

**Please rate to what extent these scenarios affect the attractiveness of plant breeding using CG/TM techniques in the EU for cultivation, compared to the situation today.**

Only answer this question if the following conditions are met:

((FieldActivitySector\_SQ002 NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59737) == "Y") or (PositionValueChain\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y"))

|  | Scenario C1 Sustainability incentives for authorisation | Scenario C2 Sustainability requirements for authorisation |
|--|---|---|
| Total regulatory costs   | <input type="text"/>                                    | <input type="text"/>                                      |
| Market uncertainty   | <input type="text"/>                                    | <input type="text"/>                                      |
| Time to market   | <input type="text"/>                                    | <input type="text"/>                                      |
| Total attractiveness for plant breeding using CG/TM techniques for the EU market | <input type="text"/>                                    | <input type="text"/>                                      |

## Questions on costs

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

| A - Scenario for 2030-2035   | Risk assessment  | Detection   |
|--|--|---|
| <u>0: As today, the legal framework of today applies unchanged in 2030-2035</u>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

| B - Scenario for 2030-2035   | Labelling (GMO-specific requirements)  | Traceability (GMO-specific requirements)   |
|--|--|--|
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |

| C - Scenario for 2030-2035  | Authorisation  |
|---|--|
| <u>0: Unchanged policy and regulation</u>   | As today: no sustainability requirements/incentives for authorisation  |
| <u>C1: Sustainability incentives for authorisation</u>                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <u>C2: Sustainability requirement: no authorisation if detrimental for sustainability</u> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

**What is the estimated cost for a GM authorisation for cultivation under scenario “Unchanged policy and regulation (baseline)”, in 2030-2035?**

Please note that the main legal rules in this scenario are:

- Regulation 1829/2003
- Regulation 503/2013

Please note that the costs to account for in estimates are:

- Reporting for hazard identification
- Exposure assessment
- Post market monitoring
- Environmental assessment
- Environmental monitoring plan
- Information relating to the safety of genetically modified food and feed,
- Traceability and labelling

Activities triggering authorisation costs are:

- Notification of (specific) activities or events
- Submission of (recurring) reports, including on post-market monitoring.
- Information labelling for third parties
- Non-labelling information for third parties
- Application for individual authorisation or exemption
- Application for general authorisation or exemption
- Registration
- Certification of products or processes
- Inspection on behalf of public authorities
- Cooperation with audits and inspection by public authorities, including maintenance of appropriate records
- Any obligation on citizens

**The answers are in million EUR.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❗ Each answer must be between 0 and 2

❗ Only integer values may be entered in these fields.

Please write your answer(s) here:

Costs related to submission for cultivation

**Would you have any auxiliary clarifications on the cost estimates related to submission for cultivation? Please indicate below.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

Please write your answer here:

**What is the estimated cost (in million EUR) for a GM authorisation submission for field trialling under scenario 0 “Unchanged policy and regulation (baseline)”, in 2030-2035?**

Please note that the main legal rules in this scenario are:

- Directive 2001/18/EC (article 6)

Please note that the costs to account for in estimates are:

- General Information
- Information relating to the recipient or parental plants
- Information relating to the genetic modification
- Information relating to the genetically modified plant
- Information relating to the site of release
- Information relating to the release
- Information on control, monitoring, post release and waste treatment plans
- Monitoring plan
- Summary

Activities triggering authorisation costs are:

- Notification of (specific) activities or events
- Submission of (recurring) reports, including on post-market monitoring.
- Information labelling for third parties
- Non-labelling information for third parties
- Application for individual authorisation or exemption
- Application for general authorisation or exemption
- Registration
- Certification of products or processes
- Inspection on behalf of public authorities
- Cooperation with audits and inspection by public authorities, including maintenance of appropriate records
- Any obligation on citizens

**The answers are in million EUR.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❶ Each answer must be between 0 and 2

❷ Only integer values may be entered in these fields.

Please write your answer(s) here:

Costs related to submission for field trialling

**Would you have any auxiliary clarifications on the cost estimates related to submission for field trialling? Please indicate below.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

Please write your answer here:

**What is the estimated cost (in million EUR) for a GM authorisation submission for use of food or feed and the importation into the territory of the EU under scenario 0 “Unchanged policy and regulation (baseline)”, in 2030-2035?**

Please note that the main legal rules in this scenario are:

- Regulation 1829/2003
- Regulation 503/2013

Please note that the costs to account for in estimates are:

- Hazard identification and characterisation
- Exposure assessment
- Post market monitoring
- Environmental assessment
- Environmental monitoring plan
- Information relating to the safety of genetically modified food and feed
- Traceability and labelling

Activities triggering authorisation costs are:

- Notification of (specific) activities or events
- Submission of (recurring) reports, including on post-market monitoring.
- Information labelling for third parties
- Non-labelling information for third parties
- Application for individual authorisation or exemption
- Application for general authorisation or exemption
- Registration
- Certification of products or processes
- Inspection on behalf of public authorities
- Cooperation with audits and inspection by public authorities, including maintenance of appropriate records
- Any obligation on citizens

**The answers are in million EUR.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❗ Each answer must be between 0 and 100

❗ Only integer values may be entered in these fields.

Please write your answer(s) here:

Costs related to submission for use for food and feed

**Would you have any auxiliary clarifications on the cost estimates related to submission for use for food and feed? Please indicate below.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

Please write your answer here:

**How are authorisation costs split over the following type of costs? Please provide a percentage if possible.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❗ Only numbers may be entered in these fields.

