Blackeye Cowpea Varietal Improvement for California and the USA Focused on Biotic Stress Resistance

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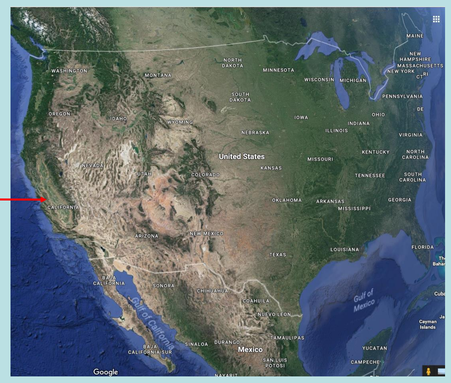
A Crop significance

Blackeye-type cowpeas (*Vigna unguiculata*)
A traditional dry-grain legume in cropping systems in California and southern USA

Typical grains (California Blackeye 46)

Central Valley of California



California production field

B Main biotic stresses – targets for resistance breeding

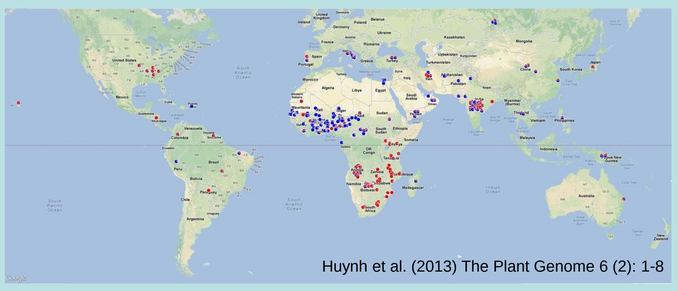
Aphid

Lygus bug

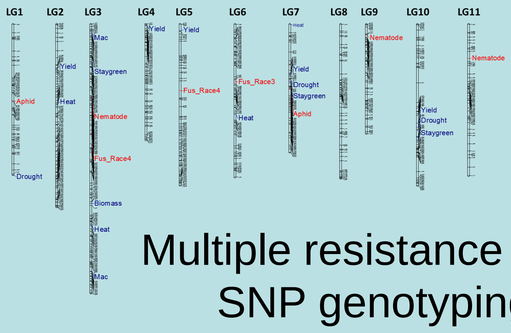
Root-knot nematodes

Fusarium wilt

C Genetic/genomic resources



UCR germplasm collection ~ 6,000 accessions
2 primary Genepools centered on West Africa and Southeast Africa

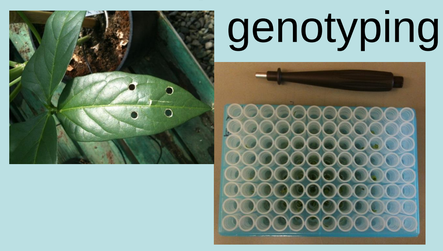


Multiple resistance sources, QTL haplotypes, SNP genotyping (60K iSelect, KASP) and genetic mapping

D Breeding strategy

Greenhouse-grown progeny

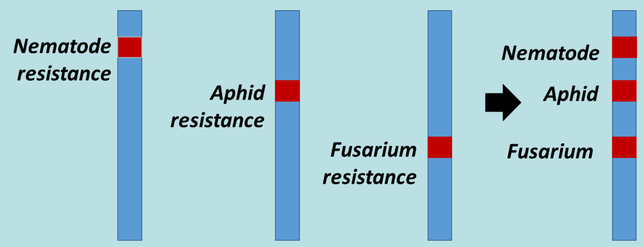
Leaf samples for SNP genotyping



MABC

Highest-background plant in backcrossing

Only positive-haplotype plants retained



Near-isogenic lines of local varieties with stacked resistance traits

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