

78th



PROCEEDINGS

ICAC

PLENARY MEETING

Brisbane, Australia



GLOBAL LEADERSHIP:
PUSHING COTTON'S
BOUNDARIES



PROCEEDINGS OF THE 78th PLENARY MEETING

“Global Leadership: Pushing Cotton’s Boundaries”



ICAC
Washington DC USA

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FOREWORD

On invitation from the Government of Australia, the 78th Plenary Meeting of the International Cotton Advisory Committee (ICAC) took place from December 1-6, 2019 in Brisbane, Australia.

The International Cotton Advisory Committee is an association of governments having an interest in the production, export, import and consumption of cotton. It is an organization designed to promote cooperation in the solution of cotton problems, particularly those of international scope and significance.

Our Mission

To serve the cotton and textile community through promotion, knowledge sharing, innovation, partnerships and providing a forum for discussion of cotton issues of international significance.

Our Vision

Prosperity through a sustainable cotton industry.

Our Values

Excellence
Innovation
Objective
Trustworthy
Receptive
Passionate

MEMBERS

Argentina
Australia
Bangladesh
Brazil
Burkina Faso
Cameroon
Chad
Côte d'Ivoire
Egypt
European Union

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Kenya
Korea, Rep. of
Mali
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WWW.ICAC.ORG

STATEMENT OF THE 78th PLENARY MEETING

“Global Leadership: Pushing Cotton’s Boundaries”

1. The International Cotton Advisory Committee (ICAC) met in Brisbane, AUSTRALIA between 2 – 5 December 2019 for its 78th plenary meeting since the establishment of the committee in 1939. The meeting was attended by 307 persons including representatives from 23 Member governments, 5 international organizations and 5 non-member countries.
2. **Country Reports:** A new methodology to allow for discussion on the individual written Country Statements was introduced. Advance statements had been provided by 14 countries and two international organisations, based on which, delegates were able to ask informed questions of each other on specific areas of interest from the Statements. The session achieved increased interactivity among delegates and the Secretariat will continue to examine this methodology at the next Plenary, but with further modifications to improve participation.
3. **Global Megatrends for Cotton:** Seven megatrends were identified as important to the future of the cotton industry. Change and constant innovation will be needed to address these trends shaping agriculture, especially climate change, geopolitical realities and consumer choices. The challenges should be seen as opportunities requiring intensive research, as well as consumer understanding and engagement.
4. **Technical Seminar:** Cotton Traceability Technologies: Presenters highlighted that consumers are increasingly demanding information on the origin and history of the products, putting pressure on retailers to provide transparency. Traceability technologies are expected to establish authenticity of fibre quality, establish fibre origins, quantify fibre purity and track the processing path from fibre to fabric. While some technologies can trace origins and enable quantification of the fibres in a blend, others add markers to fibres and claim authentic tracking of the marker along the value chain. Implementing traceability technologies carries a cost for businesses. The Plenary discussed whether Governments should have a role in regulating traceability and noted that biosecurity and accurately informing the customers remain important.
5. **Report from SEEP:** SEEP has reviewed a draft core set of farm-level, outcome/impact indicators (16) to measure and report progress towards the Sustainable Development Goals (SDGs) in the cotton and coffee sectors and it has endorsed the indicator testing planned to take place in 2020. The draft core set was developed as part of the Delta Project and largely builds on the ICAC/FAO framework on ‘Measuring Sustainability in cotton farming systems’ published in 2015. Orientating sustainability measures towards the priorities endorsed and established by the SDGs will enhance the opportunities to adopt a language and a purpose that is shared across the public and private sectors and to forge new partnerships to achieve the common goal of sustainable agriculture. The indicators will be re-evaluated for their performance after a field test in 2020.
6. **Reports from the Secretariat:** Consumption drives demand and little growth in cotton consumption is expected in 2019/20 as global economic growth is slowing. Trade barriers and trade disputes have weakened import and export growth and have positioned the global economy into a synchronized economic slowdown that has reduced the pace of manufacturing and investment. Trade disputes create uncertainty for businesses and lower investment activity and trade deals. Quick resolutions are therefore needed to return confidence to the market.
7. **ICAC’s report on government assistance to the cotton sector in 2018/19:** Based on the ICAC report featuring information from 10 countries, assistance to the cotton sector has been estimated at \$5.4 billion in 2018/19, which is a moderate decline from \$5.5 billion in 2017/18. In 2018/19, assistance averaged 16 cents per pound, down from 17 cents per pound.
8. **Cost of Production:** The cost of production remains a major challenge and the introduction of small-scale machinery and Integrated Pest Management can reduce cultivation costs. The costs and returns of introducing GM seeds should also be carefully examined. To increase yields, major steps should be made to optimise high density planting and canopy management. Governments are encouraged to promote the use of delinted seeds in suitable climatic regions.
9. **Disruptive Technologies:** The Committee was informed of studies on fabric microfibre release during laundering, which show that natural-based fabrics released more fibres than polyester. However, cellulose-based materials like cotton biodegrade very rapidly in aerobic aquatic environments when compared to microfibres released by polyester which biodegrade only over many years and eventually may enter the food chain.

On the circular economy, delegates learnt that even though the circular economy is an economic system aimed at eliminating waste and the continual use of resources, virgin fibres are essential for the system to work, as virgin fibres assist in maintaining the strength and the quality of the final product.

On soil health, the Committee was informed about the importance of maintaining soil physical properties; any decline will take considerable time and cost to correct. Healthy soils are the basis of healthy crops and biodiversity enhancement.

- 10. Germplasm Exchange:** Extensive plant breeding efforts and selection for desired traits have resulted in narrowed genetic diversity due to the loss of several traits in the commercial varieties. Therefore, there is a need to explore the diversity of germplasm by investing more in cotton breeding. Germplasm exchange is low due to a lack of information and also a lack of means and capabilities of breeding teams to address and integrate genetic variability into breeding programs, notably in developing countries. ICRA is proposing to set up an international forum for germplasm exchange. It was emphasised that germplasm evaluation and exchange was important and there was a need to enrich collections continuously by applying novel methods for cotton improvement while considering countries' seed breeding policies. Germplasm improvement could greatly benefit from activities such as sharing knowledge and technologies, wider international collaboration, training and education of new generation cotton scientists and increasing investments to expedite the commercialisation of new technologies.
- 11. Responding to Climate Change:** Climate change impacts vary around the world and may result in reduced water availability, higher potential water use, increased incidents of extreme weather events and changes to the distribution of pests and diseases. Strategies to adapt to these changes should include international cooperation for increasing yields, improving production efficiencies and adaptive management focused on cotton productivity. To improve yields, the Committee was informed that there needs to be an improvement in crop resilience to stress, efficient water usage and soil health. The Committee therefore urges governments to encourage the development of climate-resilient cultivars with high water- and nutrient-use efficiencies with the potential to adapt and withstand unpredictable drought, changes in heat, waterlogging, increased insect pests and diseases. It also recommends that heat tolerant varieties be developed and that active stress management and optimised growth regulators be used in climate changing conditions. In addition, regionally specific assessments, systems-based approaches and transgenic/digital technologies will be vital. It is recommended that governments evaluate the possibility of introducing an effective and accurate information system for the growers.
- 12. Breeding and Producing High-Yielding and High-Quality Cotton Planting Seed:** New cultivars can address production constraints, improve yield and fibre quality, and be targeted for each production region. New cultivars will not solve some major production issues. These need to be addressed by changes in soil and crop management. Successful breeding programs require stringent processes for production and quality assurance to meet the enormous potential. Increased sharing of information from existing germplasm collections around the world are needed to address the challenges and opportunities.
- 13. Insect and Weed Resistance Management:** Two key factors in the success of resistance management plans in both weeds and insect management are first, that plans are supported by science, and second, that stewardship is supported by an industry extension and communication program. Insects in particular do not recognise borders and area-wide management is very important. The Committee received information on a commercial-based trap that can be used to detect and conduct real-time monitoring of fruit flies in a rapid 2-3 day loop. The case studies highlight that innovation in digital technology is removing barriers and new products are being developed that may facilitate long-term suppression of pest populations.
- 14. World Café – Technology Transfer Platforms for Small Farm Holders in Developing Countries:** The Committee conducted a World Café conversation on two innovative technology projects: Virtual Reality Cotton Training and a Soil & Plant Health Digital Application (App). Virtual Reality holds great potential for use throughout the cotton supply chain. The Soil & Plant Health App is intended to assist in increasing yields, especially for smallholder farmers with little or no literacy. Delegates shared their opinions on future areas for development, discussed possible organisations as partners, and cotton-focussed technologies that the Secretariat should consider for development. The Committee encourages the future development of innovative projects that benefit small farm holders particularly in Africa and Asia
- 15. Steering Committee:** The Mission, Vision and Values proposed by the Standing Committee were approved and adopted by the Committee. The Committee noted the Statement Paper reviewed and approved by the Private Sector Advisory Panel (PSAP).

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- 16. Topic of 2020 Technical Seminar:** The Committee decided to hold the 2020 Technical Seminar on the topic of, ‘Advances and Challenges of Hybrid Cotton Technology’.
 - 17. Topic of 2020 PSAP Presentation:** The topic suggested by the PSAP for the 2020 Plenary Meeting is ‘Informational Labelling of Textile Products’.
 - 18. Future Plenary Meeting:** The Committee has accepted an invitation from the European Union to host the 79th Plenary Meeting during the last week of November 2020 in the city of Seville, Spain.
 - 19. Appreciation to the Host Country:** The Committee thanks the people, the organising committee and the government of AUSTRALIA for hosting the 78th Plenary Meeting. Delegates commented very favourably on the quality of the venue, the efficiency of the preparations, the content of the programme and of course, the warmth of the AUSTRALIAN hospitality.

Заявление о работе 78-го пленарного заседания «Глобальное лидерство: Раздвигая границы хлопка»

1. Со 2-е по 5-е декабря 2019 года Международный консультативный комитет по хлопку (МККХ) провел в г. Брисбен, Австралия свое 78-е начиная с даты создания Комитета в 1939 году пленарное заседание. В работе заседания приняли участие 307 человек, включая представителей 23-х правительств-членов, пяти международных организаций и пяти стран, не являющихся членами Комитета.
2. **Доклады стран:** Была внедрена новая методология, позволяющая проводить обсуждение отдельных заявлений стран, представленных в письменной форме. Предварительные заявления были представлены 14 странами и двумя международными организациями, исходя из которых делегаты смогли задавать друг другу с учетом своей информированности вопросы по конкретным темам заявлений, представляющие для них интерес. В ходе сессии в аудитории была обеспечена повышенная интерактивность делегатов, и во время следующего Пленарного заседания Секретариат продолжит изучение этой методологии и внесение дальнейших изменений, направленных на активизацию участия.
3. **Глобальные мегатенденции, затрагивающие хлопок:** Было названо семь наиболее важных мегатенденций, влияющих на будущее хлопковой отрасли. Для преодоления этих тенденций, формирующих сельское хозяйство, особенно таких как изменение климата, геополитические реалии и выбор потребителей, потребуются перемены и постоянные инновации. Эти проблемы следует рассматривать как возможности, которые требуют интенсивного изучения, а также понимания и вовлечения потребителей.
4. **Технический семинар: Технологии прослеживания хлопка:** Выступавшие подчеркивали, что потребители хотят все чаще получать информацию о происхождении и истории продуктов, и оказывают давление на розничную торговлю, чтобы она обеспечивала транспарентность. Ожидается, что техника, обеспечивающая прослеживание, позволит устанавливать подлинность качества волокна, определять его происхождение, количественно оценивать чистоту волокна и прослеживать весь путь обработки начиная с волокна и заканчивая тканью. В то время как на основании одних видов технологии можно прослеживать происхождение волокна и определять количество волокна в смеси, благодаря другим видам технологии в волокна добавляют маркеры и, как утверждается, это обеспечивает достоверное прослеживание такого маркера вдоль цепочки создания прибавочной стоимости. Внедрение техники прослеживания сопряжено с издержками для бизнеса. Участники Пленарного заседания обсудили вопрос о том, должны ли правительства принимать какое-либо участие в процессе регулирования прослеживания, и отметили, что биобезопасность, а также точная информация для потребителей по-прежнему имеют большое значение.
5. **Отчет Комиссии по социальным, экологическим и экономическим показателям:** КСЭЭП рассмотрела проект основного комплекта (16) показателей результативности / воздействия на уровне фермерского хозяйства для оценки и представления отчета по продвижению реализации Целей устойчивого развития (ЦУР) в хлопковой и кофейной отраслях, и одобрил запланированное на 2020 год тестирование этих показателей. Проект основного комплекта был разработан в рамках программы "Дельта", и он в значительной степени основывается на Рамочной программе МККХ / ФАО по "Измерению устойчивости систем выращивания хлопка", которая была опубликована в 2015 году. Ориентирование мер по обеспечению устойчивости на приоритеты, одобренные и установленные ЦУР, позволит расширить возможности принятия формулировок и целей, которые являются общими для государственного и частного секторов, а также для налаживания новых партнерских связей в интересах достижения общей цели обеспечения устойчивого развития

сельского хозяйства. После проведения полевых испытаний в 2020 году эти показатели будут повторно оценены на предмет их эффективности.

6. **Отчеты Секретариата:** Потребление стимулирует спрос, однако в 2019/20 году ожидается незначительное увеличение объема потребления хлопка на фоне замедления глобального экономического роста. Торговые барьеры и торговые споры ослабили рост импорта и экспорта и довели мировую экономику до синхронного экономического спада, который привел к снижению темпов производства и инвестиций. Торговые споры создают неопределенность для бизнеса и снижают активность в сфере инвестиций и торговых сделок. Поэтому для возвращения уверенности на рынке необходимо быстрее принимать решения.
7. **Доклад МККХ о государственной помощи хлопковому сектору в 2018/19 году:** Исходя из данных доклада МККХ, содержащих информацию по 10 странам, помощь хлопковому сектору в 2018/19 году была оценена в \$5,4 млрд. долл., что представляет собой умеренное снижение с объема в \$5,5 млрд. долл., который был в 2017/18 году. В 2018/19 году размер помощи составлял в среднем 16 центов за фунт, что явилось снижением по сравнению с 17 центами за фунт.
8. **Себестоимость производства:** Себестоимость производства остается серьезной проблемой, и внедрение мелкомасштабной механизации и интегрированной борьбы с вредителями может снизить затраты на выращивание. Следует также тщательно изучать затраты и отдачу от внедрения ГМ-семян. Для повышения урожайности следует предпринимать важные шаги по оптимизации посадки с высокой плотностью и управлению пологом. Правительствам рекомендуется поощрять использование семян с удаленными волокнами в подходящих климатических районах.
9. **Прорывные технологии:** Комитет был проинформирован об исследованиях по высвобождению микроволокна из ткани во время стирки, которые показывают, что ткань на натуральной основе высвобождает больше волокон, чем полиэстер. Однако материал на основе целлюлозы, такой как хлопок, подвергается более быстрому разложению под воздействием микроорганизмов в аэробных водных средах по сравнению с микроволокном, выделяемым полиэстером, которое разлагается только в течение многих лет, и, в конечном итоге, может попадать в пищевую цепь.

По вопросу безотходной экономики делегаты узнали, что несмотря на то, что безотходная экономика является экономической системой, направленной на ликвидацию отходов и постоянное использование ресурсов, естественное волокно необходимо для работы этой системы, поскольку естественное волокно помогает сохранять прочность и качество конечного продукта.

Что касается качества почвы, то Комитет был проинформирован о важности сохранения физических свойств почвы; любое их ухудшение потребует значительного времени и затрат на их восстановление. Качество почвы является залогом получения хорошего урожая и развития биоразнообразия.

10. **Обмен зародышевой плазмой:** Обширные усилия по селекции растений и селекция с целью получения желаемых признаков привели к сужению генетического разнообразия из-за потери нескольких признаков в коммерческих сортах. Поэтому необходимо исследовать разнообразие зародышевой плазмы, вкладывая больше средств в селекцию хлопка. Обмен зародышевой плазмой происходит на низком уровне из-за недостатка информации, а также из-за отсутствия средств и возможностей у групп селекционеров для рассмотрения и интеграции генетической изменчивости с селекционными программами, особенно в развивающихся странах. Международная ассоциация исследователей в области хлопка (ICRA) предлагает создать международный форум для обмена зародышевой плазмой. Было подчеркнуто, что оценка и обмен зародышевой плазмой имеют большое значение, и что существует необходимость постоянного обогащения коллекций путем применения новых методов улучшения качества хлопка при одновременном рассмотрении политики стран в области семеноводства. Совершенствование зародышевой плазмы могло бы значительно выиграть от таких мероприятий, как обмен знаниями и технологиями, более широкое международное

сотрудничество, подготовка и обучение нового поколения ученых-хлопководов и увеличение инвестиций для ускорения коммерциализации новых технологий.

11. **Реагирование на изменение климата:** Последствия изменения климата, которые варьируются по всему миру, могут приводить к сокращению влагообеспеченности, более высокому потенциальному водопользованию, увеличению числа случаев экстремальных погодных явлений и изменению распространения вредителей и болезней. Стратегия адаптации к этим изменениям должна включать международное сотрудничество в целях повышения урожайности, повышения эффективности производства и адаптивного управления, ориентированного на урожайность хлопка. Комитет был проинформирован о том, что для повышения урожайности необходимо повышать устойчивость сельскохозяйственных культур к стрессу, обеспечивать эффективное водопользование и улучшать качество почвы. Поэтому Комитет настоятельно призывает правительства поощрять разработку устойчивых к изменению климата культурных сортов с высокой эффективностью использования воды и питательных веществ, сортов способных адаптироваться и противостоять непредсказуемой засухе, изменению температуры, переувлажнению, росту числа насекомых-вредителей и болезней. Он также рекомендует разрабатывать теплостойкие сорта, а также использовать активные регуляторы стресса и оптимизированные регуляторы роста в условиях изменения климата. Кроме того, жизненно важное значение будет иметь региональная оценка, системный подход и трансгенная / цифровая технология. Правительствам рекомендуется оценивать возможность внедрения эффективной и точной информационной системы для производителей.
12. **Селекция и производство высокоурожайных и высококачественных семян хлопка:** Новые культурные сорта могут решить проблему ограничения объема производства, повышения урожайности и качества волокна, причем они могут быть сориентированы на каждый регион производства. Однако некоторые серьезные производственные проблемы новые культурные сорта не смогут решить. Эти проблемы необходимо решать путем внесения изменений в систему управления почвой и растениеводством. Успешные программы селекции требуют строгого соблюдения производственных процессов и обеспечения качества для реализации огромного потенциала. Для решения этих проблем и расширения возможностей необходим более широкий обмен информацией из существующих коллекций зародышевой плазмы по всему миру.
13. **Управление устойчивостью к насекомым и сорнякам:** Два ключевых фактора успеха планов управления устойчивостью как к сорнякам, так и к насекомым заключаются в том, что, во-первых, такие планы поддерживаются наукой, и во-вторых, такое управление поддерживается программой расширения отрасли и коммуникации. Насекомые, в частности, не знают никаких границ, и управление всей территорией целиком имеет большое значение. Комитет получил информацию о коммерческой ловушке, которая может быть использована для обнаружения и осуществления мониторинга плодовых мушек в режиме реального времени в течение быстрого 2х - 3-х дневного цикла. В тематических исследованиях подчеркивается, что благодаря инновациям в области цифровых технологий устраняются барьеры и разрабатываются новые продукты, которые могут способствовать долгосрочному подавлению популяций вредителей.
14. **Всемирное кафе – Платформы передачи технологии владельцам малых фермерских хозяйств в развивающихся странах:** Комитет обсудил во время проведения Всемирного кафе два инновационных технологических проекта: Обучение хлопку с использованием метода виртуальной реальности, а также Цифровое приложение «Качество почвы и растений» (прил.). Метод виртуальной реальности является многообещающим методом, который может использоваться по всей цепочке поставок хлопка. Приложение «Качество почвы и растений» (прил.) предназначено для оказания помощи при повышении урожайности особенно мелким фермерам с небольшим или нулевым уровнем грамотности. Делегаты обменялись мнениями о будущих областях развития, обсудили организации, которые возможно могли бы стать партнерами, а также варианты ориентированной на хлопок технологии, которые Секретариат должен рассматривать в целях

развития. Комитет поощряет дальнейшее развитие инновационных проектов в интересах мелких фермерских хозяйств, особенно в Африке и Азии.

