E D U N A B I O

UNIVERSIDAD NACIONAL DE LA PLATA

UNIVERSIDAD NACIONAL AGRARIA
"Por un Desarrollo Agrario Integral y Sostenible"

Proceedings

International Workshop

Santa Clara and Bayamo,

March 2014, Cuba

Schedule

23 March: Arrival in La Habana

24 March: Travel to Santa Clara; Workshop I with colleagues from the Universidad Central, meeting with the Dean of the Faculty of Agriculture (Raciél Lima Orozco)

25 March: Travel to Bayamo

26 March: Workshop II, meeting with the President of the University of Granma, Narcys Bueno

27 March: Field trip to Sierra Maestre

28 March: Travel to Havana

29 March: Informal meeting for foreign participants and farewell event

30 March: Departure from La Habana

Participants Workshops I and II

Tabel 1: Names of particpants at the workshops I and II (complet list with adressen given in the annex)

Institution	Name/Position	Work-shop 1	Work-shop 2
Universidad de Granma	Narcys Bueno Rector		x
Universidad de Granma Faculty of Agriculture	Raúl López Project coordinator I Bayamo		x
Universidad de Granma Faculty of Agriculture	Yosvel Viera Tamayo Scientist		x
Universidad de Granma Faculty of Agriculture	Robison Hermosilla Espinosa Scientist		x
Universidad de Granma Faculty of Agriculture	Yoandro Rodriguez Ponce Scientist		x
Universidad de Granma Faculty of Agriculture	Ernesto Gómez Scientist, Agroecosystems		x
Universidad de Granma Faculty of Agriculture	Gisper Gongora Scientist		x
Universidad de Granma Dept. of Chemistry	Dilver Peña Fuentes Project coordinator II Bayamo		x
Universidad de Granma Dept. of Chemistry	Manuel Almeida Scientist, Chemistry		x
Universidad de Granma Dept. of Chemistry	Eugenio Torres Rodriguez Scientist, Chemistry		x
Universidad Central de las Villas Faculty of Agriculture	Raciel Lima Orozco Dean	x	
Universidad Central de las Villas Faculty of Agriculture	Marta Vega Hernandez Scientist, Animal Sciences	x	x
Universidad Central de las Villas Faculty of Agriculture	Cristobal Rios Scientist, Plant Sciences	x	x
Universidad Central de las Villas Faculty of Agriculture	Onelio Fundora Scientist, Soil Science	x	
Universidad Central de las Villas Faculty of Agriculture	Yamisey Year Year Scientist, Plant Sciences	x	
Universidad Central de las Villas Faculty of Chemistry	Pedro Jesus Iturra Quintero Scientist, Chemistry	x	x
Universidad Central de las Villas Faculty of Chemistry	Luisel Hernandez Junco Scientist, Chemistry	x	x

Institution	Name/Position	Work-shop 1	Work-shop 2
Universidad Central de las Villas Faculty of Chemistry	Luís Bravo Sanchez Scientist, Chemistry	x	x
Universidad Central de las Villas Faculty of Chemistry	Jose Orestes Guerra Scientist, Pharmarcy	x	x
Universidad Central de las Villas IBP	Idalmis Bermudez Coordinator of the master program of Biotechnology	x	x
Universidad Central de las Villas IBP	Lourdes García Rodríguez Coordinator of the PhD program of Biotechnology	x	x
Universidad Central de las Villas IBP	Daniel Agramonte Penalver Scientist, Biotechnology	x	x
IBP - Universidad Central Marta Abreu	Felipe Jimenez Terry Scientist, Biotechnology	x	x
CORPOICA Dept. Biotechnology	Martha Isabel Gomez Scientist Project coordinator for Corpoica	x	x
CORPOICA Dept. Biotechnology	Laura Fernanda Villamizar Scientist	x	x
CORPOICA Dept. Biotechnology	Mauricio Cruz Barrera Scientist	x	x
Universidad Nacional Agraria	Carolina Vega scientist, project coordinator for UNA	x	x
Universidad Nacional Agraria	Hugo Rodriguez Scientist	x	x
Universidad Nacional Agraria	Roxana Cruz Scientist	x	x
Universidad de Rostock	Bettina Eichler Lobermann Vice-Rector for Internationalisation Project coordinator	x	x
Universidad de Rostock Dept. of Hydrology	Konrad Miegel Professor	x	x

