CIOPORAS Viewpoint on EDV

EAPVPF International Seminar on PVP System

July 14, 2022

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PROTECTING INNOVATION

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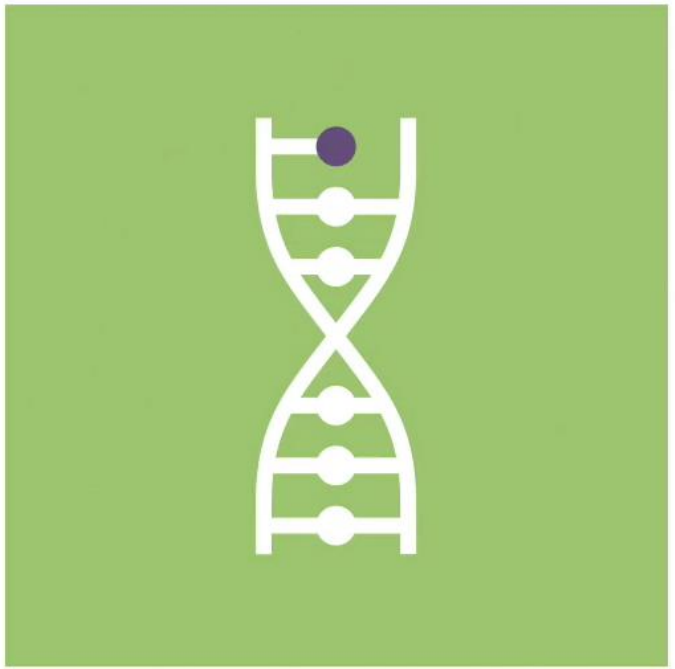
The basic purpose of incorporating the EDV principle into the UPOV 1991 Act was to provide effective protection to a breeder who developed an original genotype (= the Initial Variety) from crossing and selection

The EDV principle was meant to provide breeders of Initial Varieties the right over derived varieties with mutations, genetic engineering, and changes developed by repeated backcrossing

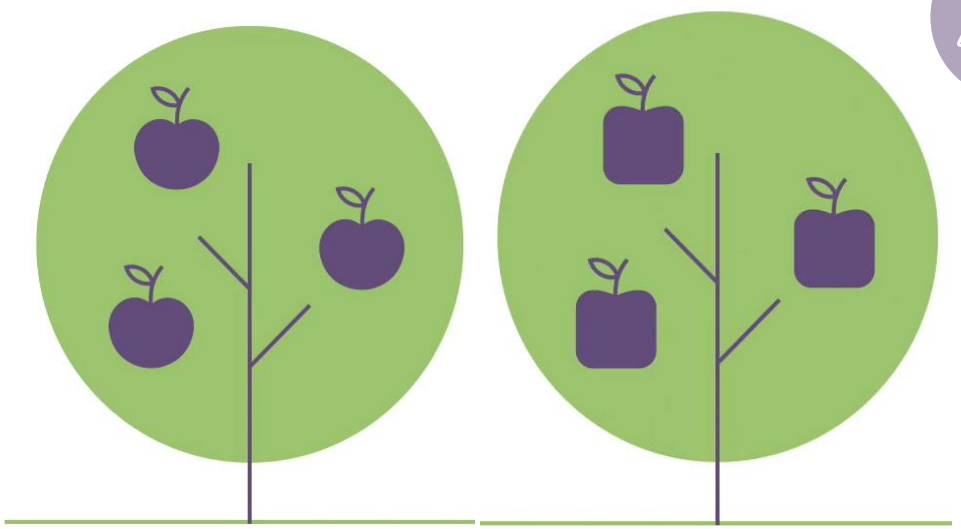


New Breeding Technologies now enable apart from single modifications also multiple modifications of an Initial Variety in one act of derivation and thus have the potential to undermine the protection of the Initial Variety, unless a sufficiently broad interpretation of the EDV principle is agreed upon between UPOV members

What makes an EDV?

