Scalable and high-throughput approaches for educating farmers on pest management strategies

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and

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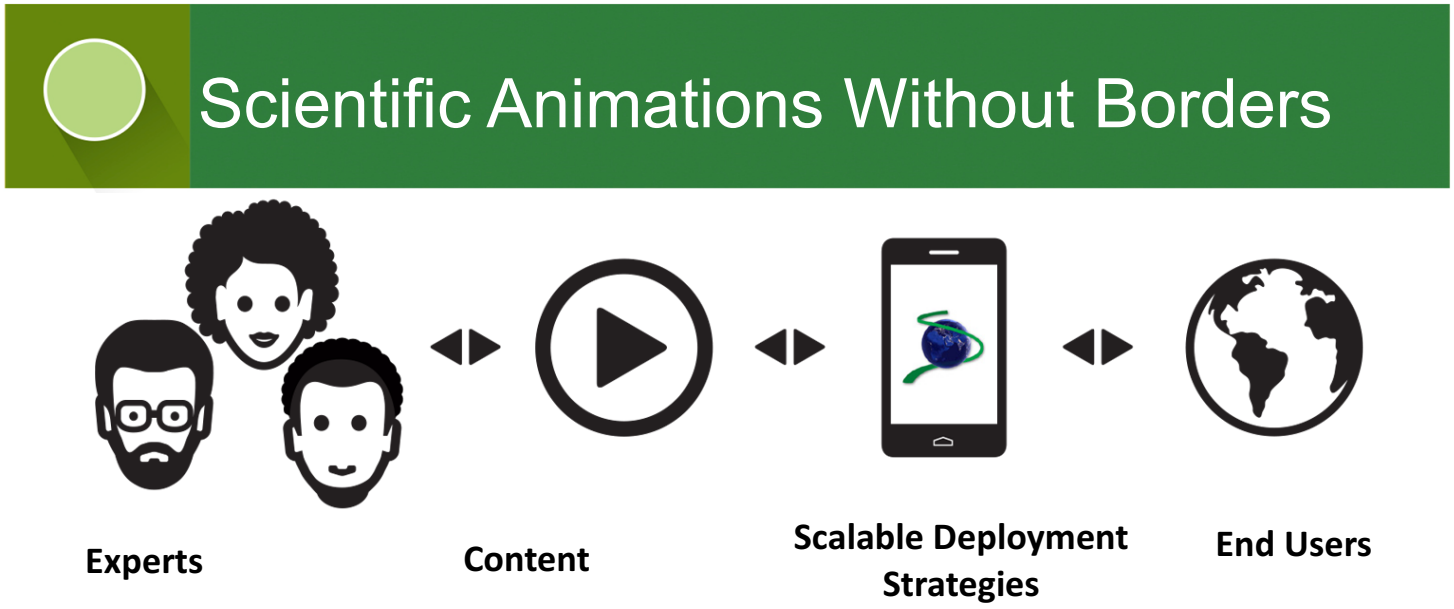
Research leading to technology for educational systems

- Research focused program
- Worked across over a dozen African countries
- Research questions – driving solutions
  1. The last mile for deployment of knowledge
  2. How to facilitate increasing impact of local educators/deployers of knowledge
  3. How to provide local educators/deployers of knowledge with accurate information, easily, and with low-transaction costs
  4. Content needs to be acceptable to and understandable by the end user – visually and linguistically
  5. High throughput, low transaction costs, and measurable impact

Educational Platform



From content creation to high-throughput deployment/field engagement

Systems for scaling knowledge

- Steps to get quality knowledge/information to farmers or end users
- Steps to get knowledge/information to educators/deployers of knowledge
- Creation of quality messages that adhere to local, regional and global standards
- System in place to deploy all new messages

Scientific Animations Without Borders Creation Process

- Michigan State University based program
- Work with global experts to define problems and accurate solutions
- Based on this “academic peer review” style process we create highly accurate educational animations
- Expert vetted content
- Unified globally acceptable messages
- Can be locally adapted
- Placed into numerous languages
- Experimental research supporting effectiveness of this approach

