



WEBSITE FOR INFORMATION AND KNOWLEDGE MANAGEMENT AMONG MEMBERS OF THE CITRUS COMMUNITY THAT INTER AMERICAN CITRUS NETWORK (IACNET)

Sitio Web para la gestión de información y conocimiento entre miembros de la comunidad cítrica que integra la Red Interamericana de Cítricos (RIAC)

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ABSTRACT. A website for the Inter-American Citrus Network (IACNET) was developed to promote international collaboration and networking, considering that Technologies for Information and Communications (TIC) play a crucial role in this regard. The software provides the user with different choices and through a simple setting displays articles, images and reports, related mainly to the issues that have been identified as restrictive factors for citriculture in the continent, such as the health status and the need to propagate certified material. The site can be accessed through any computer with Internet access. This site has permitted a quickly and easy access to the information as well as a greater knowledge on continental citriculture.

Key words: World Wide Web, computer programming, citrus, networks

RESUMEN. Se elaboró un sitio Web para la Red Interamericana de Cítricos (RIAC), que propicia la colaboración internacional y el trabajo en redes, teniendo en cuenta que las Tecnologías de la Información y las Comunicaciones (TIC) desempeñan un papel decisivo en este sentido. El software le ofrece al usuario diferentes opciones y a través de un entorno sencillo muestra artículos, imágenes e informes, relacionados, fundamentalmente, con los temas que se han identificado entre los factores restrictivos para la citricultura en el continente, como la situación fitosanitaria y la necesidad de propagar material certificado. Al sitio se puede acceder a través de cualquier computadora que tenga acceso a Internet. Este sitio Web ha permitido obtener la información con rapidez y un mayor conocimiento de la citricultura continental.

Palabras clave: World Wide Web, programas de ordenador, citrus, redes

INTRODUCTION

Citrus constitutes the third fruit crop of a great importance after apple and banana due to its role in food habits of a big amount of people in the earth (1, 2, 3). During 2011, were sowed approximately 13,2 millions of hectares, obtaining a production of 12,6 millions of metric tons. It represents the fourth part of the whole fruit growing production, Brazil and USA being the leader producers (4).

In Cuba, these crops cover an extension of 45.800 ha with an average yield of 5,35 t ha⁻¹ and also with an annual production of 2451 fruit tons (4). These citrus low production yields are mainly because of negative effects caused by climatic factors and the high pest incidence in citrus crops (2).

Each year higher temperatures and the increasing magnitude and intensity of heat wave cause economic considerable losses in different crops (5, 6). Due to the global warming, It is estimated that the average temperature can increase between 3-6 °C to the year 2100, which would cause serious damages in citrus production, mainly in rainy periods in which increase significantly the pest incidence. For this reason, the basic priority and the investments in this sector are directed to the promotion to citrus plantations with

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tolerant species to the most common diseases of them and to raise the industrial efficiency of its productions (7,8).

Therefore, it is important to Cuba and other countries of the region to have tolerant and resistant patterns to the main biotic and abiotic agents that affect citrus production and its quality and quantity improvement (7). These aspects to a large extent are achieved through available rootstock hybridization with desirable characteristics by means of hybrid productions which enrich the citrus germplasm for a future use (2, 9). The knowledge of these aspects in the citrus community is the great importance for the region.

Nowadays the society is revolutionizing to a vertiginous rate and these changes are translated into new tools of training for the Information and Communication Technologies (CIT). The CIT's facilitate communicative and educative strategies to establish new ways of working, teaching and learning through the use of advanced concepts in a competitive and demanding world, using a system of functions to look up information and to share archives, access of a desktop sharing, simultaneous editing and other electronic forms of communication that permit the data can be shared (10, 11, 12, 13).

It is good for emphasizing that CIT's propitiate the development of thematic networks that brought about in 1991 the creation of the Inter American Citrus Network (IACNET), integrated by 28 countries from the American continent. This network has focused its attention mainly in the threats to the citriculture in our continent since its beginning, in order to promote and to establish activities of technical and economic cooperation in fields of citrus among the countries members of this network, to achieve a more effective use of available resources.

For all these mentioned reasons, this paper was done with the objectives of creating a website for IACNET that permits the international collaboration and the work in networks, with help of CIT's with the aim of acquiring a greater knowledge about citrus productions and a better and rapid disclosure of main problems that are present in these crops.

MATERIALS AND METHODS

In order to propitiate the international collaboration and the works in networks, a website was created to IACNET with help of CIT's.

For the developing of this paper were used PHP, PostgreSQL, Javascript and Adobe Photoshop CS5 technologies.

As a language programming was used Hypertext Pre-processor (PHP) for being a language that permits to favour the Server, free and independent of the platform, fast, with a great library of function and lot

of documents (1, 11, 14). The Database management system (DBMS) used was, PostgreSQL which is directed to objects. This manager is widely recognized and used in the free software, because it fulfils the standards SQL92 and SQL99 as well as a set of advanced features that it supports, which places it to a significant level in regard to others commercial DBMS (15).

