

# Webusers interacting through PROTA information system

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## Abstract

For the past decade, PROTA has compiled and synthesized information on species of useful plants of tropical Africa and made this information available in both English and French using web databases, books and CDs. By documenting the best practices, PROTA contributes to a sustainable rural development in tropical Africa.

This effort is coordinated and executed in PROTA network offices in Africa and Europe. Specialists from within and from outside the network contribute as authors and editors.

To streamline synthesis of the c. 8000 plant species with a documented use, PROTA classified the plant species into commodity groups. Several commodity groups are worked on simultaneously by different teams of editors and authors.

PROTA has disseminated this information in review articles per species through a freely accessible web database. Users regularly download and disperse the information contained in the articles.

By late 2008 PROTA realized that a more interactive approach would improve the quality and speed of filling records in the web database and will provide a wider platform for plant information exchange in Africa. As such, an advanced web database christened PROTA4U will be opened-up to users who will be able to comment on reviewed articles and contribute through a wiki on non-validated articles.

Early 2010, PROTA4U will be launched with records on all the species available to the public, providing open avenues of publishing scientific information. Non-validated species records will contain information from PROTA's internal databases. Both novice and scientific users will fact-check, create and augment plant information.

In the course of 2010 each species record will be filled with appropriate information mined from the internet, providing a pool of information available to users, offering greater opportunities to exchange and update information. PROTA4U will also contain illustrations, geographic distribution maps, color images, and other demand driven products.

## Introduction

Plant Resources of Tropical Africa (PROTA) is a long-term, international and interdisciplinary undertaking to build a high-quality, user oriented, and bilingual information system on the 8,000 useful plants of tropical Africa, classified into 16 commodity groups, as a basis for sustainable ecosystem management, poverty alleviation and economic development.

PROTA brings the world literature on useful African plants, now accessible to the resourceful few, into the public domain and contributes to the greater awareness and sustainable use of the world heritage of tropical useful plants.

A comprehensive overview of the state of knowledge on Africa's useful plants allows for timely identification, conservation and sustainable use of promising species for food security, income generation, medicine development, bio-fuel production, environmental protection and adaptation to climate change.

## PROTA organization and documentation process

Initiated by Wageningen University in 2000, as a partnership of 11 institutions, PROTA has developed rapidly and mobilized an extensive network in 30 countries in Africa, and a global network of over 2,000 scientists. Partner institutions in Africa and Europe host the PROTA offices (Table 1).

Table 1. Overview of partner institutions and PROTA offices

<b>Partner institution</b>	<b>PROTA office</b>
Makerere University, Uganda	Regional Office East Africa
National Herbarium and Botanic Gardens, Malawi	Regional Office Southern Africa
Parc Botanique et Zoologique de Tsimbazaza, Madagascar	Regional Office Indian Ocean Islands
Centre National de la Recherche Scientifique et Technologique, Gabon	Regional Office Central Africa
Forestry Research Institute, Ghana	Regional Office Anglophone West Africa
Centre National de Semences Forestières, Burkina Faso	Regional Office Francophone West Africa
World Agroforestry Center (ICRAF), Kenya	Network Office Africa
Royal Botanic gardens Kew, United Kingdom	Country Office United Kingdom
Agropolis International, France	Country Office France
Wageningen University, Netherlands	Network Office Europe
PROSEA Foundation, Indonesia	-

The regional offices supervise Data Collectors in other countries in their region to help in the compilation of 'grey' literature and expertise in the field of useful plants.

The network undertakes the complex task of information gathering, knowledge synthesis, dissemination and utilization.

A large international team of experts is contributing the texts on particular species. All species are described according to a standard format with details on geography, uses, trade, properties, botany, ecology, agronomy or silviculture, genetic resources, breeding, prospects and literature.

To streamline synthesis of the c. 8,000 plant species with a documented use, PROTA classified the plant species into commodity groups. Several commodity groups are worked on simultaneously by different teams of editors and authors.