SAWBO
Scientific Animations
Without Borders

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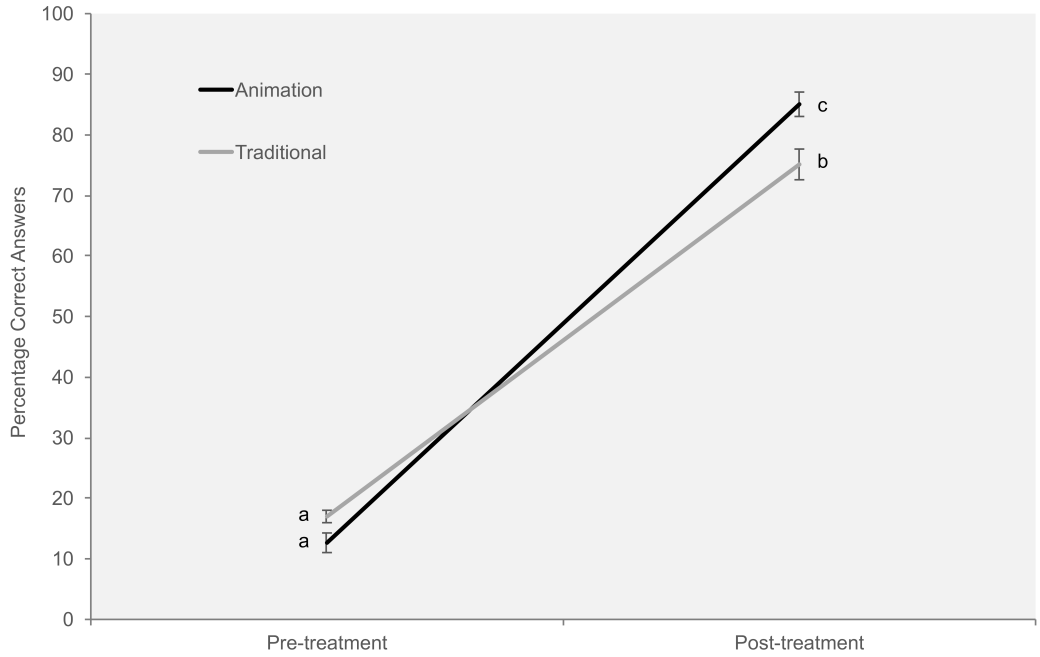
https://www.youtube.com/watch?v=rCxQk_Tgx90

We place animations into many local languages…

https://www.youtube.com/watch?v=oKkQCyfzEcE

IPM animations compared to extension talks (Benin)



https://www.youtube.com/watch?v=6xK7Hn018Vw

Niger

- Animations only versus animations followed by extension agent discussions (two cowpea IPM animations)
- The extension agent discussions “topped off” knowledge in pre-/post-learning gain assessments (animations followed by discussion were the most effective)

Mozambique

- Women learned more from the animations than extension talks
- Animations were highly effective to start group discussions
- 90%+ adoption of technique 2 years post-intervention with animations

Fall Armyworm

- There is need for a unified set of messages for recommendations for farmers – same across countries and placed into many languages
- There will be a need for that messaging soon
- A need for scaling of those messages in a cost effective and efficient manner
- Opportunity to set up an emergency response system for FAW and future events

