PROCINORTE REPORT 2014

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INTRODUCTION

This report summarizes the activities carried out by PROCINORTE from December 2013 to November 2014. These activities were framed by the agreements reached during the XV Annual Meeting of the Board of Directors (BoD) in Ottawa, Canada, in March 2014. These agreements were: (1) to change the name of the fruits task force to "Tree Fruits Task Force" to further facilitate the participation of Canadian researchers in its work and that the work focuses on issues of fruit quality that impact tri-lateral trade, (2) to strengthen representation of PROCINORTE countries in FORAGRO with support from IICA, by contributing to set the agenda, provide inputs and follow up on themes of interest, (3) to charge a working group formed by Ryan Moore (USDA), Brad Fraleigh (AAFC) Arturo Cruz (INIFAP), and Priscila Henríquez (facilitator), with reviewing the proposed Strategic Plan and make modifications and recommendations for its implementation by December 2014, and (4) the members BOD approved the work plan 2015 and engaged to continue efforts to identify in-kind contributions to PROCINORTE's activities.

PROCINORTE Strategic Plan

The PROCINORTE Board of Directors had requested an update of the Strategic Plan 2010–13 in light of the changes that occurred in the national innovation systems of Canada, Mexico and the US. IICA assigned $5,000 for this task and the Agricultural Research Serviced (USDA/ARS) committed $3,000 to the task.

The review the Strategic Plan was carried out between September and November 2013, with the support of the PROCINORTE's Executive Secretary- Priscila Henríquez, and leadership of the PROCINORTE members. A consultant was retained to (1) review the relevant policies that influence agricultural research and innovation in Canada, Mexico and the US and draw recommendations for PROCINORTE, (2) consult with PROCINORTE's Board, the Task Forces (TF), IICA, and other relevant partners on issues relevant to revisit the current vision, mission and strategic objectives for PROCINORTE on themes beyond agricultural research, and (3) develop the proposed PROCINORTE Strategic Plan 2015-18 to continue and expand as appropriate the tri-national collaboration on selected technical themes.

The consultant completed the following deliverables: (1) Strategic Planning outline with key questions for stakeholders: SWOT analysis, vision, mission and issues of sustainability for PROCINORTE, (2) power point presentation and executive summary containing results of SWOT analysis, vision, mission and sustainability issues for PROCINORTE, (3) summary report of consultation with stakeholders (brief analysis document) and recommendations for improving/revitalizing the Strategic Plan 2015-18 including the proposed plan for review and approval by the Board, and (4) draft PROCINORTE Strategic Plan 2015-18.

In the proposed 2015-18 Strategic Plan, the vision of PROCINORTE remained the same:

The governments of Canada, Mexico, and the United States working together, in consensus, and through their national agricultural research institutions to problem-solve and support agriculture in the North American region with science, improved, technology, and scientifically-based policy guidance.

The Strategic Plan propose a revised mission:

In the increasingly interconnected national, regional, and world economy PROCINORTE should mutually strengthen agriculturally related governmental and stakeholder collaboration in research, development, and policies to: 1) enhance sector productivity and competitiveness needs; 2) improve food safety and plant and animal health, and 3) assist on related capacity building needs. This is to be advanced via increased supportive links with the North American and other Western Hemisphere countries plus corresponding regional and global research and development networks.

The Plan proposed four areas for PROCINORTE's strategic agenda and a suggested response for each that will improve PROCINORTE's effectiveness technically and operationally.

The Plan was discussed by the Board during the 2014 meeting in Ottawa and it was recommended that a working group reviewed and updated it. Canada and the US made comments. An updated version of the Strategic Plan was circulated to the Board members for their discussion during the meeting in Costa Rica, in February 2015.