Main outcomes - summary

1. **During the workshop the modules were selected which should be developed regarding aspects of biodiversity. Each partner nominated one or more persons responsible for the development and evaluation of the modules. Special emphasis was given on e-learning and distant-learning programs. Another Master course was included into the program: Sustainable agriculture (University of Santa Clara)**
2. **The partners discussed the organization of the academic exchange for 2014 as well as offered opportunities and topics for qualifications and practical terms.**
3. **Corpoica offered practical training programs for 1 month (160 hours) in aspects of "Microbial diversity and Biocontrol".**
4. **The partners agreed to include the field of animal sciences into the project.**
5. **The next workshop will be held in Colombia in February 2015. Corpoica will be responsible for the organization. The workshop will be combined with the field trip, which is also organized by Corpoica.**

The following modules of the master study courses were selected (responsible persons in brackets)
S1 Manejo sostenible de los recursos naturales (Universidad Granma, Manuel Almeida and Dilver Peña)
S2 Ciencias Agropecuarias (Universidad Granma, Raúl López and Dilver Peña)
S3 Producción de medicamentos de origen natural (Universidad Central de las Villas, José Orestes, Pedro Iturra)
S4 Biotechnolgía de las Plantas (Universidad Central de las Villas, Lourdes García, Idalmis Bermudez)
S5 Proteccion Vegetal (Universidad La Plata)
S6 Agroecología (Universidad Agraria Manuagua, Carolina Vega)
S7 Agroforestería tropical (Corpoica in cooperation Universidad de Ciencias Aplicadas y Ambientales

The workshop was split in two parts

Workshop I in Santa Clara
Workshop II (main workshop) in Bayamo

During the workshop I in Santa Clara Bettina Eichler explained the main objectives of the project and the issues needed to be discussed during the workshop in Bayamo. She met colleagues from the University in Santa Clara who could not participate at the workshop in Bayamo. The main workshop was held in Bayamo, where all partners presented their institutions and discussed the issues given above.

Contribution of the partners during the workshop in Bayamo

University of Rostock (Germany)

At the beginning of the workshop Bettina Eichler (project leader) presented the University of Rostock and gave a summary of the main objectives and the milestones of the project.

Following main objectives of the project were confirmed by the participants:

- Foster aspects of biodiversity in higher education
- Improve the quality of education
- Strengthen the cooperation and academic exchange between institutions in Latin America and Germany
- Provide a basis for further joint projects

Main project issues were discussed as well with Narcys Bueno (President of the University of Granma) during the stay in Bayamo.
Konrad Miegel presented new aspects regarding the effect of hydrological parameters on soil quality and biodiversity.

Aspects of biodiversity should be also more considered in the following modules of the Master course “Plant production and Environment” of the University of Rostock: I) Renewable primary products and Bioenergy II) Agronomy and Plant nutrition, III) Soil Use Systems in the Tropics and Subtropics.

Bettina presented the chair of Agronomy of the University of Rostock and explained options for scientific collaborations.

List of presentation given[1]:

Summary of the project EDUNABIO (Projects_overview_eichler)
Short presentation of the University of Rostock (Rostock_presentation_university)

[1] All presentations of the workshop can be download: Link…..

Presentation of the research and education activities of the chair of Agronomy and nomination of modules to be developed within the project (Rostock_chair_agronomy)
Lecture of drought stress and impacts on agriculture (Rostock_Hydrology)