SAWBO
Scientific Animations
Without Borders

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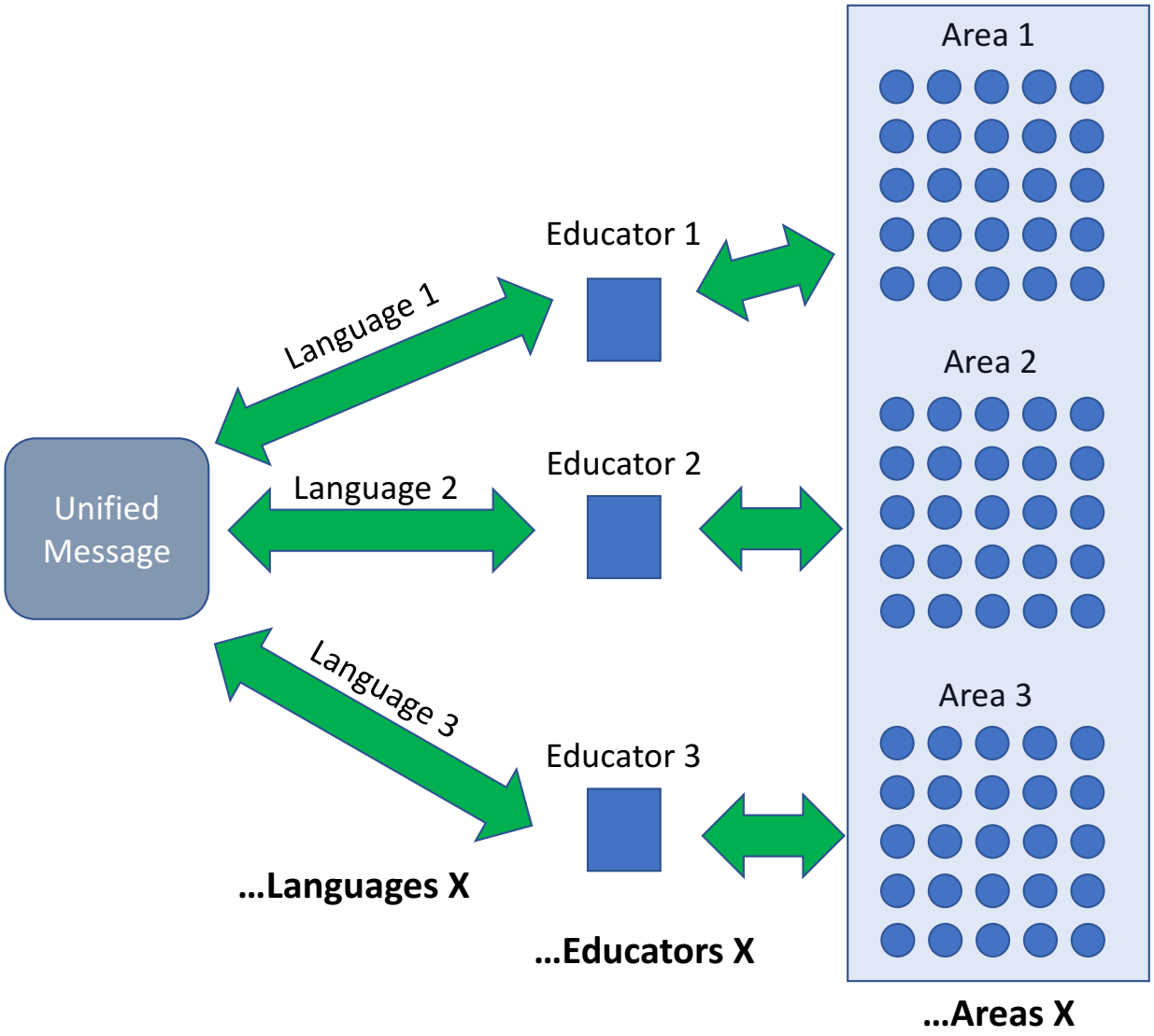
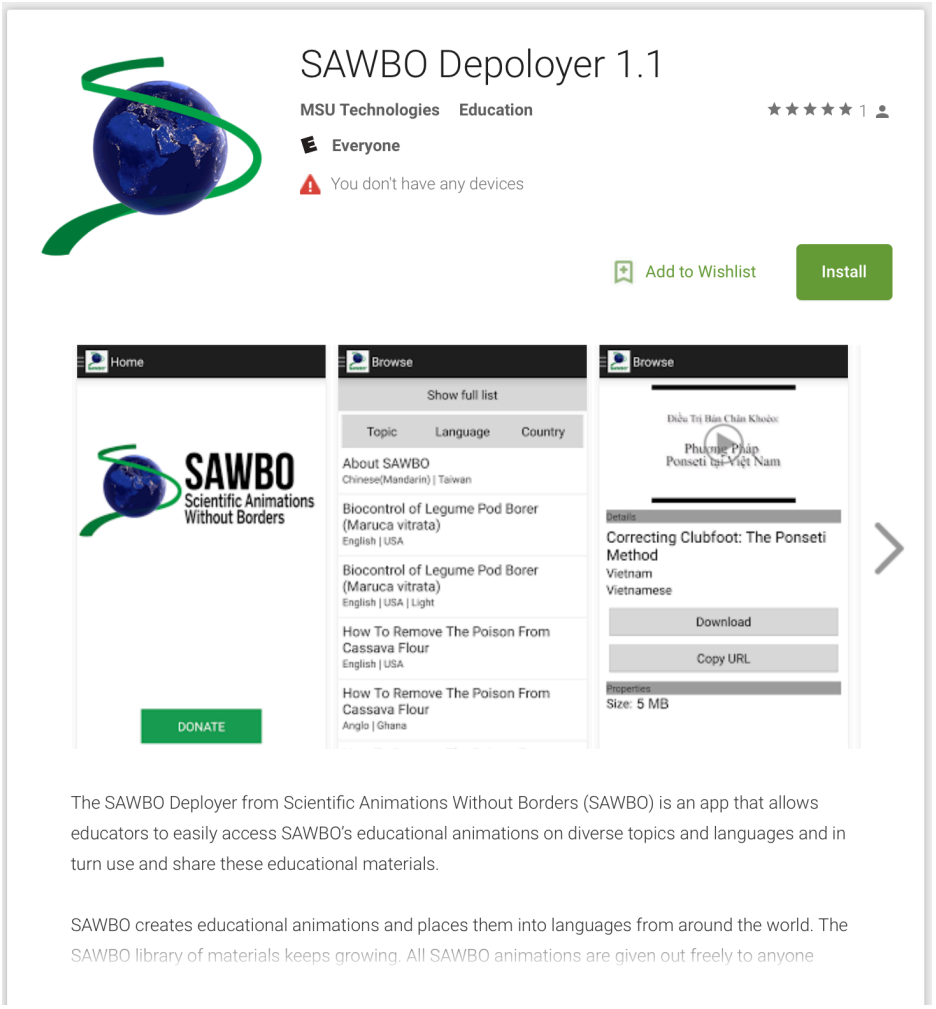