Predominant derivation is the key requirement for EDV

The **number of differences** between an EDV and its Initial Variety is **not limited to one or very few differences** and may include differences in essential characteristics



EDV is **distinct** from its Initial Variety

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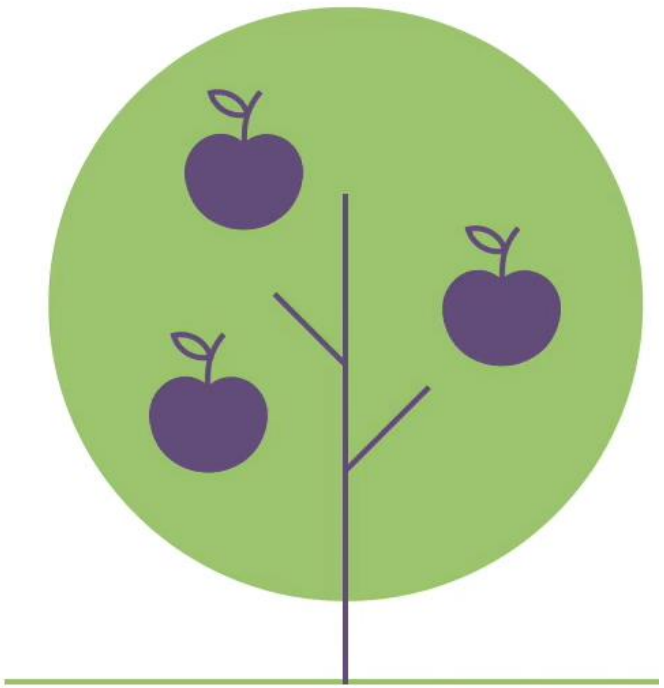
Mono-parental varieties are EDV

Predominant Derivation

- Predominant derivation is the key requirement for EDV
- Predominant derivation is related to the genetic source of the variety.
- All monoparental varieties are totally derived from their IV.
- In the case of two or more genomes (multi-parental), predominant derivation may result from selectively retaining the genome of the IV.



Conformity of an EDV with its IV in Essential Characteristics

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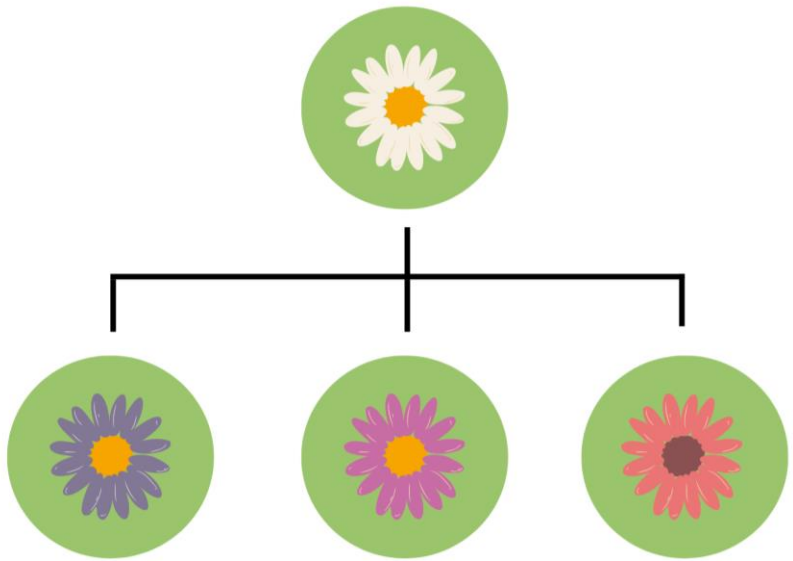

In mono-parental varieties, all differences result necessarily from one or several acts of derivation. Therefore, mono-parental varieties are EDVs, even if there are more than one or very few differences and may include differences in essential characteristics.

- The current UPOV EXN on EDV erroneously targets only plagiaristic predominantly derived varieties
- Non-plagiaristic mutations and GMO are EDV
  - Color mutations of protected varieties
  - Disease resistant or tolerant NBT or GMO varieties
  - Mutations with earlier ripening time
  - Non-browning apple NBT or GMO varieties

