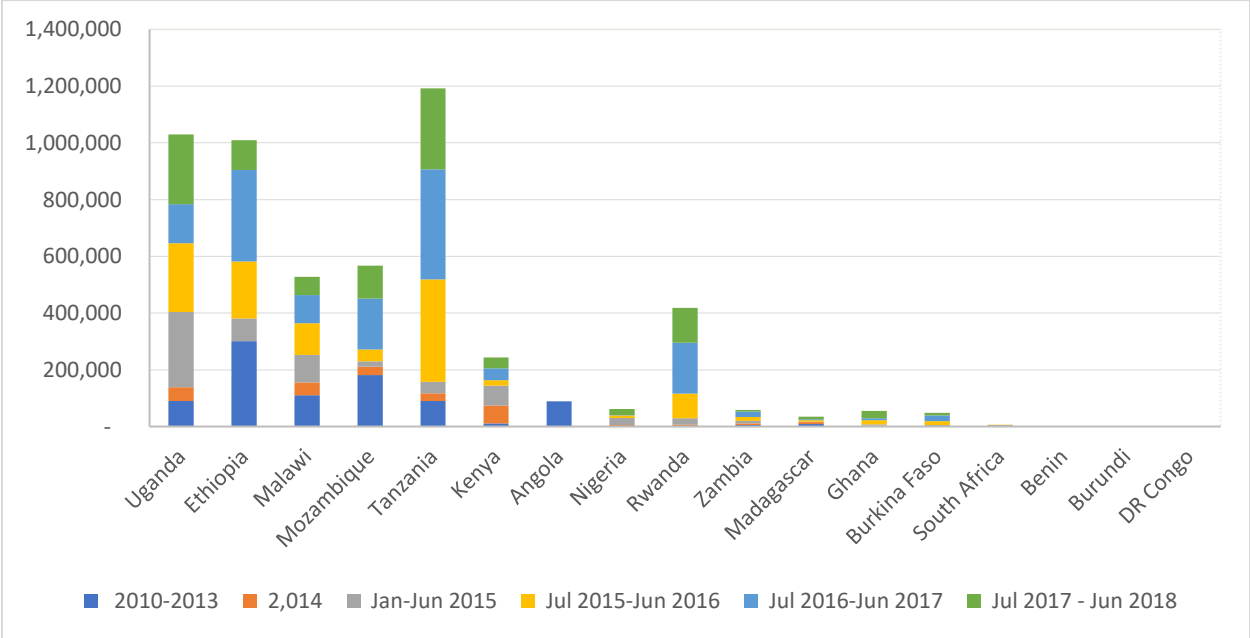


Figure 15: Number of beneficiaries of improved sweetpotato vines reached by CIP and partners to date, by country

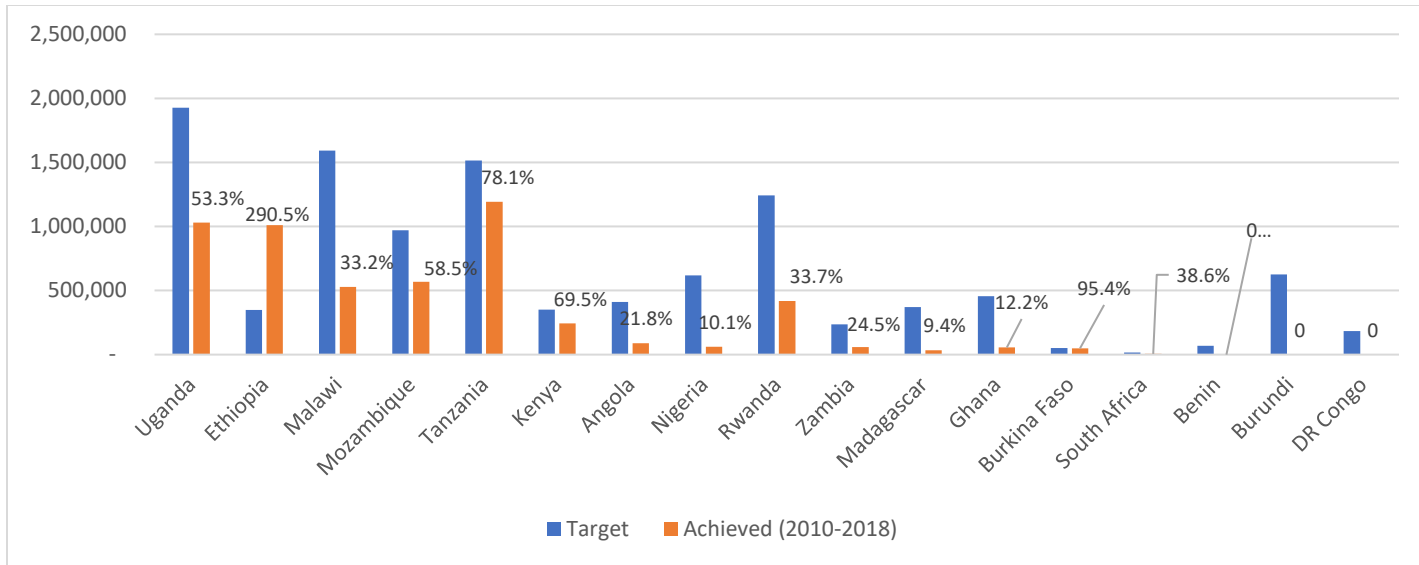


Figure 16: Progress towards SPHI beneficiary targets, percent of targets achieved in each SPHI country, 2010-2018

Figure 17 summarizes the cumulative number of beneficiaries of improved sweetpotato varieties since the launch of the platform (i.e., 2010 to date). It shows that a total of 5,345,197 which is more than 53% of the target of 10 million.

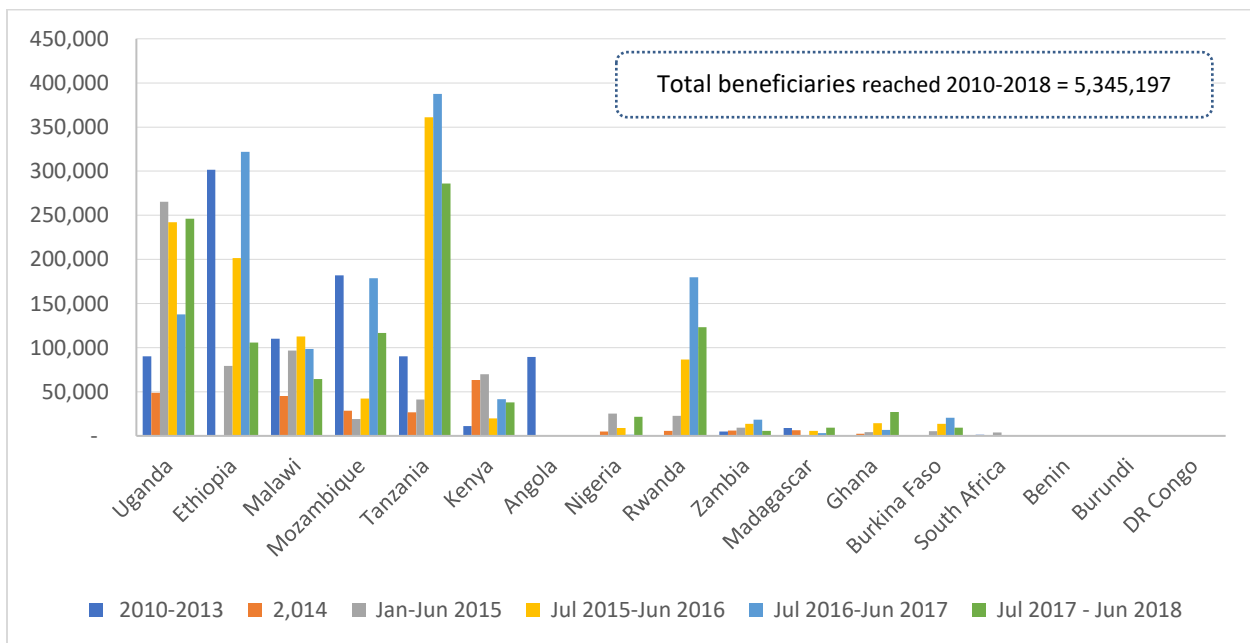


Figure 17: Cumulative number of beneficiaries reached from 2010 June 30, 2018, by country

As in the last update period, this year’s update report presents estimates of the number individual beneficiaries reached by projects under the SPHI platform during this 2017-2018 update period, as well as the cumulative number of individuals reached since 2010. The estimates are obtained by multiplying the number of households reached by the average household size in rural areas based on data from national statistics. Figure 18 shows that more than 4.9 million individuals benefitted from the provision of improved (biofortified) sweetpotato to vines during the update period. The largest number of individual beneficiaries were in Tanzania, Uganda, Mozambique and Ethiopia, reflecting the large number of households reached in these countries with improved varieties of sweetpotato during this reporting period. Over the entire period (2010 to 2017), more than 25 million individuals have been reached directly or indirectly with improved varieties of sweetpotato (Figure 19). These figures demonstrate the scale of impact the Initiative has had to date on vulnerable households and individuals.