15. **Подготовительная комиссия:** Цели, Концепции и Шкала ценностей, предложенные Постоянным Комитетом, были утверждены и приняты Комитетом. Комитет принял к сведению документ с изложением Заявления, которое рассмотрела и одобрила Консультативная группа по частному сектору (КГЧС).
16. **Тема Технического семинара в 2020 году:** Комитет постановил провести в 2020 году Технический семинар на тему *«Достижения и проблемы технологии гибридного хлопка»*.
17. **Тема презентации КГЧС в 2020 году:** Тема, предложенная КГЧС для Пленарного заседания в 2020 году - «Информационное маркирование текстильной продукции».
18. **Будущее пленарное заседание:** Комитет принял приглашение Европейского Союза провести 79-е Пленарное заседание в течение последней недели ноября 2020 года в городе Севилья, Испания.
19. **Благодарность принимающей стране:** Комитет благодарит народ, организационный комитет и правительство Австралии за организацию 78-го Пленарного заседания. Делегаты весьма положительно оценили качество места проведения, эффективность подготовительных мероприятий, содержание программы и, конечно же, теплоту австралийского гостеприимства.

بيان صادر عن الاجتماع العام الثامن والسبعين للجنة الاستشارية الدولية للقطن (إيكاك)

"القيادة العالمية: توسيع حدود القطن"

1 - اجتمعت اللجنة الاستشارية الدولية للقطن (إيكاك) في مدينة بريسيبن في أستراليا ما بين 2 - 5 ديسمبر/كانون الأول 2019 لعقد الاجتماع العام الثامن والسبعين للجنة منذ إنشائها في عام 1939. وحضر الاجتماع 307 أشخاص بمن فيهم ممثلون عن 23 حكومات أعضاء و 5 منظمات دولية و 5 بلدان غير أعضاء في اللجنة.

2 - التقارير القطرية: تم طرح منهجية جديدة لمناقشة البيانات القطرية المكتوبة المقدمة من كل بلد. وكان قد سبق لـ 14 بلداً ولمنظمتين دوليتين أن تقدمت ببيانات مسبقة، وعلى أساسها استطاع المندوبون أن يطرحوا أسئلة على بعضهم البعض في مجالات محددة تهمهم في إطار تلك البيانات. وحققت الدورة مزيداً من التفاعل بين المندوبين. وستواصل الأمانة دراسة هذه المنهجية في الاجتماع العام القادم، مع إدخال بعض التعديلات بهدف تحسين المشاركة فيها.

3 - الاتجاهات الضخمة للقطن: جرى تحديد سبع اتجاهات ضخمة تعتبر مهمة لمستقبل صناعة القطن. وسوف تكون هناك حاجة لمواصلة التغيير والابتكار في هذه الاتجاهات وأثرها على الزراعة وبصورة خاصة على تغير المناخ والواقع الجيوسياسي وخيارات المستهلك. وينبغي النظر إلى التحديات باعتبارها فرصاً تتطلب بحثاً مكثفاً وكذلك ضرورة فهم للمستهلك ومشاركته.

4 - الندوة التقنية - تكنولوجيا تتبع القطن: أكد المتحدثون أن المستهلك بحاجة مستمرة إلى مزيد من المعلومات عن أصل وتاريخ المنتجات، وهذا بدوره يشكل عامل ضغط على تجار التجزئة لكي يتحلوا بالشفافية. والمتوقع هو أن تثبت تكنولوجيا التتبع صحة جودة الألياف، وأصل الألياف، وتحديد نسبة نقاء الألياف، وتحري مسار المعالجة من ليف إلى آخر. وعلى حين نجد أن بعض التكنولوجيا قادرة

على تتبع أصول الألياف وقادرة على حساب القياس الكمي للألياف في مزيج ما فهناك بعض التقنيات الأخرى تقوم بإضافة علامات إلى الألياف وتزعم أن هناك تتبع حقيقي للعلامة في سلسلة الأعمال. ويترتب على استخدام تكنولوجيا التتبع تكاليف لهيئات الأعمال. وناقش الاجتماع العام عما إذا كان للحكومات دور في تنظيم عملية التتبع وأشار إلى أهمية الأمن البيولوجي وإلى أهمية إطلاع الزبائن على نحو دقيق على مجريات الأمور.

5- تقرير من الفريق المعني بالحماية الاجتماعية والاقتصادية والبيئية (SEEP): استعرض الفريق المعني بالحماية الاجتماعية والاقتصادية والبيئية مسودة لمجموعة رئيسية تمس الدخل والتأثير على مستوى المزارع وعددها 16، والهدف منها التقدم المحرز في تحقيق أهداف التنمية المستدامة (SDGs) في قطاعي القطن والقهوة، وتقديم تقارير بهذا الشأن. وقد تم وضع مسودة المجموعة الرئيسية كجزء من مشروع دلتا. وهو يستند بصورة كبيرة إلى إطار إيكاك/ الفاو حول قياس الاستدامة في نظم زراعة القطن الذي نشر في عام 2015. وسوف يؤدي توجيه منحي تدابير الاستدامة لصالح الأولويات المدعومة والمنشورة في أهداف التنمية المستدامة إلى تعزيز الفرص في اعتماد لغة وهدف يشترك فيهما القطاع العام والقطاع الخاص. كما أنه سوف يحقق شراكات جديدة ترمي إلى تحقيق هدف الزراعة المستدامة المشترك. وسوف تجري عملية إعادة تقييم جديدة لأداء المؤشرات بعد إجراء الاختبار الميداني في عام 2020.

6- تقارير مقدمة من الأمانة العامة: الاستهلاك هو الذي يوجه الطلب، والنمو القليل في استهلاك القطن المتوقع في موسم 2020/2019 كنمو اقتصادي عالم أخذ بالتباطؤ. وقد أدت العقوبات والمنازعات التجارية إلى إضعاف نمو الاستيراد والتصدير ووضعت الاقتصاد العالمي في حالة تباطؤ اقتصادي متزامن، أفضى إلى تراجع وتيرة التصنيع والاستثمار. ومن شأن النزاعات التجارية أن تؤدي إلى حالة من عدم اليقين بالنسبة لهيئات الأعمال وإلى تراجع في أنشطة الاستثمار والصفقات التجارية. وهذا يتطلب حلولاً سريعة من أجل إعادة الثقة إلى السوق.

7 - تقرير إيكاك حول المساعدة الحكومية لقطاع القطن في موسم 2019/2018: بالاستناد إلى تقرير إيكاك الذي يتضمن معلومات مقدمة من عشرة بلدان، تقدّر المساعدة المقدمة إلى قطاع القطن بـ 5.4 بليون دولار في موسم 2019/2018، أي أنها انخفضت بصورة طفيفة عن 5.5 بليون دولار في موسم 2018/2017. ووصل متوسط المساعدة في موسم 2019/2018 إلى 16 سنتاً للرطل، بدلاً من 17 سنتاً للرطل في موسم 2018/2017.

8 - كلفة الإنتاج: ما زالت كلفة الإنتاج تشكل عقبة رئيسية، ويمكن لاستخدام آليات صغيرة ومعالجة متكاملة للأوبئة أن يقلل من تكاليف الزراعة. ويتعين أيضاً إجراء دراسة دقيقة للتكاليف والعائدات الناجمة عن استخدام البذور المعدلة جينياً. ولزيادة الغلات يتوجب اتخاذ خطوات كبيرة لتحقيق أعلى مستوى من الزراعة المكثفة وإدارة المظلة. ويجب حث الحكومات على ترويج استخدام البذور المنزوعة الوبرة في المناطق ذات المناخات المناسبة.

9 - التكنولوجيا المدمّرة: أحيطت اللجنة علماً بالدراسات المعنية بالألياف الدقيقة التي تنتج عن عملية غسيل الملابس. وتظهر هذه الدراسات بأن الألياف الطبيعية المصدر كانت تنتج ألياف تفوق ألياف البوليستر. ومع ذلك، فإن المواد ذات المصدر السيليلوزي مثل القطن تتحلل بسرعة كبيرة في البيئات المائية الهوائية مقارنة مع الألياف الدقيقة الصادرة عن البوليستر التي تتحلل فقط خلال عدة سنوات وقد تدخل في نهاية المطاف في سلسلة الأغذية.

وفيما يتعلق بالاقتصاد الدائري، تعلم المندوبون أن الاقتصاد الدائري هو نظام اقتصادي يهدف إلى القضاء على النفايات والاستخدام المتواصل للموارد وأن الألياف العذراء تساعد في الحفاظ على قوة ونوعية المنتج النهائي.

وبالنسبة لصحة التربة، أحيطت اللجنة علماً بأهمية صيانة الخصائص الفيزيائية للتربة. وأي تراجع فيها سيستغرق علاجه وقتاً كبيراً وسوف يؤدي إلى تكاليف مرتفعة. والتربة الصحية هي الأساس في تحقيق المحاصيل الصحية وفي تعزيز التنوع البيولوجي.

10 - تبادل المادة الوراثية: أدت الجهود المستفيضة في تربية النباتات وانتقاء السمات المرغوبة إلى تضيق التنوع الوراثي وذلك بسبب فقدان العديد من السمات في المواد التجارية المتنوعة. ولذا هناك حاجة للكشف عن تنوع المادة الوراثية من خلال زيادة الاستثمار في تربية القطن. ويعود انخفاض تبادل المادة الوراثية إلى نقص المعلومات وكذلك إلى نقص الوسائل والإمكانيات لدى أفرقة التكاثر في معالجة وإدماج إمكانيات التنوع الوراثي في برامج تربية النباتات، ولا سيما في البلدان النامية. وتقترح المنظمة الدولية لأبحاث القطن (ICRA) إنشاء محفل دولي لتبادل المادة الوراثية. وجرى التأكيد على أهمية تقييم وتبادل المادة الوراثية وعلى الحاجة إلى إثراء المجموعات على نحو مستمر من خلال تطبيق طرق جديدة لتحسين القطن إبان النظر في سياسة البلدان في تربية النباتات. ويمكن للتبادل في المادة الوراثية أن يستفيد كثيراً من بعض الأنشطة، مثل تشاطر المعرفة والتكنولوجيا، وتوسيع التعاون الدولي، وتدريب وتعليم جيل جديد من علماء القطن، وزيادة الاستثمار في تسريع تسويق التكنولوجيا الجديدة تجارياً.

11 - الاستجابة لتغير المناخ: يتباين أثر تغير المناخ من منطقة إلى أخرى في العالم، وقد ينجم عن تغير المناخ تراجع في توفر المياه، واستعمال أكبر محتمل للمياه، وزيادة في أحداث الطقس القاسية، وحدوث تغيرات في انتشار الأوبئة والأمراض. ويجب أن تتضمن استراتيجيات التكيف مع هذه التغيرات تعاوناً دولياً في زيادة الغلات، وفي تحسين فعاليات الإنتاج وفي إدارة تكيف تركيز على إنتاجية القطن. وعلمت اللجنة أنه من أجل تحسين الغلات ينبغي تحسين قدرة المحاصيل على مواجهة الضغط واستخدام المياه على نحو فعال وفي صحة التربة. ولذا فإن اللجنة تحث الحكومات على تشجيع تطوير أصناف قادرة على التكيف مع المناخ وذات فعاليات أعلى في استخدام المياه والمغذيات وبمقدورها أن تتكيف وتصمد أمام الجفاف والتغيرات في الحرارة، وفي التغدق ومواجهة الزيادة في انتشار أوبئة الحشرات والأمراض. وتوصي اللجنة أيضاً بإيجاد أنواع قادرة على تحمل الحرارة وباستخدام منظمين في إدارة الضغوط النشطة وتحقيق النمو الأمثل في الحالات التي يتغير فيها المناخ. وفضلاً عن ذلك، من المهم جداً القيام بتقييمات محددة إقليمياً واتباع نهج تستند إلى الأنظمة والم، تكنهلهما رقمة ومعدلة وراثياً. كما أوصت اللجنة

الحكومات بدراسة إمكانية اللجوء إلى نظام معلومات فعال ودقيق يستفيد منه المزارعون.

12 - تربية وإنتاج بذور زراعة القطن ذات غلة عالية ونوعية جيدة: توجد أصناف متنوعة جديدة بإمكانها مواجهة الصعوبات في الإنتاج وتحسين الغلة ونوعية الألياف وتكون موجهة لكل منطقة من مناطق الإنتاج. وليس بمقدور هذه الأصناف أن تحل بعض إشكاليات الإنتاج الرئيسية حيث يتعين معالجتها من خلال التغيرات التي تحدث في إدارة التربة والمحصول. ولتنفيذ برامج زراعية ناجحة يتطلب الأمر عمليات قاسية في الإنتاج وضمان جودة النوعية لدى التعامل مع الإمكانيات الضخمة. كما أن من المطلوب، من أجل مواجهة التحديات والاستفادة من الفرص، تشاطر المعلومات بصورة أكبر حول المجموعات الحالية للمادة الوراثية من مختلف أنحاء العالم.

13 - معالجة مشكلة المقاومة من جانب الحشرات والأعشاب الضارة: هناك عاملان رئيسيان لإنجاح خطط الإشراف على مقاومة الحشرات والأعشاب الضارة وهما أولاً أن تكون الخطط مدعومة عملياً، وثانياً أن يكون الإشراف مدعوماً ببرامج الإرشاد والتواصل في الصناعة. والحشرات على وجه الخصوص لا تعرف حدوداً، والإشراف على كامل مساحة المنطقة في غاية الأهمية. وقد تلقت اللجنة معلومات عن مصيدة ذات طابع تجاري تستخدم في عملية التعقب والرصد في الوقت الحقيقي لذباب الفاكهة وذلك في فترة سريعة من يومين إلى ثلاثة أيام. وتؤكد دراسة الحالات على أن الابتكار في التكنولوجيا الرقمية يؤدي إلى إزالة العقبات وإلى إنتاج منتجات جديدة بطريقة تسهل التخلص من مجموعات حشرات الأوبئة على المدى البعيد.

14 - المقهى العالمي – منابر نقل التكنولوجيا لصغار المزارعين في البلدان النامية: أجرت اللجنة محادثات في المقهى العالمي حول مشروعين للتكنولوجيا الابتكارية وهما تدريب الواقع الافتراضي للقطن والتطبيق الرقمي لصحة النبات والتربة (APP). وهناك احتمال قوي في أن يستخدم الواقع الافتراضي في جميع مراحل عملية عرض القطن. أما الغرض من تطبيق صحة النبات والتربة فهو للمساعدة في زيادة الغلة، ولا سيما بالنسبة لصغار المزارعين الأميين أو من ذوي التعليم المحدود. وتبادل

المندوبون الآراء حول مجالات التنمية المقبلة، وناقشوا التنظيمات الممكنة كشركاء والتكنولوجيا التي تركز على القطن والتي يجب على الأمانة أن تسعى إلى تطويرها. وتشجع اللجنة تحقيق مشروعات ابتكارية في المستقبل تعود بالنفع على صغار المزارعين وخاصة في أفريقيا وآسيا.

15 - اللجنة الدائمة: تمت الموافقة على المهمة والرؤية والقيم المقترحة من قبل اللجنة الدائمة والتي اعتمدتها اللجنة. وأحاطت اللجنة علماً بورقة البيان التي تم استعراضها والموافقة عليها من قبل الفريق الاستشاري المعني بالقطاع الخاص (PSAP).

16 - موضوع اللجنة التقنية لعام 2020: قررت اللجنة عقد ندوة تقنية حول موضوع التقدم والتحديات أمام تكنولوجيا القطن الهجين.

17 - عرض الفريق الاستشاري المعني بالقطاع الخاص لعام 2020: الموضوع الذي اقترحه الفريق الاستشاري المعني بالقطاع الخاص للاجتماع العام لعام 2020 هو وضع علامات للتعرف على المنتجات النسيجية.

18 - الاجتماع العام القادم: قبلت اللجنة دعوة من الاتحاد الأوروبي لاستضافة الاجتماع العام التاسع والسبعين خلال الأسبوع الأخير من شهر نوفمبر/تشرين الثاني 2020 في مدينة إشبيلية في إسبانيا.

19 - الإعراب عن التقدير للبلد المضيف: تتوجه اللجنة بالشكر إلى الشعب وإلى اللجنة التنظيمية وإلى حكومة أستراليا على استضافة الاجتماع العام الثامن والسبعين. وقد أثنى المندوبون بحرارة عن النوعية الجيدة لمكان انعقاد الاجتماع وعلى فعالية التحضيرات وعلى محتوى البرنامج، وبطبيعة الحال على حرارة الضيافة الأسترالية.

Inaugural Session

8:30-10:00 am, Monday 2 December 2019

Chair: Mr. Richard Haire, Chairman of the Cotton Research & Development Corporation (CRDC) of AUSTRALIA

The Nunukul Yuggera Aboriginal Dance Company performed to welcome delegates to the host country.

The Minister of Agriculture, AUSTRALIA, provided a welcome by video.

Dr. Alison McMorro, Assistant Secretary, Agricultural Policy Division, Department of Agriculture provided welcoming remarks.

