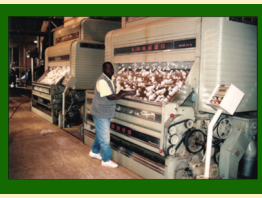
70 years of Cotton Varietal Improvement in Cameroon



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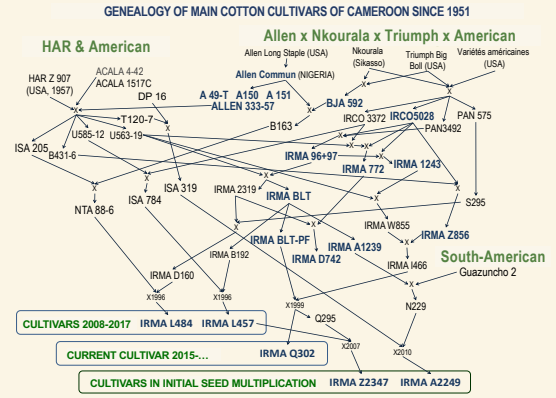
The cotton breeding and fiber technology section of IRAD is part of its program *Cultures Annuelles Industrielles* and receives financial support from the *Société de Développement du Coton - SODECOTON -* of Cameroon.

Cotton is grown by about 200,000 families in the northern regions of Cameroon and supports more than one million people.

The cotton genetic improvement program, carried out on the stations of Garoua and Maroua, in the heart of cotton's cultivation regions, creates the new cultivated varieties.

GOALS

Cotton breeding aims at satisfying the needs of the actors in the cotton sector (cotton growers, farmers' syndicates, development companies, ginners, oil producers, spinners and the textile industry) and anticipating future evolutions.



DYNAMICS OF THE VARIETAL IMPROVEMENT

The graph above shows the genealogy of the main varieties released since the early 1950s. In the original germplasm, we find the varieties "Allen commun" based on Nigeria's traditional Allen and Nkourala from Sikasso region in Mali and Burkina Faso, the triple hybrid HAR and the old North-American genetic background. Later, in the 1970s, crossings began to involve the newly created West-African selections, while reciprocally improved Cameroonian cotton germplasm has been used in West African cotton improvement programs, thanks to frequent international exchanges that have been mutually very beneficial for varietal creation.

Beginning with the spread of the "Allen commun" in the early 1950s, 25 new cotton varieties have been released.

Currently, 3 varieties are grown in Cameroon:

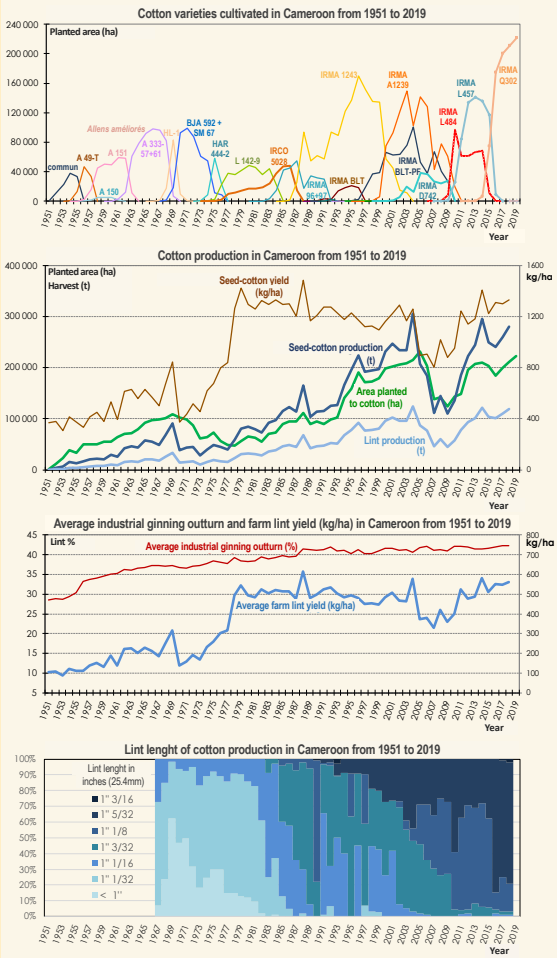
- ***IRMA Q302, covering nearly the entire area planted to cotton during the last two campaigns; it is characterized by: high yield potential and ginning outturn (44-45%), excellent fiber technology, straight and attractive plants, a less leafy apex than L457, and very correct boll opening.***
- ***IRMA Z2347 and IRMA A2249, presently in their initial stage of seed multiplication, are intended to bring diversity in agronomic adaptation, for the benefits of the agriculturally less favored regions. IRMA Z2347 is productive, early, with rather low plant height. IRMA A2249 is very high-yielding.***

Several of our recent cotton varieties have been successfully exported to other African countries, testifying to the efficacy and competitiveness of our varietal improvement program.

GENETIC PROGRESS

Between 1956-1960 and 2018-2019, from A 49-T to IRMA Q302, genetic improvement has made an essential contribution to the progress of cotton cultivation :

- ***Areas planted to cotton increased more than 4-fold***
- ***Cotton seed production increased 13.5-fold***
- ***The average agricultural yield has multiplied 3.5-fold***
- ***The industrial ginning outturn (lint ratio) increased from under 34% to over 42%***
- ***The quality of the lint improved significantly: fibers less than 27 mm long characterized almost the whole production 40 years ago; it's now fibers longer than 29 mm that dominate, allowing the Cameroonian cotton production to be mostly in the long-fiber category.***
- ***At the same time, the strength, elongation and fineness of the lint were considerably improved.***



For property rights protection and the generation of financial resources, our varieties are registered with OAPI.

OUTLOOKS

In a context of globalization of markets and increased competition, liberalization of the cotton sector, necessity of productivity growth with lower environmental impacts, our research needs to generate a diversified panel of varieties for the ever-renewed quest for adaptation to agronomic and climatic conditions, to farmers' practices and to textile markets. The mechanization of cotton harvest is a medium-term objective and current breeding takes into account the corresponding constraints on cotton plant architecture. In order to reduce the costs and risks of agriculture and take into consideration environment protection, cotton breeding in Cameroon will also take advantage of the new possibilities offered by scientific advances in genetics.

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