

EXAMPLE TECHNOLOGY	DESCRIPTION	KEY IMPACT BY REGION	CONSTRAINTS TO WIDESPREAD ADOPTION	FOR ADDITIONAL INFORMATION	REFERENCES
Orange-fleshed sweet potato (OFSP)	Conventionally bred sweet potato with higher vitamin A content than white or yellow varieties, recently also incorporating drought tolerance and virus resistance	Consumption combats blindness and death in 1.1 M children with vitamin A deficiency. Adopted in 65% of households studied in project areas in Uganda, with resulting vitamin A intake increased by 70-100%.	Scaling is somewhat limited by the slow multiplication rate and high perishability of sweet potato vines, but various partnerships aim to reach hundreds of thousands of households in the coming years.	HarvestPlus http://www.harvestplus.org/ International Potato Center http://cipotato.org/	
Tomato and pepper varieties resistant to whitefly-transmitted begomoviruses (tomato) and anthracnose (pepper)	Disease-resistant varieties of tomato and pepper that originated from AVRDC in Taiwan that perform well and are accepted in Central America	Varieties reduce loss to pests and disease.	Importing these seeds into Central America has proved challenging due to prohibitive regulations.	The World Vegetable Center http://avrdc.org/ Feed the Future Innovation Lab for Research in Horticulture http://hortcrsp.ucdavis.edu/	
African leafy vegetables	Several varieties of indigenous vegetables, including spider plant, African nightshades, and amaranths	Varieties are more stable and higher yielding, for improved nutrition and income.	Main barriers to production of African leafy vegetables are lack of access to farm inputs (such as good quality seeds) and limited access to land.	The World Vegetable Center http://avrdc.org/ Feed the Future Innovation Lab for Research in Horticulture http://hortcrsp.ucdavis.edu/	
Portable shade structures	Portable shade structures adapted for	Structures decrease moisture loss, lower		Feed the Future Innovation Lab for	

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	use in outdoor markets and during packing, harvest, and transport of vegetables and fruits	postharvest losses, and protect workers.		Research in Horticulture http://hortcrsp.ucdavis.edu/	
Virus-resistant, adapted cassava varieties	Higher-yielding cassava varieties that are also resistant to the major economic pest brown streak virus, adapted for East and Southern Africa (Mozambique, Malawi, Tanzania, and Kenya)	Farmer yields increase by 100% or more. In areas where brown streak virus is present and had decimated local varieties, farmers are again able to cultivate cassava. Cassava virus pandemics cause > \$ 1 billion loss Africa-wide. New dual-resistant varieties have potential to prevent these losses and benefit > 200 million farmers	Scaling is limited by slow multiplication rates and perishability of cassava planting materials.	Alliance for a Green Revolution in Africa (AGRA) http://www.agra.org/	
Provitamin A Cassava	Conventionally bred yellow root cassava with enhanced pro-vitamin A content, enhanced disease and pest resistance, and high yield	Varieties combat impaired immune systems, blindness and death in children with vitamin A deficiency in Sub-Saharan Africa (e.g., 27% of Nigerian children who suffer from vitamin A deficiency).	Scaling is somewhat limited by the slow multiplication rates and high perishability of cassava planting materials.	HarvestPlus http://www.harvestplus.org/	
High-yielding, late-blight-resistant potato	Regionally adapted varieties of	Reduced losses to disease, access to new	Requires fast track local seed production with	International Potato Center	