It is distributed under license BSD that permits its use, redistribution and modification with the only restriction of keeping the software copyright to its authors and it has function in multiple platforms (16).

To do the validation of the client forms, JavaScript was used, because among its advantages as it stands, the server is not solicited more than usual too (1).

Adobe Photoshop CS5 was used mainly to make the banner for being a powerful tool of edition and creation of images, able to produce correction and modification of colour and even the design of websites (17, 18).

To use the website is necessary to have a computer with installed web browser and access to Internet.

RESULTS AND DISCUSSION

The created website is a useful tool to the development of IACNET, it appears in English and in Spanish (Figures 1 and 2) and presents different options with a simple setting, showing the information about the amount of people who are connected to it.

To access to this website people should write in the web browser the direction <http://www.iacnet.cu>, which shows in the home page the welcome to it, divulging information about the IACNET Project and its main objectives. Besides it allows the access to information about pests, economy and marketing which allows to know tolerant species to the most common diseases in the region (7, 8) and then the most significant news is divulged.

Among opportunities that the main menu gives to us, people can use IACNET option; it presents antecedents, mission, general characteristics, objectives, member countries, structure, coordinators, general meetings of coordinators, projects, held events and next events.

In Science and Technology menu, people can find everything related to the introduction, bioclimatology and production handling, pests and diseases, economy and marketing, postharvest, genetic resources and propagation and organic productions.

Among advantages to manage the website there is the Page option which allows to modify or to insert things like: plan work, news etc.

To insert the news people enter: date, title, summary and news.



Figure1. Portal home page to IACNET in Spanish



Figure2. Portal home page to IACNET in English

Among informations presented by the website are: objectives of the CFC Project, general information structure, nursery workshops, sensitization and next events.

Also it shows information about the release workshops, diagnostic workshops, rapporteurships, participants and some photos related to these events.

The website presents different websites of interest such as: FAO, FAO-RLC, CFC and others

Another advantage presents in this website is the Search option which offers the chance to enter a text and the content appears quickly.

The website has the Contact us option, in the lower part of window which offers the possibility of communicating oneself in a fast way with the website administrator and offers the chance to those who have administration permission to register in it, giving the possibility of updating remotely (Figure 3).

In the News insert option appears a request form with: date, title, summary and news (see figure 3).

This website appeared in 2008 for the first time and it presented a limited access number. Nowadays, web visits have increased until 657, what it shows it is well known and there is a great interest to access it. This and the users' criteria show the interest for the website.

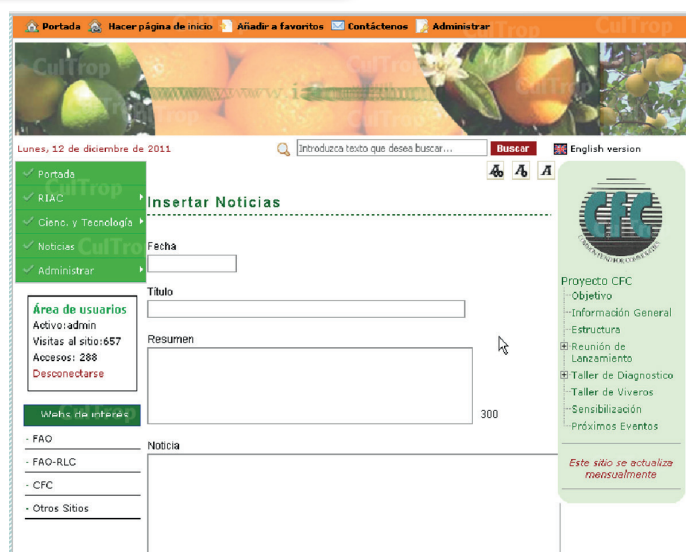


Figure 3. Portal that shows how to insert news 1

These results can offer economic profits but these are so difficult to quantify them and it is not part of this researching because as every scientific result in its initial phase, it is not possible to establish a cost-benefit relationship.

As this website promotes the identification and the analysis of threats and the citriculture limitings in the continent propitiates the ideas and information exchanges among the scientists, specialists and producers spreading workshops and exchanges among them. The same way it encourages actions to mitigate risks and also it puts around the knowledge about, pests, environmental stress and main actions to follow.

The network promotes the systematic work to preserve the phylogenetic resources of citrus and to improve the propagation technology, also it determines the climate effects and the climatic change about the production and Citrus characteristics, aspects that bring about several damages to this crop (5). Likewise it allows systematic analysis of economic aspects in Citrus agroindustry and the world trade in this category.

CONCLUSIONS

The website for the Inter American Network is a useful tool for the researchers, technicians, specialists and producers who work in the citriculture in Cuba and this continent, which permits the international collaboration and the work in networks. The application is shown in English and in Spanish and offers different options through a simple setting, among them are highlighted: the divulgation of pest information, economy and marketing, postharvest, phylogenetic resources and organic productions.

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