TRAVEL, CONFERENCE or SCIENTIFIC EXCHANGE REPORT 2018

Part 1 - Summary Details

CRDC Project Number: **DAN1904**

Project Title: Attend and address International Cotton Advisory Committee (ICAC) 77 Plenary Meeting in Abidjan, Cote D'Ivoire, 1 – 8 December 2018

Project Commencement Date: **1/12/2018** **Project Completion Date:10/12/2018**

CRDC Research Program: **2 Industry**

Part 2 – Contact Details

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Part 3 – Travel, Conference or Scientific Exchange Report

(Maximum two pages)

1. A brief description of the purpose of the travel.

Attended and presented a paper at the 77th Plenary Meeting of the International Cotton Advisory Committee (ICAC). The theme for the event was "Cotton Challenges: Smart and sustainable solutions". The meeting was attended by 385 persons including 20 member governments, 6 International organizations and 15 non-member governments. The agenda of the meeting included six open sessions (including "World Café" interactive session), six breakout sessions and two plenary sessions. The meeting discussed World Cotton Production, future cotton textile demand, governments support to the world cotton sector, combating effects of Climate Change on cotton, mechanization, drones and robotics for small scale cotton farms, combating pest resistance to biotech cotton and pesticides, Biotechnology, Cotton by-products and Inter-governmental policies on cotton seed exchange.

2. What were the:

a) major findings and outcomes

Dr Robert Mensah was invited by the ICAC and presented the topic "IPM is Key to Insecticide Management: Alternative Solutions for Insecticide Management in Cotton Crops" to the ICAC 77th Plenary Meeting on 6 December 2018. Dr Mensah's presentation highlighted to the participants that over-reliance of synthetic insecticides to manage cotton pests worldwide has resulted in insecticide resistance, disruption of beneficial insect species, higher production costs and significant negative environmental impacts. Cotton industries worldwide require the development and adoption of alternative strategies and solutions for managing and controlling pests on cotton and other crops. Dr Mensah stressed that, although transgenic (Bt) cotton crops may be providing effective control for Helicoverpa spp., the development of sucking pest insect resistance to these crops remains a big threat.

In order to grow cotton crops, whether IPM, Bt cotton, organic or conventional cotton to achieve higher yields will require (1) growing a healthy crop, (2) keeping track for insects, (3) preserving or conserving beneficial insects for pest management, (4) keeping track for fruit damage, pest & beneficial insects and (5) using trap crops effectively to share the burden of pest problems in cotton crops.

Dr Mensah's presentation challenged the ICAC delegates and participants to "think outside the square", look at the big picture and adopt some of the alternative IPM products Dr Mensah has developed over the years in Australia to achieve long term sustainability of the cotton industry.

The presentations delivered at the meeting were (1) development of cotton in developing countries mainly Africa , (2) Combating climate change on cotton – what scientists and governments can do (two papers delivered by Dr Bruno, Bachelier and Dr Marcelo Paytas),(3) Mechanization of Drones and Robotics for Small-scale farms: Opportunities and Issues (delivered by Dr Manohar Sambandam, Dr Rejesh Jain and Dr Glen Rains), (4) New Gene Biotech-Cotton, Gene Editing, Low Gossypol cotton, Pink Bollworm–Male Sterile Technologies (delivered by Dr Maria Fatima Grossi-de Sa, Dr Hesham Hamoud and Dr Tokhir Kuliev), (5) Busting the misinformation on cotton (delivered by Mr Allan Williams, Dr Terry Townsend, Dr Mike McCue and Elke Hortmeyer), (6) Combating Pest Resistance to Biotech Cotton and Pesticides (Dr Germain Ochou, Dr Keshav Kranthi and Dr Tom Walsh), (7) Producing Fibre Characteristics that Spinners Desire (delivered by Eleni Tsaliki, Axel Drieling, Jean-Paul Gourlot) (8) Organic cotton Challenges and Policy Perspectives (delivered Wolfangang Bertenbreiter, Bart Vollaard), (9) Intergovernmental Policies on seed exchange (Jpodi Scheffler, Ghorban Roshani, N'Guessan Essoi), (10) Insecticide Management: Recent

Advances (delivered by Dr Robert Mensah and Dr Joe Kabissa) and (11) Boosting yields in Africa – What Technologies work (Serunjogi Katende, Michel Fok, Adriana Gregolin).