I. Task Force Accomplishments for the Period

The activities carried out by the Task Forces (TF) for the reporting period were in full alignment with the PROCINORTE Strategic Plan 2010-13 and focus on trilateral trans-border issues for commercial agriculture in Canada, Mexico, and the U.S. and strengthen linkages to regulatory counterparts, particularly to prevent technical barriers to regional agricultural trade in these countries. A brief account of the activities follows.

1. Genetic Resources- NORGEN

Context: The NORGEN Taskforce was initiated in 1999 by Canada, Mexico, and the U. S. Its primary goals were to develop a focal point for genetic resources programs within the three nations and to facilitate exchange of information among those nations under the umbrella of PROCINORTE. Bioversity International, as well as several other organizations has also participated. For the first several years, NORGEN did not have a budget, which impeded progress. Since then, IICA has allocated a modest annual budget (generally less than about $20,000 US) to the Task Force, which has enabled it to meet annually to review, discuss, and develop action items relative to genetic resources issues and to carry out some training, and knowledge exchange activities.

In 2014 NORGEN carried out the "GRIN-Global Workshop" co-organized in collaboration with Agriculture and Agri-Food Canada. For three days, training on the GRIN-Global software that is designed for genebanks to store, manage and communicate information associated with plant genetic resources was held at the Saskatoon Research Centre of Agriculture and Agri-Food Canada. The twenty-one participants included scientists, genebank curators, database managers and technicians from different locations in Mexico and Canada. The main objective was enable genebank curators to actively, enter, manage, and extract information from the complex relational database system GRIN-Global designed for genebank collections. One instructor working for the United States department of Agriculture led the

training. Agriculture and Agri-Food Canada hosted the training through Plant Gene Resources of Canada at the Saskatoon Research Centre.

2. Animal Health

Context: The Animal Health TF is continually monitoring new crisis related to animal diseases that constitute areas of concern for agricultural trade, and seek opportunities to collaborate in harmonizing the diagnostics and response with joint strategies between the network of scientists and regulators from three member countries. A mission of PROCINORTE is to facilitate and strengthen communications and collaborations among researchers and regulators in North America, with the ultimate aim to eradicate serious transboundary diseases such as bovine TB. The TF also aims at identifying and discussing ways in which the three countries could harmonize diagnostic methods and manage outbreaks.

The work in 2014 focused on *Mycobacterium bovis,* the causative agent of bovine TB, a transboundary disease requiring intimate linkage of control efforts between neighboring regions, particularly countries with extensive livestock trade as occurs between the US, Canada, and Mexico. In early August, a meeting was held in Ames, Iowa to discuss recent developments for current and emerging bovine TB diagnostic tests (including both ante- and post-mortem tests), molecular epidemiology techniques (including spoligotyping and whole genome sequencing), and risk-based surveillance tools. An emphasis was placed on methods to evaluate emerging tests, particularly field applications. Attendees included representatives from Canada, Mexico, and the US - including policy makers, bovine TB control program staff, researchers, diagnosticians, and laboratory technical staff. Action items coming from this meeting included: the urgent need for production of a new North American tuberculin standard as current stocks are dwindling, the identification of a research project to compare by whole genome sequencing *M. bovis* AN5 and *M. avium* D4 (i.e., mycobacterial strains used to produce bovine and avian tuberculins, respectively) stocks from each of the countries, the sharing/implementation of a USDA-NVSL bioinformatics algorithm in Canadian and Mexican laboratories for whole genome sequencing analysis of *M. bovis* isolates providing a harmonized approach to epidemiological investigations, the potential for a 'co-meeting' of future bovine TB PROCINORTE and the North American Animal Health Laboratory Network (NAAHLN) groups, and the need for a collaborative research project to determine the reason for geographic variations in serologic test accuracy. The next steps are to develop working groups to act upon these items and to continue to meet on a regular basis to promote harmonization of bovine TB control efforts within North America.