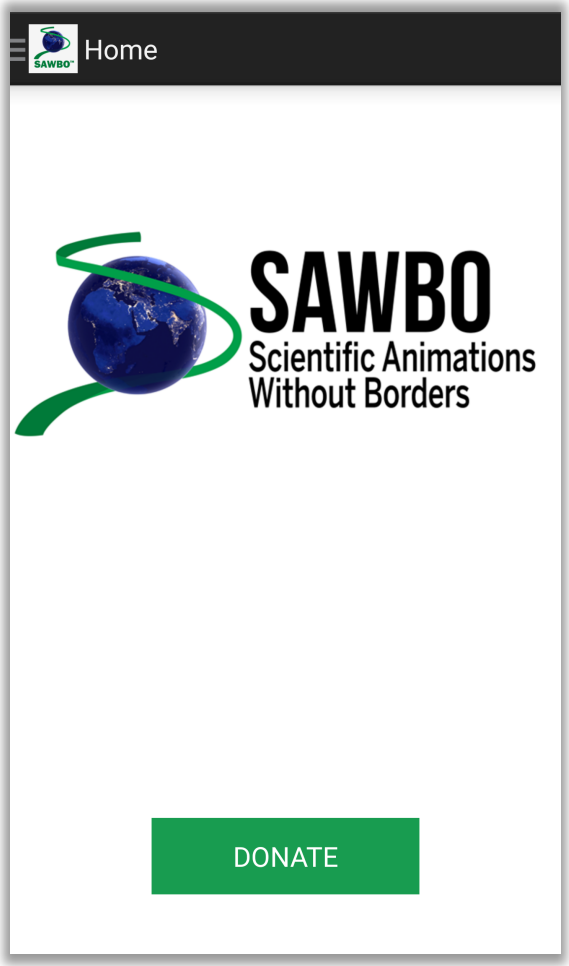
Download the SAWBO App for Android devices on Google Play

