

The Shade Tree Advice Smartphone Application Brief

Climate Smart Agriculture Technology Scaling Project

Background

IITA Uganda and its government and private partners is promoting increased smallholder coffee farmer adoption of Climate Smart Agriculture (CSA) practices in Uganda. Initial IITA research on coffee in Uganda began in 2006 and has spread across 30-districts, with 58 field trials, and 178 demonstration plots established and more than 4,000 participating farmers. IITA supports the work of the Uganda Government through the National Agricultural Research Organization (NARO), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and Uganda Coffee Development Authority (UCDA) agricultural policies and sub-sector strategies and plans. Working with the public and private partners such as Olam, Kawacom, Great Lakes Coffee, and Hanns R. Neumann Stiftung (HRNS), IITA has developed and tested a number of CSA tools and approaches such as the Stepwise approach (https://www.iita.org/wp-content/uploads/2019/10/Final_Brief_StepwiseApproach_21022019.pdf), a climate smart investment pathway for smallholder coffee farmers. The Stepwise approach is complemented by decision support tools: the Stepwise Smartphone Application (https://www.iita.org/wp-content/uploads/2019/10/Final_Brief_StepwiseSmartphoneApplication_190303.pdf) and the Shade Tree Advice Smartphone Application which can be found on play store <https://play.google.com/store/apps/details?id=com.mangotree.stepwise>



Shade Tree Advice Smartphone Application

Application Development

The Application evolved from a web-based application developed in collaboration with the French Agricultural Research Center for International Development (CIRAD) (<https://www.cirad.fr/en/>) and World Agroforestry Center (<http://www.worldagroforestry.org/>). CIRAD and IITA developed the scientific theory for the tool and populated it with data from China, Columbia and Uganda. The CGIAR partners worked closely with a Ugandan private company, Metajua (<https://metajua.com/about-us/>), in the original design of a web-based tool. The Shade Tree Advice Smartphone Application, however, is an information, communication and technology (ICT) based coffee specific decision support tool developed by IITA for Uganda.

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“This app allows us to offer different services... I would like to thank IITA... [it will] revolutionize information to increase our knowledge base so that we deliver to the farmers.” Semaganda Richard, Coordinator, Luweero District Farmers Association

Technology Description

The application offers smallholder coffee farmers advice on optimal shade tree selection for coffee agroforestry systems. The application provides site-specific recommendations on appropriate tree species via simple graphical displays. The information is targeted towards extension workers, farmers and other decision makers directly involved in sustainable coffee agroforestry systems. The Shade Tree Advice Smartphone application is based on expert and farmers' local knowledge of trees in different agro-ecological zones. The application has been validated by key public and private stakeholders in Uganda, among them: NARO, UCDA, World Agroforestry Centre, Olam, Touton, HRNS, academia and district local governments. The Application has been populated with data from existing coffee research sites in Central and Eastern Uganda.

Architecture and Scalability of the Application

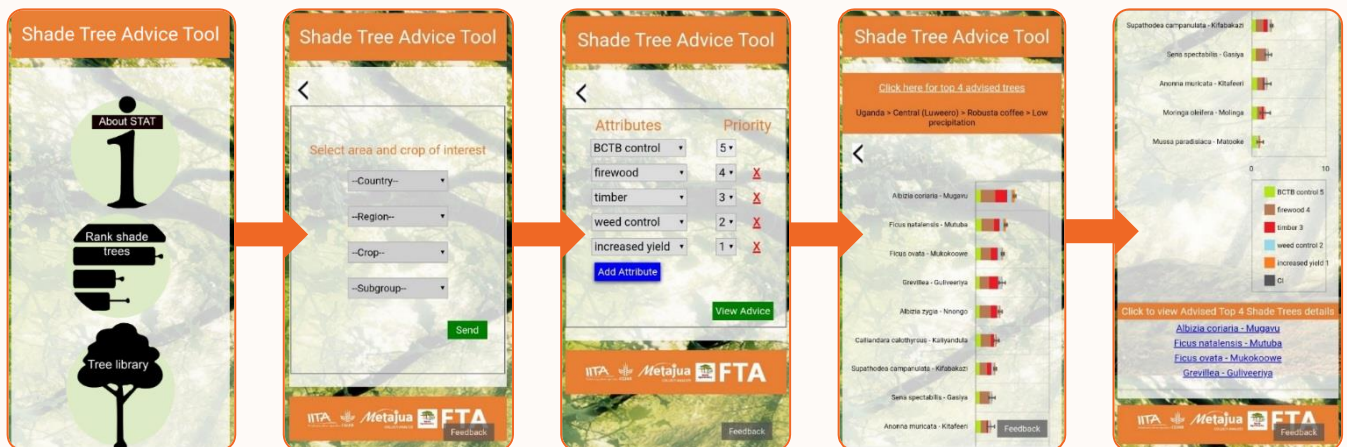
The Application is designed for Android phones to offer information to users both online and off-line. It cross-references the set of choices made by the user against the shade tree uses in the tree library. The architecture allows for fast data transfers and maximizes real-time data synchronization between web and mobile devices. The simplicity of the architecture allows for cost effective adaptation and scalability of the Application.

Content

The Application offers consistent and easily accessible guidance on recommended shade trees for a specific site. The content is a mix of easy-to-understand written information combined with easy-to-understand visual illustrations. All pre-loaded content is aligned to the validated World Agroforestry tree library. The application is easily accessible on Google Play Store:

<https://play.google.com/store/apps/details?id=com.iitacs.shadetreeadvice>

How it works:



Home page of the Application gives user quick overview of the menu

Drop down menus allow users to narrow down to exact location of the farm

Users have several attributes to choose from fitting their criteria

The Application generates a list of top ten most relevant trees in order of relevance

The Application automatically generates the top 4 recommended trees