3. Plant Health

Context: In 2011, members of the Plant Health TF agreed to focus its research efforts on invasive plant pathogens, insect pests, and weeds of high agronomic or environmental consequence that are common to all three countries. Initial emphasis was placed on facilitating research on the *Brown Marmorated Stink Bug (BMSB),* a pest that is causing severe damage to tree fruit, small fruit, vegetables, row crops, and vineyards in the U.S. This insect has been reported in Canada but not in Mexico, and it is expected that it might rapidly spread to these countries if measures are not taken. A preliminary forecast by a PROCINORTE members in Mexico using simulation indicated that the BMSB could rapidly spread and develop at least six generations in that country, causing substantial damage to many food crops, including maize and beans crucial for food security.

Supported by PROCINORTE, specialists from the three countries have attended the Brown Marmorated Stink Bug IPM Working Group Meeting and BMSB BioControl Identification Workshop held at various locations in the US. The Mexican scientists are continuing to identify likely biocontrol insects for BMSB from the indigenous insects of Mexico, working from herbarium collections.

A one day workshop was held on August, 2014 hosted by the USDA Agricultural Research Service in Beltsville, MD, on how to analyze the data collected from sequencing insect genomes for use in taxonomy. Three scientists from Mexico and one from Canada attended this workshop supported by PROCINORTE, with local USDA entomologists running the workshop. Molecular diagnostics have focused on distinguishing among populations of BMSB, as well as on its natural insect enemies. The PHTF viewed this as a foundation for building networks in molecular taxonomy for insect pests of agricultural plants.

PROCINORTE researchers also participated in the Symposium on Biological Control co-organized with the Mexican Society of Biological Control, in Mérida, Yucatán México. ARS/USDA scientist Dr. Kim Hoelmer presented the molecular taxonomy of natural enemies of the BMSB. Dr. Hector Cárcamo from AAFC-Lethbridge discussed the usefulness of biological control in the Canadian prairies within the context of the integrated pest management strategies for control major pests in that country.

1. Tropical and Sub-tropical Fruits

Context: At previous PROCINORTE Board meetings, the relevance of continuing supporting the work of the Fruits Task Force was discussed. The Board reinforced its interest on research on tree fruits, with emphasis on fruit post-harvest, quality and standards. The work is expected to contribute to fresh fruits trade among the three member countries. Scientists of INIFAP, USDA/ARS and AAFC have focused on developing tools to assist in fruit harvesting and quality. Maturity is a major component of fruit quality and palatability, therefore it is important to harvest fruit at the right maturity stage to ensure that fruit will ripen properly and have acceptable eating quality. Harvesting fruit using current protocols involves destructive sampling, and is costly and labor intensive.

Therefore the TF has invested considerable efforts in developing a tool to determine fruit maturity through non-destructive methods for their target crops- avocados and mangos. During October 13 to 1, researchers form INIFAP, AAFC and ARS/USDA carried out a field mission to tree orchards in Jalisco, Mexico, where they are developing a near infrared spectroscopy instrument to assess avocado dry matter. The researchers visited avocado orchards in Ciudad Guzman planted to 'Mendez' and 'Hass' avocados with fruit at various stages of maturity. They observed field sampling procedures of fruit and dry matter determination done by the Agro González enterprise and also provided technical assistance to fruit producers.

During the field visit, the members of the TF carried out their annual Task Force meeting to draft a program for suture collaboration.

Financial execution

IICA allocated $70,000 to PROCINORTE for 2014 with an execution of 97.4% of the budget. Quantifying in-kind contributions from member countries continue to be a challenge, but in the past the ratios has been 1:5 (IICA: counterparts).

The composition of PROCINORTE during 2014 is presented in Annex 1.

In Feb 2015, Dr. Francisco Moreno Sanchez, Director de Soporte Forestal has been appointed by INIFAP to the Board.

ANNEX 1. PROCINORTE COMPOSITION

DIRECTORY OF PROCINORTE, UPDATED November 2014	
BOARD OF DIRECTORS	
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