



Editorial

Why are cotton yields so low in Africa, and why have they been so stagnant over the past 30 to 35 years? These two queries lead to many more questions. Are the soils infertile? Is the weather unsuitable for cotton? Is there inadequate water? Are there no technologies for high yields? Is there a problem with technology transfer? Are farmers unable to provide necessary inputs due to poverty?

Paradoxically, low yields in Africa persist despite many favourable conditions for cotton production. Experts would agree that:

- The weather in Africa is highly suitable for cotton, with good sunshine and rainfall;
- The soils are as good as, and probably better than, many other parts of the world where cotton is grown;
- New technologies have been developed in Africa that reach many farms; and
- Farmers are hardworking and apply their best management skills for higher production.

But nothing seems to be working, at least on the yield front. There have been innumerable attempts, made by reputable international agencies over the past several decades, to introduce new cotton-technologies into Africa — mostly related to varietal development, integrated pest management and soil and water conservation — in efforts to enhance yields. Projects with many ideas were formulated by these international agencies; implemented with huge funding and completed as planned, but none of them seem to have resulted in yield enhancement.

This is intriguing, indeed. Are there ideas that haven't been explored in Africa as yet? This September 2018 issue and the forthcoming December 2018 issues of the ICAC RECORDER attempt to explore the ideas for yield enhancement in Africa. This issue has articles that briefly look at the perspectives on African cotton research and ideas from across the world to enhance the cotton yields in Africa. While some ideas are related to the need for new government policies to streamline the market, some deal with 'researchable' problems, and others address the issue of technology transfer. Many ideas were inspired by success stories from the developed world. Will they be relevant for Africa?

In recent years, Australia, China, Mexico, Brazil and Turkey have been harvesting more than 1,500 kg of lint per hectare, with Australia touching a record 2,680 kg/ha in 2014. Interestingly, Turkey harvests 1,800 kg/ha without using biotech cotton. USA has been harvesting about 1,000 kg of lint per hectare. Cotton yields in these countries have been on a significant positive growth curve over the years. A critical analysis shows that the ascent in this growth curve was due to consistent improvements in plant breeding, agronomy and integrated pest management (IPM).

Improvements are happening every year and yields are constantly on the rise. The strategies appear to be based mainly on interlinked elements, such as new varieties that were specifically developed to suit mechanised conditions that demand a particular type of agronomy. The new varieties were designed for a plant architecture that suits spindle-type machine pickers. The plants were of a short stature at less than 100 cm, with a narrow width of 60 to 70 cm, having 10 to 15 productive sympodial branches that bearing 15 to 20 bolls per plant, in a high-density planting system (more than 110,000 plants per hectare). Although Australia, Mexico, Brazil, USA and Turkey were compelled to change the plant architecture and follow canopy management with plant-growth-regulating (PGR) chemicals due to mechanisation, China adopted these strategies only to increase yields. Scientists soon realised that the short-statured plants were more efficient in utilising sunshine, water and nutrients because they could bear adequate number of bolls in a shorter time by expending less energy with more efficiency.

Can such strategies be applied in Africa to break the yield jinx? It is true that no alien technology can simply be replicated, adopted or relocated from one country to another. It is unlikely that technologies developed for a condition in a specific environment for a particular country would be suited for other conditions a different environment in another country. But inspiration can strike, and lessons can always be learned.

The basic principles that underpin the technological change must be elucidated, assimilated and used for the development of concepts, strategies and technologies that must be tested and validated in the local environment of adaptation. It would be a mistake to simply assume that technologies from the developed world would not be relevant for an underdeveloped or developing world. The average lint yield in Africa has been about 350 kg/ha for more than three decades, and this must change. But a change is possible only when someone dares to dream. And dreams can come true when scientists dare to dream and move forward through experimentation.

With this as a backdrop, and with a bank of ideas proposed by cotton scientists from developing and underdeveloped countries, the special September and December 2018 issues on 'Cotton High Yields -This Time For Africa' of the ICAC RECORDER should be seen as the torch bearers for a new tomorrow for the cotton sector in Africa. I earnestly hope that the ideas proposed by cotton researchers soon become the harbingers of hope for Africa.