Overall, the findings and outcomes for attending the ICAC meeting are as follows:

- Te meeting created an opportunity for Dr Mensah to have discussions with cotton researchers around the world
- Dr Mensah had immediate access to renowned cotton pest management experts and one- one discussion with them in his area of research. This will enhance Dr Mensah's research and commercialization of his biological products in Australia and overseas.
- The meeting allowed Dr Mensah to interact with cotton scientists working in areas of biological control and IPM which is of direct interest to the Australian cotton industry.
- It provided Dr Mensah with the opportunity to liaise with cotton scientists and study product commercialization techniques, methodologies and specialist biological control and IPM programs been developed worldwide.
- It may improve, facilitate and expedite the progress and commercialization of the IPM products developed by Dr Mensah.

b) other highlights

- Dr Mensah's presentation was well received and commended by the ICAC Committee. The Committee made a request to Dr Mensah to publish his presentation in the "ICAC Recorder" to be distributed to cotton producing countries.
- The meeting was attended by 385 persons including 20 Member governments, 6 International Organizations and 15 Non-Member governments. The conference serves as a forum for entomologists working on various aspects of entomology to interact and learn from each other.
- Dr Mensah's talk to ICAC was commended by ICAC's Head of Technical Information Section (read e mail below):

Keshav Kranthi <keshav@icac.org>

Wed, Dec 12, 2:39 AM

Dear Dr. Mensah,

Kindly accept my hearty congratulations for the excellent talk that you gave at the ICAC Plenary meeting in Abidjan. I enjoyed your presentation thoroughly and am very keen that the contents of your talk must be widely circulated.

I would like to request you to kindly send an article of your talk for the ICAC RECORDER special issue on AFRICA to be published in March 2019. I shall be grateful if you can please send it at your earliest convenient time.

Please find herewith the first two issues of the AFRICA special series of the ICAC RECORDER for your reference.

With kind regards
Keshav

K R Kranthi, Ph.D.
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3. Detail the persons and institutions visited, giving full title, position details, location, duration of visit and purpose of visit to these people/places.

Throughout the meeting I met with the following speakers and had discussions about their research and their respective cotton industries:

Mr Mamadou Coulibaly, CDIT, Minister of Agriculture & Rural Development, Cote d'Ivoire); Dr Bruno, Bachelier, CIRAD, USA; Dr Marcelo Paytas, INTA, Argentina; Dr Manohar Sambandam, Green Robot Machinery Pty Ltd, India; Dr Rejesh Jain, Wadhwani Institute for Artificial Intelligence, India; Dr Glen Rains, University Georgia, USA; Dr Maria Fatima Grossi-de Sa, Embrapa, Genetic Resources and Biotechnology, Brazil; Dr Tokhir Kuliev, Uzbekistan Cotton Industry Science Institute, Uzbekistan; Dr Terry Townsend, Cotton Analytics, USA; Dr Joe Kabissa, Tanzanian Cotton Board, Tanzania; Dr Keshav Kranthi; Head ICAC Information Communication Section, USA; Dr Eleni Tsaliki; Hellenic Agricultural Organization, Greece; Dr Axel Drieling, Faserinstitut Bremen E.v., EU; Elke Hortmeyer, Bremen Cotton Exchange, EU; Dr Wolfangang Bertenbreiter; GIZ, EU; Dr Bart Vollaard), Organic Cotton Accelerator, Netherlands; Dr Jodi Scheffler, USDA, USA ; Dr Ghorban Ali Roshani, Cotton Research Institute of Iran; Dr Tom Walsh, CSIRO,Australia; Dr Maryse Carole N'Guessan, ACE-CI, Cote d'Ivoire; Dr Lastus Serunjogi Katende, Cotton Development Organization, Uganda; Dr Michel Fok, CIRAD, France.