❗ Each answer must be between 0 and 100

Please write your answer(s) here:

Administrative costs

Adjustment costs

Other, please indicate in next question



**Please comment on the split of the authorisation costs that you provided in the previous question and specify Other when selected.**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

**What is the average duration (in years) for a GM crop authorisation (from application to authorisation)?**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❶ Only numbers may be entered in these fields.

❷ Each answer must be between 0 and 100

Please write your answer(s) here:

Authorisation for cultivation

Authorisation for use of food and feed and the importation into the territory of the European Union

Authorisation for field trialling

**What share (in percentages) of your annual turnover do GM authorisation costs represent?**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❶ Only numbers may be entered in these fields.

❷ Each answer must be between 0 and 100

Please write your answer(s) here:

Authorisation for cultivation

Authorisation for use of food and feed and the importation into the territory of the European Union

Authorisation for field trialling

**How significant is the cost of delay for your business as a result of the length of the authorisation procedure?**

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

❶ Choose one of the following answers

Please choose **only one** of the following:

- ☐ No costs
- ☐ Low costs
- ☐ Moderate costs
- ☐ High costs
- ☐ Significant costs

Make a comment on your choice here:

### What are entry barriers for GM plant breeding for SMEs and what kind of measures could lower them?

Only answer this question if the following conditions are met:

((TypeOrg.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59736) == "A7"))

|   | Barriers for plant breeding SMEs | Measures to lower barriers |
|---|----------------------------------|----------------------------|
| For cultivation   | <input type="text"/>             | <input type="text"/>       |
| For use of food and feed and the importation into the territory of the European Union | <input type="text"/>             | <input type="text"/>       |
| For field trialling   | <input type="text"/>             | <input type="text"/>       |

### With how much percent do you expect authorisation costs will change in scenarios A, B and C in 2030-2035 as compared to today? Please neglect any exterior effects such as inflation. You can skip this question if you are not able/comfortable to assess this change.

Note that administrative costs of authorisation are costs associated with any of the following activities:

- notification of (specific) activities or events
- submission of (recurring) reports, including on post-market monitoring.
- information labelling for third parties
- non-labelling information for third parties
- application for individual authorisation or exemption
- application for general authorisation or exemption
- registration
- certification of products or processes
- inspection on behalf of public authorities
- cooperation with audits and inspection by public authorities, including maintenance of appropriate records
- any obligation on citizens

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y") or (PositionValueChain\_SQ010.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y"))

❗ Only numbers may be entered in these fields.

❗ Each answer must be between -100 and 100

Please write your answer(s) here:

A1

A2

B1

B2

B3

C1

C2

## Please describe any other expected direct or indirect costs for individual scenarios in 2030-2035.

Only answer this question if the following conditions are met:

((AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y") or (AuthorisationExp\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

|  | Describe |
|--|----------|
| A1 Authorisation with proportionate risk assessment and adapted detection method requirements          |          |
| A2 Pre-notification of products that are also obtainable naturally or by conventional breeding         |          |
| B1 Additional sustainability label   |          |
| B2 No labelling if sustainable   |          |
| B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding |          |
| C1 Sustainability incentives for authorisation   |          |
| C2 Sustainability requirement no authorisation if detrimental to sustainability                        |          |

## Questions on costs - Costs along the value chain

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

| A - Scenario for 2030-2035   | Risk assessment  | Detection   |
|--|--|---|
| <u>0: As today: the legal framework of today applies unchanged in 2030-2035</u>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

| B - Scenario for 2030-2035   | Labelling (GMO-specific requirements)  | Traceability (GMO-specific requirements)   |
|--|--|--|
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |

| C - Scenario for 2030-2035  | Authorisation   |
|---|---|
| <u>0: Unchanged policy and regulation</u>   | As today: no sustainability requirements/incentives for authorisation   |
| <u>C1: Sustainability incentives for authorisation</u>                                    | Positive regulatory incentives for authorisation NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <u>C2: Sustainability requirement: no authorisation if detrimental for sustainability</u> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised   |

**To what extent do you expect that the following costs will change in scenarios A, B and C? Please neglect any exterior effects such as inflation. You can skip this question if you are not able/comfortable to assess this change.**

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ004.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ005.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ006.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ007.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ008.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y"))

|   | Traceability costs   | Labelling costs      | Costs to avoid contamination (identity preservation) | Post market monitoring |
|---|----------------------|----------------------|--|------------------------|
| <b>A1 Authorisation with proportionate risk assessment and adapted detection method requirements</b>          | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>A2 Pre-notification of products that are also obtainable naturally or by conventional breeding</b>         | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>B1 Additional sustainability label</b>   | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>B2 No labelling if sustainable</b>   | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding</b> | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>C1 Sustainability incentives for authorisation</b>   | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |
| <b>C2 Sustainability requirement no authorisation if detrimental to sustainability</b>                        | <input type="text"/> | <input type="text"/> | <input type="text"/>                                 | <input type="text"/>   |

## Questions on costs - Costs along the value chain - Other costs

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

| A - Scenario for 2030-2035   | Risk assessment  | Detection   |
|--|--|---|
| <u>0: As today; the legal framework of today applies unchanged in 2030-2035</u>                        | As today; risk assessment according to current requirements of GMO legislation             | As today; detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

| B - Scenario for 2030-2035   | Labelling (GMO-specific requirements)  | Traceability (GMO-specific requirements)   |
|--|--|--|
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today; labelling as a GMO is always required  | As today; traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |

| C - Scenario for 2030-2035                | Authorisation   |
|---|---|
| <u>0: Unchanged policy and regulation</u> | As today; no sustainability requirements/incentives for authorisation |

|   |  |
|---|--|
| <u>C1: Sustainability incentives for authorisation</u>                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <u>C2: Sustainability requirement: no authorisation if detrimental for sustainability</u> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

### Please describe any other expected direct or indirect costs along the value chain for individual scenarios in 2030-2035.

