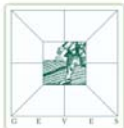




Molecular techniques: Application in DUS testing

Experience in France



Molecular techniques: application in DUS testing Experience in France

According to the approved UPOV models

➤ Characteristic-specific markers

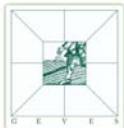
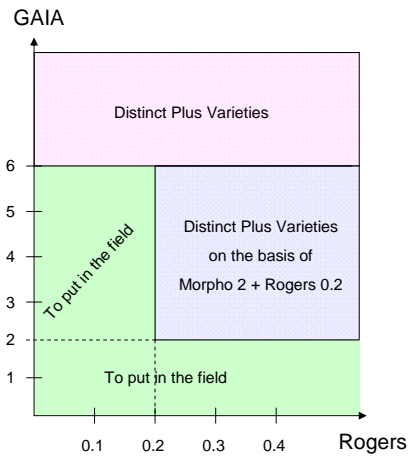
- Detection of gene Hs1 pro-1 controlling resistance to nematode *Heterodera Schachtii* in Sugar beet varieties (routinely used)
- Detection of genes Tm1, Tm2 and Tm2² controlling resistance to mosaic virus in Tomato varieties (supporting tool in case of doubt)
- Detection of adventitious presence of GM seeds (routinely used)
- Detection of genes controlling resistance to *Meloidogyne incognita*, *Verticillium* and *Fusarium oxysporum* in Tomato and resistance to mosaic virus in Lettuce (still under development)





According to the approved UPOV models

➤ **Combining phenotypic differences and molecular distance
in management of reference collections**



According to the approved UPOV models

➤ **Combining phenotypic differences and molecular distance
in management of reference collections**

This model is **routinely used** by GEVES on reference collections of:

- Maize inbred lines
- Barley
- Lettuce

Under development for other species

Benefit: 20 to 40 % of reduction of reference varieties in the DUS trial except for Lettuce

New development: use of SNP markers in case of Maize

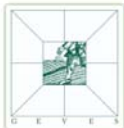


Molecular techniques: other applications in France

- Identity control for:
 - Renewal of reference samples
 - Check of VCU samples
 - Seed certification
 - Arbitration

Not applicable to all kind of species (heterozygous varieties, mutants)
In case of differences between reference and new samples, control on phenotypic characteristics

- Check of hybrid conformity in Maize, Sunflower, Sorghum, Wheat, ...
- Description of reference collection of different species (Peach, Apricot, Wheat, Pea, Sorghum, Soybean, Poplar, ...).



Molecular techniques: other applications in France

Thank you for your attention

