The International Union for the Protection of New Varieties of Plants (UPOV)
Seminar on the impact of policy on essentially derived varieties (EDVs) on breeding strategy

October 2019, Geneva

Mr. Micha Danziger

Micha Danziger

Chairman of the Board

Chairman of the Board

CEO

3 generations of Danziger - A Family Business

“The farmer has to be an optimist or he wouldn’t still be a farmer.” (Will Rogers)
Intellectual Property Protection

- Promote protection of IP rights and adoption of the UPOV conventions all around the globe.
- This is in the best interest of ALL breeders
- International exporters require IP protection
- Royalty payment is being implemented by more and more growers around the world as the benefits are clear
- All our partners pay Royalties!

The essence of the EDV concept

- It takes many years and enormous funds to breed and introduce a successful variety
- Inducing mutation using “classical” mutation methods is relatively simple
- In order to maintain the essence of innovation we must have a sufficient return on investment through a worthy IP protection
- Many new ornamental varieties are the basis for the development of mutants (natural, induced or otherwise developed by new breeding techniques (NBT)).
Market Estimate: % of Color Mutants by Crop

- Pot Plants (general) 25%
- Carnation Cut 5 -10 % Pot > 30%
- Chrysanthemum 50%
- Begonia 25%
- Roses 10%
- Gerbera 5%
- Hydrangea 25%
- Foliage plants 80%
- Agapanthus (Nile Lilly ) 10%

Imagine more

---

The essence of the EDV concept

In vegetatively reproduced ornamental crops the EDV concept is all about mutants (and a bit GMO).

- Creating new mutant
  - Usually more complex and expensive
  - New Breeding Techniques

- Usually relatively quick & easy
  - Traditional Mutation Techniques

Deliberately choose a valuable initial variety

Because they want to benefit from its genetics and marketing

Therefore the initial breeder should be commercially compensated!
A clear EDV definition is required

- To avoid lack of stability in the IP regime

- To avoid 2 opposite court rulings in the exact same variety
  (Million Stars® – Blancanieves cases)

- Creating Balance - Taking into consideration both the interests of traditional ornamental breeders and innovative EDV developers striving for fair balance

---

Million Stars® Vs. Blancanieves

- Blancanieves had 17 morphological differences compared to Million Stars®

- All differences were proven to be a result of ONE act of derivation (chromosome doubling) – the breeder admitted to this fact!
Court cases and EDVs

- Conducting IP court cases is **time consuming and very expensive** (legal fees, genetic analyses, expert opinions)
- We (breeders) prefer to work in the field and breed
- The court pathway is taken only in extraordinary cases, protecting very unique and successful varieties
- This was the case with Danziger’s Million Stars *Gypsophila* variety

A Broader Scope of EDV Concept should be adopted

**According to UPOV explanatory notes today**

- The differences between the EDV and the Initial Variety should be “**one or very few**”
- If a variety does not retain the (=all) “**essential**” characteristics of the initial variety, it will not be an EDV.

Varieties derived from an initial variety, but not retaining all the essential characteristics of the initial variety – **may not be considered EDV.**

Even if all morphological differences result from the act of derivation!
**A Broader Scope of EDV Concept is Required**

In Our point of view as breeders of vegetatively reproduced varieties

**The number of differences or their nature does not matter**

- Creating mutants (or GMOs) out of a single parent initial protected variety – it IS an EDV
- The differences are a result of the act of derivation – it IS an EDV

A very narrow definition of EDV  Excluding most mutants and GMOs from the EDV concept  Harmful to initial breeders

---

**A Broader Scope of EDV Concept should be adopted**

**Examples which we find awkward that would NOT be EDVs**

- Color mutants
- Longer shelf life
- Different growth habit
- Disease resistance/tolerance

---

**Under the current Explanatory Notes of UPOV**

Examples typical in ornamentals
A Broader Scope of EDV Concept should be adopted

Examples which we find awkward that would NOT be EDVs

- Color mutants

The most common mutant in the ornamental industry

Atlantis® yellow

mutant

Atlantis® dark pink

Under the current Explanatory Notes of UPOV

New Breeding Techniques and EDV

In Our point of view

- Varieties resulting from NBT that retain almost the whole genome of the initial variety - Are mutations hence EDVs

- The reason to choose a specific initial variety and use NBT to modify it is the advantages and a favorable characteristics of the initial variety

Danziger Innovations has patented NBT called “MemoGene™”, a genome editing technology that creates site specific mutation

And yet we maintain: The type of technology creating a mutant doesn’t matter

Whether “old fashion” mutation breeding or NBT- it is still a mutant and the developer should commercially compensate the initial breeder.
Breeding Aspects and Implications

- Danziger group respects the IP of others as we expect others to respect our IP

- The protection grants return of investment to the breeder for many years of investment of time, funds, manpower in the breeding, sales, marketing and commercialization of a new variety.

And because we understand the importance of the protection, Danziger has been requesting appropriate license agreements from other breeders to use their patents in many relevant cases.

---

Breeding Aspects and Implications

- Keeping a narrow interpretation of UPOV for the EDV concept
  - Creates a "legal loophole"

This situation will encourage some breeders to create mutants and EDVs (using classical breeding and NBT) without the permission of the initial breeder

It will become common practice amongst mutant breeders to take advantage and exploit mutants WITHOUT the initial breeder’s authorization

Danziger is totally against that!
Commercial Aspects and Implications

Breeding a new variety may take many years of enormous investments

- most ornamental varieties lifespan is between 3-5 years
- most ornamental breeding programs take many years to reach a commercial product
- Mutants can easily harm the success of the very unique varieties having The WOW Effect (the thing that may allow it to survive and be a leading variety for many years)

Imbalance of market forces

- Grants an unfair advantage to the EDV breeder gaining prominent market position
- Initial breeder invested heavily all along the value chain, exerting extensive efforts and capital on receiving marketing recognition.
- Business strategy and models are based on predications of performance of their unique varieties –
  I. Impacts the market price of the initial variety
  II. Effects customers profitability
  III. Strategic collaborations compromised
  IV. Royalty payments at risk
Commercial Aspects and Implications

Breeding a new variety may take many years of enormous investments

- Small and medium breeders will not have the resources to compete with the big companies and they will face great difficulty protecting their varieties
- Granting the right for a mutant to be commercialized without compensating the breeder of the initial variety will:
  - Dramatically decrease the return of investment
  - Cause demoralization of breeders
  - Harm the genetic resources and progress

Commercial Aspects and Implications

EDV shall ensure a fair return on investment to the breeder of the Initial Variety

EDV developer and the initial breeder should negotiate the terms of commercialization of EDVs

Negotiation on a case by case mechanism will be determined between the parties and will be based on commercial value and The WOW Effect

A fair and balanced solution is needed since EDV concept has huge commercial impact on the industry
Should those be considered a new product?

Initial product + New feature = New products?

New Color

New products?

ONE Parent Variety = EDV

In vegetative reproduction every new variety produced with only ONE parent (and NOT produced via sexual reproduction) - IS AN EDV

Blancanieves

Atlantis Mutants
Summary

- EDV concept in vegetative - only ONE parent
- Any and ALL mutants are EDV’s
- ALL mutants related to the act of derivation - IS AN EDV
- The breeding technique used should not make a difference
- Negotiate proportion of each breeders contribution
- UPOV EXN must reflect progress and innovation

We request the revision of the EXN

Imagine more

Thank you for your attention