

Nematode Resistance

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Coachella Valley, CA field screens for
M. incognita resistance

694 USDA Accessions + 70 inbreds

101 with putative resistance

Trials also used for flowering/bolting
phenotyping





***M. incognita* Greenhouse screens**

Accessions with strong *M. incognita* resistance also screened with *M. javanica*, *M. arenaria*, *M. hapla*

101 field-selected lines re-screened 8 plants per line in Greenhouse tests.

21 entries confirmed resistant

Of these, 10 had high resistance based on egg production data

Most R lines segregating

India (4), Tunisia (3), Jordan (1), Russia (1), Turkey (1), Iran (1), South Africa (1)



Objective 2:

Root-knot Nematode Resistance

Populations developed for R gene localization and marker development

Cape Market from South Africa

Homs and Brasilia derived populations

Multiple QTL for resistance identified

Better markers via gene ID - focus on *Mj-1* transcriptome (RNA-seq)

Combinations of R genes in 2-way and 3-way crosses

Resistance combined with good agronomic traits

Release of RKN resistant advanced breeding lines



Obj 2: Root-knot Nematode Resistance

Primary activities in 2024:

Populations for R gene localization and marker development

- Brasilia, Homs, HxB, BxH derived populations:
 - Lines with multiple RKN species resistance
 - Homs - mapping *M. hapla* res. (**Bao-Lam Huynh**)
 - Mj-1* – genome sequence, RNAseq-transcriptome
- Cape Market (S Africa) (**Kevser Ozel**, UW grad project).
M. incognita R in populations screened at UCR

Field trials with Multiple RKN species:

- UCR Coachella Station (CVARS): *M. incognita*,
M. javanica
- WSU Othello Station (**Tim Waters**): *M. hapla*

Resistance combined with good agronomic traits