Contributors are invited through the network and the website to write an article on one or more plant species. PROTA standards guarantee the proper, scientific, comprehensive and standardized compilation of an article. Subsequently the articles are published in the webdatabase,

After knowledge synthesis stakeholder consultations are being held to identify priority species, research and development needs, policy and conservation interventions, and ready technologies that can be introduced at grassroots level. The resulting outcome of this process is published in the bilingual PROTA Recommends... series.

Dissemination of the PROTA information takes place through PROTA4U (in development), the commodity based handbook and CD-ROM series, key partners in Africa, agricultural extension systems, targeted workshops and seminars, print and various other electronic media, in particular mobile phone (in development).

Utilization of the knowledge takes place through a proactive promotion of widespread and best use of PROTA's information by rural development organizations, end-users, private sector, researchers, policy makers, to influence policy, advance research, disseminate ready technologies, develop value added products, improve livelihoods and for curricula development and teaching. This is achieved through key strategic actions and partnerships.

## PROTA web database

The PROTA web database has a wealth of information on the useful plants of tropical Africa. You can access it directly through <http://database.prota.org/search.htm> or via our homepage at [www.prota.org](http://www.prota.org) that will gradually move to <http://www.prota.co.ke/>.

The Search Screen offers pre-arranged entrance through 4 Search Options: Scientific names, Vernacular names (English, French, Portuguese, Swahili), Geographic distribution (West Africa, East Africa, Central Africa, Southern Africa, Indian Ocean Islands) and Uses (16 commodity groups).

Most plants have multiple uses and although not all commodity groups have already been dealt with systematically, the 1,219 records, every record counting for a bilingual review article, will give you results for any of the 16 commodity groups (table 2).

Table 2. Overview of the number of records / review articles per commodity group and the numbers of review articles with a use in a particular commodity group

<b>Commodity group</b>	<b>Articles</b>	<b>Species</b>	<b>Search results</b>
Cereals and pulses	71	80	99
Vegetables	271	355	430
Dyes and tannins	70	112	221
Ornamentals	2	2	320
Forages	2	2	396
Fruits	2	2	209
Timbers	307	565	503
Carbohydrates	2	2	150
Auxiliary plants	2	2	270
Fuel plants	1	1	325
Medicinal plants	411	899	1010
Spices and condiments	2	2	128
Essential oils and exudates	2	2	122
Vegetable oils	47	64	125
Stimulants	2	2	58
Fibres	25	47	317

What makes PROTAbase especially powerful is the 'Free text search' option, because this allows to search for any keyword.

The first 5-year period led to nearly 1,200 review articles on about 2,000 plant species. From this, it follows that 15 years will be needed to arrive at a comprehensive system of about 4,500 review articles on about 8,000 plant species.

Although a total period of 15 years is by no means unreasonable for such a huge international undertaking (compare with PROSEA 1987-2002), we have been discussing ways to speed up the process by involving larger numbers of stakeholders and making optimum use of data-mining software.

## PROTA4U user platform

PROTA is opting for an information system combining lightly moderated public-domain content and highly standardized expert-validated content.

The structure of the new PROTA web database (PROTA4U) has been developed in the course of 2009. It is a combination of PROTA's highly standardized expert-validated review articles (PROTAbase) and yet-to-be-validated 'starter kits' for all other useful plants. These 'starter kits' are pre-filled with basic information from PROTA's databases SPECIESLIST (important synonyms, uses, basic sources of information) and AFRIREFS ('grey' literature).

Furthermore, the records contain the results of a meta-analysis from a large collection of agricultural and botanical databases, conducted successfully in cooperation with the ICON Group International. The websites, which allowed their databases to be harvested, will be properly acknowledged in the 'starter kits'.

Although the layout and search options of PROTA4U will still need some fine-tuning, we are confident that the data collected will help to facilitate and speed up the validation process, and also will make the information system more dynamic and subject to a continuous updating process. 'Comments' fields in both validated review articles and 'starter kit' records will allow visitors to add remarks and propose improvements to the existing texts.

The possibilities of this interactive database and its derived applications are enormous, both for its current audience of researchers and other agricultural experts, but also for farmers, who will have access to mobile phone versions of PROTA materials, enhanced with assisted reading.

PROTA4U will become operational in the first half of 2010.