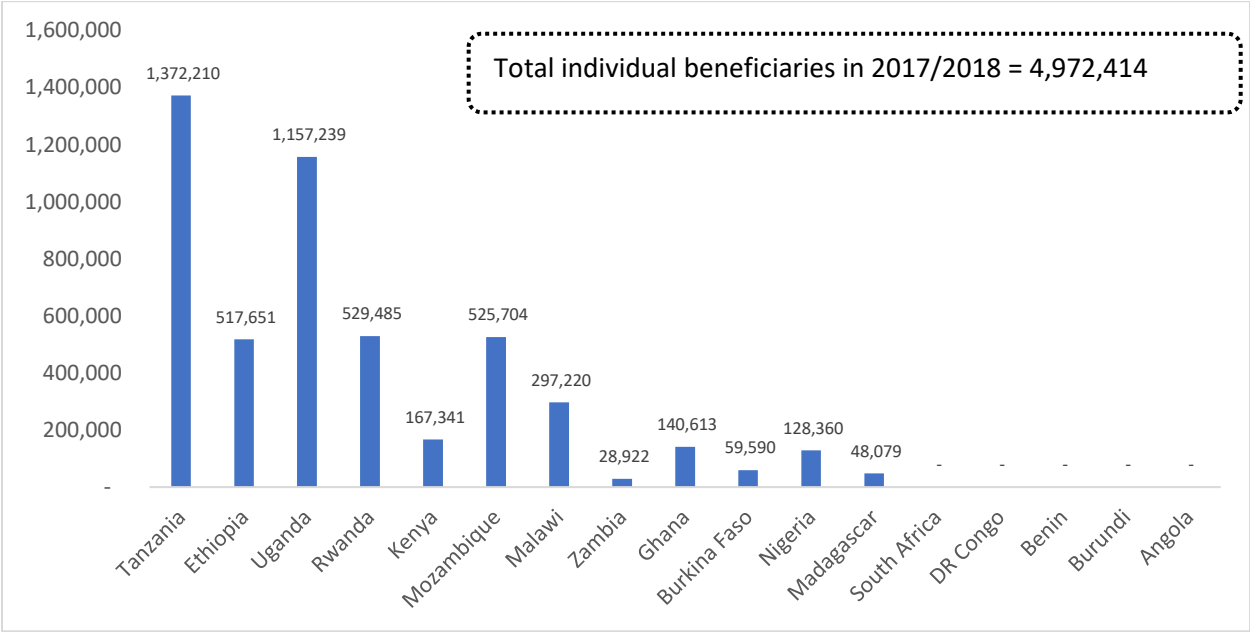


Figure 18: Number of individual beneficiaries reached during the reporting year (July 01, 2017 to June 30, 2018)

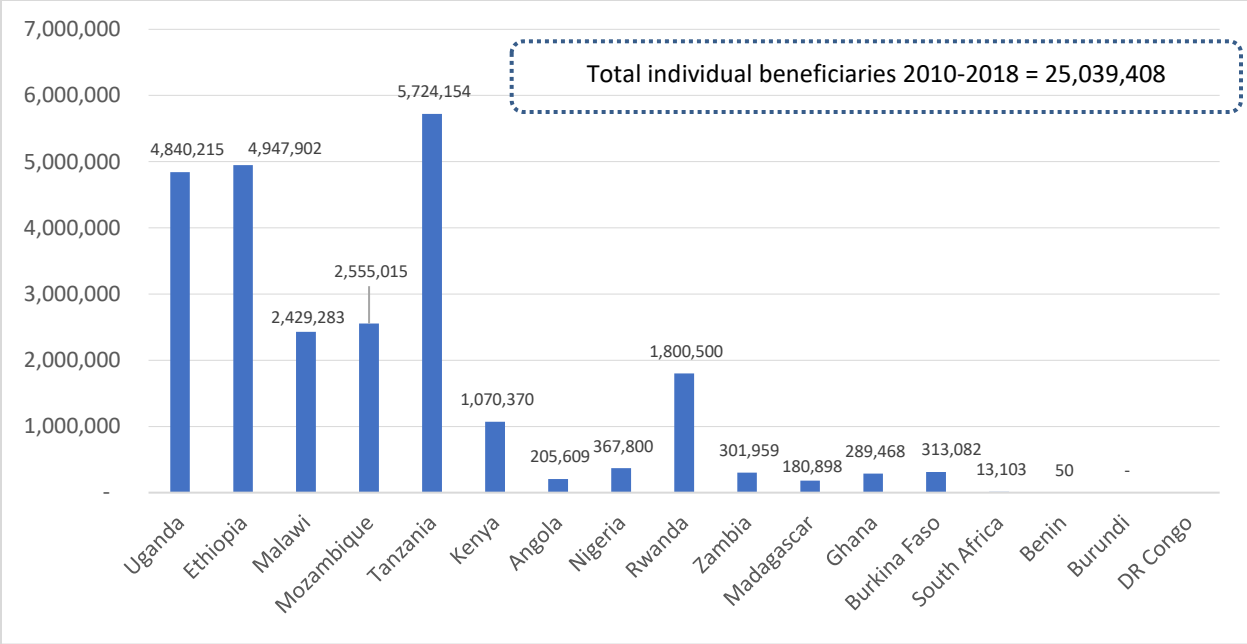


Figure 19: Cumulative number of individual beneficiaries reached from 2010 to 2018

IV. Evidence of improvement in diet quality

Only one of the two projects (AVCD⁴ and SUSTAIN) that ended during the reporting period had the data on diet quality ready in time for this report. Table 4 presents the dietary diversity scores (DDS) reported by the AVCD project based on the baseline, midline and endline studies it conducted. The DDS is a summary measure of diet quality and can be calculated for the reference child, reference mother and the household. A DDS of 4 or greater usually signify a sufficiently diverse diet and is associated with good quality diet (Kennedy, 2011; Fujita et al, 2012; Sindi et al, 2013). The findings show slight drop in most indicators of diet quality for the reference child (i.e., the under the age of two years). This could be because the baseline and endline surveys were not done at the same time of the year, hence the dietary diversity scores are not strictly comparable. Notably, however, the DDS for the reference child exceeded the threshold of 4 food groups during both baseline and endline.

⁴ AVCD stands for Accelerated Value Chain Development. The sweetpotato component of this project was implemented by CIP in Western Kenya.

Table 4: Changes in diet quality associated with projects targeting improvement in diet among rural households in SPHI countries

Country	Project	Mean household DDS		Mean child DDS	
		Baseline	Endline	Baseline	Endline
Kenya	AVCD	n/a	6.64	4.46	4.47

Source: AVCD report and dataset

V. Evidence of improvement in value of sweetpotato production

One of the main aims of the SPHI is to improve sweetpotato yields due to using improved varieties. The additional production could be consumed or sold to generate income. This annual update report therefore usually presents results of how projects implemented in the SPHI countries have influenced sweetpotato production and sales.

Table 5 presents some measures of changes in sweetpotato production and sales by the AVCD project. The endline survey findings indicate that 44% of the sampled households, compared to just 1% at the baseline, were growing OFSP. Moreover, it shows that household who sold sweetpotato earned more, and less variable, income at the end of the project than at the beginning. Hence, there is evidence of improvement in production and income among households which participated in this project.

Table 5: Changes in production indicators of the SPHI project: Results from AVCD project

	Baseline	End line
Proportion of households growing OFSP	1.0%	44.3%
Mean value (KES) of sweetpotato sales	2,142 (1373)*	2,201 (1087)
Mean quantity (kg) of sweetpotato sold	n/a	4 (2)

Source: AVCD report and dataset; * numbers in parentheses are standard deviations from the mean; There are approximately 100 Ksh/\$1 USD.

VI: Improving access to clean sweetpotato planting material

Improving farmer access to clean quality planting materials of sweetpotato is critical to meeting the goals of SPHI. Consequently, projects put a lot of emphasis on ensuring that farmers (especially targeted beneficiary households) can access clean planting materials of new and/or improved sweetpotato varieties. This has resulted in an increase in the number of vine multipliers in many of the SPHI countries during the update period. Vine multipliers, especially the so-called decentralized vine multipliers (i.e., DVMs), play an important role in fostering access to OFSP vines by virtue of being located closer to the targeted households. Because they are village-based, they are typically much closer to smallholder sweetpotato farmers than research stations; thus, farmers save time and money when obtaining quality vines. Figure 20 below presents the trends in number of vine multipliers in each of the SPHI since 2015.