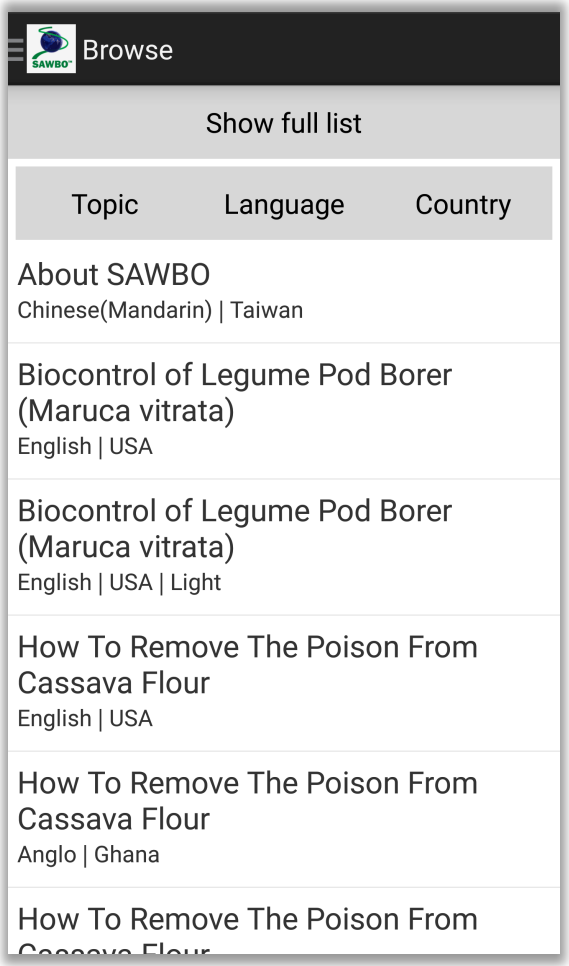


The SAWBO Deployer from Scientific Animations Without Borders (SAWBO) is an app that allows educators to easily access SAWBO's educational animations on diverse topics and languages and in turn use and share these educational materials.

SAWBO creates educational animations and places them into languages from around the world. The SAWBO library of materials keeps growing. All SAWBO animations are given out freely to anyone