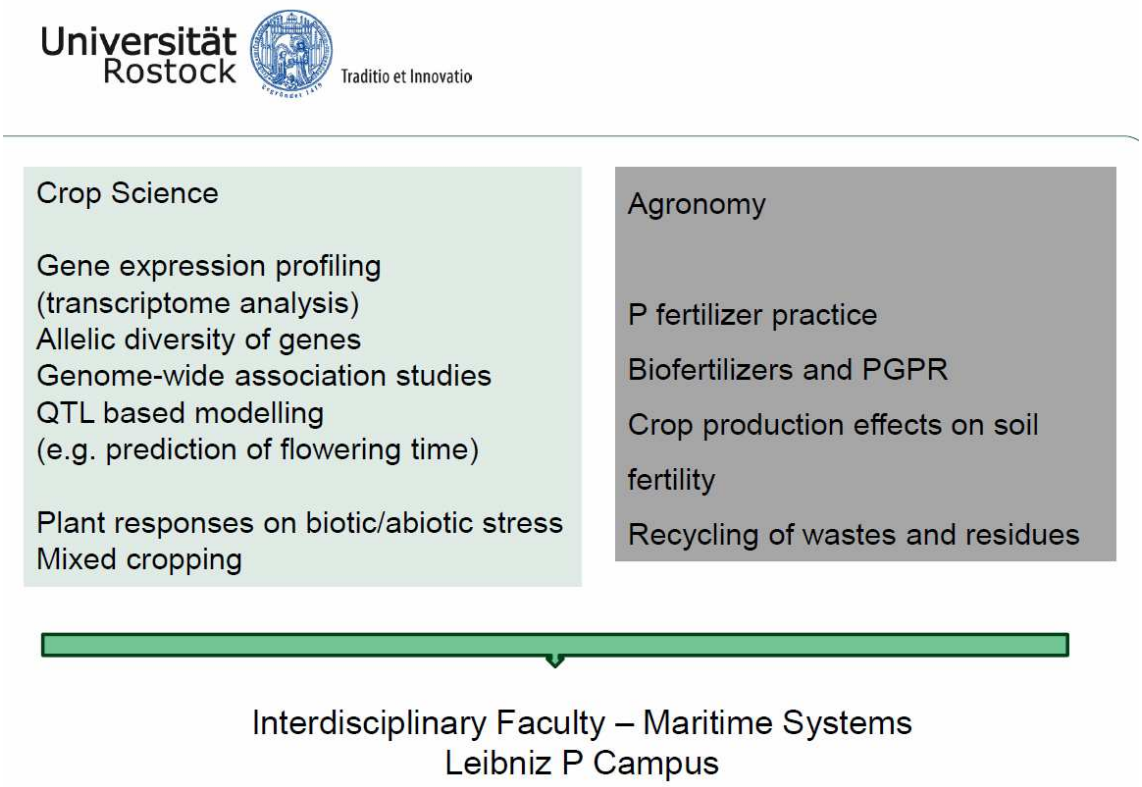


Figure 1: Research activities of the chair of Agronomy of the University of Rostock – presented by Carolina Vega

Universidad Nacional Agraria (Nicaragua)

Carolina Vega presented the University and gave details about master study courses, PhD programs and she presented modules to be developed within the project. Furthermore, she gave important information regarding the status of biodiversity and valuable regions in Nicaragua. Carolina focused on the improvement of the education and research (see figure 2) and the option to modify contents of courses during the project time.

The following modules of the MSc study course "Agro-ecology and rural development" were selected for further revision within the project: I) Analyses and management of sustainable agro-ecosystems, II) Ethno-ecology, III) Planning of fincas.

List of presentation given:

Quality in research and education (Nicaragua_quality_education_research)
Selected modules for the project (Nicaragua_selected_modules)

Figure 2: Approach to improve the quality of education and research – presented by Carolina Vega

Corpoica (Colombia)

Martha Gómez presented the main data of Corpoica including branches of investigation, laboratories, research focusses and current projects. Furthermore, the study course Agroforestry was presented.

Laura Villamizar showed a selection of practical courses offered by Corpoica for students of the partner universities in the field of "Microbial diversity and biological pest control". During these courses students and PhD students have the opportunity to get knowledge in experimental designs and laboratory work, field experiments, data analyses and scientific writing (see figure 3). Corpoica offered the following topics for practical courses: I) Microbial diversity, II) Basics of biological pest control, III) Biological control of phytopathogens, IV) Biological control of fungi and insects V) Formulation of biological pest products VI) Quality control VII) Different case studies.

Figure 3: Training program offered by Corpoica in the field of microbial diversity.

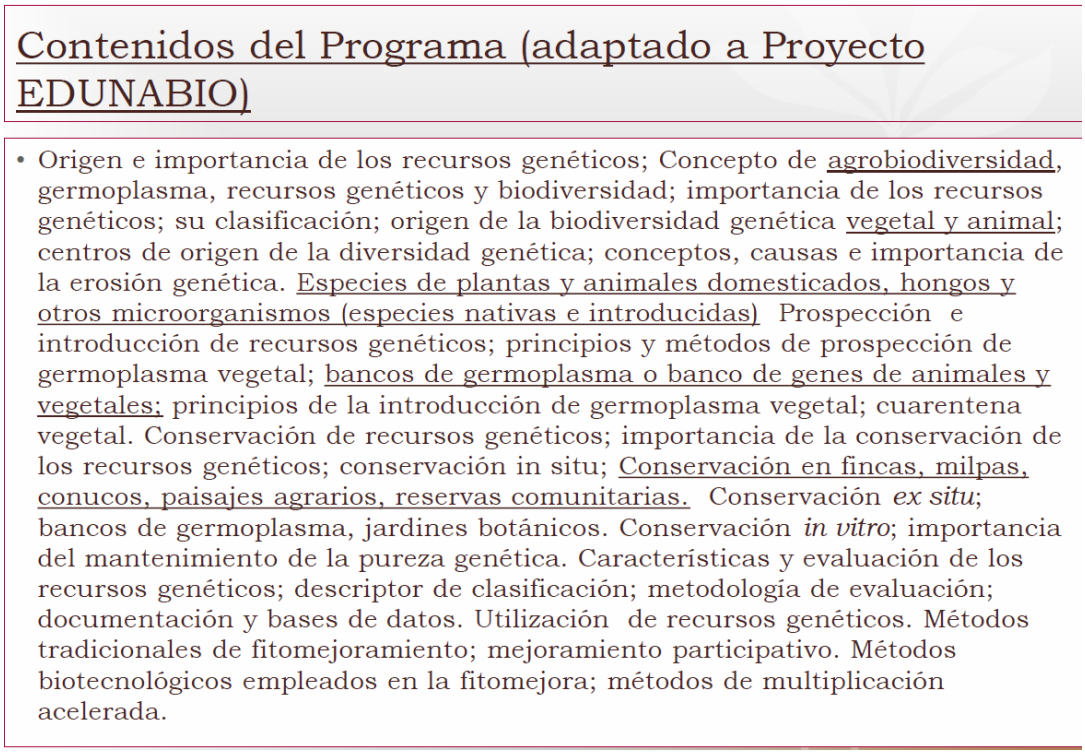
List of presentation given:

