

Big Boll Cotton Culture Developed

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A unique *Gossypium hirsutum* cotton genotype with highest boll size of 7.9 g having staple length 25.6 mm, strength 22 g/tex, with S/L ratio of 0.86 and micronaire 4.0 was identified in F4 generation. The culture was developed as an offshoot of a project on "Identification of Molecular Markers and tagging genes for Bacterial blight resistance". An isogenic line of cotton having 'B2' gene for bacterial blight resistance (BBR) was crossed with blight susceptible Ganganagar Ageti (*G. hirsutum*) released for North India as early maturing cotton, way back in 1978. BBR gene B2 in cotton is expected to govern resistance against *Xanthomonas axonopodis* pv. *malvacearum* race possessing cognate Avr2 gene. Studies on distribution and mapping of bacterial blight race flora in Indian cotton ecosystem showed 'race 18' to be the predominant race in India. This race is highly virulent and can overcome resistance of atleast five major bacterial blight resistance genes, in a gene-for-genes (plural) manner. Thus the F1 hybrid developed by crossing two cottons was found susceptible when tested against race 18, which apparently does not possess the specific Avr gene. However F1 plants possessed prominently big sized bolls with ideal boll opening. F2 population had segregants with big bolls, excellent opening and non-spreading with sturdy main stem, characteristics which were not prominently visible in either of the parents. The new culture has boll size that ranged from 5.9 to 7.9 gm. This is supposed to be the highest among 10532 germplasm of cotton including 7540 *G. hirsutum* accessions, including exotic and Indian cultures. Besides possessing big bolls, the culture couples other desirable fiber characteristics within the limit of medium staple category cotton. The culture has been approved by the Institute's Germplasm Identification Committee for registration as unique culture. The culture with desirable characteristics will further be stabilized during next two generations. Such big boll cultures have the potential to revolutionize productivity of Indian cotton to unprecedented levels especially if deployed under High density planting System (HDPS).



Big boll cotton culture in field

