WIKWIO: Weed Identification and Knowledge in the Western Indian Ocean

The weed management capacities of researchers and extension services, private sector agronomists, civil society organisations and farming communities will be enhanced through the interdisciplinary and participatory building of an ICT knowledge base of major weeds affecting food and cash cropping systems in the islands of the Western Indian Ocean and South East African region. As weeds pose a major threat to agricultural productivity, an intervention based on a solid scientific approach and facilitated by the latest appropriate technologies to address this impediment will contribute to effective weed management practices and improved agricultural productivity in the region.

Challenge
Agriculture is the economic mainstay in the island states of Madagascar, Mauritius and Comoros. This is true for the South East African region also. The task of increasing productivity in the agricultural sector is faced with significant challenges, such as weed infestations. Weeds cause enormous economic losses in food and cash cropping systems and are responsible for a loss of at least 20% in harvest yields. If weed management is addressed through timely and appropriate control measures this can result in a significant boost in production.

Focus
WIKWIO contributes to food security and socio-economic development in the island states of the Western Indian Ocean and the South East African region by enhancing the productivity of food and cash crops. It does this by leveraging a science and technology network that addresses effective weed management practices empowering research, extension and farming communities. It contributes to building and strengthening science and technology capacities through the interdisciplinary and participatory building of an ICT knowledge base of major weeds affecting food and cash cropping systems. It also fosters collaboration among extension services and the researchers of National Agricultural Research Systems (NARS) and universities in order to capitalize on existing and new scientific and technical knowledge and adopt and devise appropriate technologies to propagate best weed management practices.

Rationale
Integrated weed management is considered one of the most attractive options for crop protection. It entails the proper choice of compatible measures (cultural, mechanical, biological and chemical) so that the components complement each other to keep the weed population at manageable levels. However, in order to be effective, integrated weed management should build on a knowledge of weed biology and ecology, which in turn requires the specific weed species to be known. The absence of a structured information system with the latest research outputs, coupled with a lack of awareness, timely information and knowledge of the weeds, is limiting the practical implementation of integrated weed management practices.
Method
Management of data and knowledge of weeds will be shared, in order to facilitate the development of identification and information tools. This will be combined with training and dissemination of these tools by project partners to local actors, such as agriculturists from NARS or the private sector, extensionists, researchers, students in agronomy, etc., to promote their use and to encourage these local actors to contribute by sharing their knowledge and observations, and to participate in the platform activities.

- Web portal set-up with web 2.0 technologies and participatory modalities (project partners and the wider public).
- Compilation of existing knowledge and collection of new knowledge on weeds affecting food and cash cropping systems; implementation of ICT knowledge base on major weeds in the region on appropriate platforms.
- Capacity building through regional, national and local workshops and training sessions on an ICT knowledge base of major weeds; strengthening of network and collaboration among researchers, extension services and agriculturists.
- Dissemination and visibility actions around the knowledge base across the Indian Ocean Island states and the South East African region; setting up of mechanisms for long-term sustainability of the network.

Results
- Regional network of researchers, agriculturists and extension services to exchange knowledge and experiences on weed management.
- Functional and comprehensive knowledge base on major weeds affecting food and cash cropping systems accessible to researchers of NARS, personnel of agricultural extension services and private sector agriculturists.
- Improved capacities and knowledge for farmers on effective and sustainable weed management practices supported through the latest appropriate ICT technologies.
- An application enabling weed identification and management, available in several appropriate electronic versions (CD-ROM, online, encapsulated for use on various devices such as computers, tablets and smart phones).

Discussion between workshop participants on weed infestation in sugarcane field, Labourdonnais Estate, Mauritius (January 2014). © P. Grard – IFP

Weed identification in a vegetable field (ginger, chilli, tomatoes) with WIKWIO tools on tablet with workshop attendees (project partners and local actors from sugarcane estates, small farmers representatives, university) and farmers, Labourdonnais Estate, Mauritius (January 2014). © P. Grard – IFP