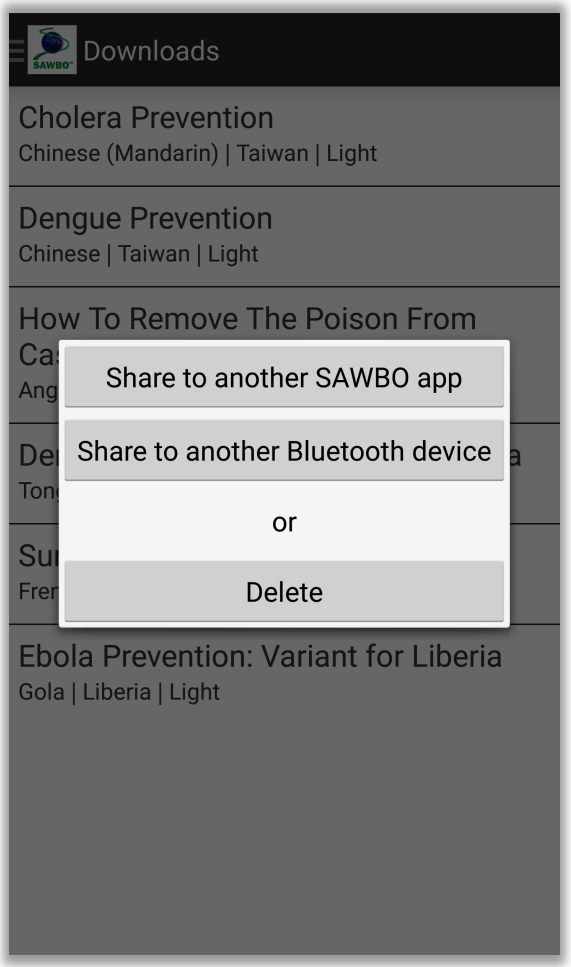
Using the SAWBO App

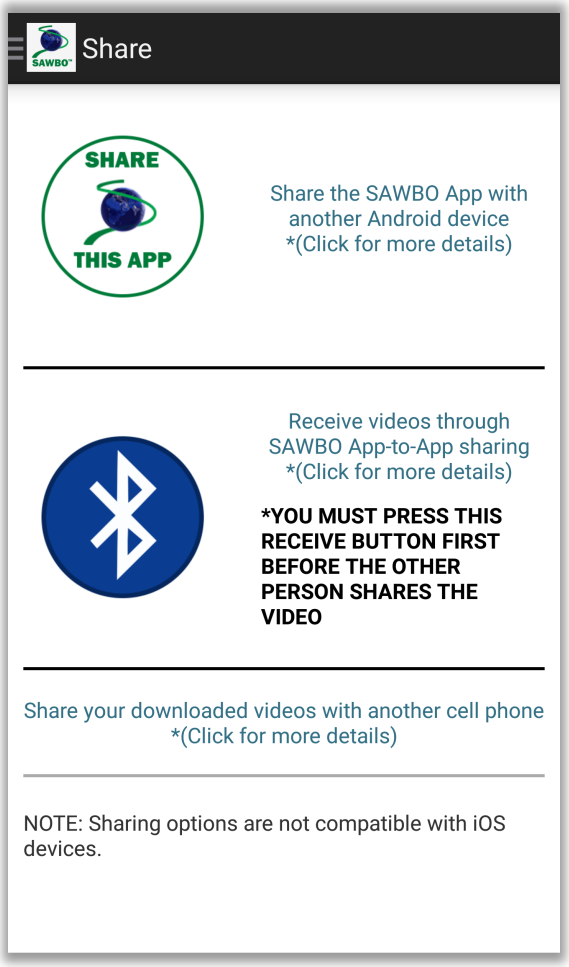




Using the SAWBO App

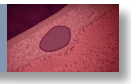
Using the SAWBO App





Examples of Impact

USA - UIC Cancer Center Chicago, Illinois
Colorectal Cancer Prevention animation



Haiti – Earthquake 2010
Created a Cholera Prevention Animation

Sierra Leone – May 2014 Ebola Outbreak

West Africa, Burkina Faso -
Natural Insecticide from Neem Seeds

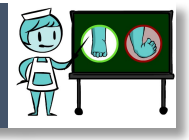
Georgia - Tuberculosis animation
viewed on TV

Ghana – Dr. Samuel
Amoa-Mensa – Sharing SAWBO Animations

Nepal – Earthquake 2015
Cholera Prevention Translated into Nepali

Ethiopia – The Cure
Clubfoot Animation

Ethiopia - Teff & Postharvest
Loss Prevention Animations

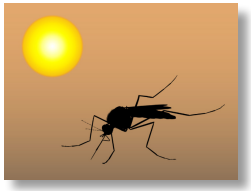


Tonga –
Dengue Outbreak

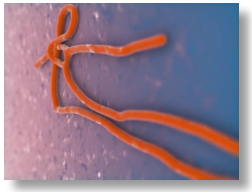
- Total Number of **Animations** in our Library = **700+**
- Total Number of **Topics** = **70+**
- Distinct **Languages** = **100+**
- Language **Variants** = **128**
- Number of **Countries** we have Languages for = **56**