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ003.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ004.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ005.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ006.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ007.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y" or PositionValueChain\_SQ008.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y"))

|   | Describe             |
|---|----------------------|
| <b>A1 Authorisation with proportionate risk assessment and adapted detection method requirements</b>          | <input type="text"/> |
| <b>A2 Pre-notification of products that are also obtainable naturally or by conventional breeding</b>         | <input type="text"/> |
| <b>B1 Additional sustainability label</b>   | <input type="text"/> |
| <b>B2 No labelling if sustainable</b>   | <input type="text"/> |
| <b>B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding</b> | <input type="text"/> |
| <b>C1 Sustainability incentives for authorisation</b>   | <input type="text"/> |
| <b>C2 Sustainability requirement no authorisation if detrimental to sustainability</b>                        | <input type="text"/> |

## Questions on costs for authorities - Costs related to imports

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

| A - Scenario for 2030-2035   | Risk assessment  | Detection   |
|--|--|---|
| <u>0: As today: the legal framework of today applies unchanged in 2030-2035</u>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

| B - Scenario for 2030-2035   | Labelling (GMO-specific requirements)  | Traceability (GMO-specific requirements)   |
|--|--|--|
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |

| C - Scenario for 2030-2035 | Authorisation |
|----------------------------|---------------|
|----------------------------|---------------|

|   |  |
|---|--|
| <u>0: Unchanged policy and regulation</u>   | As today: no sustainability requirements/incentives for authorisation  |
| <u>C1: Sustainability incentives for authorisation</u>                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <u>C2: Sustainability requirement: no authorisation if detrimental for sustainability</u> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

### To what extent do you expect that the costs related to import will change in scenarios 0, A, B and C in 2030-2035?

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ009.NAOK (/admin/questions/sa/view/surveyid/959299/qid/2681/qid/59738) == "Y") or (PositionValueChain\_SQ010.NAOK (/admin/questions/sa/view/surveyid/959299/qid/2681/qid/59738) == "Y"))

|   | Assessment for authorisation | Enforcement |
|---|------------------------------|-------------|
| <b>0</b> Unchanged policy and regulation the legal framework of today applies unchanged in 2030-2035          |                              |             |
| <b>A1</b> Authorisation with proportionate risk assessment and adapted detection method requirements          |                              |             |
| <b>A2</b> Pre-notification of products that are also obtainable naturally or by conventional breeding         |                              |             |
| <b>B1</b> Additional sustainability label   |                              |             |
| <b>B2</b> No labelling if sustainable   |                              |             |
| <b>B3</b> No labelling and traceability if a product is also obtainable naturally or by conventional breeding |                              |             |
| <b>C1</b> Sustainability incentives for authorisation   |                              |             |
| <b>C2</b> Sustainability requirement no authorisation if detrimental to sustainability                        |                              |             |

## Questions on costs for authorities - Costs related to cultivation

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

| A - Scenario for 2030-2035   | Risk assessment  | Detection   |
|--|--|---|
| <u>0: As today: the legal framework of today applies unchanged in 2030-2035</u>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

| B - Scenario for 2030-2035   | Labelling (GMO-specific requirements)  | Traceability (GMO-specific requirements)   |
|--|--|--|
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |



|   |  |
|---|--|
| <b>C - Scenario for 2030-2035</b>   | <b>Authorisation</b>   |
| <u>0: Unchanged policy and regulation</u>   | As today: no sustainability requirements/incentives for authorisation  |
| <u>C1: Sustainability incentives for authorisation</u>                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <u>C2: Sustainability requirement: no authorisation if detrimental for sustainability</u> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

### To what extent do you expect that the costs related to cultivation will change in scenarios 0, A, B and C in 2030-2035?

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ009.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y") or (PositionValueChain\_SQ010.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y") or (AuthorisationExp\_SQ002.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59743) == "Y"))

|   | Assessment for authorisation | Enforcement          |
|---|------------------------------|----------------------|
| <b>0 Unchanged policy and regulation</b> the legal framework of today applies unchanged in 2030-2035          | <input type="text"/>         | <input type="text"/> |
| <b>A1 Authorisation with proportionate risk assessment and adapted detection method requirements</b>          | <input type="text"/>         | <input type="text"/> |
| <b>A2 Pre-notification of products that are also obtainable naturally or by conventional breeding</b>         | <input type="text"/>         | <input type="text"/> |
| <b>B1 Additional sustainability label</b>   | <input type="text"/>         | <input type="text"/> |
| <b>B2 No labelling if sustainable</b>   | <input type="text"/>         | <input type="text"/> |
| <b>B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding</b> | <input type="text"/>         | <input type="text"/> |
| <b>C1 Sustainability incentives for authorisation</b>   | <input type="text"/>         | <input type="text"/> |
| <b>C2 Sustainability requirement no authorisation if detrimental to sustainability</b>                        | <input type="text"/>         | <input type="text"/> |

## Questions on costs for authorities - Costs related to field trials

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

|  |  |   |
|--|--|---|
| <b>A - Scenario for 2030-2035</b>  | <b>Risk assessment</b>   | <b>Detection</b>  |
| <u>0: As today: the legal framework of today applies unchanged in 2030-2035</u>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <u>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</u>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <u>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</u> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

|  |  |  |
|--|--|--|
| <b>B - Scenario for 2030-2035</b>  | <b>Labelling (GMO-specific requirements)</b>   | <b>Traceability (GMO-specific requirements)</b>                                      |
| <u>0: Unchanged policy and regulation (baseline)</u>   | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                                 |
| <u>B1: Additional sustainability label</u>   | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims                 |
| <u>B2: No labelling if sustainable</u>   | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |
| <u>B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding</u> | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry                            | Not needed if NGT product can also be obtained naturally or by conventional breeding |



|   |  |
|---|--|
| <b>C - Scenario for 2030-2035</b>   | <b>Authorisation</b>   |
| <b>0: Unchanged policy and regulation</b>   | As today: no sustainability requirements/incentives for authorisation  |
| <b>C1: Sustainability incentives for authorisation</b>                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| <b>C2: Sustainability requirement: no authorisation if detrimental for sustainability</b> | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

### To what extent do you expect that the costs related to field trials will change in scenarios 0, A, B and C in 2030-2035?