Mutations do not necessarily lead to plagiaristic varieties

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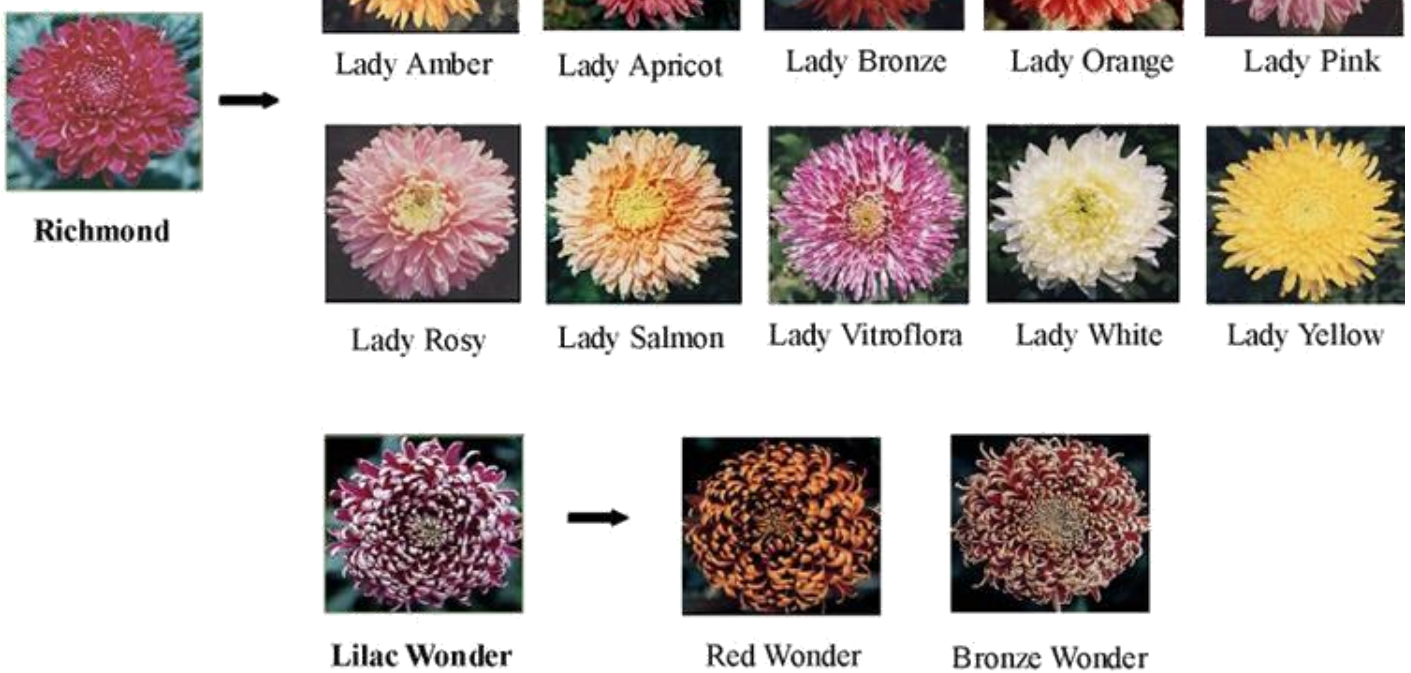

GMO and New Breeding Techniques do not aim at creating plagiaristic varieties

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Schurft-resistente cisgene appels