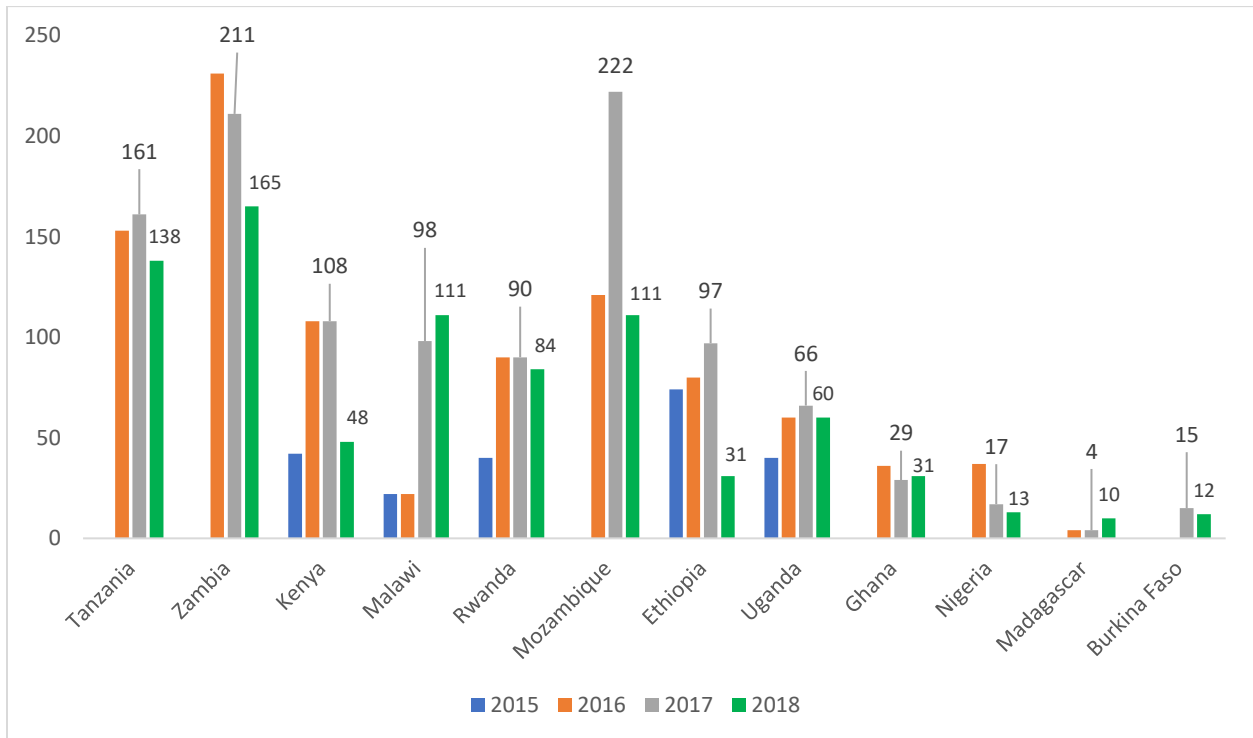


Figure 20: Trends in number of vine multipliers, by SPHI country: 2015-2018

The data reported were collected annually through a registration process that, during this update period, entailed a visit (for new multipliers) by in-country project M&E teams or phone calls (for

continuing multipliers). The registration team used the phone calls to collect data on status of the multipliers (i.e., whether active or not). Figure 21 summarizes the total active DVMs operational in all the 11 countries. It shows that 814 vine multipliers were actively producing planting materials of improved varieties of sweetpotato during the update period. This is a 27% decline in the total active DVMs compared to last year's (2017) 1,118 DVMs. The decline is mainly due to two reasons. First, some of the scaling up projects, especially the SUSTAIN project, scaled down activities or closed. Second, and more importantly, the monitoring of DVM using phone calls proved quite challenging this year; but approximately 90% of the existing multipliers were reached.

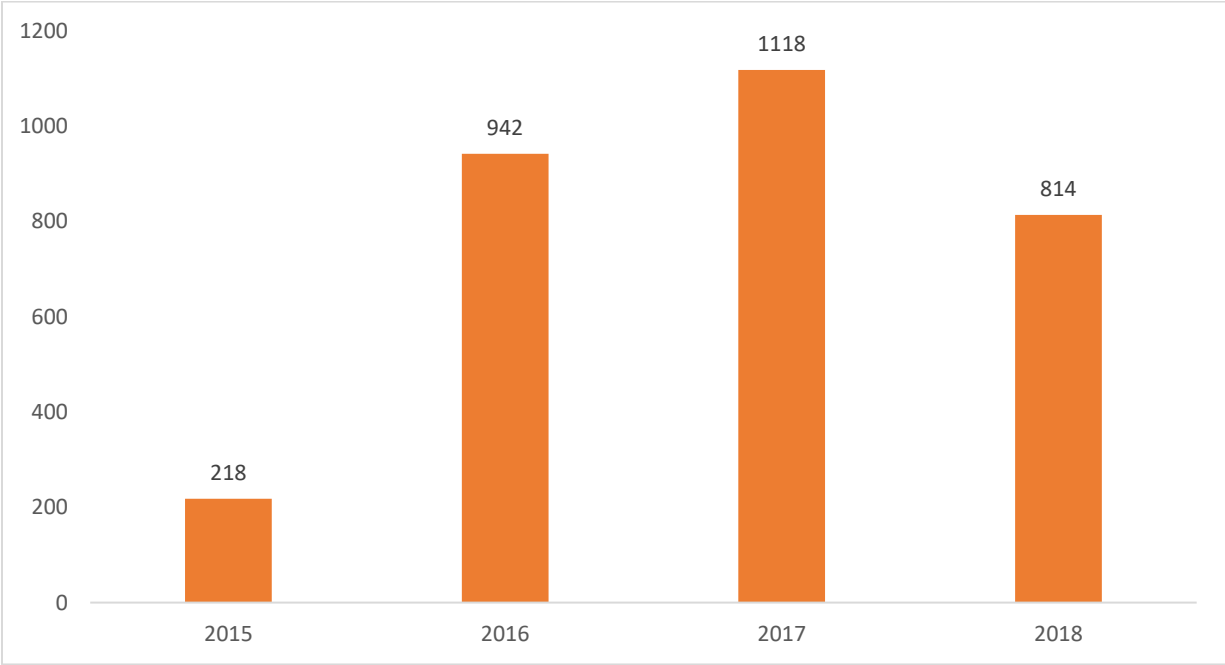


Figure 21: Trend in the total number of DVMs established in SPHI countries, by year

The registration of the new multipliers was done using open data kit (ODK) or CsPro on tablet-based form and involved collecting basic farmer/multiplier and farm characteristics and was restricted to vine multipliers receiving regular agronomic support from CIP or its partners, including provision of sweetpotato seed/planting material.

Figure 22 shows the number of vine multipliers in each country disaggregated by gender. Countries such as Ghana, Tanzania, Uganda, Rwanda and Kenya lead the other countries in involving women if vine multiplication, with Ghana having more women multipliers than men. The increase in the female DVMs in these and other countries reflects the concerted efforts made at project level to recruit, train and support female multipliers. It is also a reflection of the demand for gender disaggregated data, including number of vine multiplication sites established. Nonetheless, there is a need to double efforts in recruiting and nurturing more women multipliers in other countries, especially Burkina Faso. As in the previous update, this year’s DVM registration process also recorded the group vine multipliers. For the first time this year, a group multiplier was recorded in Kenya, whereas they already were found last year in Malawi, Ethiopia, Uganda and Rwanda. Ethiopia continued to lead the rest of these four countries in terms of group vine multipliers.

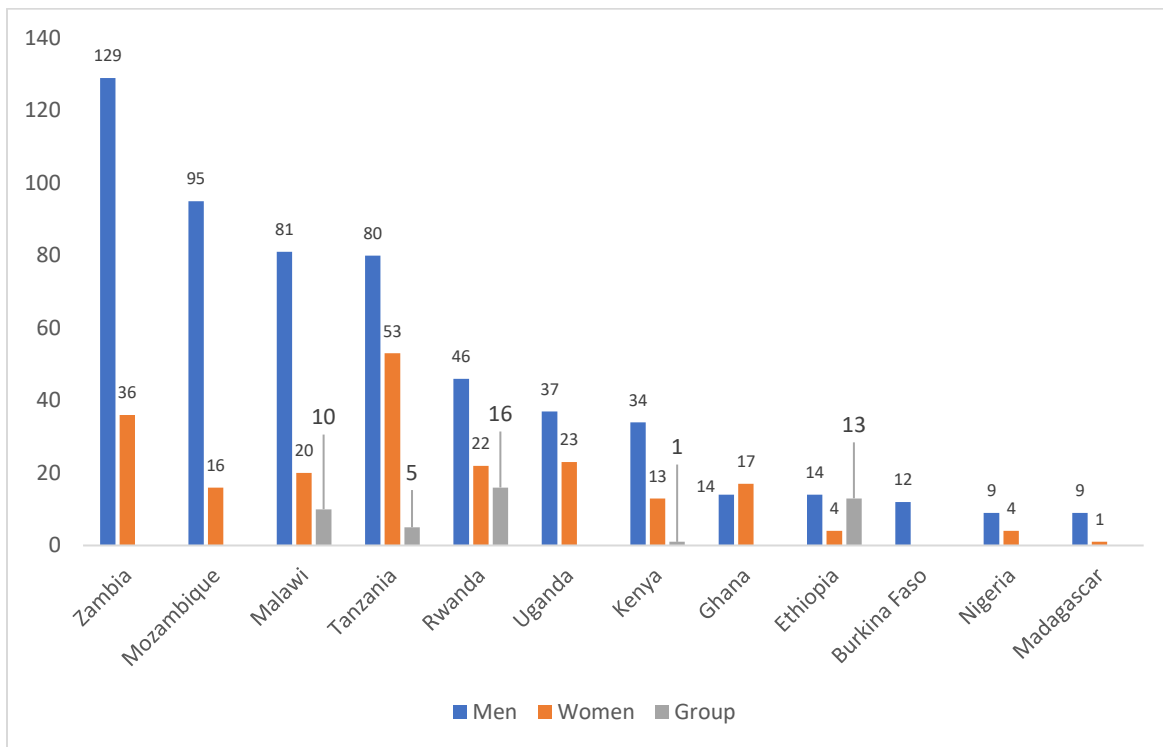


Figure 21: Number of vine multipliers in each of the SPHI countries disaggregated by gender for 2017/2018 period

During this reporting period, the team used the data gathered as part of the monitoring process to assess the vine multiplication business. This decision was inspired by the increase in number of positive stories⁵ emerging from the field about the lucrative nature of vine multiplication business. Table 6 presents the revenues earned by vine multipliers in different SPHI countries. Clearly, vine multipliers in some countries earned significant amount of money. Uganda, Rwanda and Ethiopia recorded the highest revenues from sales during the reporting year (Table 6).