Only answer this question if the following conditions are met:

((PositionValueChain\_SQ009.NAOK (/admin/questions/sa/view/surveyid/959299/qid/2681/qid/59738) == "Y") or (PositionValueChain\_SQ010.NAOK (/admin/questions/sa/view/surveyid/959299/qid/2681/qid/59738) == "Y") or (AuthorisationExp\_SQ001.NAOK (/admin/questions/sa/view/surveyid/959299/qid/2681/qid/59743) == "Y"))

|   | Assessment for authorisation | Enforcement |
|---|------------------------------|-------------|
| <b>0 Unchanged policy and regulation</b> the legal framework of today applies unchanged in 2030-2035          |                              |             |
| <b>A1 Authorisation with proportionate risk assessment and adapted detection method requirements</b>          |                              |             |
| <b>A2 Pre-notification of products that are also obtainable naturally or by conventional breeding</b>         |                              |             |
| <b>B1 Additional sustainability label</b>   |                              |             |
| <b>B2 No labelling if sustainable</b>   |                              |             |
| <b>B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding</b> |                              |             |
| <b>C1 Sustainability incentives for authorisation</b>   |                              |             |
| <b>C2 Sustainability requirement no authorisation if detrimental to sustainability</b>                        |                              |             |

## Questions on costs for authorities - Other costs

The following questions regard costs related to any of the following (previously shown) scenarios. All scenarios are for your reference depicted below

|  |  |   |
|--|--|---|
| <b>A - Scenario for 2030-2035</b>  | <b>Risk assessment</b>   | <b>Detection</b>  |
| <b>0: As today: the legal framework of today applies unchanged in 2030-2035</b>                        | As today: risk assessment according to current requirements of GMO legislation             | As today: detection required with differentiation from conventional product   |
| <b>A1: Authorisation with proportionate risk assessment and adapted detection method requirements</b>  | Proportionate to the NGT product's risk profile  | Detection method required but differentiation of NGT product from conventional product not required if not technically possible |
| <b>A2: Pre-notification of products that are also obtainable naturally or by conventional breeding</b> | Not needed if NGT-based product can also be obtained naturally or by conventional breeding | Not needed if NGT-based product can also be obtained naturally or by conventional breeding                                      |

|  |  |  |
|--|--|--|
| <b>B - Scenario for 2030-2035</b>                    | <b>Labelling (GMO-specific requirements)</b>   | <b>Traceability (GMO-specific requirements)</b>                      |
| <b>0: Unchanged policy and regulation (baseline)</b> | As today: labelling as a GMO is always required  | As today: traceability of the GMO is always required                 |
| <b>B1: Additional sustainability label</b>           | As today, but with possibility of additional label for sustainability claims, referring to the sustainability contribution of the introduced trait | As today, but with additional traceability for sustainability claims |
| <b>B2: No labelling if sustainable</b>               | No specific labelling needed, only inclusion in public registry if NGT product contributes to sustainability                                       | As today   |

|   |   |  |
|---|---|--|
| B3: No labelling and traceability if a product is also obtainable naturally or by conventional breeding | Not needed if NGT product can also be obtained naturally or by conventional breeding, only inclusion in public registry | Not needed if NGT product can also be obtained naturally or by conventional breeding |
|---|---|--|

|  |  |
|--|--|
| C - Scenario for 2030-2035   | Authorisation  |
| 0: Unchanged policy and regulation   | As today: no sustainability requirements/incentives for authorisation  |
| C1: Sustainability incentives for authorisation                                    | Positive regulatory incentives for authorisation<br>NGT plant products with traits that contribute to sustainability objectives receive positive regulatory incentives for authorisation (e.g. regulatory and scientific advice before and during approval procedure, measures to facilitate approval process (waiving of fees, faster procedures, allowing sustainability-related claims to appear on the final product). |
| C2: Sustainability requirement: no authorisation if detrimental for sustainability | NGT Plant products with traits that are detrimental to sustainability objectives are not authorised  |

Should you know of any other costs for authorities (i.e. costs not described in the previous sections), please describe below these other costs for each of the individual scenarios for 2030-2035.

Only answer this question if the following conditions are met:  
 ((PositionValueChain\_SQ009.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y") or (PositionValueChain\_SQ010.NAOK (/admin/questions/sa/view/surveyid/959299/gid/2681/qid/59738) == "Y"))

|  | For use of food and feed and the importation into the territory of the European Union | Other costs for cultivation | Other costs for field trials |
|--|---|-----------------------------|------------------------------|
| 0 Unchanged policy and regulation the legal framework of today applies unchanged in 2030-2035          | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| A1 Authorisation with proportionate risk assessment and adapted detection method requirements          | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| A2 Pre-notification of products that are also obtainable naturally or by conventional breeding         | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| B1 Additional sustainability label   | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| B2 No labelling if sustainable   | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| B3 No labelling and traceability if a product is also obtainable naturally or by conventional breeding | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| C1 Sustainability incentives for authorisation   | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |
| C2 Sustainability requirement no authorisation if detrimental to sustainability                        | <input type="text"/>  | <input type="text"/>        | <input type="text"/>         |

### Feedback

Do you have any comments regarding this survey that you would like to share with the study team?