Dr. Adama Coulibaly, Director General, Cashew and Cotton Council of COTE D'IVOIRE and host of the 77th Plenary Meeting made welcoming remarks on behalf of all delegates.

Ms. Maha Zakaria, Commercial Counsellor, Economic and Commercial Office, Embassy of Arab Republic of EGYPT provided the Report of the Chair ad interim of the Standing Committee. The report highlighted the strategic mission and accomplishments of the past year as well as an outlook for projects and innovations moving forward.

Mr. Kai Hughes gave the report of the Executive Director. Aspirations for 2020 include increasing the profile of cotton research by setting up an ICAC research network in West Africa and the holding of the World Cotton Research Conference in Sharm el Sheikh, EGYPT between 3 – 7 October 2020. He stressed the need for increased member involvement through social media and announced the launch of the first of the ICAC's flagship publications – The ICAC Cotton Data Book 2020. The ED highlighted three key areas of impact: communications, partnerships and adding value. The success of the first World Cotton Day was presented as key to promoting cotton fibre and increasing its demand. Innovative projects in progress were reported on including the Soil and Plant Health App and the Virtual Reality Training Modules. The importance of increasing and retaining membership was highlighted and the Executive

Director reported on the very recent additions to the membership of NIGERIA and TANZANIA, with a further 11 countries expressing an interest in membership. However, he noted that attracting consumer countries as members needed to become a priority for ICAC and he would be recruiting a full-time member of staff with expertise in textiles to develop this position after consulting ICAC Members who had spinning industries. Finally, he talked about changes to the format of the Plenary Meeting and that he would be conducting a major review of the ICAC Rules and Regulations and Staff Regulations.

The ICAC Researcher of the Year, Dr. John Yu was recognized. Dr. John Yu provided remarks in accepting the award, thanking the ICAC and those who have provided research support.

The Agenda of the 78th Plenary Meeting was officially approved following a nomination by the delegate of BRAZIL.

Dr. Steve Hatfield-Dodds, Executive Director, ABARES, Department of Agriculture, AUSTRALIA made the inaugural keynote presentation on Global megatrends for cotton – challenges and opportunities for cotton producers. An overview of the industry included the highly concentrated cotton trade, production is shaped by policies and support and prices. ABARES forecasted price decrease and then recovery over the next five years. Six megatrends were identified as important to the future of the cotton industry.

Growth juggernaut of three billion empowered consumers where increasing income outweighs population growth as a trend impacting the industry. An expanded and empowered middle class will demand higher quality food and fibre. Asia re-emerges, driving a three-fold increase in people in high incomes by 2050. Empowered consumers will shape markets and the cotton industry will need to be prepared and reactive.

More from less. Relentless innovation drives improved productivity and more efficient use of materials, energy, water, land and labour. Change is constant, and innovation will be

expected to keep pace with the increasing drive for sustainability, productivity and efficiency. Maintaining profitable and competitive food and fibre enterprises will require constant change.

Disruptive technologies. Better consumer intelligence is needed and understanding the consumer through technology will be essential to engage thoughtfully and meaningfully. As we shift from a producer dominated system to a consumer dominated system, producers will need to better understand and engage with their consumers.

Fractal geopolitics. The rise of multiple global powers erodes previous certainties, notwithstanding increasing global integration. International trade and relations will become more complex as nations assert their sovereignty, often in pursuit of populist national approval rather than mutual economic gains. Multi-polar arrangement with diverse goals will lead to greater complexity and country objectives will be more difficult to predict. Producer support is trending up in key emerging markets in response to domestic interests over trade liberalisation and international cooperation in policy making.

Cascading planetary risks. Agriculture is already impacted and adapting. Climate and commodity prices will become more volatile, while emerging markets for carbon and ecosystem services could transform landscapes and business models. Income and price elasticity of agricultural commodities will lead to greater variability or volatility. Climate change leads to greater risks for producers. Cascading planetary risks + empowered consumers = challenges (opportunities).

Tough choices. In light of current waves of populism, evidence-based policy making is getting more difficult to do. Fundamentally, humans tend to believe what they wish to believe and such as an industry it will be necessary to address consumer and human behaviour. For the cotton industry, connecting consumers to what they care about and then connect the work and policy to them in a genuine way will be essential for success in the years ahead.

First Plenary Session

Discussion of Government Reports

15:45 – 17:00 hrs, Monday 2 December 2019

Chair: Dr Alison McMorro, Assistant Secretary – Agricultural Policy Division – Department of Agriculture, AUSTRALIA

Country Reports: The ICAC implemented a new approach to Country Reports at this year's Plenary Meeting to encourage more interaction

and discussion. Members and international organisations were asked to submit their reports to the Secretariat and they were posted on the website early so everyone had time to read them before the meeting began, and come to the discussion with questions prepared. Advance reports were provided by 14 countries and two international organisations. Although the new

structure resulted in slightly fewer reports being submitted than in past years (17 Country Reports were submitted in 2018), the format worked well, with delegates asking informed questions of each other on specific areas of interest from the reports.

First Open Session

Traceability Seminar

11:00 hrs, Monday 2 December 2019

Chair: Dr. Steve Hatfield- Dodds, Executive Director, ABARES

Ms. Leanne Kemp, Chief Entrepreneur, Queensland Government, AUSTRALIA, spoke on the topic of "Megatrends to stretch future thinking."

Ms. Kemp noted that cotton has been a significant crop for humanity throughout history; and that we're at the precipice of the next industrial revolution and must consider the role not just of cotton but how it is produced and used. She indicated that cotton research is being done at Queensland University of Technology's Institute for Future Environments looking at how to transform cotton waste into next generation battery technology. Research that is working towards a cleaner and more sustainable future. Ms. Kemp said that the circular economy is the norm and people are in a mindset of being intentionally transparent whereby supply chains have high visibility. She encouraged everyone to stop treating waste as simply an environmental safety hazard but rather as a source of valuable material and products. She concluded by inviting ICAC members to consider their own mindset and if necessary, to change to an innovation mindset where you can see possibilities and think beyond what is just in front of you. Innovation is about finding the solution to a gap that is not seen by everyone else; it's about asking the right questions to help solve for the future.

Dr. Ann McDonald, Assistant Secretary, Export Legislation Taskforce & Traceability Project, Department of Agriculture, AUSTRALIA, spoke on the subject of, "The Australian Government Department of Agriculture and the Future of Traceability: Roles & Responsibilities."

Dr. McDonald noted that Australian agricultural supply chains produce commodities for both the domestic and export markets and traceability is important for all commodities. Exports are very important to the country's economy as AUSTRALIA exports around two-thirds of the agricultural products it produces. Dr. McDonald said that trading partners and domestic consumers want any claims made about food and other agricultural products to be well supported by fast and effective traceability systems. For the Australian government, traceability is a commercial issue and the government's position was not to regulate unless it was required because of bio safety but rather to support traceability systems. AUSTRALIA ran a "National Traceability Project", which aimed to assess the current state of AUSTRALIA's agricultural traceability systems, across most agricultural commodities and review global drivers for the future. The project also involved the development of an

industry-government national framework and action plan for enhancing AUSTRALIA's agricultural and traceability systems. Dr. McDonald emphasized that the framework and industry action plan provide a common vision and set of principles to guide the development of enhancements to the country's traceability systems. The enhancements will be implemented in a way that minimises any risk of trade disruption and strengthens the confidence of consumers and trading partners in the country's food supply chains. Dr. Macdonald emphasised that the government would not mandate any traceability system and commercial suppliers must take on the cost of traceability if they wished to enhance the desirability of their product.

Ms. Emma Weston, CEO and Co-Founder, AgriDigital, AUSTRALIA, spoke on the topic of, "Getting started with Blockchain."

Ms. Weston noted that today's supply chains are manual, fragmented and risky, and mentioned that agriculture is the least digitalised industry in the world. She highlighted that blockchain — a peer-to-peer distributed ledger technology — is a potential solution, including the fact that users access shared databases; transactions are immutable and approved by network consensus; and transactions are timestamped and recorded in 'blocks' that are linked and cryptographically secured.

Mr. Alan McClay, CEO, Better Cotton Initiative, SWITZERLAND, spoke on the topic of, "The pros and cons of mass balance."

Mr. McClay explained that BCI uses a chain of custody model called Mass Balance, which encourages supply chain actors to buy and use more Better Cotton in a cost-efficient manner. He noted that the model is less complicated than physical traceability and is therefore less costly. He stated that the supply chain is generally opaque to most companies, but that pressure is on companies to demonstrate traceability as a component of their sustainability strategy, with little regard for the associated costs. He concluded by saying that 'in any kind of sustainability initiative, there's a cost. And until stakeholders are willing to make that investment — or governments mandate it — the cotton industry needs to be as pragmatic as possible, moving forward'.

The Chair thanked each of the speakers. He noted that consumers are increasingly demanding information on the origin and history of the products they buy, putting pressure on retailers to provide transparency. The session aimed to provide information about some of the big issues in technology solutions to address the challenges in the cotton industry.

Meeting was adjourned at 12:35 hrs.

13:45 hrs, Monday 2 December 2019

Chair: Mr Allan Williams, General. Manager, R&D Investment, Cotton Research & Development Corporation, AUSTRALIA

Presenters

- Mr. Sandon Adams, Managing Director, Oritain Global Limited, AUSTRALIA
- Ms. Jannice Cameron-Chapital, Chief Marketing Officer, Himatsingka America, USA &
- Ms. MeiLin Wan, Vice President, Applied DNA Sciences, USA
- Mr. Shannon Mercer, Director of Business Development, FibreTrace, AUSTRALIA

Panellists

- Mr. Arthur Spellson, Marketing Manager – Cotton, Auscott, AUSTRALIA
- Ms. Liesl Truscott, Director, Europe and Materials Strategy, Textile Exchange, UK
- Mr. Alan McClay, CEO, Better Cotton Initiative, Switzerland

The chair explained that one of the purposes of the panel was to understand in more detail, the problems that traceability solutions are trying to solve in the cotton industry. The speakers would provide information on some of the traceability solutions being offered to the cotton industry. The Chair noted that the future is potentially going to be driven by consumer dominated systems, and those that survive are going to be those that best engaged with more conscious consumers.

Representatives from three companies took part in the Traceability Panel. Each company explained their technology and the pros and cons of using these technologies. Other panellists were invited to the discussion.

Mr. McClay was asked if all the members of BCI define traceability in the same way and if they were looking for the same solution. He replied that retailers and brands define traceability as being able to link the products they are selling with the production they are investing from. He mentioned that the brands want to be able to talk about impact and to do that they needed to know exactly what is happening between the point of production and their selling the product. He noted that mass balance has been the lead to achieve scale, but now it is showing its limitations. Ms. Truscott, from Textile Exchange, mentioned that amongst brands, manufacturers and suppliers, there are different opinions on why traceability is important. There are more companies trying to understand the risks and opportunities associated with transparency, such

as, labour issues, fraud, etc. She noted that rather than excluding a specific source when a problem is identified, the brand should work together with the source and help them to solve the problem through the use of innovation and partnerships.

Mr. Spellson said that brands and retailers are looking for traceability because they had something they wanted to protect, such as their reputation or the brand itself. Others are look-

ing for an opportunity or a way to differentiate and promote their products. He mentioned that implementing traceability technologies carries a cost for businesses, but the cost of a damaged reputation for companies that don't provide it might be higher. He noted that if retailers and brands want more or want to be able to tell a full story of a garment, then there is a cost that needs to be covered.

The Chair noted that multiple solutions can be used to solve the issue of traceability. He also noted that there is not any consumer level research as to what consumers are looking for as opposed to what retailers and brands want.

Meeting was adjourned at 12:45 hrs.

Second Open Session

Disruptive Technologies

09:00 hrs, Tuesday 3 December 2019

Chair: Emeritus Professor Les Copeland, Director, Cotton Research & Development Corporation, AUSTRALIA.

Prof. Richard Venditti, Department of Forest Biomaterials, North Carolina State University, USA, spoke on the topic of, "Microfibers from laundering and their fate in the aquatic environment."

Prof. Venditti noted that microplastics in water bodies have been established as a significant environmental pollutant and can originate from the laundering of clothing. It has been estimated that a minimum of 5 trillion plastic particles weighing 270,000 tonnes are floating in the world's oceans. Some studies have found that wastewater treatment plants are a source of microplastics, and they are derived from sewage via the washing of clothes. He presented the results of a study conducted by the North Carolina State University and Cotton Incorporated. In their findings, Prof. Venditti said that natural-based fabrics released more fibres during small scale laundering than polyester. The detergent use causes more microfibres to be released from fabrics during laundering. However, the microfibre fate assessment after laundering is not complete without the understanding of the behaviour of these fibres in aquatic environments. Cellulose-based cotton bio-degrades quickly in aerobic aquatic environments, while microfibres released by polyester aren't compatible with the environment. Cotton degrades at a very high extent; the degradation within about one month is at least 65% and it can approach 100% with enough time and enough nutrients. Prof. Richard concluded its presentation by pointing out that polyester and cotton promote different type of changes in the microbiome.

Dr. Alice Payne, Associate Professor in Fashion in the School of Design, Queensland University of Technology, AUSTRALIA, spoke on the topic of "What does a circular economy mean for cotton?"

Dr. Payne noted that the circular economy principles were - design out waste and pollution, keep products and materials in use and regenerate natural systems. Reducing the environmental impact by having fewer resource depletion, yet still maintaining economic growth. Dr. Payne indicated that when thinking about a circular economy, this refers to wearers, resellers, repairers and re-processors. Brands and retailers having a different relationship with their customers, where they are renting, buying back from wearers, and collecting back their garments. She pointed out that even though the circular economy is an economic system aimed at eliminating waste and the continual use of resources, virgin fibres are essential for the system to work, as they help to keep maintaining the strength and the quality of whatever product is in circulation.

Dr. Oliver Knox, Senior Lecturer, School of Environmental and Rural Science, University of New England, AUSTRALIA, spoke on the topic of, "Soil your undies."

Dr. Knox noted that soil health is a platform for construction and different functions will have a different health rating or assessment. The cotton industry has mainly focused on soil compaction and questioned if it was even possible to grow cotton and not use machinery. Nevertheless, there are systems like control traffic farming or limiting the number of passes in the farm that could help to solve the problem. Some other solutions are cover cropping, erosion control, water-in filtration, rebuilding soil organic matter and fostering an active biology in the

systems. A decline in soil physical properties takes considerable time and cost to correct and maintaining good soil quality is vital for the economic sustainability of annual cropping. Healthy soils are the basis of healthy crops and biodiversity enhancement. Dr. Knox mentioned that the world is full of various soil types and huge climate variation. Measuring soil health could use different approaches to accommodate these variations:

- Visual assessment of Soil is a very good method if the person is a soil scientist.
- Visual Evaluation of Soil Structure (VESS), is a spade method that assesses soil structural quality by comparing features of aggregates and roots with a description chart to attribute a soil quality score.
- FAO Visual Soil Assessment (VAS), is based on the visual assessment of key soil 'state' and plant performance indicators of soil quality, presented on a scorecard. One of the advantages in the VAS system, is that the farmer can often relate on what he is looking at back to management and crop decisions.
- #Soilyourundies, the goal of this approach is to assess soil health in a simple and fun way. It requires that people bury their underwear that is 100% cotton (and brand new) in the top 5 cm of the soil. Keep a bit of the waistband showing and flag it. Eight weeks later, people must dig up the pants. If the cotton is almost all gone, that's a good sign that the soil life is healthy and doing its job of decomposing organic matter.

Meeting was adjourned at 10:30 hrs.

Third Open Session

Germplasm Exchange

11:00 hrs, Tuesday, 3 December 2019

Chair: Jeremy Burdon, Director, Cotton Research & Development Corporation, AUSTRALIA

The CHAIR invited Dr Kater Hake, Vice President, Agricultural and Environmental Research, Cotton Incorporated, USA, to deliver his presentation "A potted history of cotton breeding."

Dr Kater Hake presented a brief history of cotton diversity. The origin of diversity started with the natural convergence of genome A with genome D. Humans started selecting for long fibres in A and AD Genomes. Optimisation of gibberellin and florigen were used in domesticated varieties in wheat and tomatoes. Selection continued for not too tall and not too short, not too leafy not enough leaves -just the right height optimized for harvest. For thousands of years farmers made local selections for improved cultivars. Experiments showed that cotton pollen movement occurred up to at least 3000 metres, thereby indicating the potential of natural crossing in cotton. In the USA, cotton breeding was focused on specific regions Delta & Southeast, Texas Area and Acala. The breeding history of cotton started with the development of varieties such as Deltapine 16; which was released in 1968, and Deltapine 50 in 1983. DP16 spread to Mexico, Colombia, AUSTRALIA and China, whereas DP 50 only spread to Greece. Interestingly, seed quality drove breeding innovation. Seed was being produced in Arizona which didn't have heat tolerance. Subsequently, crossings were carried out between elite varieties from different continents to develop new elite varieties, enhance diversity and adaptability. However, several important traits were lost in this process resulting in narrowed genetic diversity. Transportation of varieties from one region to another caused localised problems. Dr Hake concluded that there is a need to enhance diversity of germplasm by investing more in cotton breeding.

QUESTIONS AND ANSWERS:

The delegate from MALI asked if Jassid resistant varieties were available to combat the severity of damage in the country. Dr Kater said that hairy cotton varieties resisted jassids but that could result in lower fibre quality because of genetic linkage.

The delegate from BURKINA FASO asked if it is possible to breed climate-resilient varieties by changing short cycle or long cycle growth. Dr Kater replied that there was a need to invest in plant breeding to acquire the tools necessary for accelerated molecular breeding for adaptability to climate change.

A cotton breeder from TURKEY asked if molecular breeding could replace classical breeding. Dr Hake said that conventional breeding would continue across the world even with Genetically Modified crops or with marker assisted breeding. He added that plant breeders first breed conventional classic varieties before converting them to GM crops.

Dr John Zhihong Yu, Research Geneticist, USDA-ARS, USA, spoke on the topic "Exploiting genetic variation of Gossypium germplasm for cotton improvement."

Dr John Zhihong Yu stated that there were 10,000 accessions in the USDA which cover 50 species of primary, secondary and tertiary gene pools. The collections have been characterized as core collections and working collection in Texas. There is a large genetic diversity in the germplasm pool and new accessions are collected every year. A total of 2516 domestic and 526 international accessions were shared from 2008-2018. The collections are maintained by bagging to ensure self-pollination. Germplasm lines are characterized by examining patterns and structure of species, race and geographic diversity. Morphological diversity is characterized for petal colour, leaf shape etc., for 36 morphological traits. Digital image scales were developed for the morphological descriptors. DNA markers have been developed and analysed for cotton germplasm. Genetic linkage maps have been developed for the 26 chromosomes and QTL maps are now available. ESTs were also developed for functional expression of important genes. A library of 105 core SSR markers have been developed for characterization. Each arm has two markers at least. The SSR markers were used to characterize a total of 2256 accessions. The core set of SSR markers elucidate diversity structure within *Gossypium* germplasm collection to characterize the diversity reference set of 9 genomes and 33 species. Species specific marker bands have been used to identify misclassification and introgression.