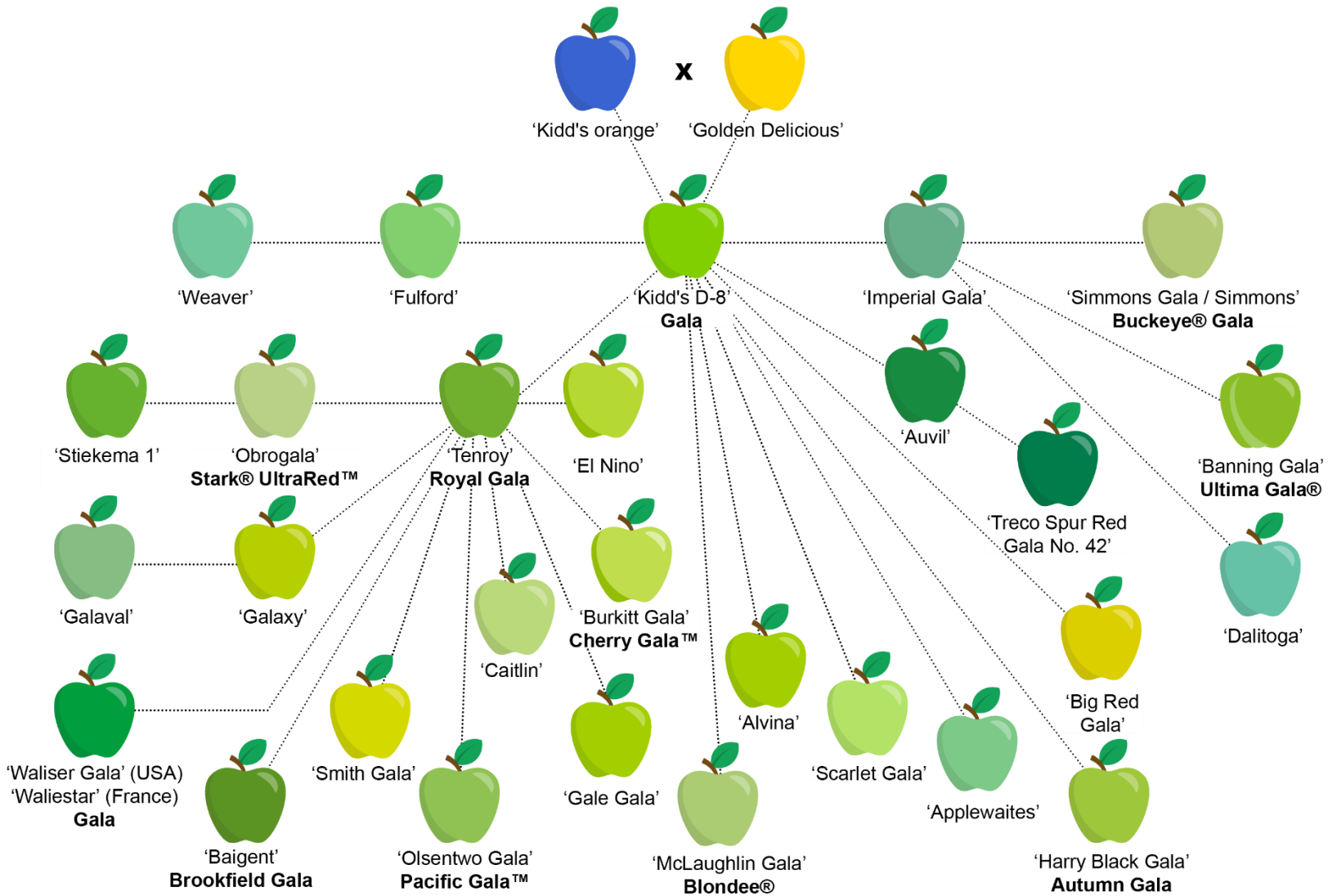
Vier cisgene en één intragene genetisch gemodificeerde appellijnen van de cultivar 'Gala' worden in dit project in een boomgaard gedurende enkele jaren gevolgd.

Apple:

- reduction of long juvenile phase
- Scab resistance
- Red fruit flesh
- Browning

Mono-parental example in Apple

A subset of naturally-occurring mutations of ‘Kidd’s D-8 apple (marketed as ‘Gala’)



Multi-parental EDV Example

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Donor Corn Line # 1
YieldGuard®

Donor Corn Line # 2
Herculex®

PVPed IV Corn Line

Donor Corn Line # 3
Roundup Ready®

Donor Corn Line # 4
Southern & Tropical Rust

Backcross & MAS

Backcross & MAS

Backcross & MAS

Backcross & MAS

IV Line + Trait 1 = EDV

IV Line + Trait 2 = EDV

IV Line + Trait 3 = EDV

IV Line + Trait 4 = EDV

Crossing & MAS

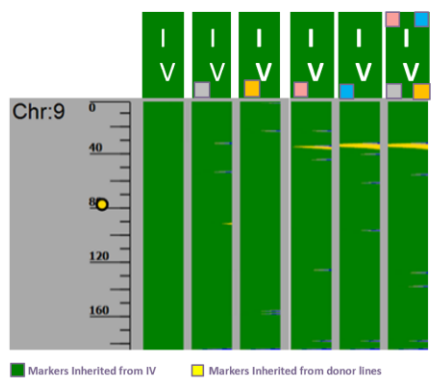
Crossing & MAS

IV Line + Trait 1 & 2 = EDV

IV Line + Trait 3 & 4 = EDV

Crossing & MAS

IV Line + traits 1, 2, 3 and 4 = EDV ?



MAS =
Marker Assisted Selection

Conclusions

- Predominant derivation is the key requirement for a variety to be an EDV
- Monoparental varieties are EDV
- The number of phenotypic differences between an EDV and its IV is not limited to one or very few
- Holders of plant breeders' rights should monitor for EDVs and determine EDV status among new varieties
- PBR Offices should not decide whether a variety is an EDV or not

A Very High Degree Of
Genetic Similarity

Thank you for your attention!

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