Please write your answer here:

Thank you for your participation to this survey. Your responses have been stored and shared to the study team. You can now close this window

Submit your survey.  
 Thank you for completing this survey

**Van:** 5.1.2.e  
**Aan:** 5.1.2.e @minienw.nl  
**Cc:** 5.1.2.e  
**Onderwerp:** Plantum - ter info Targeted Survey NGT voor stakeholders  
**Datum:** woensdag 29 juni 2022 15:59:02  
**Bijlagen:** [22.0413 targeted SH NGT Questionnaire.pdf](#)

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Let op, in deze e-mail verzonden door 5.1.2.e @plantum.nl, zijn één of meerdere verdachte links gevonden die uit voorzorg aangepast zijn, zodat deze opnieuw gecontroleerd worden bij het aanklikken. Links kunnen misbruikt worden om malware op uw systeem te installeren. Klik alleen op nog aanwezige links als de e-mail afkomstig is van een door u vertrouwde afzender.

**Indien dit niet het geval is dient u deze e-mail direct te verwijderen.**

DICTU Servicedesk

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Beste 5.1.2.e en 5.1.2.e

Ter info deel ik met jullie de pdf van de targeted survey over NGT die ik zojuist van Technopolis heb ontvangen. Wij zijn hier specifiek voor uitgenodigd, wij gaan nu hard aan de slag met de survey beantwoorden.

Met vriendelijke groet,

5.1.2.e  
Beleidsmedewerker  
06 5.1.2.e  
**Plantum**



**adres:** Vossenburchkade 68 | 2805 PC Gouda  
**telefoon:** 0182 68 86 68  
**KvK:** Rotterdam 24319599  
[http://secure-web.cisco.com/1moXpiYKAHXFDHlzzisqt\\_XpRwsB8amBydesqWwnCRXyVYvN-CchtGPxwaR7Og\\_FqUeOnTwRh3WaQissF4dxEpWJCn8TWJTQtN8r-SS\\_QTM9DmC8x5mL6IU6fEiq690072is3oARzBYNHYS4tGUS0pgxniFnuS6AL1hUu65hD5MpBrYIY4sUEFZ0Hzh9PvIABZpOYDwrd2O-84dXVv1WPpP-SSY\\_TEpNXpggPT2QJVEU/http%3A%2F%2Fwww.plantum.nl](http://secure-web.cisco.com/1moXpiYKAHXFDHlzzisqt_XpRwsB8amBydesqWwnCRXyVYvN-CchtGPxwaR7Og_FqUeOnTwRh3WaQissF4dxEpWJCn8TWJTQtN8r-SS_QTM9DmC8x5mL6IU6fEiq690072is3oARzBYNHYS4tGUS0pgxniFnuS6AL1hUu65hD5MpBrYIY4sUEFZ0Hzh9PvIABZpOYDwrd2O-84dXVv1WPpP-SSY_TEpNXpggPT2QJVEU/http%3A%2F%2Fwww.plantum.nl) | [www.plant-kracht.nl](http://www.plant-kracht.nl)  
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131a



Ministerie van Landbouw,  
Natuur en Voedselkwaliteit

# New genomic techniques & de overheid



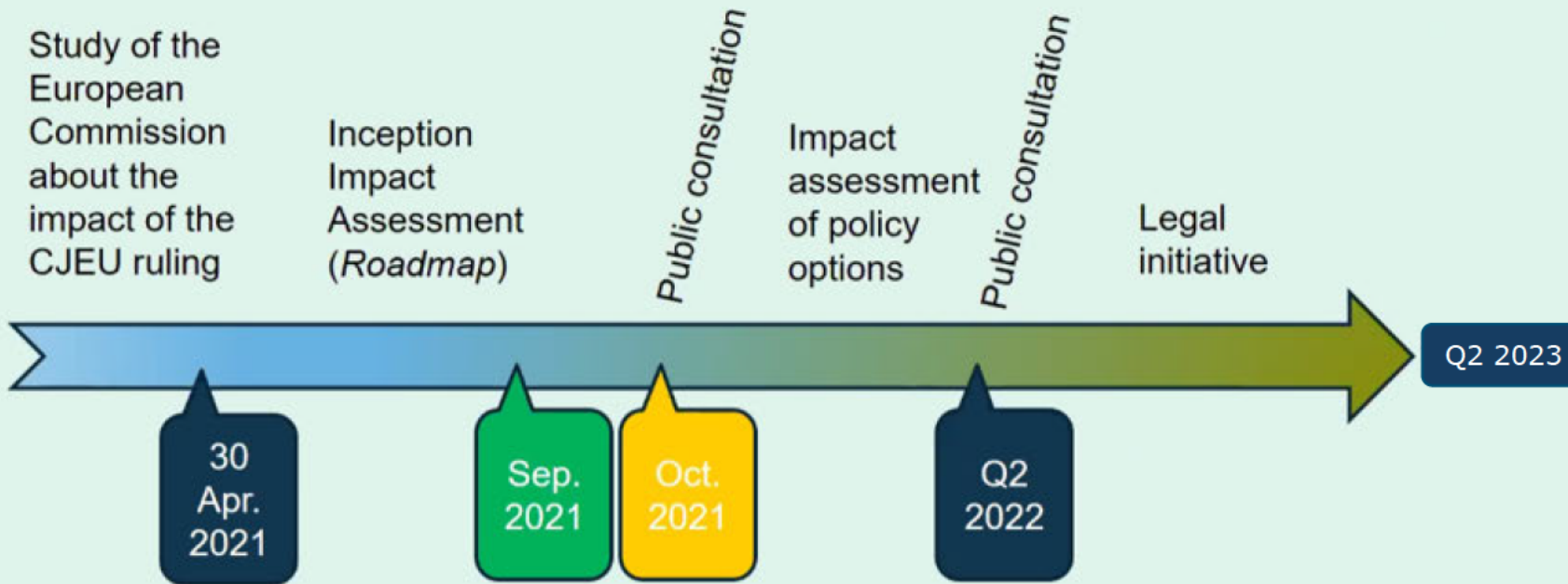
## Verdeling binnen de overheid:

