Mining for Genes in the NPGS Sesame Collection. (C08-langham180941-Oral)

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Abstract:

The NPGS sesame collection includes 1,229 accessions from 46 countries. There are 5 other major sesame collections in the world in China, India, Republic of Korea, Japan, and FAO. Sesaco has been using the collections to screen for genes to be used as building blocks to design new varieties. Since the early 1940s plant breeders have been trying to solve the problem of shattering in sesame. Most of the effort centered on closed capsules produced by the indehiscent gene found in 1943 and later on the seamless gene found in 1986. Sesaco took a parallel approach in looking for a new capsule architecture where the capsules would open but not shed the seed. The key cross was with an NPGS accession from India and one from the USDA breeding program which had been in storage in the NPGS. Accessions from Israel and Pakistan provided additional genes that strengthened the shatter resistance to allow for direct mechanical harvest of sesame with minimal losses. Other contributions have been genes that provided resistance to Fusarium, resistance to white fly, very large seed, and different branching qualities.

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