Table 6: Total value of sweetpotato vines sold by multipliers (sellers only) during the update period, US Dollars by country

Country	Mean Revenue (Standard Deviation)	Smallest Value	Largest Value	Total value (USD)
Burkina Faso (n=13)	337.3 (287.0)*	65.0	960.0	4,055.0
Ethiopia (n=20)	2,627.2 (4,275.5)	29.1	15,465.8	52,543.7
Ghana (n=14)	875.9 (1,205.1)	63.2	4,421.1	12,263.2
Kenya (n=41)	958.4 (2,472.4)	0.1	11,962.0	39,293.8
Madagascar (n=5)	328.5 (346.1)	88.3	824.1	1,314.2
Mozambique (n=78)	218.8 (332.2)	0.8	1882.4	17,063.5
Nigeria (n=9)	1,938.1 (3,582.2)	58.2	10,250.7	17,442.9
Rwanda (n=59)	2576.8 (6,486.4)	17.6	46,789.6	152,028.5
Tanzania (n=66)	171.2 (279.8)	1.8	1317.1	11,296.8
Uganda (n=47)	3,080.4 (4,986.6)	11.9	27,783.0	144,780.2
Zambia (n=162)	480.6 (594.9)	14.2	4,265.4	77,853.1
Total				5,299,350.0

Source: DVM monitoring dataset; *Numbers in parentheses are standard deviations

⁵ See example at <https://www.sweetpotatoknowledge.org/youth-investing-agriculture-success-orange-fleshed-sweetpotato-ofsp-western-uganda/>

As in the previous years, the major output of the vine multipliers' registration exercise is the published map of each of the participating SPHI countries showing where the multipliers are located and providing some basic information on the status of their operation and capacity in terms of volume of vines each can supply. The maps are presented in Appendix A and the information is also available on the Sweetpotato Knowledge Portal in the View Progress section (www.sweetpotatoknowledge.org). In addition, a more detailed report of the experience updating the status of DVMs by phone has been produced and is available upon request.

VII: The Way Forward

Being able to monitor progress towards the SPHI goal is important for maintaining momentum for the investment and identifying where more concerted effort in resource mobilization is needed. Ideally, in 2019, there would be a large-scale survey visiting intervention zones in the different countries to assess permanent adoption of the improved varieties and impact on diet diversity and crop income. CIP-led projects keep lists of households receiving vines that could facilitate follow-up and/or selection of intervention zones for assessing adoption and informal rates of dissemination. There is an on-going effort to start identifying potential partners and donors that can support the survey financially and/or in the design of the survey.

Producing this draft report has been a valuable exercise. It has demonstrated very impressive progress towards the goal of 10 million households owing to the increased number of scaling up and emergency re-seeding projects. At the same time a few issues emerged. These include:

1) Definition of beneficiary households. The overall goal of 10 million households includes direct and indirect beneficiaries. But organizations differ on how they define direct and indirect beneficiaries of an intervention. In this context, we are restricting the definition to having received an improved variety of sweetpotato. Just being exposed to a radio message concerning sweetpotato, for instance, would not qualify as an indirect beneficiary. Whereas, we have tried to get all partners to standardize definitions of direct and indirect beneficiaries across the community of practice, some errors may be in the database.

2) Standardization of what data concerning sweetpotato production, yields, and sales. SASHA Phase 1 produced standardized data collection instruments to capture sweetpotato production and sales on a recall basis. However, how those data were analyzed and reported often differed across CIP-led projects. Non-CIP led projects are likely to differ even more. Moreover, some projects supplement with crop cuts to determine yields; others not. During 2016, a module for conducting crop cuts for calculating varietal specific yields was developed as were modules for capturing production and sales. These modules were tested and revised during the 2017 annual MLE Community of Practice meeting. They are available in an ODK format. Their use should be promoted by all project leadership.

3) Dietary diversity. In reporting diet diversity data, we need to request projects to present these data in a less aggregated way, taking account of whether households were separated into control or intervention zones or participant and non-participant groups, and whether there was a specific nutrition education intervention component or not.

Finally, at the national level, it is important to continue our efforts to have better data collection on sweetpotato in national household sample surveys. This includes separate categories of data collection for orange-fleshed sweetpotato (OFSP) types versus non-OFSP to capture the impact of this flagship product, and production and sales data at the minimum. At this moment, only Mozambique does this. Progress has been made for such incorporation in the 2016 survey in Malawi and discussing this with Uganda Bureau of Statistics. The SASHA M&E team will continue to approach national statistics offices in other SPHI countries to advocate for disaggregation of sweetpotato statistics.

References

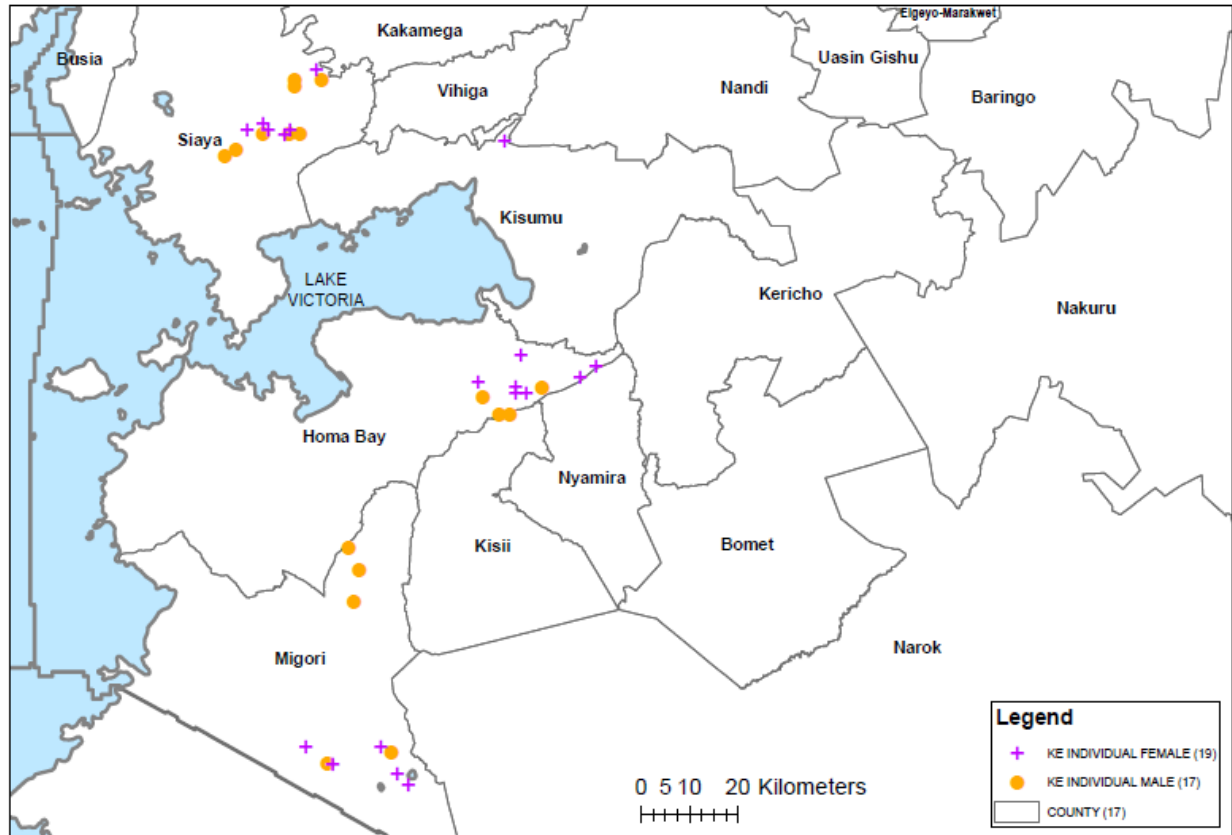
Fujita, M., Y., Lo and J.R. Baranski.(2012). Dietary diversity score is a useful indicator of vitamin A status of adult women in Northern Kenya. *American Journal of Human Biology*, 24:829-834

Kennedy, G., T. Ballard, & M.C. Dop (2011). Guidelines for measuring household and individual dietary diversity. Nutrition and Consumer Protection Division, Food and Agriculture Organization of the United Nations. ISBN 978-92-5-106749-9. Accessed on May 31st, 2014