Genome sequence was released for *G. raimondii* in 2012, for *G. arboreum* in 2014 and the AD genome in 2015. The genome of Texas marker genetic standard was developed for 78,000 genes. Genome wide variation was elucidated among eight upland lines. Comparative analysis of linkage disequilibrium was carried out across 26 chromosome blocks. Along each chromosome, fibre quality traits were anchored. Gene editing based on genome sequencing was done to create variation. Silencing susceptibility genes of bacterial blight using TALENS showed that seedling growth was not affected by VIGS-GhSWEET10 gene silencing.

Monsanto donated 54 accessions for breeding programmes, containing African landrace accessions, cultivated accessions and African breeding lines. More details of germplasm diversity were available on CottonGen and GRIN-Global.

QUESTIONS AND ANSWERS:

The delegate from UGANDA asked who should be contacted for germplasm sources and what kind of conditions are imposed on germplasm sharing. Dr John Zhihong Yu informed that there are standard policies in the USA that have been followed successfully for many years, based on which seeds have been distributed for international researchers and domestic researchers. However, very few accessions are received from foreign countries.

The delegate from EGYPT asked if it was possible to distinguish all four cotton species through DNA analysis of leaves and green parts. He also enquired if DNA profiling could explain the difference in productivity across the world to link the phenomenon to varietal capacity or environmental variation. Dr John Zhihong Yu answered that DNA markers are used to distinguish species. Markers for traits need resources. Collaborations between countries is required for phenotypic and genotypic characterisation. Diversity profiles are being characterised through genetic analysis.

Dr Michel Fok, CIRAD and President of ICRA, France, spoke on the topic, "Diversity, germplasm information and exchange."

Genetic diversity, if exploited, helps to make great progress in the sustainability of growing cotton in a world evolving notably under climate change. This diversity is preserved in several collections managed by public organizations in a handful of countries. The exchange of genetic materials is however of low level. Dr Fok emphasised that germplasm exchange is good because new varieties can be developed. He elucidated the example of the development of a new variety CIM-620 resistant to the Cotton Leaf Curl Disease (CLCuD) that was released in 2016 in Punjab province. The variety was developed from 74 accessions obtained from Venezuela, which were given to PAKISTAN by CIRAD in 2006.

There is a rationale to move towards a regional/international program for variability creation so that national breeding programs could benefit and be used to finalise locally adapted new varieties. ICRA is making efforts to launch an initiative to overcome this shortfall, but more organisations should participate, and financial support is required to meet the ultimate objective. Dr Fok explained how okra traits were exploited

in AUSTRALIA for better light penetration and how high density of gossypol is being exploited in China. He explained that glandless cotton was cultivated in 250,000 hectares in West Africa in 1990, so that seed-meal could be used for monogastric animals. However, the varieties were not evaluated for pest control and did not survive for long. Dr Fok questioned why there was such a low level of germplasm exchange across the world. Was it the lack of information on germplasm or was it because of people who manage germplasm finding it difficult to describe the germplasm accessions? He believed that the main reason of the current problems of germplasm exchange lies in the lack of comprehensive information on existing genetic materials and on the sharing of this information. Another reason is the lack of means and capabilities of breeding teams, to address and integrate genetic variability into breeding programs, notably in developing countries.

QUESTIONS AND ANSWERS:

The delegate from BRAZIL said that in a tropical environment there was a general problem of variable boll maturity which causes different quality at top and bottom of the plants. He asked if it would be possible to breed for uniform maturity for uniform quality. Dr Fok said that adaptability of varieties could be a general problem but breeding efforts could find answers.

The delegate from MALI pointed out that oil was extracted from cotton varieties which had gossypol, because cotton plants without gossypol were sensitive to insect pests. He asked if it was possible to breed varieties without gossypol in seeds? Dr Fok replied that cotton seed oil across the globe comes from varieties with gossypol and that the industrial process neutralizes it. He added that until 1990s MALI had innovative seed-crushing plants but now the processes were different, which may not be as efficient as the previous methods.

The delegate of PAKISTAN asked why Cotton Leaf Curl Disease (CLCuD) was still a problem

despite the new varieties that were developed for resistance to the disease. He asked if it was the failure of the variety or mutation of the virus? Dr Fok replied that co-evolution was a common phenomenon, where variations in viruses could be overcoming the variety. This would be a constant battle and cultivation techniques could be used to augment resistance.

Dr. Ibrokhim Abdurakhmonov, Minister, Ministry of Innovational development of UZBEKISTAN, Republic of UZBEKISTAN, delivered his presentation on "Germplasm resources, development and exchange."

Dr Ibrokhim Abdurakhmonov explained that it is important to combat biotic and biotic stresses using the genetic variability available in the germplasm resources. He described the inventories available in germplasm banks of different countries. He referred to the information available in his edited book 'World Cotton Germplasm Resources'. Dr Abdurakhmonov highlighted the challenges and Issues with redundancy, maintenance and storage, seed renewal period, characterization and evaluation, systematization, cataloguing and data basing. He said that while germplasm sharing, enrichment and exchange was well organized within each of the countries, sharing germplasm between countries presented road-blocks because of the cumbersome and complicated procedures involving written formal application, MTA development, internal Government approvals and intellectual property (IP) issues. He emphasized the need to prioritize expeditions and encourage germplasm exchange. Methods of characterization should be updated through molecular techniques while protecting IP through bar-coding. Dr Abdurakhmonov described new trends such as the use of molecular markers; application of Association Mapping; genotyping by sequencing methods; re-sequencing of whole genomes; marker-assisted selection approaches; genomic selection approaches; gene pyramiding; virtual World Cotton Germplasm Centre/Database; virtual breeding; personalized agriculture (chemical

genomics) and training of scientists. Dr Abdurakhmonov said that over 1000 upland germplasm and 300 ELS germplasm were exchanged with USDA. Main fibre quality traits were evaluated in the two diverse environments of the UZBEKISTAN and Mexico/California. USDA sent over 700 Upland landrace and wild species, multiplied seeds in Mexico and sent part of the collections to UZBEKISTAN. Researchers in UZBEKISTAN received a set of 17 chromosome substitution lines of TM-1/G. barbadense from USDA partners. Other Institutions exchanged over 1200 Upland germplasm with USDA-ARS in the past 10 years.

Dr Abdurakhmonov concluded that germplasm evaluation and exchange was important. There was a need to enrich collections continuously, by applying novel methods for cotton improvement. Activities such as sharing knowledge and technologies, wider international collaboration, training and education of new generation cotton scientists and increasing investments to expedite commercialization of new technologies would greatly contribute to germplasm improvement.

QUESTIONS AND ANSWERS:

A plant breeder from TURKEY explained that germplasm exchange was difficult because of obstacles and procedures. Some countries do not exchange their germplasm. TURKEY opposes GM cotton, therefore seeds received should be without GM traits and that cotton breeders must find solutions to ensure that germplasm must be protected from GM contamination. Dr Abdurakhmonov replied that GM does not destroy germplasm. Since the obstacles are man-made, it would be possible to find solutions.

A scientist from AUSTRALIA asked if the RNAi target gene details were available. Dr Abdurakhmonov said that the phytochrome A1 gene was associated with far-red light reception and gene silencing resulted in fibre length elongation and high yields.

Fourth Open Session

Reports from the Secretariat

13:45 hrs, Tuesday, 4 December 2019

Chair: Kai Hughes, Executive Director, ICAC

The CHAIR invited Ms. Lorena Ruiz, Economist at the International Cotton Advisory Committee to deliver her presentation, "Global Textile Fibre Demand: Trends and forecast."

Ms. Lorena Ruiz started her presentation by pointing out that world demand for textile fibres has expanded at an impressive pace over the last five decades. This increase has been supported by global economic growth and population. The

market share of developed countries in total textile fibre consumption has dropped from 51% in 1969 to 30% in 2018. While in developing countries the market share has increased from 29% to 66%, in that same period. The relevance of developing countries in world textile fibre consumption has been accentuated by their population growth.

Relative Fibre Prices are also a very important driver of textile fibre demand. In 2019, the average relative price of cotton to polyester was about 1.5, meaning that cotton was 50% more

expensive than polyester. World consumption of synthetic fibres increased for the 10th consecutive year and reached a new record of 62.3 million tonnes in 2018. Amongst synthetic fibres, polyester is the largest fibre used globally, accounting for about 89% of the total. The demand for wood-based cellulosic fibres has also shown rapid growth in recent years, increasing from 2.7 million tonnes in 2008 to a new record of 6 million tonnes in 2018. Most of the cellulosic fibre consumption are staple fibres, which account for 94% of the total.

It was pointed out that the demand for textiles fibres depends on economic conditions, thus a global recession could therefore lead to a decrease in cotton demand. The latest projections show that world fibre demand in 2025 will reach 121 million tonnes, which means that the world is going to consume about 18 million tonnes more in the next six years.

The Delegate from the USA asked what other factors, in addition to the US – China trade dispute, affected cotton prices.

Ms. Ruiz replied that price competition from polyester and stock-to-use ratio are important factors.

The Delegate from TURKEY asked what definition of developed and developing countries was being used by the Secretariat.

Ms. Ruiz replied that the Secretariat was using the IMF definitions.

The delegate of TURKEY asked if recycled materials could fill the gap in demand supply of cotton fibres.

Ms. Ruiz replied that it will depend on the development of new technologies.

The CHAIR invited Mr. Andrei Guitchounts, Director of Trade Analysis at the International Cotton Advisory Committee to deliver his presentation, "Production and trade subsidies affecting the cotton industry."

Mr. Guitchounts presented ICAC's annual report on government measures supporting the cotton sector. Subsidies to the cotton sector, including direct support to production, border protection, crop insurance subsidies, and minimum support price mechanisms, have been estimated at \$5.4 billion in 2018/19, which is a moderate decline from \$5.5 billion in 2017/18. Ten countries provided subsidies in 2018/19, and averaged 16 cents/pound, down from 17 cents/pound in 2017/18. Since 1997/98, when the Secretariat began reporting on government measures in cotton, there has been a strong negative correlation between subsidies and cotton prices: In years when prices are high, subsidies tend to decline. In years when prices are low, subsidies tend to rise. The share of world cotton production receiving direct government assistance, including direct payments and border protection, increased from an average of 55% between 1997/98 and 2007/08, to an estimated 83% in 2008/09. From 2009/10 through 2013/14, this share declined and averaged 48%. In 2014/15 and 2015/16, the average percentage of production receiving direct assistance increased to 75%. That number averaged 49% between 2016/17 and 2018/19.

The government of China supports cotton production by controlling cotton import volumes and values and by applying border protection measures based on quotas and sliding scale duties, with an effective tariff of 40% on cotton imported without a quota. In addition, starting

in 2014/15, the Chinese government provided direct subsidy payments to cotton producers in Xinjiang based on the difference between a target price set for the season and an average market price. The sum of all subsidies provided by the Chinese government are estimated at \$3.5 billion (30 cents/pound) in 2018/19, down from \$3.9 billion in 2017/18 (26 cents/pound). Assistance outside China increased in 2018/19 to \$1.9 billion from \$1.6 billion in 2017/18. The sum of all types of support provided to U.S. cotton producers, including PLC/ARC, crop insurance, and STAX is estimated at \$1.2 billion (14 cents/pound) in 2018/19, up from \$890 million (9 cents/pound). In 2017/18. In 2018/19 the amount of direct subsidy for production in Greece was estimated at \$214 million (35 cents/pound, down from \$232 million (48 cents/pound) in 2017/18). The subsidy in Spain is estimated at \$69 million (48 cents/pound) in 2018/19, down from \$75 million (52 cents/pound) in 2017/18). The decline is mostly the result of a stronger U.S. dollar in relation to the euro. TURKEY provided US\$314 million in assistance in the form of a premium for high quality seed cotton.

The CHAIR invited Ms. Lihan Wei, Statistician at the International Cotton Advisory Committee to deliver her presentation, "World Cotton Market Outlook."

Ms. Wei presented the statistical estimates for the past season and projections for the current one. She indicated that the fundamentals of supply and demand, with current estimates for production outpacing production, put downward pressure on prices as stocks levels may increase.

Little growth in consumption - Consumption drives demand and little growth in consumption is expected as global economic growth is slowing. Trade barriers and trade disputes have weakened import and export growth and have positioned the global economy into a synchronized economic slowdown that has slowed the pace of manufacturing and investment. Trade disputes are not limited to that between the United States and China but include a range of major economies across the globe and create uncertainty for businesses and lower investment activity. Trade deals and resolutions are therefore needed to create increased confidence in the market.

Slowing trade – Trade for 2019/20 is estimated at 9 million tonnes. Global economic growth has slowed to the lowest levels in decades. For the cotton sector, where consumption has been led by Asian and Southeast Asian economies, the recently revised IMF forecasts of a global synchronised slowdown are expected to stall growth for the region's manufacturing activities and demand for consumer goods.

Impact of policies - Resolving trade conflicts, revising global trade rules and increasing transparency in trade policies will help to support growth, rebuild investment and boost consumer

confidence for the cotton sector. New uncertainties have emerged in addition to the usual risks facing agriculture. Following several years of relatively calm market conditions, world agricultural markets today face mounting risks, including policy uncertainty from trade tensions. Our recommendations include more open, transparent and predictable trade as these are important for the cotton market and its role as an important commodity in the global economy.

The Delegate of TURKEY asked what the sources of the Secretariat data were.

Ms. Wei replied that coordinating agencies of the ICAC are the primary sources, however when data is insufficient private sources of information are used.

The CHAIR invited Dr. Keshav Kranthi, Head of Technical Information at the International Cotton Advisory Committee to deliver his presentation, "Cost of Production – a global challenge."

Dr. Kranthi noted that cost of production is a major challenge and indicated that the latest ICAC publication called "ICAC DATA BOOK 2020" contains a lot of information on the subject. The book contains a lot of information on varieties, soils, insects, water usage, fertilizers, number of farmers, number of researchers etc as well as information on weather and the cost of cultivation. It also contains long term trends and inter-country comparisons and charts on insect pests, disease, weeds, insecticides and sowing and harvesting calendars.

For economic sustainability, net returns per hectare are most important and will depend on yields, market price and production costs. The majority of African countries have the lowest yields in the world therefore it is assumed that net returns would be low. However, the cost of cultivation in these countries is low, but despite this, the net returns are also low. This is because of the low market prices for seed-cotton in Africa. The market prices are about 30% less than most other countries. Interestingly, the production cost per Kg seed cotton is lowest in Africa and is comparable to Australia. The production cost of cotton lint is also low in Africa and is competitive with AUSTRALIA, ARGENTINA and PAKISTAN. In most African countries, expenditure is highest on manpower and constitutes 50 to 75% of total production costs in most African countries, whereas expenditure on manpower is less than 50% in other countries of the world. The data also indicates that cotton is a labour-intensive crop in many countries. Labour in these countries ranges from 50 to 345 man-days per hectare per season. In countries where daily wages are high, utilization of human labour is the lowest. Manpower costs are highest in countries which employ more man-days and where the labour wages are also relatively higher.

The cost of seeds for sowing is highest in countries with biotech crops. GM seed costs

are relatively less in India because of the restrictions imposed by the Government on royalties. ARGENTINA and PAKISTAN use public sector GM seeds.

Fertilizer costs are highest in China and BRAZIL and lowest in Africa. The cost of pesticides is highest in BRAZIL, TURKEY, EGYPT, Greece and China, but again lowest in Africa. It was recommended that small scale machinery can reduce cultivation costs in Africa and a few other countries. Yields in Africa must increase. The major steps to ensure this included the use of delinted seeds, high density planting and canopy management. Farmers in Africa need support on market prices of seed-cotton. Because costs are highest in BRAZIL, TURKEY, EGYPT, Greece, China, efforts must be made to cut down costs through IPM. Biotech seeds are expensive. Africa must examine cost factors carefully before introducing GM seeds.

The delegate from AUSTRALIA asked if water licenses costs had been included in the calculations.

Dr. Kranthi answered no.

The delegate from PAKISTAN asked if mechanisation could be used to reduce the cost of man-power.

Dr. Kranthi replied that there are ways to introduce low cost mechanisation to reduce man-power cost, such as planters.

The delegate from BURKINA FASO asked how the conclusion that farmers in Africa, including C-4 countries, were paid lower prices compared to other countries was arrived at.

Dr. Kranthi replied that data came from the coordinating agencies and had been converted from local currencies into \$US. He expressed full confidence in the data used.

Dr. Michel Fok noted that there are differences in what is included in production costs between African and other countries, such as ginning and transportation costs, family labour and the extent of mechanisation.

Dr. Kranthi replied that every effort had been made to compare costs fairly, based on the available data, but the study could be improved as more data became available.

The representative from UNCTAD noted that the calculation of net returns should reflect costs throughout the whole value chain starting with the international market price down to the farm gate price in order to understand if prices paid to farmers were fair.

Dr. Kranthi agreed with the proposed approach.

The delegate from TURKEY noted that the recent decline in world prices was caused by the release of cotton from the reserves in China.

Fifth Open Session

Responding to Climate Change

15:45 hrs, Tuesday, 3 December 2019

Chair: Adam Kay, CEO, Cotton AUSTRALIA

The CHAIR invited Mr. Jon Welsh, Partner, AgEcon, AUSTRALIA to deliver his presentation "Climate Risk Management: Tools, Tips and Barriers."

Mr. Welsh noted that managing risks in the mid-latitudes is never easy. He indicated that there are studies based on statistics that help to interpret the forecast the future climate change and use the technology to mitigate the effects. Awareness of local rainfall distribution helps to manage risks and interpret seasonal outlooks. Changes in plant and animal behaviour was normally a response to humidity and air pressure differences. Crop decision support can interpret science and decisions for us in its "rawest" form. Enhanced accuracy could be achieved through big data, remote sensing and tailored weather calibration. Decision support can embed the forecast into production and remove any cognitive biases. He noted that tercile forecasts are becoming a preferred display rather than above/below median.

The delegate from the USA asked how the used models account for changing rainfall baseline over time.

Dr. Welsh replied that data for the past 20 years on the changing rainfall baseline is used with a look at the median and the average. Based on the outlook for the El Niño and La Niña effects, the projections are made.