Description of the Master Course Agroforestry (corpoica_ description_agroforestry)
General information of Corpoica (corpoica_general)

Description of the practical courses offered by Corpoica to other partners (Corpoica_practical_courses)

Universidad de las Villas, Santa Clara (Cuba)

The Faculty of Agriculture, the Faculty of Chemistry and the Institute of Biotechnology of Plants were presented by Cristóbal Rios, Pedro Iturria, and Idalmis Bermúdez, respectively. Idalmis highlighted that the Master course in Biotechnology belongs to courses with the label of Excellency. Special attention was given to the module Production and conservation of genetic resources (see figure 4). Marta Vega introduced the department of animal sciences. This had special importance since the area of animal sciences was not included in the project yet. Issues of breeding and potato production were discussed with Daniel Agramonte and Felipe Jiménez.
Pedro Iturria presented a virtual laboratory which was developed in the department of Chemistry. He also offered the possibility to host the official website of the project and will be responsible for the work package "Evaluation".



Contenidos del Programa (adaptado a Proyecto EDUNABIO)

- Origen e importancia de los recursos genéticos; Concepto de agrobiodiversidad, germoplasma, recursos genéticos y biodiversidad; importancia de los recursos genéticos; su clasificación; origen de la biodiversidad genética vegetal y animal; centros de origen de la diversidad genética; conceptos, causas e importancia de la erosión genética. Especies de plantas y animales domesticados, hongos y otros microorganismos (especies nativas e introducidas) Prospección e introducción de recursos genéticos; principios y métodos de prospección de germoplasma vegetal; bancos de germoplasma o banco de genes de animales y vegetales; principios de la introducción de germoplasma vegetal; cuarentena vegetal. Conservación de recursos genéticos; importancia de la conservación de los recursos genéticos; conservación in situ; Conservación en fincas, milpas, conucos, paisajes agrarios, reservas comunitarias. Conservación *ex situ*; bancos de germoplasma, jardines botánicos. Conservación *in vitro*; importancia del mantenimiento de la pureza genética. Características y evaluación de los recursos genéticos; descriptor de clasificación; metodología de evaluación; documentación y bases de datos. Utilización de recursos genéticos. Métodos tradicionales de fitomejoramiento; mejoramiento participativo. Métodos biotecnológicos empleados en la fitomejora; métodos de multiplicación acelerada.

Figure 4: Suggestions for modification of the module Production and conservation of genetic resources within the Edunabio-Project presented by the University las Villas.

List of presentation given:

Description of the Master Course Sustainable Agriculture

(Santa_clara_course_sustainable_agriculture)
Description of the Master Course Medical Plants (Santa_clara_medical_plants)
Selected modules IBP (santa_clara_selected_modules_IBP)

Universidad de Granma, Bayamo (Cuba)

Dilver Peña presented the University including current projects and other scientific activities. Manuel Almeida explained the contents of the Master course: Sustainable management of Natural Resources which was developed within the last DAAD project between the Universities in Rostock, Managua, Santa Clara and Bayamo. For the project the module Renewable energies and recycling materials was selected and presented by Yoandro Ponce. He highlighted the role of renewable energy regarding social, political, economic and environmental aspects. Raúl López summarized the contribution of the University of Bayamo within the project.

Figure 4: Role of renewable energies. Presentation given by the University of Granma.

Summary and General Discussion of the Workshop II

After the presentations the selection of the modules of the master courses were discussed. Finally, the discussion resulted in a selection of at least two modules per master study course. The participants suggested academic exchanges for 2014, giving special attention to young scientist. The participants, mainly from Cuba, appreciated the project also in order to motivate young people to study agricultural or environmental subjects.

Bettina gave special thanks to all participants for their contributions to this successful workshop.

E D U N A B I O

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