4. a) Are there any potential areas worth following up as a result of the travel?

ICAC is projecting world cotton production for 2018/19 season at 26.12 million tonnes, down 26.75 million tonnes in 2017/18 season due to a reduction in planting area as a result of low rainfall and water availability. Global stocks are expected to decrease. Australia should expect other countries such as China, United States etc to import and stockpile Australian cotton to feed their local industries and this may lead to artificial increase in world cotton prices as a result of strong move from China to import Australian cotton.
According to ICAC, total World Fibre demand will increase to 121 million tonnes by 2025, implying 25.5 million tonnes of additional demand between 2017 and 2025 which will present an opportunity for the Australian cotton sector if water is available.
The Inter-governmental Panel on Climate Change (IPCC) has projected that Climate Change will result in substantial loss in agricultural productivity. About 56 per cent of global cotton area is reliant on rainfall and is vulnerable to water stress. The cotton industry should endorse a more rigorous approach to water use efficiency in the Australian cotton industry and also find ways of balancing environmental flows and water availability to cotton production
According to ICAC, insect resistance to Bt cotton and weed resistance to herbicides have emerged as major challenges to the efficacy of biotech cotton crops worldwide. The Australian Cotton Industry should have dialogue with growers and continue to endorse a rigorous pest and weed resistance strategies through the industry's TIMS Committee.

b) Any relevance or possible impact on the Australian Cotton Industry?

ICAC has identified the following which is of benefit to the Australian Cotton Industry. They are (1) consumption growth has slowed but at 26.8 million tonnes, it is currently projected to exceed production in 2018/19, (2) global stocks are expected to decrease, leading to expected slight increase in cotton prices, (3) stock levels in China are reduced but elsewhere in the world they are expected to increase, presenting 18.2 million tonnes in 2018/19 against 18.8 million tonnes in 2017/18, (4) ICAC forcast a fibre demand will increase to 121 million tonnes in 2025, implying 25.5 million tonnes of additional demand between 2017 and 2025 which is an important opportunity for the cotton sector in Australia, (5) insect resistance to Bt cotton and weed resistance to herbicides are major challenges to the efficacy of biotech cotton worldwide, (6) Resistance to Bt is currently being countered by stacking new genes which takes time and increases production costs. Thus, emergence of Bt resistant Helicoverpa and recent instances of pink bollworm resistance to Cry 1Ac and 2Ab proteins as well as insecticide resistant white flies and cotton leaf curl virus can cause significant effect on cotton production worldwide, (7) there is narrow genetic base available for cotton improvement in major producing countries, ever changing demand for specific fibre, need for improve yields require seed exchange across countries, (8) access to new germplasm holds the key to genetic improvement, genetic diversity, variability for useful traits, (9) the need to create an International Cotton Research Institute to act as a global repository of germplasm sources that could be shared, (10) new biotechnology tools (NBTs) are being used to enhance commercial cotton varieties These new tools are used in Latin America in the form of Cry10Aa to protect cotton from boll weevil, (11) ICAC indicated that yield improvement in organic cotton is an area for research, (12) new uses for cotton by-products such as stalks and materials remaining after ginning are being developed to enhance farmer's income, (13) the 78th ICAC Plenary meeting will be hosted by the Australian Government from 2-6 December 2019

5. How do you intend to share the knowledge you have gained with other people in the cotton industry?

This will occur through extension and communication of international research and the new knowledge and contacts gained by attending the ICAC meeting. New research ideas identified from the ICAC meeting include the worldwide need for biological products to support IPM. Dr Mensah is collaborating with NSWDPI and the CRDC to commercialize the numerous biopesticides and botanicals he has developed over the years. The objective is to identify a commercial partner/s capable of commercializing the products domestically and overseas and to generate potential royalties.