Peanut Genetics and Breeding Supported by ISRGNUTS

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1. Breeding High-Oleic Varieties.

We developed new varieties for in-shell marketing with high oleic-acid content. High oleic provides longer shelf life for the final product and promotes health benefits. Varieties are based on Hanoch™ and Harari cultivars.

Breeding plots: we are inspecting around 300 new lines each year.

High Oleic cultivar (9-22); Hanoch Derivate

High Oleic Cultivar (Einat); Harari Derivate

2. Brighter Pods

In the "in-shell" peanut market costumers favor pods with bright yellow shells. Bright shells are resulted from growing the crop on sandy soils. Expanding cultivation to areas with heavier soils usually results in a less desirable dark tint that reduces crop marketability. We identified several peanut genotypes that had relatively stable bright shells, even when grown in heavier soils. Currently we further investigating the genetic nature of this phenomenon in order to introduce it to elite cultivars.

Genotypes with better pod color when grown on the same soil.

3. White Mold Resistance

White mold, caused by *Sclerotium rolfsii*, imposes severe losses in several peanut growing regions of Israel. Developing genetic resistance is one way to manage this problem. We evaluated the tolerance in a RIL population derived from a tolerant X susceptible cross (both Virginia-types), to locate markers and to discover potential mechanisms for tolerance.

Development of White Mold Resistance: Field trials.

4. Maturity

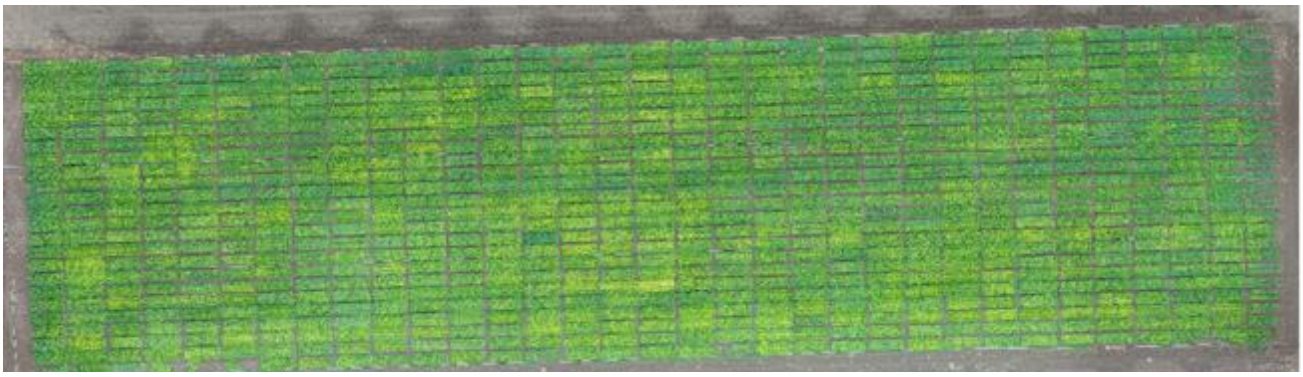
Time to maturation is an important agronomic trait in peanut. We are looking intensely into the genetic control of this trait in our Virginia-type peanut background

Development of early maturing cultivars: Trait Scoring.

5. Iron Deficiency Chlorosis

Chlorosis due to iron deficiency is a problem in peanut, especially at alkaline soils in the north of Israel. We are exploring germplasms with better iron uptake potential based on remote sensing and a significant marker for the trait.

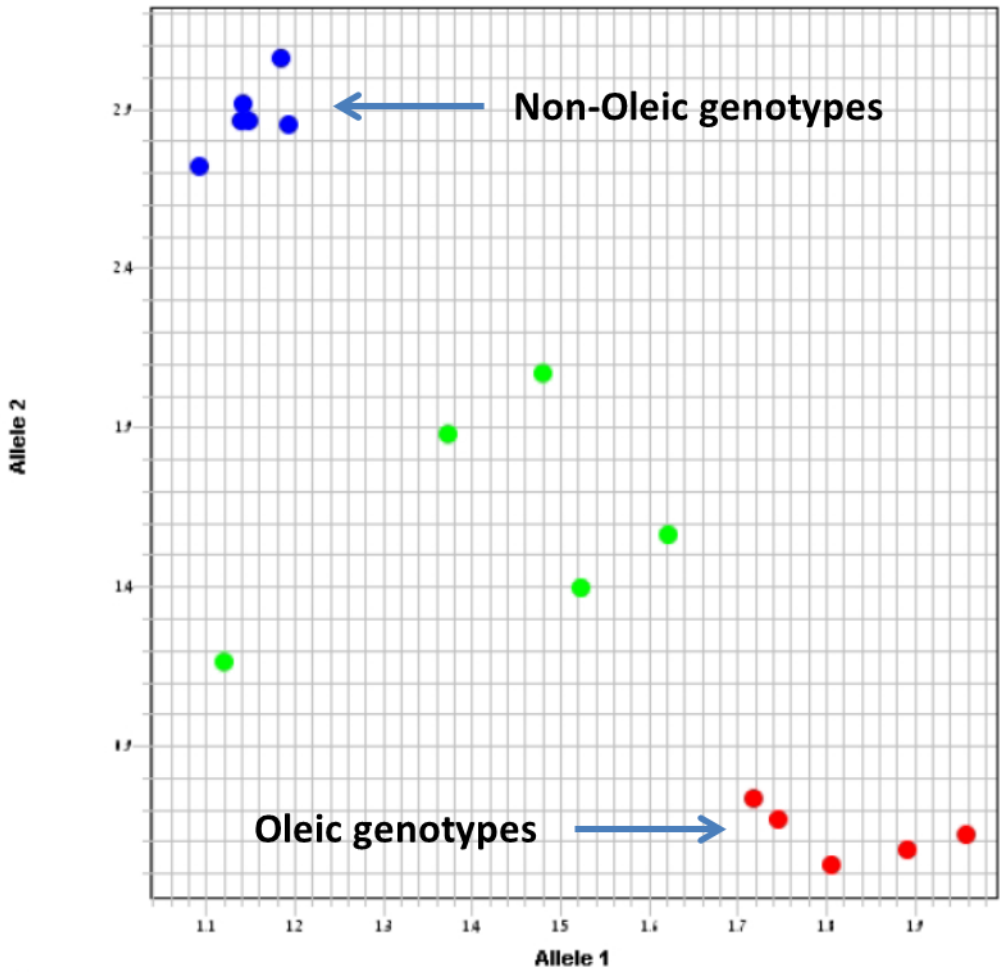
Iron deficiency tests: remote sensing.



6. Developing Marker Assisted Selection Programs

We are developing new tools for Marker Assisted Selection that include the introgression of KASP markers and Fluidigm based systems.

KASP Markers for High Oleic detection.


Non-Oleic genotypes
Oleic genotypes
Allele 2
Allele 1
11
12
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14
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