Appendix: Maps showing locations of trained vine multipliers present in 2017

A. Kenya

KENYA INDIVIDUAL VINE MULTIPLIERS - 2018

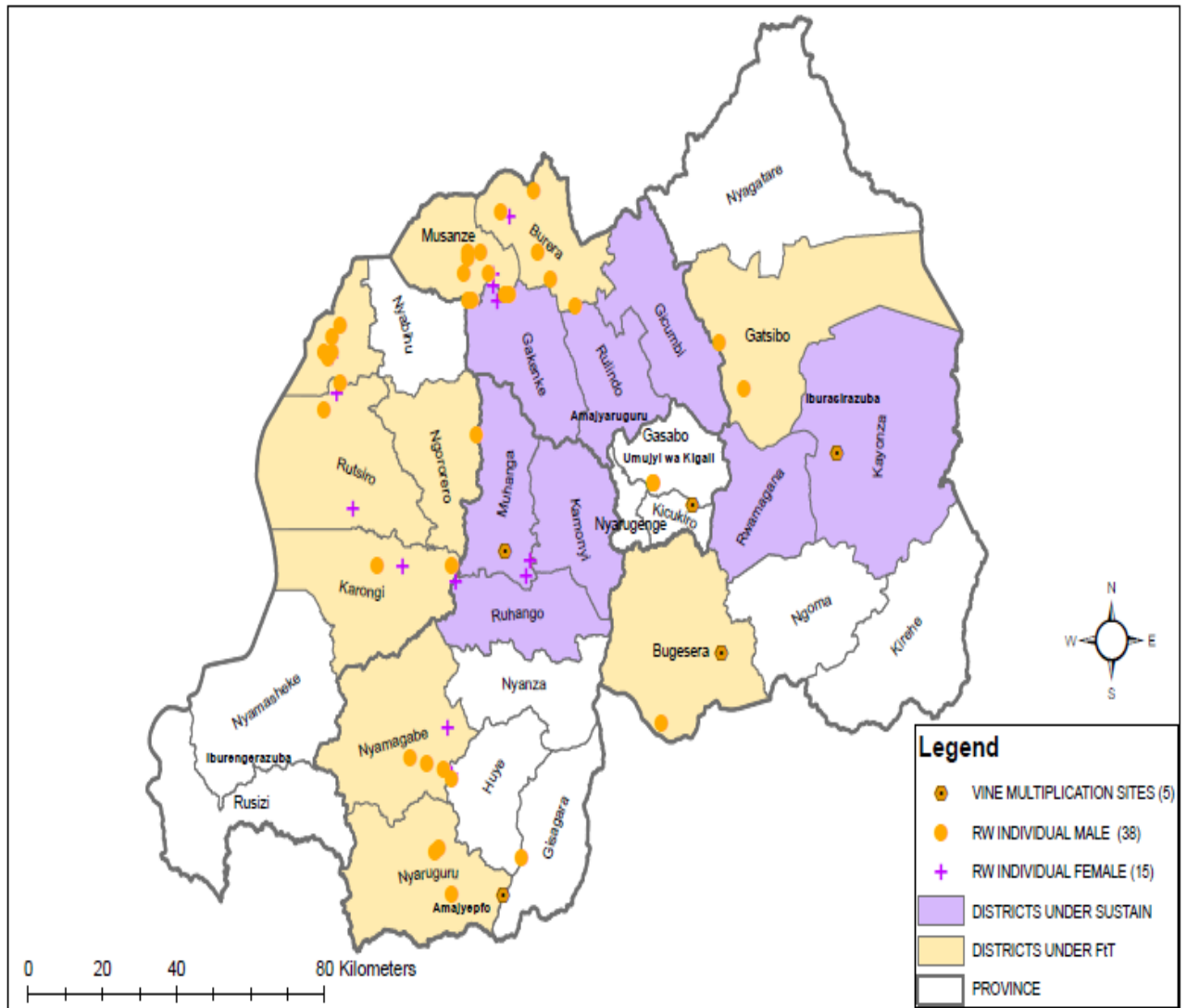


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

B. Rwanda

RWANDA VINE MULTIPLIERS - 2018

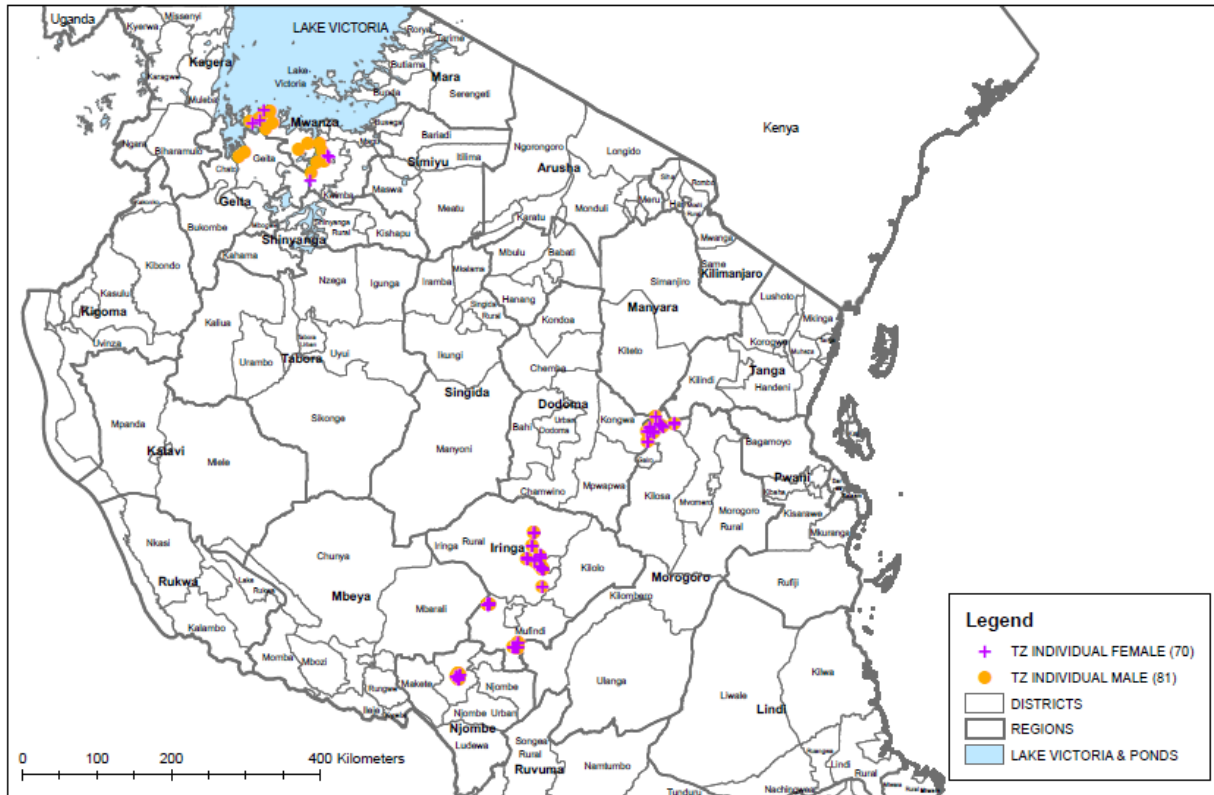


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

C. Tanzania