The CHAIR invited Dr. Prakash, Principal Scientist, Central Institute for Cotton Research, INDIA, to deliver his presentation "Will cotton win over climate change in the Asian continent."

Dr. Prakash noted that major climate change challenges in Asia include climate variability, sea level rise and greenhouse gas emissions. Climate change causing temperature rise, altered pre-cipitation and higher CO₂ have an impact on cotton production, requiring impact assessment, adaptation and mitigation strategies. Dr. Prakash described his studies on the effect of temperature on cotton under elevated CO₂. He indicated that cotton bolls and fibres attained maximum weight on the 40th day. There was no difference between Bt and non-Bt. Cotton. Major effects of elevated CO₂ in the atmosphere include significant increase in plant height, dry matter production of leaf, stem and bolls, boll weight yield and harvest index. It also caused elevated pest damage and increase in fibre length and strength, good uniformity ratio, good micronaire value and high fibre quality index. Adaptation to future scenarios include a combination of several low-cost options, such as early sowing, switch to short duration varieties (150), increase the seed rate, and integrated nutrient application. It is possible that future climate change could lead to increased susceptibility to insects, pests and diseases due to lower defence metabolites in cotton. The total burden of climate change can be mitigated by reducing the extent and impact of climate change. Adaptation strategies could include high density planting system, cover crops, mulch and weed management and soil moisture conservation techniques.

The delegate from PAKISTAN asked if ratooning should be a preferred method and if the increasing temperature was compensated by the increasing sea level

Dr. Prakash answered that ratooning has a double advantage by saving diesel fuel used by tractors

and by easier preparation of land for planting. He indicated that rising temperatures are compensated by rising sea levels.

Dr. Michael Bange, Senior Principal Research Scientist, CSIRO Agriculture and Food, AUSTRALIA, delivered his presentation on "Enhancing cotton productivity in changing climate."

Dr. Bange noted that AUSTRALIA's climate has warmed since 1910. Climate change consequences include reduced water availability, higher potential water use and increased incidents of extreme weather effects. Strategies to adapt to changes include increasing yields, improving production efficiencies and adaptive management focused on cotton productivity. To improve yields, crop resilience to stress, water usage, photosynthesis, and soil health need to improve. Heat tolerant varieties should also be developed. He noted that elevated carbon dioxide and warmer temperatures may alter how cotton plants grow and requires assessing their water usage by developing alternative irrigation systems, improving plant rooting zones and water management strategies. Bio-degradable films could be used to prevent soil moisture losses. Plant nutrition should be optimised through improved soil health and transferring bacterial nitrogenase into plants. He indicated that in adaptive systems monitoring is the key. Active stress management and optimised growth regulator use in climate changing conditions are important. Climate change and variability required active stress management and that resilient cropping systems rely on flexibility to account for variability. Regionally specific assessments, systems-based approaches and transgenic/digital technologies will be vital.

Sixth Open Session - World Café

Technology Transfer Platforms for Small Farm Holders in Developing Countries

Seventh Open Session

Breeding and producing high yielding and high-quality cotton planting seed: What's required?

1:00 – 2:30 pm, Wednesday 4 December 2019

Chair: Ms. Kathryn Adams, Director, Cotton Research & Development Corporation, AUSTRALIA

Ms. Adams opened the session.

Dr. Warwick Stiller, Research Group Leader, Cotton Breeding, CSIRO, AUSTRALIA presented "Learnings from a successful breeding program: challenges, priorities and realities."

An overview of the CSIRO Breeding Program was presented. The objective of the cotton breeding program is to develop new AUSTRALIAN cotton cultivars with the goal of increased yield, fibre quality preferred by international spinners, resistance to all important disease. This is achieved through the integration of traditional breeding and modern tools together with the understanding of market requirements.

The success of the CSIRO Cotton Breeding program is dependent upon large populations and collection of accurate multisite and multi-year data. High AUSTRALIA yields compared across other countries has come with much work for development and continued maintenance. Much of the gain in higher yields come from new cultivars, with additional gains from crop management, with the remaining level of gains coming from cultivar management. Over time, more and more disease resistance has been incorporated into the varieties produced. The current focus is on yield and quality improvement under high input, well managed farming systems, improved pest resistance and developing varieties with new GM traits.

Stages of breeding programs were introduced on primary, secondary and tertiary stages with increasing focus and target from general to specific development. At the tertiary level the primary focus is on the overall package of yield, fibre quality and disease resistance. Most of the work of the program is at the tertiary level relying on the primary and secondary level work that has been developed in house.

Through the program, they have learned that breeding is a powerful tool, but it is critical to understand the industry, how technology is advanced and the constraints to production as some of these issues need to be addressed outside of breeding so that breeding can be used to make the needed further improvements. Breeding is not a solution for issues that need to be addressed at the system level.

As an example, in some newer regions in tropical AUSTRALIA, the challenges in the system are outside of cultivar issues. Issues on management practices, use of regulators, deciding a plant-ing window, etc need to be addressed first so that the target that the cultivar needs to be developed for can be used correctly and efficiently. Breeding is expensive and long-term where the return of investment is often better and quicker through changes in management. Constraints and goals are needed for breeding with difficult traits. The breeding approach needs to be done with realistic goals of what can be achieved.

New cultivars can address production constraints and improve yield and quality. However, this must be targeted for each production region – there are no shortcuts. New cultivars will not solve some major production issues – these need to be addressed by changes in soil and crop management. New technology is powerful, but must be supported by research, stewardship, production protocols and quality assurance.

QUESTIONS AND ANSWERS:

The delegate from ARGENTINA asked about the interaction between germplasm and environment. Is there a strategy to select for specific characteristics?

There is some long-term work in developing models – such as climatic models – to address this, but there is no short-term selection strategy.

A second question was asked about increasing the variability of variety.

Variability is essential for selection, however at the tertiary stage, too much variability for selection is not helpful, good or useful. Work to increase variability is long and time consuming and would need a long-term approach and may not produce the desired results.

The delegate from MALI asked about disease resistance and what has been done to eradicate deadly disease.

Bacterial blight was addressed through breeding by introducing genetic resistance almost 30 years ago. Other diseases need a range of management strategies in conjunction with breeding. Through breeding there has been some success that work with improved crop management practices.

Mr. Brett Ross, Quality, Research & International Lead, Cotton Seed Distributors, AUSTRALIA, presented on "Producing high quality planting seed: the AUSTRALIA perspective stressing

that seed production is highly system specific."

Cotton Seed Distributors is a company limited by guarantee in AUSTRALIA, founded by growers in 1967 by members not shareholders. Together with CSIRO they have released over 100 cotton varieties released to the AUSTRALIA market. Bayer has the exclusive world-wide rights to market the current CSIRO cotton germplasm outside of AUSTRALIA. Currently over 99% of cotton varieties sold in AUSTRALIA are GMO with the majority containing B3F traits under license from Bayer.

Seed production - All seed crops are grown to internationally accepted OECD Seed Scheme standards. Crop inspection results are audited annually. All early generation seed increase crops are grown under strict control on CSD farms. Seed increase may include regulated (OGTR) and stewarded (Bayer) material. Seed crops are grown under contract where potential growers submit and expression of interest to grow. Proposed fields are inspected prior to selection. All cultural operations are inspected and monitored throughout the season. There is an intense quality assurance system in place from pre-planting to harvest. The ginning process is strictly regulated, monitoring and managing moisture content using a Vuma unit. Seed receivals are tested for cutting, free fatty acid, moisture content, residual lint percentage, germination, transgenic purity, mechanical damage and seed recovery.

Seed processing – Fuzzy seed is delinted in high capacity in a HCL gas delinting plant. Delinted seed is screen cleaned and gravity graded before bagging.

Seed testing – Seed is tested to international accepted test methods and main germination tests are cyclic and constant. Seed quality is assessed throughout the multiplication process. Over 50 assessments are taken for each seed including testing for trait purity, germination potential, fungicide and insecticide seed treatment quality and long-term storage potential. All seed produced needs to meet various contractual standards.

Seed storage – Temperature plays an important role in storage of seed. Insects and moulds increase as temperature increases. The higher the moisture content of the seeds, the more they are adversely affected by temperature. Decreasing temperature and seed moisture is an effective means of maintaining seed quality in storage.

QUESTIONS AND ANSWERS:

A question from the floor on the best label to register cotton F8 or F9. Which filial generation is better for commercial cotton?

Normal selection starts at F4 stage. Generally speaking, as long as you can maintain purity standards, most would go into seed production would go into commercialisation at the F9 stage, not as a rule, but perhaps as a target.

A question from the floor on rain fed area in AUSTRALIA and the politicisation of GM in AUSTRALIA.

In AUSTRALIA, there is a potential 500 hectares dryland and 500 hectares irrigated.

How many varieties are produced each year?

Of the 12 or 13 produced, there may be carryover from the previous season with 8 developed. There are three cultivars that cover more than 90% of the AUSTRALIA crop.

A question from the floor on thresholds for purity. Purity is maintained at 98%. There is a stringent quality assurance program that allows they CSD to address any issues in purity early on in the process.

Dr. Bruno Bachelier, Cotton Correspondent, CIRAD, France presented on behalf of authors Mr. Jacques Lançon, Dr. Bruno Bachelier, Mr. Marc Giband & Mr. Romain Loison on "Quality seed for Africa – Opportunities, challenges and perspectives."

Cotton production in Africa includes 28 producing countries, covering 4.5 million hectares, producing 1.5 million tonnes of fibre and employing 3 million small-holder cotton farms that support the livelihoods of 20 million people. The production is low on a worldwide scale accounting for 4% of world total but is economically important for Africa. The crop is largely exported as unprocessed raw fibre. Cotton production represents enormous potential but currently has the lowest yields in the world.

Opportunities and challenges – Opportunities exist on three levels: structures that are in place for collective action; the skills that are available for collective action; and availability of additional skills and tools.

Amongst the structure in place there are: organization and legislation, including cottonseed registration processes and quality control; national coordination bodies, with representatives of the main stakeholders; research, often involved in the cottonseed multiplication scheme; private sector (ginning companies), often supporting cottonseed growers and farmers, organized in groups.

Amongst the skills available for collective action there exist: research often in charge of the maintenance of nucleus and breeders' seed; experienced professionals familiar with cotton, including researchers, growers, ginners, extension staff; experience with seed delinting in some countries; and genetic material locally adapted with good characteristics (GOT and fibre quality).

Amongst additional skills and tools available, there are: research staff experienced and skilled to develop multidisciplinary approaches (Crop Management Systems); experienced staff to manage breeding programs; HVI equipment available in some countries; experienced professionals with know-how in the maintenance of major equipment (e.g. ginning), and willing to participate in breeding programs or in the improvement of cropping systems (conventional, CmiA, organic)

Challenges in two levels: access to resources (genetic diversity, research funding) and collective action (interactions between research and other stakeholders).

The challenge of access to resources include the need for genetic diversity, including resistance or tolerance to diseases and pests; research funding and inconsistent level of investments; and increased human capacity through training and recruitment. Collective action is needed through formalised partnerships between researchers and stakeholders and better regional coordination for the promotion of seed exchange and capacity building.

New breeding methods have been introduced including biotech and new breeding technologies include marker assisted selection; biotech cotton and CRISPR/Cas 9 based genome editing. Precision phenotyping allows better in-depth knowledge of the genetic material, better understanding

of the genetic bases of characteristics; better understanding of GxE interactions and to feed predictive models. Participatory breeding is the decentralised breeding with farmers that can increase the breeding efficiency through a better adaptation to a diversity of cropping environments, and because of more diverse selection pressures. Cropping system models generate a better understanding of genotype x environment interactions and test performance over a wide range of environments.

A systemic approach has been undertaken to create a prototyping cropping system involving multi-disciplines and multi-actors to bring together scattered knowledge and experience from differing disciplines, experts and stakeholders. This prototype allows better understanding of a specific and complex agricultural system in order to find innovative and relevant solutions to solve problems. Multi-actor platforms have been efficient to manage a seed multiplication scheme, to design a breeding program or to evaluate new genetic material. In a multi-actor platform, experts bring their experience and knowledge, decision makers look after strategic decisions and the management of resources and facilitators create bonds between the communities of interest.

Collective action is needed. International collaboration where international companies that are investing in cotton share their experience and knowledge across national boundaries to increase efficiency and widen the benefits of the knowledge and experience. National research programs face decreased capacity at times and so by joining resources, tools and strategies, more could be achieved with neighbouring countries facing similar challenges.

In conclusion, CIRAD pleads for the creation of an African network on cottonseed. Its cotton gene bank may serve as a bridge between breeding programs in Africa and around the world. It can mobilize relevant skills and organize professional training. It can facilitate regional collaborations. CIRAD joins the international initiative launched by ICRA to promote the sharing of information on existing germplasm collections worldwide, to agree on common descriptors and to achieve a more comprehensive assessment of germplasms.

Eighth Open Session

Insect and weed resistance management – The role of good governance

14:30 – 16:00 pm, Wednesday 4 December 2019

Chair: Ms. Susan Maas, R&D Manager, Cotton Research & Development Corporation, AUSTRALIA

Dr. Sharon Downes, Senior Principal Research Scientist, CSIRO Agriculture and Food, AUSTRALIA, spoke on the topic "A socio-ecological comparison of resistance management for Bt crops on four continents."

Dr. Sharon Downes explained that governance in AUSTRALIA is characterized by many linkages, with a strong top down approach facilitated by a peak industry body, and a streamlined system of a single technology provider. BRAZIL is characterized by a lack of mandate for IRM and remedial actions, and fewer linkages. Recommendations for IRM are actively promoted by technology providers, but the extent of their adoption by growers is unclear and could be as

low as 20%. In INDIA, government regulators mandate the use of refuges for Bt cotton but technology providers are not required to monitor or report data on refuge adoption. Most growers do not plant refuges. In the USA, the government mandates resistance management strategies and registrants or seed licensee companies use contracts with growers to enforce these mandates and must cancel agreements with growers that don't comply with refuge requirements.

Re-sistance management can be improved by either fostering linkages among participants or by matching incentives to different social and ecological contexts in terms of a “carrots or stick” ap-proach.

Ms. Sally Ceeney, Policy Officer, Research Direction and Stewardship, Cotton AUSTRALIA, AUSTRALIA, spoke on the subject: “Managing resistance collaboratively: the Australian experience.”

Ms. Sally Ceeney explained that the Transgenic and Insect Management Strategies (TIMS) committee was set up in 1994. RMP plans are developed by technology providers, evaluated by a tech panel, endorsed by the TIMS committee for submission by the tech provider for final ap-proval by the regulators. The RMP is based on the product, resistance genetics, pest ecology and compliance of IRM. RMP key principles are; Plant in a defined window, Kill last generation moths, Mandatory refuge crops and Monitor for resistance. RMP for HT cotton is similar to IR cotton. RMP in AUSTRALIA is ensured to be scientifically robust while achievable and practical for the grower. There are two other key factors in the success of resistance management plans in AUSTRALIA in both weeds and insect management. The first is that the plans are supported by science and second is the stewardship supported by an industry extension and communication program.

Dr. Nancy Schellhorn, Co-founder and CEO, RapidAIM, AUSTRALIA, spoke on, “Real-time in-sect monitoring: breaking barriers to area-wide management of pests.”

Dr. Nancy Schellhorn explained that insects do not recognize borders, therefore area-wide management is very important. RapidAIM is a commercial sensor-based trap that has an attractant plus insecticide to detect and conduct real-time monitoring of fruit flies in a rapid 2-3 days loop. The technology reduces time that the Government spends on checking traps by 90%; it saves 35% of surveillance costs and reduces the cost of responding to an outbreak by 60%. The case-studies highlight that innovation in digital technology is removing barriers, new Industries are being created and that the promise of long-term suppression is real.

QUESTIONS AND ANSWERS:

QUESTION: Ms. Susan Maas. How do you ensure that single toxin varieties are phased out af-ter the introduction of pyramided Bt varieties?

REPLY: Dr. Sharon Downes. In AUSTRALIA, single gene varieties were replaced with pyramided varieties in two years. It took 7-8 years in the UNITED STATES. In INDIA, unauthorized variants of the single gene varieties are available, while BRAZIL has large areas under both forms. Boll-worm resistance to single toxins has been detected in the USA and INDIA.

QUESTION: Is there a place where growers can be trained on IRM?

REPLY: Dr. Sharon Downes. Growers need to be trained on IRM.

REPLY: Ms. Sally Ceeney: All growers in AUSTRALIA are trained before the technology is intro-duced.

QUESTION: Can you comment on the move-

ment of insects in thermal gradients?

REPLY: Dr. Nancy Schellhorn: Stratification of grids helps to track the movement of insects.

QUESTION: What is potential application of RapidAIM for cotton?

REPLY: Dr. Nancy Schellhorn. As of now, fruit and nut crops provide more margins for the tech-nology due to high demand. We do a demand driven market. Companies would consider devel-oping such technologies for cotton if there is a demand for them.

QUESTION: Delegate from MALI. Do you apply insecticides to control cotton bollworms in AUSTRALIA?

REPLY: Dr. Sharon Downes: Insecticides are not applied on cotton for bollworm control. The to-tal insecticide use ranges from 2-3 sprays in a year, most of which is targeted for the control of mirid bugs.

QUESTION: Delegate from BURKINA FASO. How can you align all the technologies with bi-osafety? Does the RapidAIM technology have any impact on human safety?

REPLY: Dr. Nancy Schellhorn. The traps use attractants + insecticides. The trap does not pose any exposure risk of insecticides.

QUESTION: Dr. Michel Fok. Has the use of neonicotinoids increased in AUSTRALIA as a con-sequence of general reduction in other groups of insecticides?

REPLY: Ms. Susan Ceeney: Broad spectrum insecticide usage has decreased, and neonicotinoids are used mainly for seed treatment.

Ninth Open Session - World Café

Report Back from the world Café

09:00 hrs, Thursday 5 December 2019

Chair: Kai Hughes, Executive Director, International Cotton Advisory Committee, ICAC

Mike McCue, Director of Communications of the ICAC, noted that in order to continue the conversation and gather more information from participants, the session would focus on an open discussion about the questions asked in the previous day's session of the World Café held on Wednesday, 4 December 2019.

1. Additional Funding

-Dr. Kater Hake noted that participants emphasised that the foundation of the app must be rock-solid. The core advice and guidance to growers on their production systems and diagnosis should contribute to increased profitability and productivity. Validation and testing are also very important in order to get feedback from growers.

-Allan Williams suggested testing the app with the growers and use their feedback to get a better

understanding as of where to spend the money in the development of the app.

-The delegate from PAKISTAN noted that in his country, cotton area is declining and it would be important to identify and understand the specific causes behind the decrease.