- › 3 verantwoordelijke ministeries: I&W, VWS & LNV
- › **I&W:** Veiligheid, vergunningverlening, toelatingen, nationale & Europese regelgeving GGO's
- › **VWS:** Voedselveiligheid, keuzevrijheid & labelling, medische zorg
- › **LV:** Landbouwbeleid, dierenwelzijn, co-existentie, keuzevrijheid consument en professionele gebruiker



# Europees wetgevingsvoorstel

## ❖ EC NGT roadmap, 24.9.2021







# Inhoud van de nieuwe Wetgeving m.b.t. NGTs

## Doelen:

- › Het mogelijk maken van veilige planten die kunnen bijdragen aan **maatschappelijke doelen**.
- › Het blijven handhaven van een hoog niveau van **bescherming**
- › Het verzekeren van een goed werkende **interne markt**
- › Het versterken van **competitiviteit** van de de Europese Agri-food sector
- › Het maken van een **future-proof** wetgeving

## Missie:

*"The Commission will prepare a policy initiative on plants obtained by targeted mutagenesis and cisgenesis, accompanied by an impact assessment. It will also cover food and feed derived from such plants"*







# Standpunt Nederlandse overheid op NGTs

- › Erkennen de potentie voor **duurzaamheid**.
- › We zien de noodzaak voor de **competitiviteit** van de Nederlandse Agri-food sector
- › Voor ons zal **veiligheid** altijd voor op blijven staan.
- › **Keuzevrijheid** voor de consument én de professionele gebruiker moet worden gegarandeerd.
- › Techniek ontwikkelt zich snel, we willen daarom een **toekomstbestendige** wetgeving.



## Erkennen de potentie voor **duurzaamheid**.

Door versnelde veredeling kunnen deze technieken bijdragen aan:

- › Resistentie tegen plantenziekten en plagen
- › Weerbaarheid tegen klimaatverandering (klimaatadaptatie)
- › Minder afhankelijk van inputs (mest, water, gewasbeschermingsmiddelen)
- › Eiwittransitie & biobased economy

Hierdoor kunnen deze technieken deel zijn van de transitie naar een duurzamere en weerbaarder teeltsysteem. Géén silver bullet.



We zien de noodzaak voor de **competitiviteit** van de Nederlandse Agri-food sector

- › Landen als de VS, Canada, UK, Argentinië, China en Japan ontwikkelen zich snel op biotechnologie.
- › Traceringsproblemen bij de import



Voor ons zal **veiligheid** altijd voor op blijven staan.

- › De Europese voedselveiligheidsautoriteit heeft aangegeven geen extra risico's te zien met deze technieken vergeleken met conventionele veredeling.
- › Nieuwe Europese wetgeving moet veiligheid nog steeds kunnen garanderen
- › Veiligheidsbeoordeling moet wel proportioneel worden benaderd, iets dat in de huidige wetgeving niet gebeurt



**Keuzevrijheid** voor de consument én de professionele gebruiker moet worden gegarandeerd.

- › Consument moet inzicht kunnen krijgen in de achtergrond van hun product, indien zij dit willen. -> openbare database
- › Professionele gebruiker moet kunnen kiezen om wel of niet gebruik te maken van met NGT-ontwikkelde gewassen.
  - Belangrijke voorwaarde voor biologische en non-gmo sector
- › Tracering via documentatiesysteem



Techniek ontwikkelt zich snel, we willen daarom een **toekomstbestendige** wetgeving.

- › Randvoorwaarden voor deze wetgeving zoveel mogelijk in horizontale wetgeving. Bijvoorbeeld duurzaamheidseisen.
- › Geen harde eisen op bijvoorbeeld specifieke planteigenschappen
- › Tracering niet meer via analytische toetsen, maar naar documentatiesysteem



# Vragen?





**Van:** 5.1.2.e  
**Aan:** 5.1.2.e  
**Cc:** 5.1.2.e  
**Onderwerp:** RE: webinar dinsdag  
**Datum:** vrijdag 1 juli 2022 15:24:44  
**Bijlagen:** [image001.png](#)  
[290622 Presentatie webinar retail sas.pptx](#)

Ha 5.1.2.e

Zoals vanochtend nog besproken, paar kleine aanpassingen nog.

Jij maakt nog even de slides in het midden (eu studie ed in orde dinsdagochtend).

Ik heb ook een zaaltje voor dinsdag, geen idee of het met scherm oid is maar anders gewoon eigen laptops. Kan iig de speaker proberen te lenen.

Goed wknd!

