

# Environmental effect in expression of characteristics

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## Environmental effect in expression of characteristics

- Background
- What are environmental effects
- When are environmental effects important
- 4 examples in NL
  - Agave
  - Pepper
  - Cauliflower
  - Resistances



# Background

## Studies:

- Model study Petunia UPOV 2004
- Study pea (Boulineau) UPOV 2012
  - QL: mostly identical notes
  - QN: sometimes different notes same variety
  - RHS nr different for many varieties
  - Pictures may cause problems

**->environmental effects play an important role in differences in variety descriptions**

**(but are not the only cause!)**

Sunsolos



Germany



Canada



Poland



Japan

# What are environmental effects

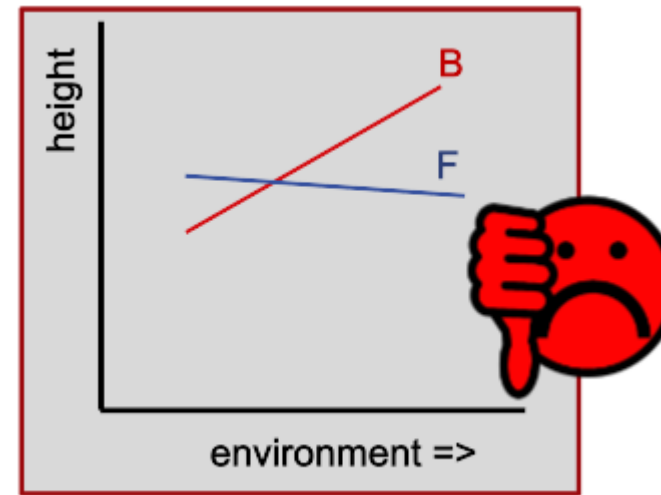
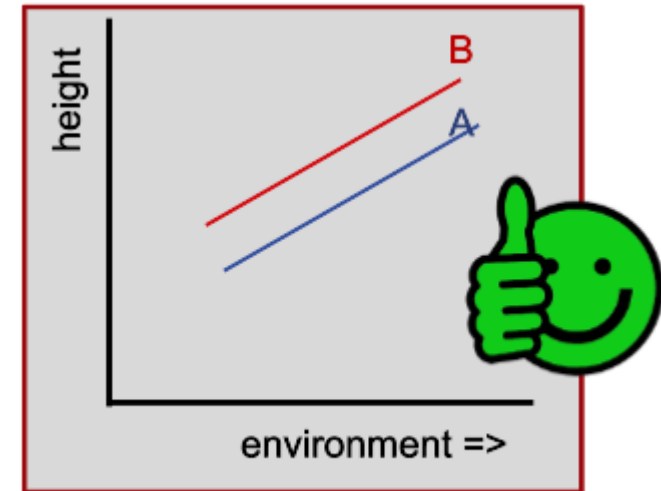
## Expectation:

- Environmental effects exist
- Expectation in DUS: scale remains the same
- Use of example varieties solves the problem

## Reality: not always true!!

- Environmental x variety interaction exists

-> Try to avoid environmental affects as much as possible



# When are environmental effects important

- DUS process, drawing conclusions (within EO's)
  - **TGP/9: Distinctness**
    - ➔ clear and consistant differences
- Description and exchange of reports (between EO's)
  - **TGP/4: Variety collections**
    - ➔ making harmonised/comparable descriptions for inclusion in database (for search of similar varieties)

\*EO's = Examination Offices



# Agave hybr (X Mangave)

- =Agave x Manfreda
- TG: 1 growing cycle
- World: outdoor trial
- NL: indoor trial
  - Too cold, freezing in winter
  - More stable conditions
- Differences in
  - colour/anthocyanin (esp. with Mangave blood)
  - attitude



Pairs of same variety grown indoor and outdoor!!

# Agave hybr (X Mangave)

- Descriptions partly harmonised by use of example varieties
- Pictures not comparable!

-> **use same conditions/season in one country**

(comparable descriptions)

(comparable pictures)

->**make own in-house description**



# Pepper

- TG: 2 different growing cycles
- NL: 3 different sowing times/trials
- Spring trial <-> autumn trial
  - Light
  - Temperature/humidity
- Differences in:
  - Fruit intensity of colour
  - Fruit size
  - Anthocyanin coloration on stem



# Pepper

- Descriptions only partly harmonised by use of example varieties
- Pictures not comparable/harmonised

**-> application 2 growing cycles at same sowing time**

(conclusion on consistent differences)

**-> grow same groups/types in same season**

(comparable descriptions + pictures over years)

**->make own in-house description**



# Cauliflower: Earliness

- TG: 2 different growing cycles
- NL: 4 different sowing times/trials

## Difficult to compare notes:

- Locations/countries
  - Notes not consistent
    - e.g. NL note 4, FR note 6
- Seasons
  - Sometimes even inversed notes!
    - NL Summer 3, NL autumn 7 (Erfurter)
- -> no example varieties in UPOV TG!!



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
27. MS (*) (+)	<b>Earliness in summer planting</b>	<b>Précocité du repiquage en été</b>	<b>Frühzeitigkeit bei Sommerpflanzung</b>	<b>Precocidad en la plantación de verano</b>		
QN	very early autumn type	type automne : très hâtive	sehr früher Herbsttyp	tipo muy precoz de otoño		1
	very early to early autumn type	type automne : très hâtive à hâtive	sehr früher bis früher Herbsttyp	tipo muy precoz a precoz de otoño		2
			früher Herbsttyp	tipo precoz de otoño		3
			früher bis mittlerer Herbsttyp	tipo precoz a medio de otoño		4
			mittlerer Herbsttyp	tipo medio de otoño		5
			mittlerer bis später Herbsttyp	tipo medio a tardío de otoño		6
			später Herbsttyp	tipo tardío de otoño		7
			später bis sehr später Herbsttyp	tipo tardío a muy tardío de otoño		8
			sehr später Herbsttyp	tipo muy tardío de otoño		9
			sehr früher Wintertyp	tipo muy precoz de invierno		10
			sehr früher bis früher Wintertyp	tipo muy precoz a precoz de invierno		11
			früher Wintertyp	tipo precoz de invierno		12
			früher bis mittlerer Wintertyp	tipo precoz a medio de invierno		13
			mittlerer Wintertyp	tipo medio de invierno		14
			mittlerer bis später Wintertyp	tipo medio a tardío de invierno		15
	late winter type	type hiver : tardive	später Wintertyp	tipo tardío de invierno		16
	late to very late winter type	type hiver : tardive à très tardive	später bis sehr später Wintertyp	tipo tardío a muy tardío de invierno		17
	very late winter type	type hiver : tardive	sehr später Wintertyp	tipo muy tardío de invierno		18

# Cauliflower: Earliness

- Descriptions difficult to harmonise by use of example varieties
- (Pictures not important)

**-> application 2 growing cycles at same sowing time**

(conclusion on consistent differences)

**-> grow same groups/types in same season**

(comparable descriptions over years)

**->make own in-house description of foreign varieties**



# Resistances

- Differences between:
  - tests
  - seasons
- Depending on disease (Fusarium)
  - ➔ include S, (IR), R controls for validation of the test
  - ➔ do not test in all seasons



# Exchange of reports

- **Harmonised/comparable descriptions in your database**
  - for searching similar varieties

**->Always make your own in-house description of foreign varieties**  
(obligation from CPVO in EU)