SAWBO in the African Continent

Dengue Prevention

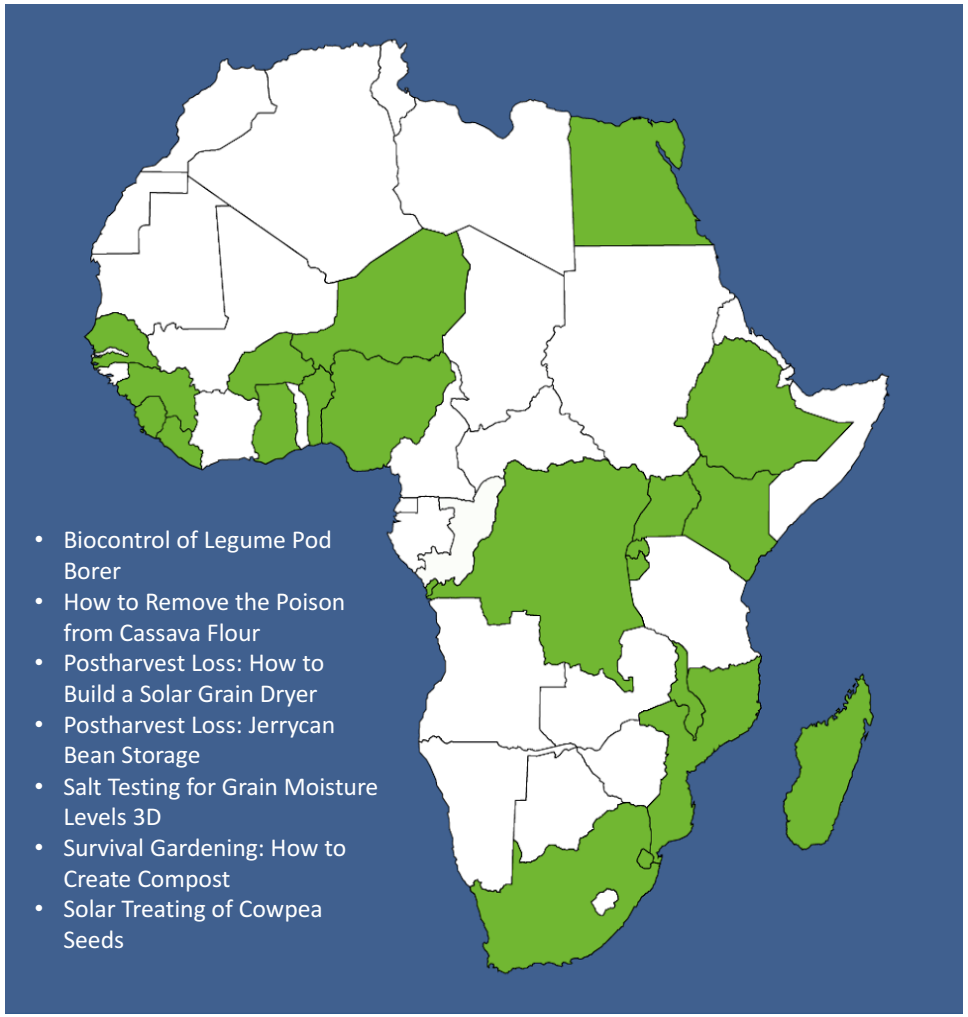


Ebola 5 animations



Prevention of Yellow Fever

Malaria Bed Nets

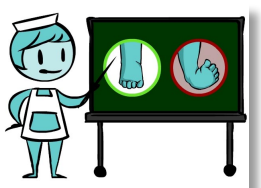


- Biocontrol of Legume Pod Borer
- How to Remove the Poison from Cassava Flour
- Postharvest Loss: How to Build a Solar Grain Dryer
- Postharvest Loss: Jerrycan Bean Storage
- Salt Testing for Grain Moisture Levels 3D
- Survival Gardening: How to Create Compost
- Solar Treating of Cowpea Seeds