TANZANIA VINE MULTIPLIERS - 2018

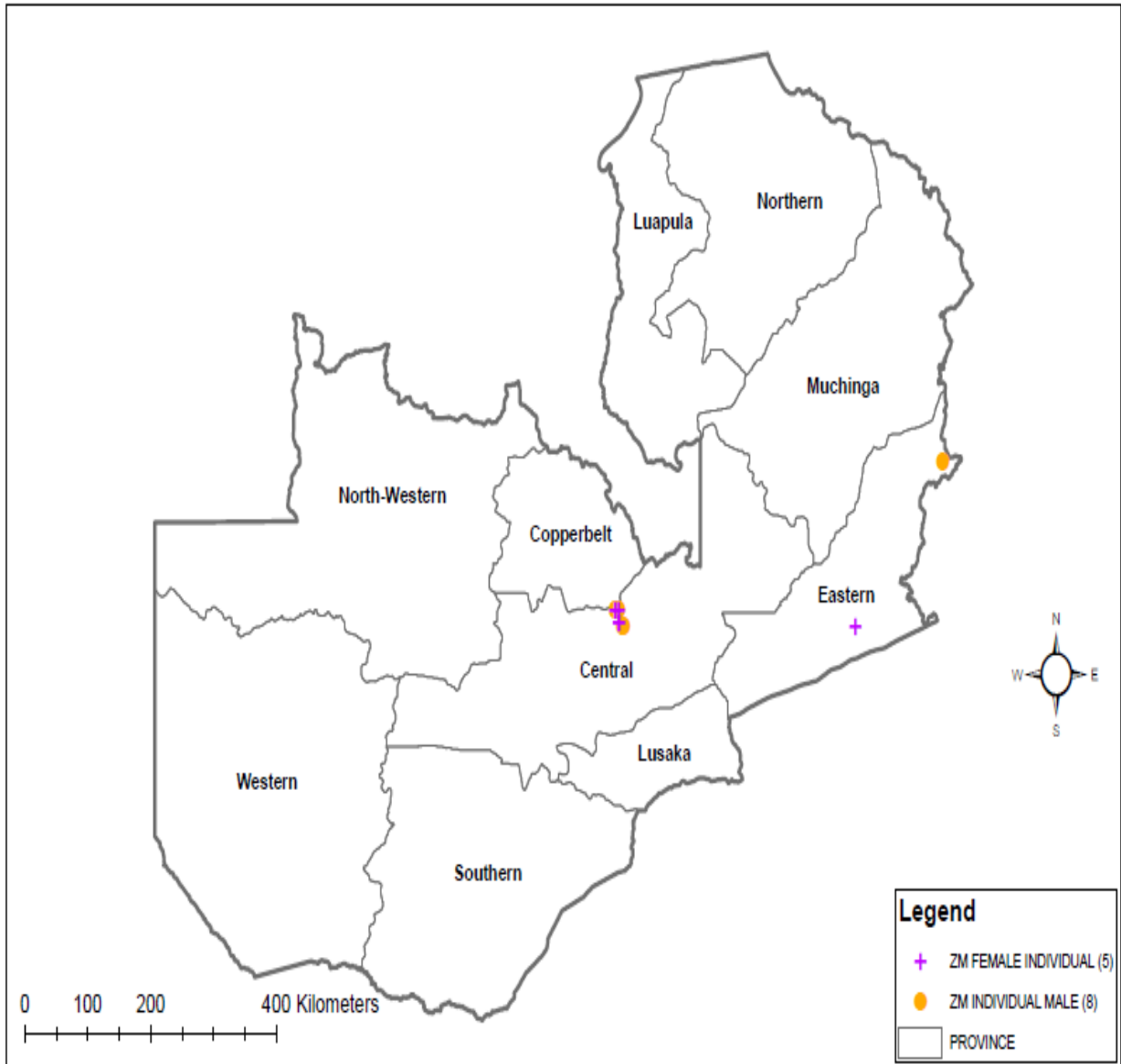


Source: Global Administrative Areas Database, 2015

Date: 9/21/2018

D. Zambia

ZAMBIA INDIVIDUAL VINE MULTIPLIERS - 2018

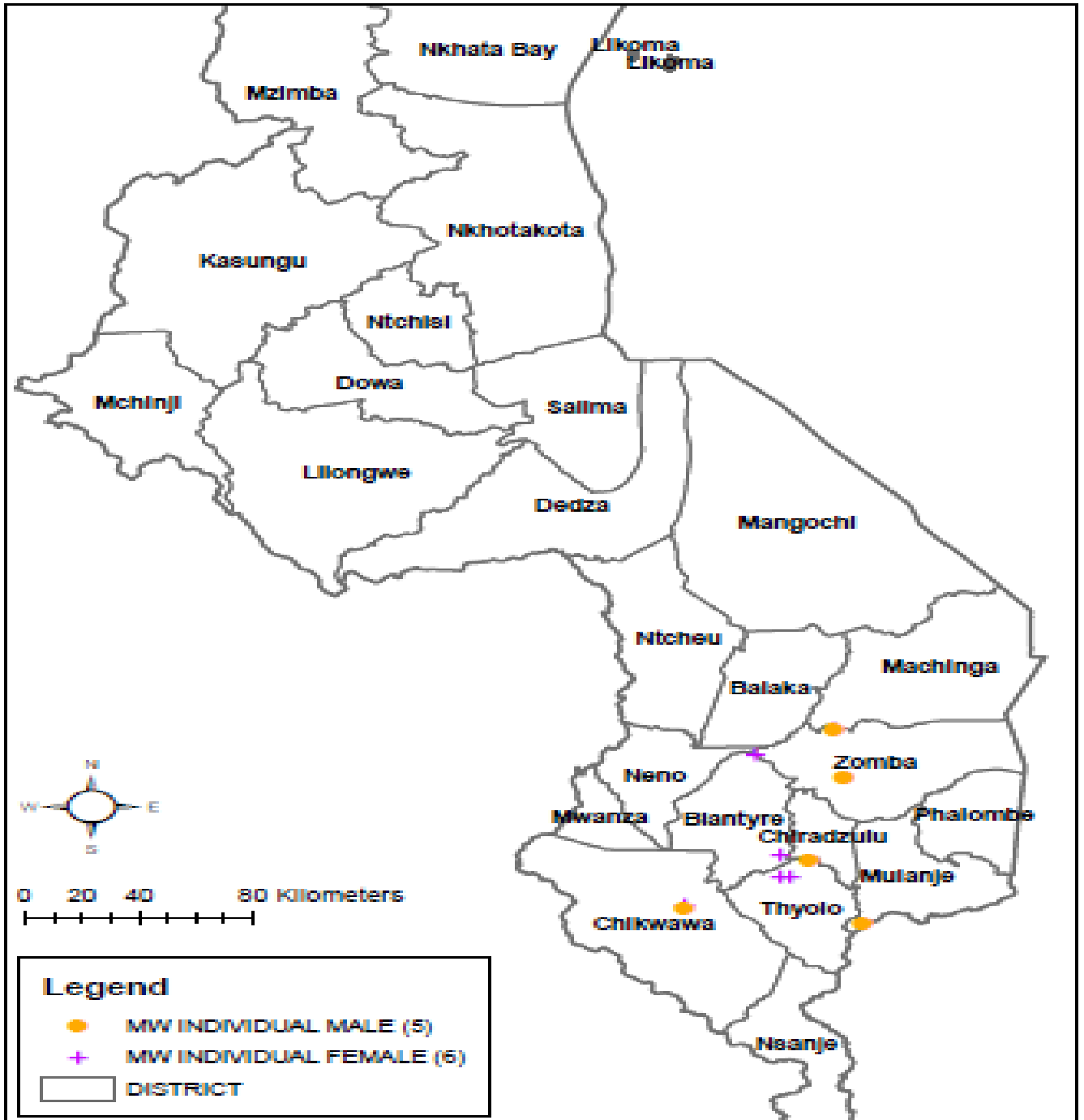


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

E. Malawi

MALAWI INDIVIDUAL VINE MULTIPLIERS - 2018

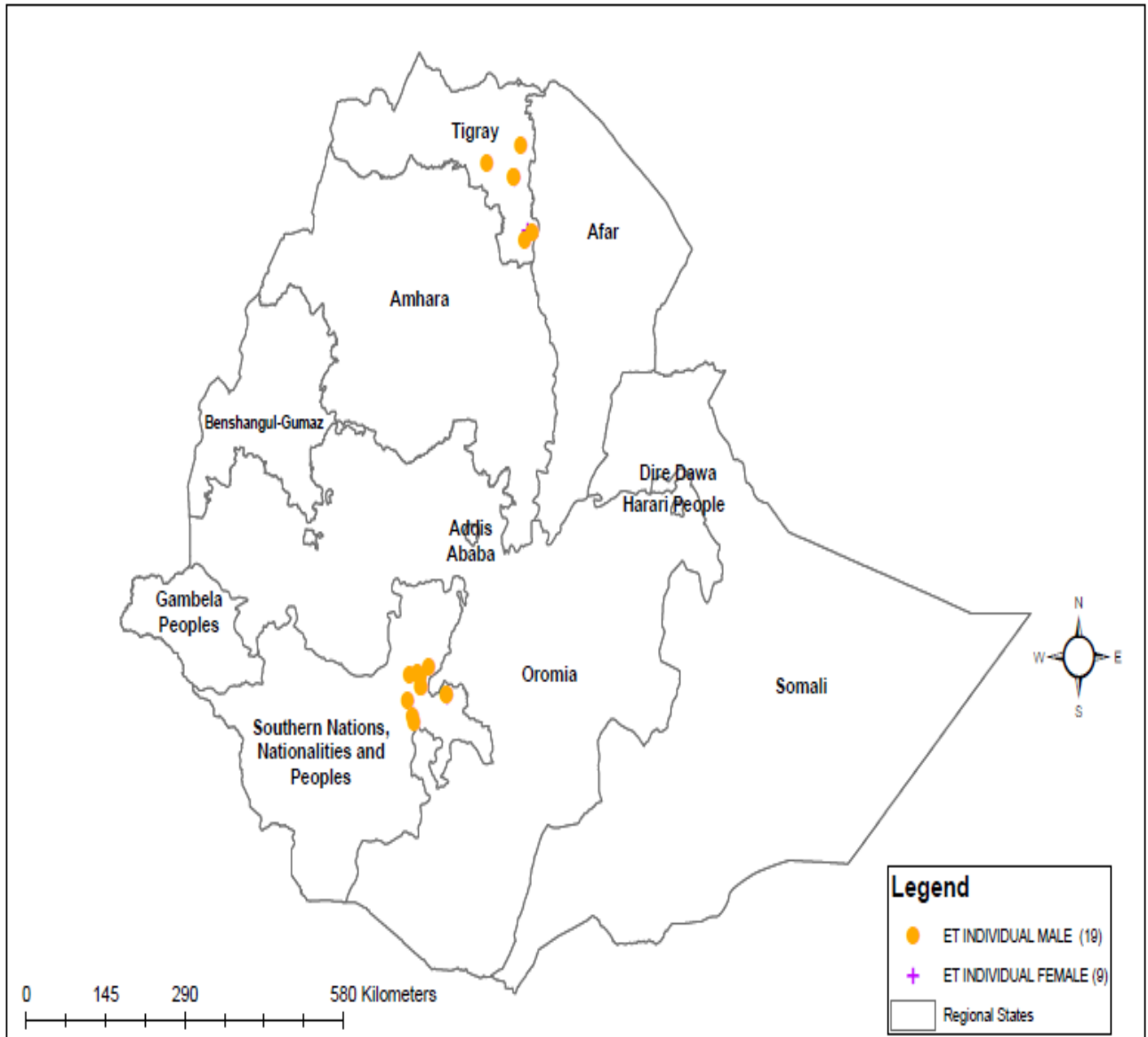