-The delegate from INDIA indicated that the app should be user-friendly. He also added that funds could be shared with local bodies for testing the app and reaching out to as many farmers as possible. India has approximately 8-9 million cotton farmers and cotton is produced in many states. It is important that the app can provide recommendations based on the problems of a specific region.

-A participant from Africa noted that the app should be able to monitor the crop in its different stages and provide information on what the farmer should do in those stages.

-The Delegate from BURKINA FASO, Mr. Jean Pierre Guinko, stated that the cotton sector in

BURKINA FASO welcomed the idea of the app. Mr. Guinko noted that farmers need basic functions at the beginning and then once it is tested in the field with African cotton countries more feedback can be given to the developers to improve the functionalities the app. The app should be able to provide solutions to the farmers to their real daily problems.

-Mr. Kai Hughes suggested that the C4 countries take the lead on testing the app.

-A delegate from INDIA asked if the app was going to be free for Member countries and how was the ICAC going to control its issue. The second question she asked was if the app was going to be common across different countries. Dr. Keshav Kranthi noted that each country could have its own modules. He also mentioned that for INDIA, the ICAC is planning to have separate modules for different regions. The app also has the provision to create communities and to send alerts about a pest or disease that is creating a problem or that is present in more

than 20 cotton fields in a region. It was planned that the app will also incorporate an artificial intelligence component, and this could take some months to be ready. He explained that the next step was to involve governments and discuss the best way to promote the app in member countries. Getting feedback from growers and effectively co-designing the development of the app with growers and extension officers was also very important.

-The delegate from MALI mentioned that the app could be a huge training tool to farmers and extension officers. The app should also be able to gather information on the problems affecting cotton production in different locations and it should incorporate weather information.

-Mr. Hughes said that the ICAC will engage with each Member country before implementing the app to discuss exactly what their requirements were and develop the app to those requirements.

-The delegate from AUSTRALIA asked whether the ICAC should be focusing on the app rather than further development of the Virtual Reality project, due to the limitation of funding. Mr. Hughes replied by saying that the VR training module is easier to roll out than the app. He also noted that the app also complements the VR training modules.

2. What kind of organisations should the ICAC consider partnering with to advance these projects?

Mr. Kai Hughes noted that it is essential that the ICAC engage with growers' associations, national cotton associations and governments.

3. What ideas or applications can the ICAC use to extend the VR training project to cotton consuming countries to attract new members?

-James Johnson said that one of the benefits of the app and the VR projects are its educational components. At the retail level there is a lack of understanding of the structure on how cotton production and ginning processes work.

-The delegate from TAIWAN, echoed the suggestion from the delegate of the U.S. She mentioned that the food sector in TAIWAN uses Kiosks to educate consumers through videos. They can also trace an origin of a product.

4. What other type of technologies should the ICAC invest on?

-The delegate from UZBEKISTAN mentioned that augmented reality is also a technology that can be used for training farmers.

-The delegate from UGANDA mentioned that training on seed quality for sowing is needed in the region and Virtual Reality could help to training the farmer and show the cost of using fuzzy seeds.

-The delegate from INDIA noted that training on irrigation could be useful for the country, as well as teaching the farmers how to reduce their input costs.

-The delegate from TURKEY mentioned that training on water and fertiliser management is also important.

-The delegate from BURKINA FASO said that mechanisation for small scale farmers is also essential in Africa.

Doctor Kater Hake closed the session by noting that the feedback received during both sessions of the world café has been very successful because the diversity of experience and perspectives really helped when looking at the potential of the app. He also provided a summary on the main points raised by the delegates:

-Co-develop the app with the feedback from farmers and the help of each government

-The Home Screen needs to be customised from country to country

-The app could be used as a leadership example for future development

-The app could help farmers to adapt to climate change. Weather information is crucial, but it is also important to teach and train farmers how the weather correlates to decision making in the production level.

The chair, Mr. Kai Hughes, closed the session by saying that the soil and plant health app has great potential for all countries and that updates of the app will be made in collaboration with all member governments.

Meeting was adjourned at 10:15 hrs.

Meeting of the Steering Committee

3:17 hrs, Thursday 5 December 2019

Chair: Maha Zakaria

Secretary General: Mr. Kai Hughes, Executive Director, ICAC

The Chair opened the session and explained that the Committee would review the working papers one through six.

ICAC Working Paper 1: Election of standing committee officers

The Secretary General explained that the Standing Committee had reviewed the structure of the key officer nominations of the ICAC and that it was recommended that from the following year, the structure should be changed from Chair, 1st Vice Chair and 2nd Vice Chair to Chair, 1st Vice Chair and immediate Past Chair. This would help to ensure that Delegates would only need to serve for one full year instead of two before becoming Chair and lessen the risk of being posted to their next appointment during their year as Chair. A position that had become a familiar occurrence recently.

This year, however, the Committee would keep the structure of Chair, 1st Vice Chair and 2nd Vice Chair. The Secretary General also noted that

he had been informed by the Indian delegation that Mr. Anshul Sharma of INDIA, who was originally elected by the Nominating Committee to be the 2nd Vice Chair may no longer be able to serve in that post. He informed the Committee that the current officers were: Ms. Maha Zakaria of EGYPT as the Chair and Mr. Selman Kurt of TURKEY as the 1st Vice Chair. The Secretary General asked the Steering Committee to give the authority to the Standing Committee to elect a new 2nd Vice Chair at its next meeting if necessary.

The Delegate from the UNITED STATES approved the proposal to give the authority to the Standing Committee to elect the 2nd Vice Chair. The delegate from BRAZIL seconded the proposal.

ICAC Working Paper 2: Proposed Topics of the 2020 Technical Seminar

The Secretary General informed the Committee that the topic for the 2020 Technical Seminar would be: Advances and Challenges of Hybrid Cotton Technology.

The delegate from the UNITED STATES approved the topic of the 2020 Technical Seminar and the Delegate from BRAZIL seconded.

ICAC Working Paper 3: Cash Basis vs. Accrual Accounting Systems

The Secretary General explained that this paper outlining the difference between accrual accounting and cash basis accounting systems had been produced at the request of the Standing Committee who were asking for guidance on whether they should change from the current cash basis to accruals accounting. He informed the Committee that at this stage, the Secretariat was not asking the delegates to make a decision on this topic but asked the delegates to transmit the information in this document to the capitals and to urge the representatives in the capitals to feed back their views on the document to the delegates in Washington so they could debate the matter further. The Secretary General noted that the Secretariat expected to receive the feedback by the next Standing Committee meeting that would take place in February 2020.

ICAC Working Paper 4: Strategic Away Day – 2 July 2019

The Secretary General informed the Committee that when the ICAC Strategic Plan was written in 2018, discussion on the organisation's Mission, Vision and Values was deliberately left for the following year. This year, the Standing Commit-

tee met for the Strategy Away Day during which they decided and approved the ICAC Mission, Vision, and Values. These were;

Mission

To serve the cotton and textile community through promotion, knowledge sharing, innovation, partnerships and providing a forum for discussion of cotton issues of international significance.

Vision

Prosperity through a sustainable cotton industry

Values

Excellence
Innovation
Objective
Trustworthy
Receptive
Passionate

The Delegate from the UNITED STATES proposed that the Mission, Vision and Values for the organisation be accepted. The Delegate from AUSTRALIA seconded the proposal.

The Secretary General also informed the Committee about the other decisions and recommendations that were made during the Strategy Away Day and which had been endorsed by the Standing Committee were:

1. Creation of new membership structure for the ICAC that included international and national cotton and textile organisations. The Private Sector Advisory Panel (PSAP) would undertake the responsibility of proposing recommendations for the new membership structure and had created a Subcommittee on Membership consisting of members with knowledge and understanding of the ICAC and its governance.

2. Adjustment of the way ICAC membership dues were collected. Three actions on this matter had been approved by the Standing Committee:

- a) The period of unpaid assessment fees which would lead to a suspension had been reduced from 24 months to 20 months. This would ensure that a suspended member did not appear in the calculations forming the following year's budget which was typically discussed in March/April.

- b) Members who were more than 12 months in arrears of paying their assessment fees would be obligated to pay the entry fee of the Plenary Meetings.

- c) Removal of the section 4f of the ICAC Rules and Regulations which stated, "If the assessment of a member government is in arrears for twelve months, except for a minimal amount, not to exceed 15 percent of its current annual assessment, the Execu-

tive Director shall notify the government concerned that, unless payment is received within six months after the date of notification, the provision of documents and other services will be discontinued thereafter. If payment is still not received after a further six months, the membership of that member shall be suspended." Since this rule had never been implemented and was deemed ineffective, it had been decided that it should be removed.

Other decisions that were at the Strategy Away Day and endorsed by the Standing Committee were:

- a) Removal of the reading of the country statements during the Plenary Meetings. All country statements would be distributed before the meeting and the session would then provide members with an opportunity to ask member countries questions about any details they had included in their statement.

- b) Reduction of the length of the Plenary Meeting from five to four days to reduce the cost of hosting and attendance at the Plenary Meeting.

- c) Limiting the number of delegates that received free entry to the Plenary Meetings.

- d) Designating one specific topic, chosen by the PSAP, to be reviewed during the Plenary Meeting.

ICAC Working Paper 5: Uncollected Assessments of the ICAC Members

The Secretary General informed the committee that the ICAC reinstated the following members that had paid their outstanding assessment fees: NIGERIA, CAMEROON, and TANZANIA.

The Secretary General notified the Committee that Sudan had been given a six months extension to pay their outstanding assessment fees, but Sudan was unable to make a payment and the membership of Sudan would therefore be suspended as of this meeting. The Secretary General noted that the fact that delegates from Sudan had come to the Plenary Meeting and should be viewed as a positive sign and that the Committee hoped that Sudan would be able to resolve the issue in the near future.

The Secretary General also reminded the committee that members that were more than 12 months in arrears were in danger of being suspended before considering the budget in April 2020. He urged members to pay and explained that non-payment of assessment fees significantly impacted the operation of ICAC.

The CHAIR addressed Delegates from Sudan and expressed her hope that they would come back to the ICAC membership soon.

ICAC Working Paper 6: PSAP – Prior Year Recommendations

The Secretary General informed the Steering Committee that the PSAP had been rejuvenated and restructured. The PSAP's membership structure had been changed whereas instead of governments, PSAP members would instead be able to nominate new members to the Panel. These nominees would then be approved by member governments. The Panel had a productive meeting during the Plenary Meeting and the members were looking forward to future developments. Two subcommittees were created in the PSAP: a Subcommittee on Membership which would work on integrating international and national cotton and textile associations into the membership structure of the ICAC and a Subcommittee on Promotion that would work on promotion topics including promoting more demand for cotton through ICAC. The Subcommittee would also play a significant role in developing ideas and arrangements for World Cotton Day each year.

The Secretary General informed the Committee that the PSAP had produced and agreed upon a statement, copied to the Steering Committee, which contained all of the statements that the PSAP had made since the time of its establishment. The Panel had reviewed the statements for relevance and revised the statements to reflect the current position of the members of the PSAP. The Panel would review the statement on a yearly basis and would also choose a particular subject of significance and importance that they wished to governments to be made aware of and to debate during the Plenary Meeting. The topic recommended for the next Plenary Meeting was decided to be: Informational Labeling of Textile Products.

At this point, the Secretary General asked the Committee if they had questions about any of the working papers that were reviewed.

In answer to the Delegate from BRAZIL, it was clarified that the comments regarding Working Paper 3, Cash Basis vs. Accrual Accounting Systems, should be sent to the delegates in Washington and to the Secretariat.

The Delegate from BRAZIL raised a question regarding the topics discussed in Working Paper 4 asking whether there might be legal ramifications if the new suspension rule in the ICAC Rules and Regulations would be implemented with regard to members that joined before the changes were made. The Secretary General explained that in order to avoid any such confusion, the Steering Committee was asked to formally approve the changes to the Rules and that they would take immediate effect and apply to all Members irrespective of when they joined.

The Delegate from the UNITED STATES proposed to approve the changes outlined in Working Paper 4. The Delegate from AUSTRALIA seconded the proposal.

There being no other business, the Chair adjourned the meeting at 15:58.

ATTACHMENTS**Working Paper I****Election of Standing Committee Officers****Recommendation from the Standing Committee to the 78th Plenary Meeting of the International Cotton Advisory Committee**

The ICAC Nominating Committee met on 27 June, 2019, at the Office of the ICAC Secretariat, to propose the officers for the Standing Committee for the coming year. Delegates from Australia, Brazil, Egypt, European Union, India, Sudan, Switzerland, Taiwan, Turkey, Uganda and the United States participated. Mr. Ali Tahir served as Chair of the Nominating Committee.

The Rules and Regulations specify that when practical, the First Vice Chair will be nominated to succeed the outgoing Chair, and the Second Vice Chair be nominated to succeed the First Vice Chair.

The Chair found that there was a consensus to confirm the nominations of Ms. Maha A. Zakaria, (Counsellor, Economic and Commercial Office, Embassy of Egypt, current First Vice Chair) as Chair, and Mr. Selman Kurt (Foreign Trade Specialist, Embassy of Turkey, current Second Vice Chair) as First Vice Chair, from the end of the 78th Plenary Meeting in Brisbane to the end of the 79th Plenary Meeting in Spain.

The Rules and Regulations say that the election of officers should take into account:

1. Rotation on as broad a geographical basis as possible.
2. Adequate representation to importing and exporting countries.
3. Ability, interest and participation in the work of the Committee.
4. Timely payment of assessments.

The nominations received provisional approval from the Standing Committee at its Nominating Committee Meeting on 27 June, 2019.

At Standing Committee Meeting 561, Delegates agreed to move to a system in which Delegates would be elected to the position of 1st Vice Chair and then Chair, then remain as an Officer as Immediate Past Chair. This will take effect from the end of the 79th Plenary Meeting in 2020.

Accordingly, the Standing Committee proposes the following officers to the Plenary Meeting for the period from the end of the 78th Plenary Meeting in 2019 to the end of the 79th Plenary Meeting in 2020:

- Ms. Maha Zakaria, Egypt, as Chair
- Mr. Selman Kurt, Turkey, as First Vice Chair
- Mr. Anshul Sharma, India, as the Second Vice Chair

Working Paper 2**Proposed Topics for the 2020 Technical Seminar****Recommendation from the Secretariat of the International Cotton Advisory Committee**

The following topics are proposed for the 2020 Technical Seminar of the ICAC Plenary Meeting:

1. Environmental cotton sustainability: National approvals versus individual choices
2. Cotton stalks: Should they be used for value addition or be burned or recycled back into soil?
3. Is hybrid cotton technology a viable option for Africa?
4. Organic cotton: Is there room for optimism?

TOPIC-1**Environmental Cotton Sustainability: National approvals versus individual choices**

Pesticides are regulated through national policies. Similarly, canal irrigation water is provided, and its use is regulated by Governments. Many highly hazardous pesticides are approved in many countries. Using these agricultural inputs in cotton is perfectly legal and is part of national or state recommendations. Does cotton farming become unsustainable if farmers use certain agrochemicals when the country permits their usage, or if farmers use irrigation water when the country regulates its usage?

For example, one fourth of the global cotton area — most of it in the developed world — is sprayed with glyphosate (WHO group 2A: probably carcinogenic to humans) because the chemical is legally permitted for use in these countries. Are these cotton farms sustainable when sprayed with a 'probable carcinogenic pesticide' that is legally approved for use by the Government? Similarly, canal water is released for agriculture as a national priority in almost every country. Is the farmer at fault if he uses irrigation water for cotton? Should the country be faulted for approving the use of certain inputs, or the farmer be faulted for the choice of input usage?

The technical session will debate whether sustainability is a national responsibility — or that of individuals — and also if it is proper to measure sustainability at the national level or at farm level by evaluating restricted use of certain pesticides or certain amount of water despite national approvals. Speakers will also debate on whether or not measurements of cotton sustainability should be compared between countries.

TOPIC-2**Cotton stalks: Should they be used for value addition, or burned, or recycled back into soil?**

Cotton stalks are valuable renewable resources. They can be either used for value addition to produce briquets, pellets, particle boards, or used as a nutrient source through composting or biochar production or mulching or incorporation into soil. The crop takes nutrients from the soil to grow. The plant biomass must be returned back into the soil as compost or biochar or soil incorporation, or mulch so that the nutrients are recycled; otherwise, synthetic fertilisers and manures must be applied to the soil to obtain good yields. Cotton stalks, when recycled into the soil, return valuable nutrients to the land. Most African countries however neither recycle stalks nor use chemical fertilisers, whether it's due to poor access or because they cannot afford them.

Africa, India and Pakistan produce at least 50 to 60 million tonnes of cotton stalks worth more than \$500 million. Burning stalks not only wastes a precious soil nutrient resource but releases about 1.5 times their weight of CO₂ into the atmosphere.

The technical seminar will discuss:

1. Whether many countries in Africa and Asia should continue to burn cotton stalks, as per national policies,
2. Whether Africa and Asia should remove cotton stalks from fields and add value by converting them into briquets, pellets or particle boards, and
3. Whether Africa and Asia should develop mechanisms to slash the cotton stalks back into the soil to use as bio-mulch or convert them into compost or biochar to enrich soils and reduce dependence on synthetic fertilisers for high yields.

TOPIC-3**Is hybrid cotton technology a viable option for Africa?**

Hybrid cotton is associated with hybrid vigour and therefore with high yields. However, data show that hybrid cotton technology could be beneficial in the short term under irrigated, high-input farms — but is risky and unsustainable under rainfed conditions. In the first 4 to 5 years of use, hybrids extract nutrients efficiently from the soil to produce excessive unproductive bio-mass, which results in higher yields, but also in significant depletion of soil nutrients; which cause yields to decline in subsequent years (in the absence of fertilisers). Due to its hybrid vigour, hybrid cotton produces higher biomass in a longer duration which makes the crop vulnerable to insect pests and diseases over an extended period of time, which also increases the crop's need for water, nutrients and pesticides. Hybrid Bt-cotton seeds cost about US\$100 to \$200 per hectare compared to US \$2 to \$15 of conventional, open-pollinated varieties. Further, farm-saved seed cannot be reused.

Data show that hybrids can produce higher yields when combined with irrigation and higher ferti-

liser and pesticide application, but there is no evidence to indicate that yields increased due to hybrid cotton — especially in the rainfed areas of India and other parts of the world. Interestingly, hybrid seed companies are luring Africa with promises of spectacular increase in yields — but will hybrid cotton make a breakthrough in yields in Africa, which is primarily rain-fed, and locations where fertilisers are not commonly used? That remains to be seen.

The technical seminar will examine the impact of hybrid cotton in India and Sudan, as well as why other developed countries have not adopted the technology. Speakers will debate whether the technology would be suitable for sustainable cotton farming in rainfed African conditions.