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varieties for highland and mid-elevation humid tropics	disease-resistant potatoes for traditional and expanding zones and warmer climates	markets in tropical highlands of Africa, East and West Asia and Latin America	integrated management practices and evaluation and promotion in local and regional value chains	http://cipotato.org/	
High yielding, short-duration, virus-resistant potato varieties for warm and arid zones	Short-cycle potato varieties for farmers to insert potato into rice- and wheat-based cropping systems in the Indo-Gangetic Plains, the winter production and double cropping systems of China, and Southern Africa	Farmers can increase incomes via sustainable intensification and diversification of rice- and wheat-based systems.	Requires fast-track local seed production with integrated management practices and evaluation and promotion in local and regional value chains.	International Potato Center http://cipotato.org/	
Rootstock grafting for vegetables	Disease-resistant rootstock grafted to locally preferred varieties of vegetables to protect plants from bacterial and fungal diseases in the soil	Grafting protects vegetables from soil diseases and extends the production cycle. Grafting vegetable seedlings is considered “women’s work” in many cultures, which may create temporary barriers to men entering this enterprise, even as it becomes lucrative, offering some protection for women conducting business.	Training, local supply of rootstock	The World Vegetable Center http://avrdc.org/ Research in Horticulture http://hortcrsp.ucdavis.edu/	
Weed rouging to reduce	Early identification and	Rouging results in	Training	Feed the Future	

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vegetable viruses	removal of infected seedlings	results in 67% increase in yield, with no additional cost if it is done at same time as first weeding. Additional revenue can reach \$670/ha.		Innovation Lab for Research on Integrated Pest Management http://www.oired.vt.edu/ipmcrsp/	
Biological control for papaya mealy bug	Parasitoid wasps from the insect's center of origin to reduce populations of this specific pest	Papaya mealy bug, despite its name, attacks more than 60 economically important plants and can cause yield losses up to 80%. Recovery in infected countries of South Asia, Southeast Asia, the Caribbean, and Africa can reach 95-97%.	Inadequate quarantine procedures to evaluate and authorize wasp introduction, lack of infrastructure and personnel for wasp rearing, release, and monitoring.	Feed the Future Innovation Lab for Research on Integrated Pest Management http://www.oired.vt.edu/ipmcrsp/	
Microbial soil amendments	Treatment of soil or seed with the antagonistic fungi <i>Trichoderma harzianum</i> or <i>Trichoderma viride</i> to inhibit several important plant pathogens and enhance nutrient uptake	Reduction in disease incidence in horticultural crops is documented in Bangladesh, Ecuador, India, Indonesia, and Kenya.		Feed the Future Innovation Lab for Research on Integrated Pest Management http://www.oired.vt.edu/ipmcrsp/	
Fungus-based biopesticide against locusts and grasshoppers (Green Muscle™)	Fungus-based biopesticide manufactured in Senegal and South Africa that kills only	The biopesticide suppresses grasshopper and locust populations for more than a month and is cost-competitive	Although it is registered in many African countries (e.g. nine in W. Africa), use is low by plant protection services	International Institute of Tropical Agriculture http://www.iita.org/	

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	locusts and grasshoppers	with broad-spectrum synthetic insecticides. It can be used by plant protection services to treat hopper bands, especially in environmentally sensitive areas, because it cannot be diverted or as easily misused as synthetic insecticides.	in their annual spray campaigns. Demand is weak because of inadequate outreach and systemic disincentives caused by donated synthetic insecticides. Because this type of pest management is usually done by national plant protection services, there has been little adaptation for use by growers for protecting individual fields.		
Host-free period for area-wide management of tomato viruses	Grower associations and villages eliminate virus host plants for two months to reduce infestation	Where whitefly-transmitted viruses become common, profitable tomato production can collapse. Management allows renewed production of tomato, the most valuable horticultural crop in the world.	Area-wide management units must be large enough that the immigration rate of infected whiteflies from outside the management zone is small. Cooperation is high in places where tomato production is an important source of revenue.	Feed the Future Innovation Lab for Research on Integrated Pest Management http://www.oired.vt.edu/ipmcrsp/	
Area-wide management of invasive fruit fly <i>Bactrocera invadens</i> in	Area-wide management of a fruit fly using pheromone traps and a	The invasive species <i>Bactrocera invadens</i> rapidly spread across	Adoption depends upon developing credit mechanisms for	Feed the Future Innovation Lab for Research in Horticulture	

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Africa	bait spray incorporating an organic insecticide	Sub-Saharan Africa and causes severe losses to smallholder mango growers (30-70%). Management of the pest reduces losses and restores profitability for local markets, which are run almost entirely by women.	individual growers and grower associations.	http://hortcrsp.ucdavis.edu/	