5.1.2.e

| RESERVERING  |  | VOORZIENINGEN |  | EXTERNE DEELNEMERS |  | MUTATIES 1 |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
|--|--|---------------|--|--------------------|--|------------|--|-------|---------------|------|-----------------|-----------------|---|---------|--------------------|--------|--|------------|-----------------------------|--------------|---------------------|--------------------|------------|------|---------|--------------|--|--------------|----------------------------------|
| <div> <div> <b>Tijd en plaats</b> </div> <div> <table> <tr> <td>Datum</td> <td>Di 05-07-2022</td> </tr> <tr> <td>Tijd</td> <td>14.30 tot 17.30</td> </tr> <tr> <td>Aantal personen</td> <td>5</td> </tr> <tr> <td>Locatie</td> <td>Rijnstraat 8 (RS8)</td> </tr> <tr> <td>Ruimte</td> <td>10.A.118 Gesloten overleg ruimte/AV 6p</td> </tr> <tr> <td>Opstelling</td> <td>Vergaderopstelling (6 pers)</td> </tr> <tr> <td>Omschrijving</td> <td>Webinar Holland Bio</td> </tr> <tr> <td>Reserveringsstatus</td> <td>Definitief</td> </tr> </table> </div> </div> <div> <div> <b>Contactgegevens</b> </div> <div> <table> <tr> <td>Naam</td> <td>5.1.2.e</td> </tr> <tr> <td>Bestemd voor</td> <td></td> </tr> <tr> <td>Kostenplaats</td> <td>IenW#BELEID#DGMI#OVenM#Cluster C</td> </tr> </table> </div> </div> |  |               |  |                    |  |            |  | Datum | Di 05-07-2022 | Tijd | 14.30 tot 17.30 | Aantal personen | 5 | Locatie | Rijnstraat 8 (RS8) | Ruimte | 10.A.118 Gesloten overleg ruimte/AV 6p | Opstelling | Vergaderopstelling (6 pers) | Omschrijving | Webinar Holland Bio | Reserveringsstatus | Definitief | Naam | 5.1.2.e | Bestemd voor |  | Kostenplaats | IenW#BELEID#DGMI#OVenM#Cluster C |
| Datum  | Di 05-07-2022                          |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Tijd   | 14.30 tot 17.30                        |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Aantal personen  | 5                                      |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Locatie  | Rijnstraat 8 (RS8)                     |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Ruimte   | 10.A.118 Gesloten overleg ruimte/AV 6p |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Opstelling   | Vergaderopstelling (6 pers)            |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Omschrijving   | Webinar Holland Bio                    |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Reserveringsstatus   | Definitief                             |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Naam   | 5.1.2.e                                |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Bestemd voor   |  |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |
| Kostenplaats   | IenW#BELEID#DGMI#OVenM#Cluster C       |               |  |                    |  |            |  |       |               |      |                 |                 |   |         |                    |        |  |            |                             |              |                     |                    |            |      |         |              |  |              |                                  |

**Van:** 5.1.2.e - DGMI

**Verzonden:** vrijdag 1 juli 2022 10:07

**Aan:** 5.1.2.e @plantum.nl> 5.1.2.e hollandbio.nl; 5.1.2.e

@minInv.nl>

**Onderwerp:** webinar dinsdag

Hoi 5.1.2.e er 5.1.2.e

Dank 5.1.2.e voor je belletje gisteren. Ik stond op het voetbalveld in de regen, dus ik moest even schakelen.

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Hoe werkt de bijeenkomst dinsdagmiddag?

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Komen vragen via een chat of worden ze gesteld en ik neem aan dat jullie dit moderaten?

Groet,

5.1.2.e

Postbus 20951 | 2500 EX | Den Haag

M 065.1.2.e  
E 5.1.2.e @minierw.nl

Maandag is mijn vaste vrije dag

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**Van:** 5.1.2.e  
**Aan:** 5.1.2.e @hollandbio.nl; 5.1.2.e )  
**Onderwerp:** webinar dinsdag  
**Datum:** vrijdag 1 juli 2022 10:07:56

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Hoi 5.1.2.e en 5.1.2.e

Dank 5.1.2.e voor je belletje gisteren. Ik stond op het voetbalveld in de regen, dus ik moest even schakelen.

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Groet,

5.1.2.e

---

**Directie Omgevingsveiligheid en Milieurisico's**  
**Ministerie van Infrastructuur en Waterstaat**  
 Rijnstraat 8 | 2515 XP | Den Haag  
 Postbus 20951 | 2500 EX | Den Haag

---

**M** 06 5.1.2.e  
**E** 5.1.2.e @minienw.nl

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Maandag is mijn vaste vrije dag

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**Van:** 5.1.2.e  
**Aan:** 5.1.2.e @minienw.nl; 5.1.2.e  
**Cc:** 5.1.2.e  
**Onderwerp:** RE: Retail webinar - Schedule and playbook  
**Datum:** maandag 4 juli 2022 16:58:31  
**Bijlagen:** [list of participants organizations.xlsx](#)

Let op, in deze e-mail verzonden door 5.1.2.e @hollandbio.nl, zijn één of meerdere verdachte links gevonden die uit voorzorg aangepast zijn, zodat deze opnieuw gecontroleerd worden bij het aanklikken. Links kunnen misbruikt worden om malware op uw systeem te installeren. Klik alleen op nog aanwezige links als de e-mail afkomstig is van een door u vertrouwde afzender.

**Indien dit niet het geval is dient u deze e-mail direct te verwijderen.**

DICTU Servicedesk

Hi all,

For your information hereby the list of organizations that registered for tomorrow's webinar.  
See you tomorrow in Zoom!

Best wishes,  
5.1.2.e

**Van:** 5.1.2.e @plantum.nl>  
**Verzonden:** maandag 4 juli 2022 16:06  
**Aan:** 5.1.2.e minlnv.nl; 5.1.2.e @minienw.nl; 5.1.2.e @minienw.nl; 5.1.2.e @wur.nl>  
**CC:** 5.1.2.e @hollandbio.nl; 5.1.2.e @hollandbio.nl>  
**Onderwerp:** Retail webinar - Schedule and playbook

Dear all,

Please find below an indication of the schedule of the whole webinar, including an estimation of when you will give your respective presentations.