TOPIC-4

Organic cotton: Is there room for optimism?

The United States Department of Agriculture (USDA) defines organic farming as ‘the application of a set of cultural, biological, and mechanical practices that support the cycling of on-farm re-sources, promote ecological balance, and conserve biodiversity’. Technically, the definition of organic farming fits well into the sustainability goals.

However, organic cotton constitutes only about 0.5% of global production, with more than 95% of the global organic cotton being produced only in seven countries (India, China, Turkey, Kyrgyzstan, Tajikistan, USA and Tanzania). In 2017, organic cotton was grown by 220,478 farmers (0.84% of global cotton farmers), 87.1% of whom were in India and 11.0% in Africa.

There are conflicting reports on yields of organic cotton compared to conventional cotton. Organic cotton yields were either similar or slightly higher than the conventional system in India, Tanzania, Uganda and Benin, but were lower in USA, Turkey and Greece. Similarly, there are conflicting reports on net profits from organic cotton production compared to conventional cotton, mainly due to variable yields and differential market prices. The net profits on conventional farms were more those of organic cotton in Greece but were lower than organic farming in Kyrgyzstan. The profit margins were significantly higher, compared to conventional farms in Gujarat and central India, but lower in Punjab.

Sceptics have considered organic farming to be ideologically driven and inefficient because it requires more land to produce the same amount of food or fibre, and that organic agriculture suffers many shortcomings and would become increasingly less relevant in the future. However, available research indicates that increasing consumer demand for organic products is likely to stimulate higher organic production in the future.

The technical seminar would discuss on the future of organic cotton and its possible role in the path to sustainability.

Working Paper 3

Cash Basis vs. Accrual Accounting Systems— the Advantages and Disadvantages

Request from the Standing Committee to the 78th Plenary Meeting of the International Cotton Advisory Committee

Introduction

At the 561st meeting of the Standing Committee on the 19th September 2019, there was discussion as to whether the ICAC should switch from its current method of cash basis accounting to accrual accounting. The result of that discussion was that equally valid views were put forward in favour of both systems to such an extent that the Standing Committee are now looking to the Steering Committee for direction and advice.

The relevant comments made at that meeting and recorded in the minutes were as follows;

“The Delegate from the EU encouraged all the delegates to consider switching to an accrual system for the next fiscal year to get a correct and clear picture of the organisation’s finances and to adhere to the international accounting standard.

The Delegate from USA explained that a Cash Basis system wasn’t really hampering the understanding of the ICAC account, since all delegates could work out the financial position from the amount of assessments that were due. He favoured a full discussion within the Standing Committee before deciding which way to go.

The Chair of the Subcommittee on Budget recommended bringing the matter before the Steering Committee to explain the issue and with the recommendation that the Standing Committee be given authority to make a decision after a full discussion on the topic.”

The cash basis and accrual basis of accounting are two different methods used to record accounting transactions. The core underlying difference between the two methods is in the timing of when the transaction is recorded. When aggregated over time, the results of the two methods are approximately the same. In cash basis accounting, revenue is recorded when cash is received from customers and expenses are recorded when cash is paid to suppliers and employees. In accrual basis accounting, revenue is recorded when earned and expenses are recorded when consumed i.e. when they are billed (but not paid).

The timing difference between the two methods occurs because revenue recognition in the accounts is delayed under the cash basis method until the customer’s payment is received by the ICAC. Similarly, the recording of expenses under the cash basis method can be delayed until a supplier’s invoice is paid.

Below is an explanation of each system in more detail, highlighting the advantages and disadvantages to each approach.

Cash basis accounting

The cash basis of accounting recognizes revenues when cash is received, and expenses when they are paid. It does not recognise accounts receivable or accounts payable.

Many small businesses for example, opt to use the cash basis of accounting because it is simple to maintain. It’s easy to determine when a transaction has occurred (the money is in the bank or out of the bank) and there is no need to track receivables or payables.

The cash method is also beneficial in terms of tracking how much cash the organisation actually has at any given time; you can look at your bank balance and understand the exact resources at your disposal. In many ways it is no different to running your own checking/current account.

Also, since transactions aren’t recorded until the cash is received or paid, in businesses which pay tax, the business’s income isn’t taxed until it’s in the bank. This does not apply to the ICAC as we do not pay business taxes.

Advantages of cash accounting

It is a simplified process. Many small business owners choose the cash basis method for accounting because it is a simplified bookkeeping process that is similar to how you would track your own personal finances. It is easy to track money as it moves in and out of the organisation’s bank account because there is no need to record receivables or payables.

For small companies or organisations that conduct their business primarily through cash transactions and do not maintain large inventories of products, the cash basis accounting method can be a convenient and reliable way to keep tabs on revenue and expenses without the need for a great deal of bookkeeping.

In addition, for organisations that need to pay business taxes, cash basis accounting has distinct advantages. With this method, you don’t have to pay taxes on and any money that has not yet been received. This helps improve cash flow and helps ensure that small businesses have funds available for tax payments.

Disadvantages of cash basis accounting

As cash basis accounting doesn’t account for all incoming revenue or outgoing expenses, this method can lead to an inaccurate financial picture.

Additionally, because the method is so simple it does not require the accountant or bookkeeper to keep track of the actual dates corresponding to specific sales or purchases. There are therefore, no records of Accounts Receivable or accounts payable which can create difficulties when the organisation does not receive immediate payment or has outstanding bills.

Cash basis accounting does not conform to Generally Accepted Accounting Principles or GAAP. GAAP are the standard framework of rules and guidelines that accountants in the United States must adhere to when preparing financial statements. Under these guidelines, all companies with sales over \$25 million must use the accrual method when bookkeeping and reporting their financial performance.

Whilst this limit does not apply to the ICAC, the organisation has entered into contracts for grant funding from organisations such as GIZ, where there is a requirement for the organisation to maintain international accounting standards. Cash basis accounting may not comply with international accounting standards.

Accrual basis accounting

Accrual accounting is a method of accounting where revenues and expenses are recorded when they are earned, regardless of when the money has actually been received or paid. For example, you would record revenue on the date when an invoice is generated, rather than on the date when you get paid. And conversely, you record expenses on the date they occur or the date of the bill rather than the date when you receive the bill.

Accrual basis accounting is more commonly used than the cash method.

Whilst cash basis accounting provides a clear short-term vision of the organisation's financial situation, accrual basis accounting provides a more long-term view of how the organisation is performing.

This is because accrual accounting accurately shows how much money you earned and spent within a specified time period and thus a more realistic idea of income and expenses during that period, therefore providing a long-term picture of the business that cash basis accounting can't provide. It also allows for the reporting of the organisation's true profitability at the end of the financial year.

Accrual basis accounting conforms to the Generally Accepted Accounting Principles (GAAP), which may be a requirement for the organisation when applying for external funding.

Disadvantages of accrual accounting

Perhaps the most commonly cited disadvantage of accrual accounting is that it is a more complex method of bookkeeping and it can give an inaccurate portrayal of the organisation's short-term financial situation. Because of the additional complexity and paperwork to the financial reporting process, many organisations and businesses view it as a more complicated and expensive methods to implement. Since accrual basis accounting records revenues before cash is actually received, cash flow has to be tracked separately to ensure that bills can be covered from month-to-month; a business can appear to be very profitable while in reality it has empty

bank accounts. Accrual basis accounting without careful monitoring of the cash flow can have potentially devastating consequences.

The effects of cash and accrual accounting – an example

Understanding the difference between cash and accrual accounting is important, but it's also necessary to put this into context by looking at the direct effects of each method. In the following example we can see how cash and accrual accounting affect the bottom line differently.

Imagine you perform the following transactions in a month:

1. Sent out an invoice for \$5,000 for work on a project completed this month
2. Received a bill for \$1,000 from a contractor for work done this month
3. Paid \$75 in fees for a bill you received last month
4. Received \$1,000 from a client for a project that was invoiced last month

The effect on cash flow

Using the cash basis method, the profit for this month would be \$925 (\$1,000 in income minus \$75 in fees).

Using the accrual method, the profit for this month would be \$4,000 (\$5,000 in income minus \$1,000 in contractor's fees).

This example displays how the appearance of income stream and cash flow can be affected by the accounting process that is used.

How do you choose whether to use cash or accrual basis accounting?

Cash basis accounting is generally only used when a company or organisation has no more than \$5 million of sales each year (as recommended by the IRS). It is easy to account for transactions using the cash basis, since no complex accounting transactions such as accruals and deferrals are needed. Given its ease of use, the cash basis is widely used in small businesses and non-profits. However, the relatively random timing of cash receipts and expenditures means that reported results can vary between unusually high and low profits. The cash basis is also commonly used by individuals when tracking their personal financial situations.

The accrual basis is used by all larger companies and organisations, for several reasons. First, its use is required for tax reporting when sales exceed \$5 million. Also, a company's financial statements can only be properly audited if they have been prepared using the accrual basis. In addition, the financial results of a business under the accrual basis are more likely to match revenues and expenses in the same reporting, so that the true profitability of an organisation can be determined.

Conclusion

The decision as to whether the ICAC should use cash or accrual basis accounting depends very much on the following:

1. Simplicity versus complexity. Cash basis accounting is very easy to understand whereas accrual basis requires some financial accounting knowledge. From a staffing perspective it means the difference between employing a bookkeeper or an accountant and the financial consequences of each. From the standing committee's perspective, it means making a decision as to whether understanding the organisations solvency is sufficient compared to whether knowing its profitability and understanding trends is more important. One argument is that the accounts are so simple that working out cashflow and profitability are relatively easy to do.
2. Profitability as a KPI. For cash basis accounting profitability cannot be used as a key performance indicator. Therefore, other financial indicators such as revenue generation will need to be adopted as indicators of the organisation's growth and success.
3. Grant funding. As the ICAC seeks to generate more revenue from projects, many of which will be from large UN and governmental organisations, they will seek reassurance that the ICAC has adopted international accounting procedures and is properly audited.
4. Other similar international commodity bodies use cash basis accounting for ease of accounting.

It is requested that the Steering Committee give any comments which can aid the decision-making process and can also form the basis of a fuller discussion at the next Standing Committee meeting, where delegates will then make the final decision whether to keep the current cash basis system or change to an accruals system.

Kai Hughes, Executive Director

Working Paper 4 Strategy Away Day– 2 July 2019

Report from the Standing Committee to the 78th Plenary Meeting of the International Cotton Advisory Committee

Attendees

Maha Zakaria (Egypt)
Selman Kurt (Turkey)
Michail Maslov (Russia)
Patrick Packnett (USA)
Michael Bulwaka (Uganda)
Luiz Caruzo (Brazil)

Members of the Secretariat

Kai Hughes (Executive Director)

Andrei Guitchounts (Director of Trade Analysis)
 Caroline Taco (Business Development Manager)
 Lihan Wei (Statistician)
 Lorena Ruiz (Economist)
 Mike McCue (Director of Communications)
 Yana Pomerants (Executive Assistant)

Facilitator

Trish Kyle - Side Bar Solutions

1. Introduction

At the adoption of the ICAC Strategic Plan at the Plenary Meeting in Cote d'Ivoire in December 2018 it was agreed to hold an annual Strategic Away Day to monitor progress against the plan and to discuss other items that should be added to the Strategic Plan.

Despite a poor attendance with only 6 attending from a possible 28 Delegates, discussions were productive and insightful.

The main aim of the day was to determine the organisation's Mission Vision and Values and then to look at 4 strategic items currently affecting the ICAC. The sessions were facilitated by Trish Kyle, who had also conducted the Strategic Away Day last year. This allowed for a continuity in thoughts and ideas from last year's session to this.

This paper outlines the recommendations resulting from the various discussions and table top exercises.

2. Mission, Vision and Values

Last year the priority was on producing a Strategic Plan for adoption at the Plenary Meeting in Cote d'Ivoire. An important element of any Strategic Plan is to agree the organization's Mission, Vision and Values. This is normally completed first but due to time constraints, the priority was to produce the plan and associated performance indicators.

Once again, to facilitate the process, the ICAC staff had conducted their own 'Away Day' and produced their own thoughts on a Mission, Vision and Values statement which were then used as the basis for discussion on the day.

After a lengthy and very productive session morning session, the group decided on the following:

Vision

Prosperity through a sustainable cotton industry.

Mission

To serve the cotton and textile community through promotion, knowledge sharing, innovation, partnerships and providing a forum for discussion of cotton issues of international significance.

Values

Excellence
 Innovation
 Objective
 Trustworthy
 Receptive
 Passionate

3. Table Discussions

In the afternoon session the group discussed four topics of immediate relevance to the ICAC

a. How a future Membership structure involving private sector organisations could look like? What value does it bring to the organisation and what value does it provide to them?

It was clear that the proposal for a Membership structure involving organisations was far more complex than originally thought. In particular, where national cotton associations were supporting government Membership of ICAC already and were thus contributing to the assessment fees. There was also concern that too much emphasis on including private companies and national associations could cause governments to lose interest in the ICAC. Therefore, any proposed structure had to consider that delicate balance and ensure that the ICAC remained an inter-governmental body, informed by their national associations. What was clear was that any Membership structure should not give access to private companies.

There was also discussion on the proposed Private Sector Advisory Panel (PSAP) Terms of Reference (ToR) and how to encourage more participation from the private sector. In particular, they wanted more information and clarity on the following phrase in the ToR and how would it work;

"The PSAP shall lead the development of promotional programs for cotton globally in order to increase the global consumption of cotton."

Delegates confirmed that international cotton organisations, such as ITMF and ICA should have a seat on the panel and that up to 3 Members from non-Members can be nominated but this should be qualified by including the term "special qualifications" in the text.

Actions

- ICAC should send formal invitations to the Chairs of the ICAC committees to guarantee their participation in the Standing Committee meetings.
- Create a focus group to discuss and find alternatives for the Membership structure of the ICAC.

b. Assessment Fees. How to ensure assessment fees are paid in a timely manner and how to reduce the financial burden on the organisation and other Members if a Member is suspended?

This is an area of major concern for the financial health of the ICAC. Delegates in particular discussed whether the Executive Director should invoke the ICAC Rule which states that if a Member has not paid their assessment fee after 12 months they should lose their right to receive information and the privileges of Membership. This was considered to be too draconian and would have little or no effect and thus send a negative message to Members we should be trying to retain.

Actions

- The Delegates supported the recommendation from the Executive Director to reduce the period before deciding to suspend a Member from 24 months to 20/21 months.
- It was proposed that if a country hasn't paid its assessment arrears by the time of the Plenary Meeting (PM), then free access for Delegates to the PM won't be granted and they will have to pay full price for their participation.
- Remove the '12 month Rule' when the ICAC Rules and Regulations are revised.

c. Plenary Meetings. Developing a proposition that encourages Members to hold the annual Plenary Meeting. Lessons learned from recent Plenary Meetings? Where next after Seville 2020?

It was clear from discussions that the Plenary Meetings needed to be shorter, which would help reduce costs and be more focused on cotton issues. Costs are a major factor for a country in determining whether to hold a Plenary Meeting or not. The Plenary Meeting is seen as an opportunity for a Member to showcase its cotton industry. The Executive Director pointed out that he was trying to create a sustainable business model where the Plenary Meeting costs were largely covered by the costs of the engagement of the Private Sector through their attendance and sponsorship. This required some sensitive thought on how this could be achieved without undermining the fact that the Plenary Meeting is a meeting of governments and it was hoped that the forthcoming Plenary Meeting in Australia would get that balance right and act as the business model for future meetings, which will also encourage Members to come forward and host future Plenary Meetings.

Actions

- Country reports should be taken out of the agenda. Countries can have access to the reports on the ICAC website and they should be submitted one week before the PM. This will allow countries to ask specific questions if needed and give more time to Members to address cotton issues of international relevance.
- Shorter meeting (3 days max).

- The ICAC would prepare a paper for the Delegates to show how the number of free Delegates for the Plenary Meeting could impact the ICAC budget.
- PSAP can lead the discussion of one specific topic during the PM.

d. Revisiting the nomination of 1st and 2nd Vice. What are we trying to achieve? Does this system work? Is there a better way?

Discussions took place around the need to have continuity year on year and the challenge of finding Delegates to volunteer for the position of 2nd Vice Chair when they may reach the end of their diplomatic posting in the year when they are Chair. It was agreed that it was important that Delegates should not reach the position of Chair in the year they may be posted but it was also recognised that Delegates who may volunteer to fill the office of 2nd Vice Chair will do so after having had at least a year's worth of engagement and experience in the ICAC.

Delegates agreed with the Executive Director's recommendation to move to a system of Officers where Delegates are elected to the position of 1st Vice Chair and then Chair and then remain as an Officer as Immediate Past Chair.

4. Recommendation

It is recommended that the Mission Vision and Values as approved by the Standing Committee at its 561st meeting be formally ratified by the Steering Committee.

The comments and recommendations regarding the Terms of Reference of the PSAP were passed back to that Panel for them to discuss and their amended Terms of Reference was approved by the Standing Committee at its 561st meeting in September.

Other recommendations arising out of the Strategy Away Day were debated by the Standing Committee and either approved or passed to the Steering Committee for further discussion or ratification as appropriate.

Kai Hughes, Executive Director

ICAC Strategic Plan 2019 - 2021

Background

At the last meeting of the Steering Committee, held during the 76th Plenary Meeting in Tashkent, Uzbekistan, on 27 October 2017, it was agreed that a Strategy Committee be formed to have oversight of the Strategic Review process and ensure that timelines and key objectives were being met. The objective of the Strategic Review is to enhance the comprehensiveness of the ICAC's current statistical, technical, trade and policy streams of work. The Strategy Committee conducted the Strategic Review of the ICAC, leading to the creation of this Strategic Plan.

Mission

The mission of the ICAC is to assist members in fostering a healthy world cotton economy. The Committee achieves its mission by providing transparency to the world cotton market, by serving as a clearinghouse for technical information on cotton production, and by serving as a forum for discussion of cotton issues of international significance. The role of the ICAC is to raise awareness of emerging issues, provide information relevant to the solving of problems, and to foster cooperation in the achievement of common objectives. By serving as an objective statistical observer and by bringing producing, consuming and trading countries together with all segments of the cotton industry, the ICAC serves a unique role as a catalyst for constructive change.

ICAC Vital Functions

- Provide statistics on world cotton production, consumption, trade and stocks, and to identify emerging changes in the structure of the world cotton market;
- Serve as a clearinghouse for technical information about cotton and cotton textiles;
- Serve as an objective forum for discussion of cotton matters of international significance;
- Represent the international cotton industry before UN agencies and other international organisations.