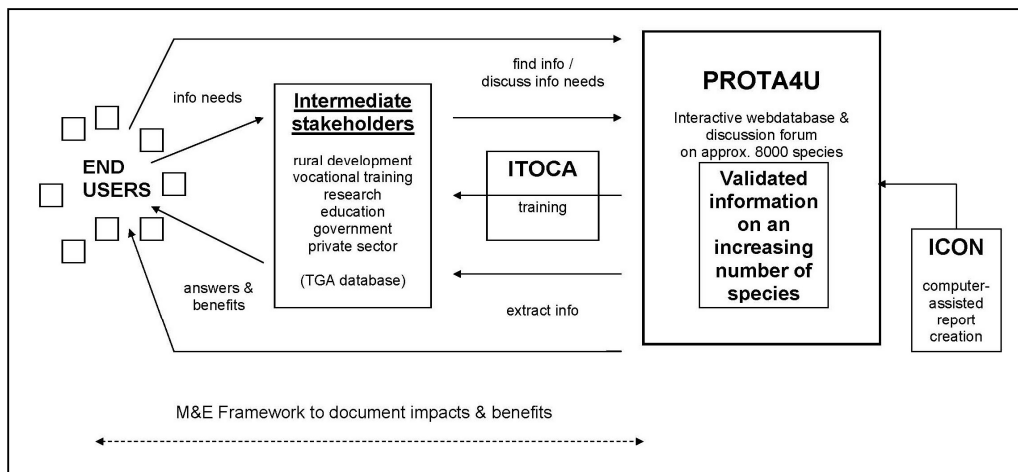


Fig. 1. Demand-driven interactive process

For improving the interaction with users of the PROTA web database, PROTA cooperates with ITOCA (Information Training and Outreach Centre for Africa), South Africa. ITOCA is conducting in-country user trainings for the 'on-line scientific journal' programmes like TEEAL, AGORA, HINARI and OARE. These would form a very logical combination with PROTA user training: PROTA being the baseline knowledge overview going back in time to older data, whereas the 'scientific journal' programmes offer access to the most recent publications.

We feel that the intended set-up will lead to a powerful combination of a demand-driven interactive process (Figure 1) and a supply-driven commodity approach (Figure 2).

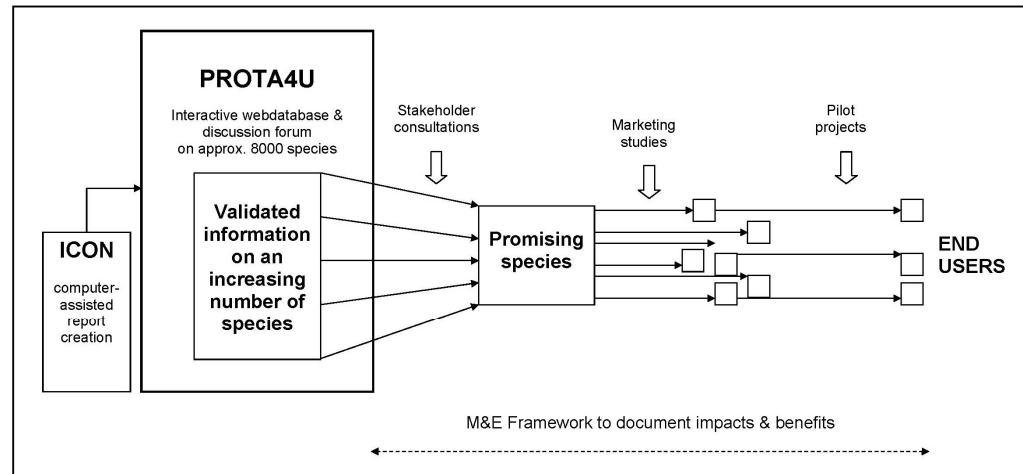


Fig. 2. Supply-driven commodity group approach

The commodity group approach will continue to form the skeleton of the validation process: it is practical from the organizational point of view and it closely relates to the interests and daily practice of stakeholders.

The interactive process will make the information system more dynamic and will not only link PROTA to users, but also users to users. Once established and operational, discussion forums could be added to make PROTA4U the main platform for discussion on the useful plants of tropical Africa.

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