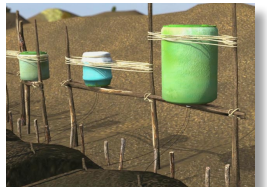
Natural Insecticide from Neem Seeds

Processing and Production of Shea Nuts

Correcting Clubfoot



Drip Irrigation



Examples

At this time

- Our research has demonstrated the need for a two-step approach for agricultural campaign design
  - Many countries have good “retailers of knowledge” – those that can deploy locally
    - Need for accurate information that is understandable by end users
    - Need to make the assumption that they are resource limited
    - Low transaction costs for “retailer of knowledge” to access, maintain and deploy content
      - Printed materials are a problem
      - Android-based systems are logical strategy

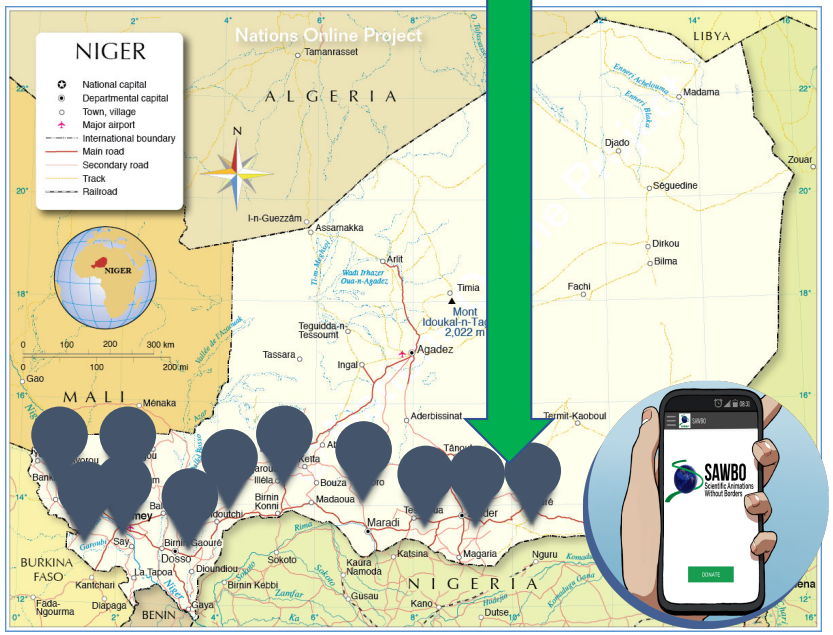
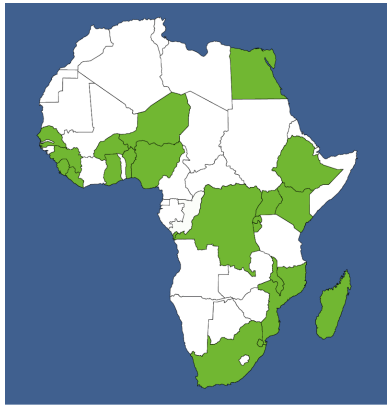
Ihm, J., Pena-Y-Lillo, M., Cooper, K. R., Atouba, Y., Shumate, M., **Bello-Bravo, J.**, . . . **Pittendrigh, B. R.** (2015). The Case for a Two-Step Approach to Agricultural Campaign Design. *Journal of Agricultural & Food Information, 16*(3), 203-220. doi:10.1080/10496505.2015.1033529

Fall Armyworm

- Creation of educational animations with **UNIFIED MESSAGES**
- Language variants need to be defined and created
- Training of “educators” in SAWBO Deployer App Use
  - Provides for instant deployment of content when available
    - New education topics
    - New languages
  - Network for deployment will be in place for next “crisis”

Expert Community

Unified Message

minutes

minutes