Organisational and Leadership Values

Formed in 1939, the ICAC is the only intergovernmental body for cotton producing, consuming and trading countries. ICAC has a rich history as the leading provider of information about the global cotton industry and is a respected independent, analytical, objective source of statistical and technical data on cotton and cotton textiles. ICAC has a global reach and supports networks of cotton researchers worldwide. ICAC aims to cover all aspects of the cotton value chain and does it in a cost-effective way with limited resources. ICAC raises awareness of the major

challenges facing the cotton industry, such as declining market share, demand enhancement, sustainability of cotton production, developing technologies aimed at increasing productivity and reducing costs and price volatility, and strives to provide practical solutions to the effective resolution of those challenges.

Strategic Objectives

Strategic objectives will be focused on strengthening ICAC as a viable, relevant organisation with a strong forward-thinking analytical capacity. ICAC is the premier source of objective, science-based information on cotton that assists governments in fostering a healthy world cotton economy. The organisation will continue to provide transparency to the world cotton market for the benefit of the private sector and the hundreds of millions of people involved in the cotton value chain. ICAC will maintain one of the strongest statistical and technical information capacities in the industry and will continue serving as a clearinghouse for sustainable cotton production technologies. The organisation will continue developing a modern database of statistics and information, instantly accessible online by governments, the private sector, researchers, and educational facilities.

ICAC will work hard to retain current membership and add new members from major world cotton or textile economies by adding to the value of membership for the whole cotton and textile value chain. ICAC should focus on developing strategic partnerships with international and industry organisations and actively engage in cooperation with the private sector. In order to achieve challenging objectives and provide clear value to members, revenue generation and growth must be achieved, and a new membership and committee structure should be explored. Outreach and promotion goals should be developed through holistic communication strategies, as well as information technology.

The organisation will continue to serve as the major international forum on cotton, bringing together producing and consuming countries with all sectors of the cotton industry in order to address challenges and achieve practical solutions. The visibility of ICAC and its work and profile will be increased. The organisation will be coordinating and participating in international seminars and conferences, regional meetings, and research networks in order to address pressing and topical issues, such as production technologies, market shifts, fibre competition, and price-risk management. ICAC will continue to cooperate closely with industry associations, government and private organisations, research centres, universities, and the media.

ICAC will work on cotton demand enhancement and will continue to promote cotton consumption with clear messages on the sustainability of cotton production. ICAC will address the criticism on the environmental impact of cotton

production, and will help to educate consumers on the environmental, social, and economic benefits of cotton production. ICAC will work with governments to encourage transparency in cotton policies and programs and to eliminate the direct government measures that distort cotton production and trade. ICAC will promote implementation of modern technologies that improve productivity and reduce costs in order to make cotton more competitive with polyester and other synthetic fibres.

ICAC will continue to serve as the International Commodity Body (ICB) for cotton, and will sponsor cotton projects not just with the Common Fund for Commodities (CFC) but will also aim to develop projects with other national and international groups. ICAC will cooperate with international organisations such as The World Bank, UN, FAO and UNCTAD, UNIDO, GIZ, EU and others on developing cotton projects.

The organisation will employ and retain professional, enthusiastic, disciplined, results-oriented, dedicated, creative, and innovative staff. The team will be well-remunerated and provided with job stability. The organisation will maintain strong traditions of excellence and efficiency of service to its members and to the industry, where the set goals are reached. Deadlines will be met and the budget adhered to with the strongest discipline. The accumulated experience will be passed through the generations, but the organisation will be always looking forward for opportunities to innovate.

STRATEGIC PLAN 2019-2021

The Strategic Plan marks the culmination of a strategic review process that began at the end of 2017. This process began by gathering inputs from stakeholders via surveys and meetings with key individuals and the various ICAC Committees, analysing the activities of other International Commodity Bodies and conducting an internal SWOT analysis amongst members of the ICAC Staff. This information was presented to the Standing Committee at a dedicated Strategic Away Day held on 12 July 2018. The Away Day was conducted by an independent consultant who started the day by reviewing key themes and shared comments that arose out of the surveys. From this, discussions took place around four key areas;

- Governance structure
- Revenue building activities
- Partnerships with member governments/ international organisations
- ICAC membership structure

This was followed by a review of the organisational SWOT analysis and a discussion on how to build upon the strengths and opportunities and how to ensure sustained growth and value to members.

The Strategic Plan, attached, formed the basis of those discussions and reflected the priorities that the Standing Committee felt were important for the ICAC to achieve its aims. It should be noted that whilst many activities will necessarily need to start in year one in order to achieve completion by the end of the Strategic Plan, those requiring the highest priority are shown in red and lowest priority is shown in green.

Progress will be monitored annually against the Plan but the success of the Strategic Plan can only be judged by performance at term end. It is also important to revisit the Mission statement of the organisation as well as its Vision and Values and this will form the focus of next year's Away Day as well as reviewing the ICAC's progress in achieving its objectives.

The ICAC's seven key objectives are summarised below;

Membership

ICAC will create a targeted approach for each identified potential member among producing and consuming countries by clearly demonstrating the value of membership, leading to increased membership during the strategic plan period. ICAC will explore and improve services provided to current members in order to achieve a 100% retention rate of its members. ICAC will explore and implement a new membership structure that includes associate membership for national and international organisations, as well as allied-sector and private-sector firms, which will lead to increasing revenue.

Value Proposition

ICAC will research and analyse the most prudent ways to create a sustainable value proposition to cotton consuming countries. The cotton value chain will be the focus and target for improving the value proposition offered by ICAC to members throughout the course of this Strategic Plan.

Research

ICAC will develop a technical information strategy in order to strengthen its vast technical research network, increasing the capacity to produce even more objective data and statistics — including not just production, but textile processing as well. ICAC will make the quality of its data more accessible to members, partners, and the global community. ICAC will focus on developing and strengthening research networks, especially in Africa. ICAC will develop a holistic education plan and create a cotton innovation world conference.

Partnerships

ICAC will identify key partnership opportunities throughout the world that make the most sense and will strategically improve the ICAC. Partnerships will be identified within the UN, other international organisations, ICBs, national industry associations, private sector firms, and others.

Governance

ICAC will review its committee structure and determine the most appropriate structure to serve the needs of the ICAC and address major challenges: the growth and sustainability of the ICAC. Organisational regulations will be reviewed in line with the best practices of other ICBs and international organisations. A review of ICAC's mission, vision, and values will be conducted.

Technology

ICAC will explore ways to utilise technology to increase its value proposition and assist in the deployment of vital information to the global market and cotton supply chain. ICAC will create a plan to deploy its information and vast expertise to provide members and the global cotton community with timely and objective data and information. ICAC will utilise modern technology for training and publication distribution.

Finance

ICAC will increase and preserve value-added revenue streams that will support the growth of the ICAC and provide accessible research and education. ICAC will explore new policies for the acceptance of paid advertising in publications and on the website. Growth opportunities will be explored, including associate membership of the private sector and trade associations in all sectors of the value chain. Revenue increases during Plenary Meetings and research conferences will be explored to include sponsorships and trade fairs.

CAC Strategic Plan by Priorities

Key Objectives	Approach/process	2021 Success Goals	2019	Priority	2020	2021	Owner	Resources	Category
Identify Members Retention Value add for members	Create targeted approach for each identified potential member. Draw up list of all cotton producing and consuming countries; divide into those who have been members and have resigned/ been suspended. Those who have never been ICAC members. Prioritise into 3 groups - good, possible, no	Secure 5 new members	1		2	2	Staff and SC Members		
	Retention: create the approach to retain each country; explore what additional ICAC benefits would be beneficial, create strategy to communicate, reach out, build relationships and maintain.	100% retention							Membership
	Determine appropriate assessment to identify needs of members. Explore various methods to utilize external assistance/guidance to craft assessment and research value propositions.	Conducted 3 Projects in member countries	1		1	100% retention	Staff and SC Members		Membership
		Developed and conducted 3 production based workshops	1		1	1	Keshav Kranthi		Membership
Value Proposition Partnerships Outreach and Promotion	Create Annual Questionnaire	Produce Annual questionnaire for end of 2018-19					Staff and SC Members		Membership
	Research and analyse ways to create a value proposition for the textile value chain	Increased stated value to members	Engage with outside consultant to create and deploy the research study		Recommendations and implementation of proposals			Consultant's fee	Value Proposition
	Identify key partnership opportunities through the world that make the most sense and will strategically improve the ICAC.								Partnerships
	Identify key partnerships within the UN organisations. Create the plan to identify partnership benefits to both sides of the relationship. Identify and prioritize target list of partnerships. Begin process of building partnership relationships	MOUs with all identified key partners	Paper to SC to identify key partners			MOU with identified partners	ED and SC Members	Travel budget to reflect trips to visit identified partners	Partnerships
Research	Develop holistic communication strategy. Link strategy to critical elements within the strategic plan objectives. Identify key messages annually linked to SP objectives	KPIs within Communications Strategy reached	Communications Strategy to be approved by beginning of 2019		Communications Strategy and key messages reviewed	Communications Strategy and key messages reviewed	Mike McCue		Outreach and Promotion
	Develop holistic ICAC technical information strategy. Develop projects, training programmes, country audits and frontline demonstrations.	Increased number of projects and programmes resulting in an increase in yields and sustainability matrix	Develop Technical Information Strategy for approval		Implementation of strategy	Implementation of strategy	Keshav Kranthi	Recruitment of additional member of staff	Research
	Strengthen existing research networks. Assume greater leadership role in identified networks to assist in oversight, direction setting as part of the strategy to reduce myth busting while improving the positive perspective of cotton and the ICAC	Increased attendance and sponsorship	Identify regional themes. Develop common governance structures.			Develop 3 year plans for each regional network to include workshops and training.	Keshav Kranthi		Research
	Create the plan to leverage knowledge & vast expertise to produce timely credible facts about cotton	Continual increase in number of downloads	Develop list of key messages			Develop factsheets periodically	Mike McCue, Keshav Kranthi		Research
Finance Strategic and Annual Business Plan Value add for members	Develop increased budget performance with increased transparency	Budget performance +/- 5%	Out turn +/- 10% of Budget		Out turn +/- 5% of Budget	Out turn +/- 5% of Budget	ED		Finance
	Create the internal process for annual review and management of strategic and annual plans		Annual Review		Annual Review	Annual Review	ED and Lorena Ruiz		Strategic and Annual Business Plan
	Determine appropriate assessment to identify needs of members. Explore various methods to utilize external assistance/guidance to craft assessment and research value propositions.								
		Completed 6 country audits	2		2		Keshav Kranthi		Membership
New Membership Structure Review ICAC Committee Structure	Review and propose variety of membership structures and benefits for private sector, associations etc.	New membership structure implemented resulting in increasing membership of international and national organisations and increasing revenue stream	Create a Sub-committee on New Membership Structure. Proposal of new membership structure to include International and National Organisations		Implementation of new structure		ED and SC Members		Membership
	Review ICAC committee structure; determine what is working/why and what is not working. Determine best committee structure to serve the needs of ICAC over the next three years of the SP	Committees cover major challenges in the whole value chain	Proposal to the Steering Committee		Implementation of new structure		ED and SC Members		Governance
	Review staff structure	New staff structure in place to reflect requirements of the Strategic Plan			Proposal to the Standing Committee. Budget to reflect changes		ED	Increase in budgeted salary level	Governance
	Review Mission, Vision and Values	SP reviewed annually	Reviewed at annual review			Annual review of SP	Staff and SC Membership		Governance

Create one plan from the research	Identify key partnerships within international organisations, commodity C&Bs, private sector and more. Create the plan to identify partnership benefits to both sides of the relationship. Identify and prioritize target list of partnerships. Begin process of building partnership relationships.	MOUs with all identified key partners	Paper to SC to identify key partners	MOU with identified partners	MOU with identified partners	ED and SC Members	Travel budget to reflect trips to visit identified partners	Partnerships
	Identify key partnerships with National Associations. Create the plan to identify partnership benefits to both sides of the relationship. Identify and prioritize target list of partnerships. Begin process of building partnership relationships.	MOUs with all identified key partners	Paper to SC to identify key partners	MOU with identified partners	MOU with identified partners	ED and SC Members	Travel budget to reflect trips to visit identified partners	Partnerships
Outreach and Promotion	Review relevance and number of publishing frequency of ICAC publications. Create and conduct survey of recipients to determine validity of publication. Best method to receive information.	Increase number of downloads. Increase in revenue from sales of publications. Increase in number of citations. Increase in number of citations. Measure impact.	Develop publications survey for all subscribers. Identify 'Flagship Publications' to measure impact.	Annual survey	Annual survey	Staff (Mike McCue)		Partnerships
	Analyze survey results to determine course of action to create streamlined approach to knowledge sharing and publications.	Increase in number of recipients of publications and sharing programmes	Develop webinars and fact sheets	Develop Virtual Reality training course	Conduct workshops and increase number of training programmes	ED and Staff	Consider employment of Training Development Officer	Outreach and Promotion
Research	Review the relationship & roles of ICAC & ICRA	Approval of new structure and constitution by 2020	Review ICRA Constitution	Develop academic membership criteria for ICRA	Develop ICRA Strategic Plan	ED and Keshav Kranthi and ICRA		Outreach and Promotion
	Create a holistic education plan that supports the SP objectives and increases value to members, global networks and more through the use of technological delivery of educational/informative content. Assess and analyse ways to provide learning through fees and subscriptions.	ICAC in house expertise covers the whole value chain	Identify gaps in knowledge in the organisation in comparison to the needs of the value chain	Recruit expertise as required		ED	Recruitment of new member of staff	Research
Finance	To increase Business Plan revenue stream to \$500K	\$500K by 2021	Total revenue \$400K	Total revenue \$150K	Total revenue \$200K	ED		Research Finance
	Review ICAC Regulations in line with current best practice with other C&Bs and International Organisations	Revised ICAC Regulations in place		Proposal to the Steering Committee	Implementation of new structure	ED and SC Members		Governance
Governance	Review Staff Regulations in line with current best practice with other C&Bs and International Organisations and best legal practice	Revised Staff Regulations in place		Proposal to the Steering Committee	Implementation of new structure	ED and SC Members		Governance
	Set up West Africa research network	First research network meeting to be held by 2020	Consult with key partners to establish research network - CIRAD?	Recruit administration research team. Hold meeting		Keshav Kranthi		Research
Research	Develop cotton innovation conference. Identify key partners to host the conference	Conference by 2020	Identify possible partners	Hold innovation conference		ED		Research
	Create the policy to increase revenue for Plenary Meeting through sponsorships, delegate admission and more. Review 2018 contract/amend as needed. Review Plenary meeting contract annually.	Increase in number of delegates (and therefore revenue) attending the Plenary Meeting	Develop sponsorship and revenue policy for Plenary Meetings			Carmen Leon, Caroline Tico		Finance
Finance	Research feasibility of creating App that will bring in sustained revenue for the following: Soil Health, Environmental Sustainability and Pest Management. Monitor and evaluate effectiveness of apps, modify and make improvements	All Apps launched by 2021	Soil Health App approved and sponsorship obtained	Sustainability and Pest Management App approved and sponsorship obtained		Keshav Kranthi	Self financing	Technology
Technology	Review and analyze data base options. Determine the viability to create portal based access of statistics and information. Develop internal working group.	Database launched	Develop database specification. Establish working group. Clean the data.	Develop database	Launch new database	Lihan Wei	Budget to reflect cost of new database	Technology

Working Paper 5**PSAP - Previous year's
recommendations**

(Available in English only at
WWW.ICAC.ORG)

Working Paper 6**Uncollected Assessments of
the ICAC Members**

(Available to ICAC Members
only. Please send your request to
secretariat@icac.org)

Closing Plenary Session

16:00 hrs, Thursday 5 December 2019

Chair: Ms. Maha Zakaria, Commercial Counselor, Economic and Commercial Office, Embassy of the Arab Republic of Egypt

Ms. Zakaria opened the session with the first item, 'The Reading of the Final Statement'.

In the interest of time, BRAZIL proposed that the Final Statement be taken as 'read' rather than reading it aloud, the UNITED STATES seconded. EGYPT pointed out, along with Mr. Kai Hughes, that a numerical typographical mistake would be corrected in the final version.

The representative from SPAIN officially invited the delegates, on behalf of the government of Spain and endorsed by the European Union, to attend the 79th Plenary Meeting. The meeting

will be held in Seville, SPAIN, in the last week of November 2020, and would address the challenges and opportunities facing the cotton industry including climate change, price volatility and the ability to generate joint and global strategies.

Closing comments were made by the delegate from UZBEKISTAN, on behalf of the host country for the 76th Plenary Meeting. He recognised the successful organisation of the Brisbane 78th Plenary Meeting, highlighted the important steps that UZBEKISTAN had recently taken to improve cotton production and invited all Members to collaborate with them in the future.

Closing comments were also made by the Chair of the Organising Committee of AUSTRALIA, Dr. Alison McMorro, Assistant Secretary, Agricultural Policy Division, Department of

Agriculture. Dr. McMorro once again recognised the traditional owners of the land in AUSTRALIA. She thanked all those who had traveled and participated and acknowledged the hard work of the organisers and recognised the interest and support of the collaborating partners and sponsors.

To conclude, Ms. Zakaria recognised a successful and informative Plenary Session and thanked the Organising Committee and Government of AUSTRALIA for their hospitality. She also thanked all the delegates for attending and invited them all to join at the next Plenary Meeting in Seville.

Mr. Kai Hughes congratulated Ms. Zakaria for her election to Chair from Chair ad interim and the meeting was closed at 16:30 hrs.

DOCUMENTS

1. Report of the Chairman *ad Interim* of the Standing Committee
2. Report of the Executive Director
3. COTTON: Review of the World Situation, September 2019
4. World Cotton Statistics – November 2019
6. World Textile Demand – November 2019
7. World Cotton Trade – November 2019
8. Cotton Data Book – November 2019
9. THE ICAC RECORDER - September 2019
10. Production and Trade Policies Affecting the Cotton Industry – November 2019
11. Directory
12. Procedural Matters for the 78th Plenary Meeting

WORKING PAPERS

- I. Election of Standing Committee Officers
- II. Topic of the 2020 Technical Seminar
- III. Uncollected Assessments of Member Governments of ICAC
- IV. ICAC Accounting System
- V. Strategy Away Day
- VI. Uncollected Assessments of the ICAC Members

REPRESENTATION LIST

Delegates Argentina

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INTA Argentina
Argentina

Australia

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Australia

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Brazil

Andrew Macdonald
ABRAPA
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Wolfgang Bertenbreiter
German Society for International Cooperation (GIZ)
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Cornelis Keijzer
Delegation of the European Union to
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Michel Fok Ah Chuen
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Elke Hortmeyer
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Antonios Siarkos
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India

Alli Rani Padmanaban
The Cotton Corporation of India Limited
India

Shyam Prasad
Embassy of India
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Farmers' Welfare
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