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

F. Ethiopia

ETHIOPIA VINE MULTIPLIERS - 2018

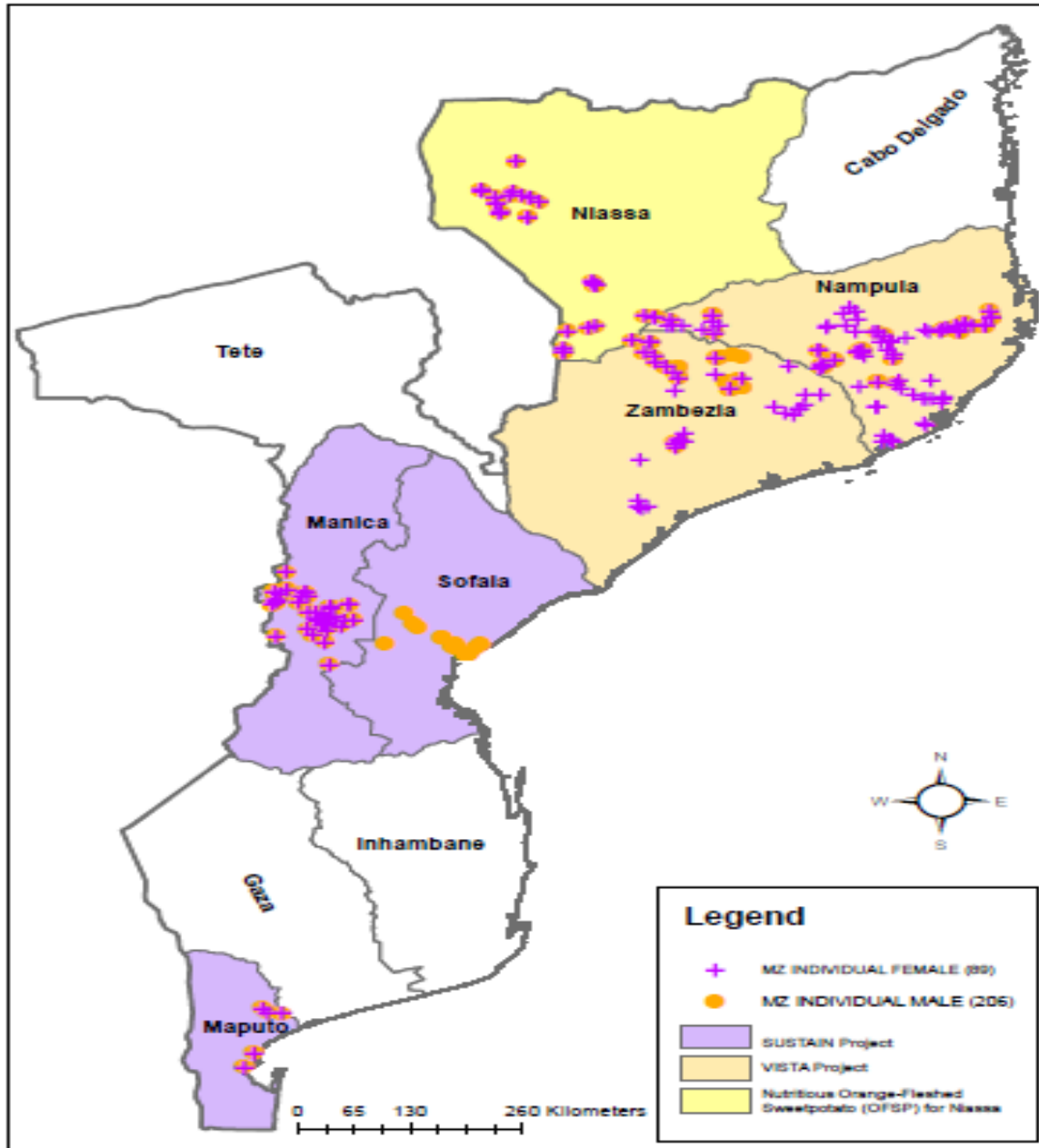


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

G. Mozambique

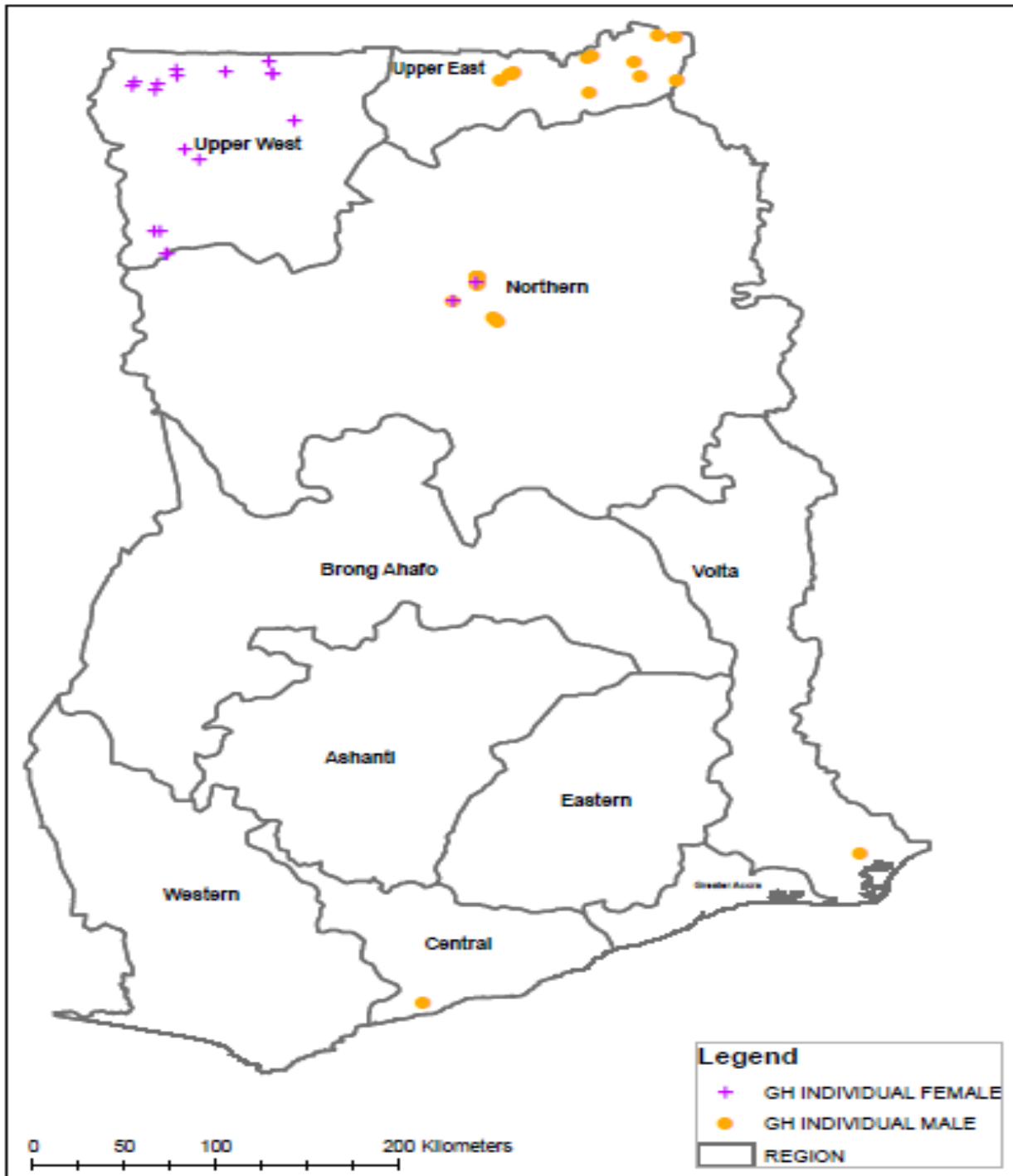
MOZAMBIQUE INDIVIDUAL VINE MULTIPLIERS - 2018



Source: Global Administrative Areas Database (2015) and Digital Chart of the World

H. Ghana

GHANA VINE MULTIPLIERS - 2018

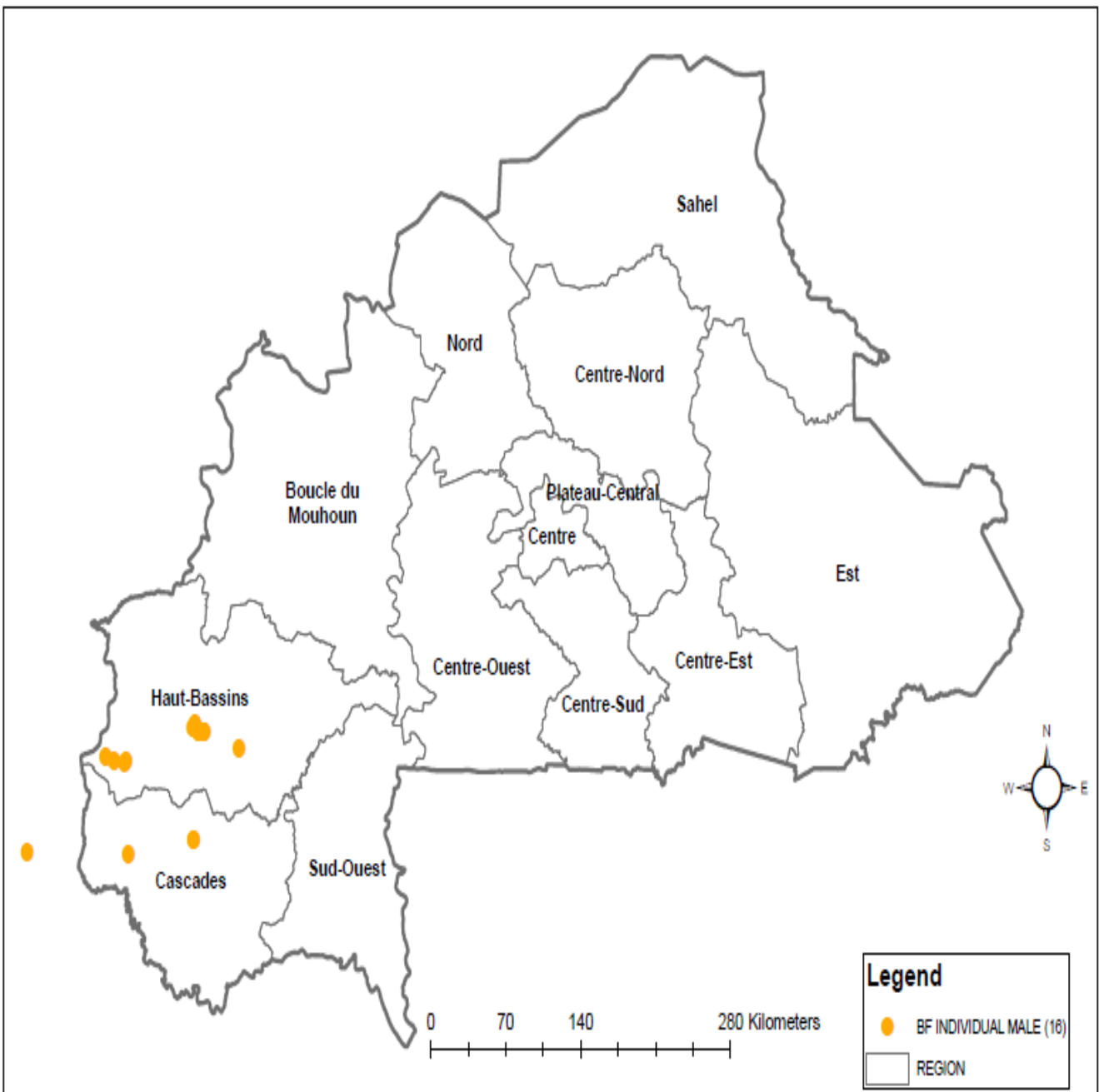


Source: Global Administrative Areas Database, 2015

Date: 9/21/2018

I. Burkina Faso

BURKINA FASO VINE MULTIPLIERS - 2018

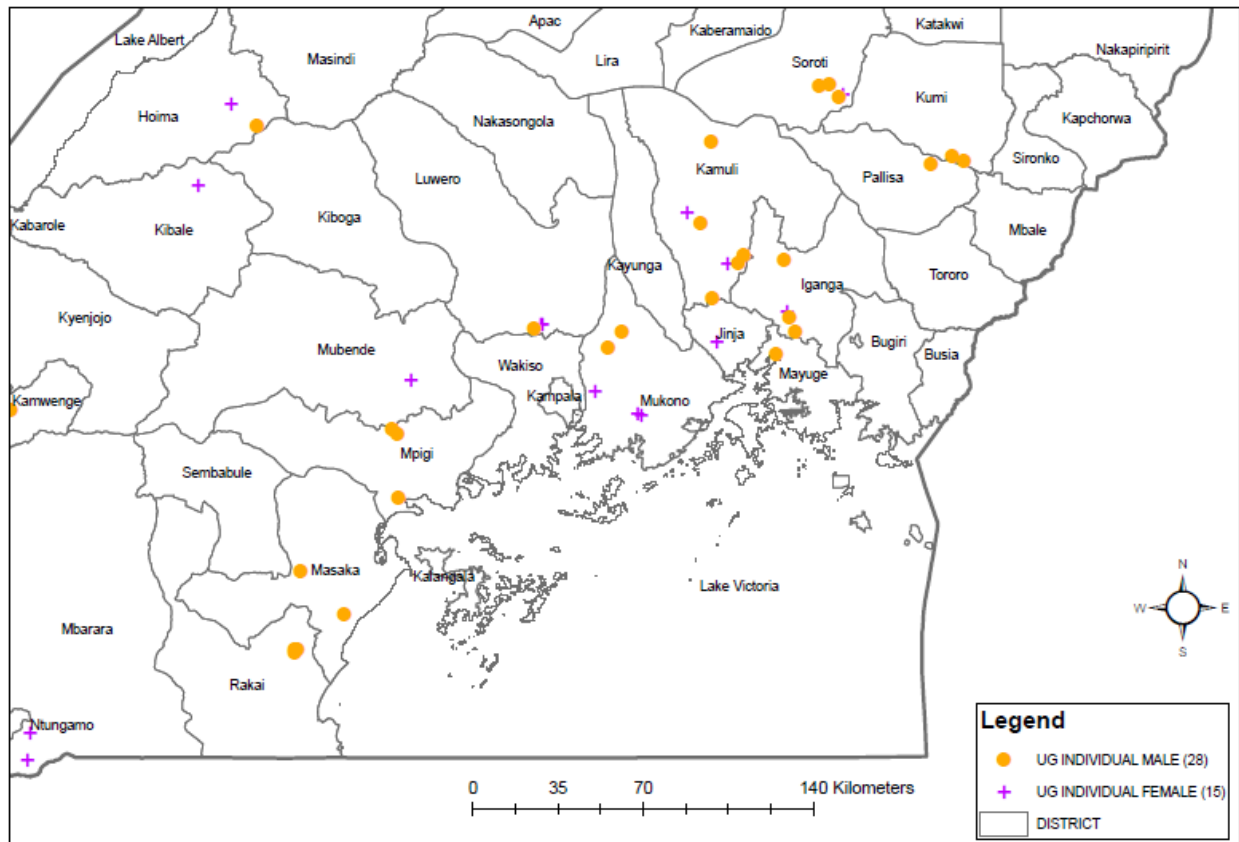


Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018

J. Uganda

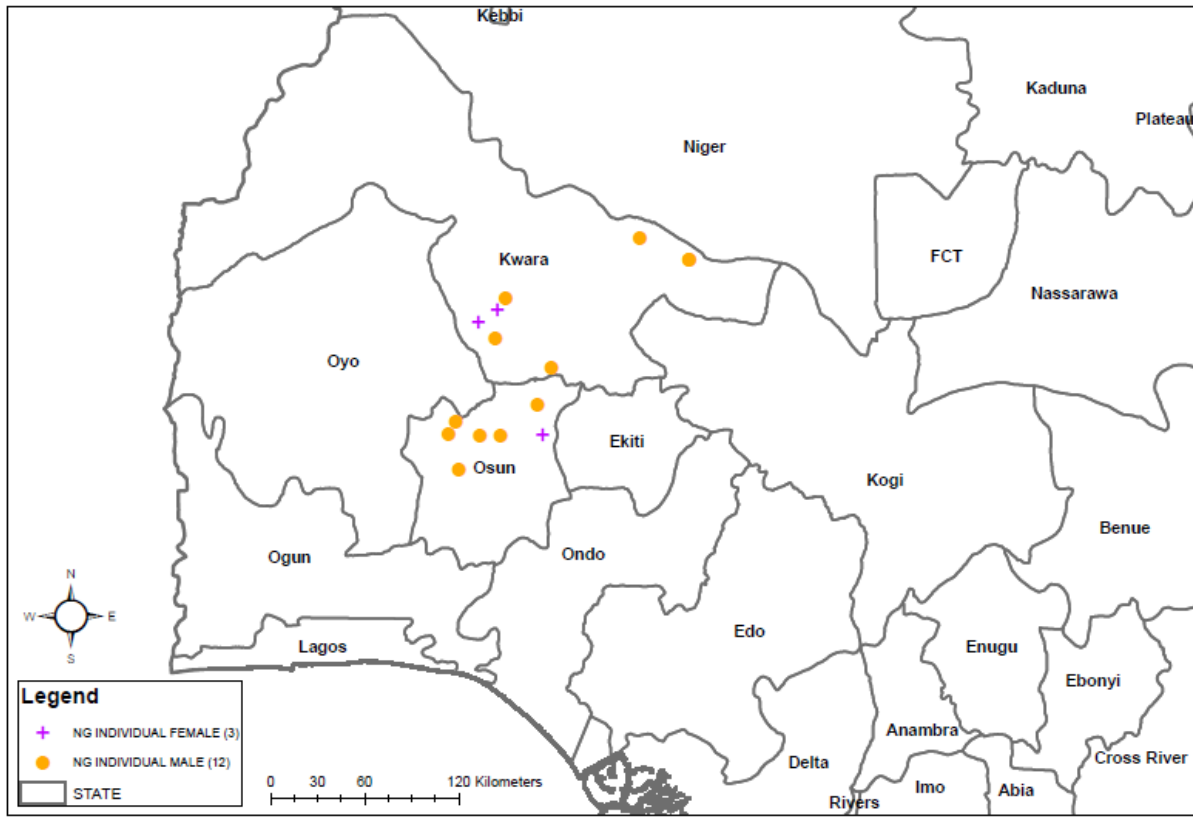
UGANDA VINE MULTIPLIERS - 2018



Vine Multipliers established by HarvestPlus with support from USAID
Source: Global Administrative Areas Database, 2015

Nigeria

NIGERIA GROUP AND INDIVIDUAL VINE MULTIPLIERS - 2018



Source: Global Administrative Areas Database (2015) and Digital Chart of the World

Date: 9/21/2018