Please note: **you can already join the Zoom meeting at 14.50, we kindly ask you to do so.**

|             |                  |
|-------------|------------------|
| 15.00-15.20 | 5.1.2.e kick-off |
| 15.25-15.35 | 5.1.2.e          |
| 15.35-15.50 | 5.1.2.e          |
| 15.50-16.15 | 5.1.2.e wrap up  |

We also kindly ask you **to share your own slides** during the webinar. This way you don't have to say 'next slide' every time which might be nicer. Please do share your slides with either Rianne or myself before the webinar so we may help in case of technical difficulties. If you join the Zoom already at 14.50h we can do a quick test with slide-sharing in Zoom if you prefer.

If there are any questions, please feel free to contact Rianne or myself!

Best regards,

5.1.2.e  
 Policy advisor  
 +31 65.1.2.e  
 Plantum



address: Vossenburchkade 68 | 2805 PC Gouda  
 telephone: +31 182 5.1.2.e  
 reg no : Rotterdam 24319599  
[http://secure.web.cisco.com/1caYw20i1mdiet78Kvql6TA\\_POD\\_hdkpCx6O1mOugOfy6mq7xNG7YGUDukgbPX6SQ2w7cASCj8YBklwNgx-CG\\_bOc5bToc-uXqvDs9ON7\\_JnTdkJUyqLBjQh6fTVRQe\\_JWmMm7aV3inOcrGM7ibN-hVeWvZVC9EJxp0EOOioNiccpT5BfrZ0t1ha5QaeMJ85yQRh1jwEaeAkmY-7e4AU9NrxTpWrlDrOnNbno39CTYMFsnQzfwHXg4lp4XpOllbPt/http%3A%2F%2Fwww.plantum.nl](http://secure.web.cisco.com/1caYw20i1mdiet78Kvql6TA_POD_hdkpCx6O1mOugOfy6mq7xNG7YGUDukgbPX6SQ2w7cASCj8YBklwNgx-CG_bOc5bToc-uXqvDs9ON7_JnTdkJUyqLBjQh6fTVRQe_JWmMm7aV3inOcrGM7ibN-hVeWvZVC9EJxp0EOOioNiccpT5BfrZ0t1ha5QaeMJ85yQRh1jwEaeAkmY-7e4AU9NrxTpWrlDrOnNbno39CTYMFsnQzfwHXg4lp4XpOllbPt/http%3A%2F%2Fwww.plantum.nl)  
 website: [http://secure.web.cisco.com/1caYw20i1mdiet78Kvql6TA\\_POD\\_hdkpCx6O1mOugOfy6mq7xNG7YGUDukgbPX6SQ2w7cASCj8YBklwNgx-CG\\_bOc5bToc-uXqvDs9ON7\\_JnTdkJUyqLBjQh6fTVRQe\\_JWmMm7aV3inOcrGM7ibN-hVeWvZVC9EJxp0EOOioNiccpT5BfrZ0t1ha5QaeMJ85yQRh1jwEaeAkmY-7e4AU9NrxTpWrlDrOnNbno39CTYMFsnQzfwHXg4lp4XpOllbPt/http%3A%2F%2Fwww.plantum.nl](http://secure.web.cisco.com/1caYw20i1mdiet78Kvql6TA_POD_hdkpCx6O1mOugOfy6mq7xNG7YGUDukgbPX6SQ2w7cASCj8YBklwNgx-CG_bOc5bToc-uXqvDs9ON7_JnTdkJUyqLBjQh6fTVRQe_JWmMm7aV3inOcrGM7ibN-hVeWvZVC9EJxp0EOOioNiccpT5BfrZ0t1ha5QaeMJ85yQRh1jwEaeAkmY-7e4AU9NrxTpWrlDrOnNbno39CTYMFsnQzfwHXg4lp4XpOllbPt/http%3A%2F%2Fwww.plantum.nl)  
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| Bayer CropScience   |  |
| Bejo Zaden  |  |
| Ciopora   |  |
| DLF B.V.  |  |
| Euroseeds   |  |
| Federatie Nederlandse Levensmiddelenindustrie                         |  |
| Food Matters Live   |  |
| HollandBIO  |  |
| Hortuslab   |  |
| Hudson River Biotechnology  |  |
| Hzpc  |  |
| Israel Innovation authority   |  |
| Kaveri Seed Company Limited   |  |
| KDEnoodt International Consult  |  |
| Min. LNV  |  |
| Ministerie van VWS (Ministry of Public Health)                        |  |
| Ministry for Infrastructure and Water Management                      |  |
| NEN   |  |
| Nestlé / ETP Food for Life  |  |
| NIBIO   |  |
| Nichino Europe  |  |
| NWO   |  |
| REPUBLIC OF TÜRKİYE MINISTRY OF AGRICULTURE AND FORESTRY BATI AKDENİZ | Plant breeder  |
| Republican Centre of Ecology and Local Studies, Belarus               |  |
| Rijkswaam   |  |
| SeedWorks   |  |
| Unilever Food Innovation Centre Wageningen                            |  |
| Unilever Nederland B.V.   |  |
| Utrecht University  |  |
| UvA   |  |
| VIGEF   | Vereniging van de Nederlandse Groente- en Fruitverwerkende Industrie |
| Winclove  |  |
| WUR   |  |

5.1.2.e

PhD Candidate Wageningen  
University and Research  
Board member GeneSprout Initiative

[www.genesproutinitiative.com](http://www.genesproutinitiative.com)



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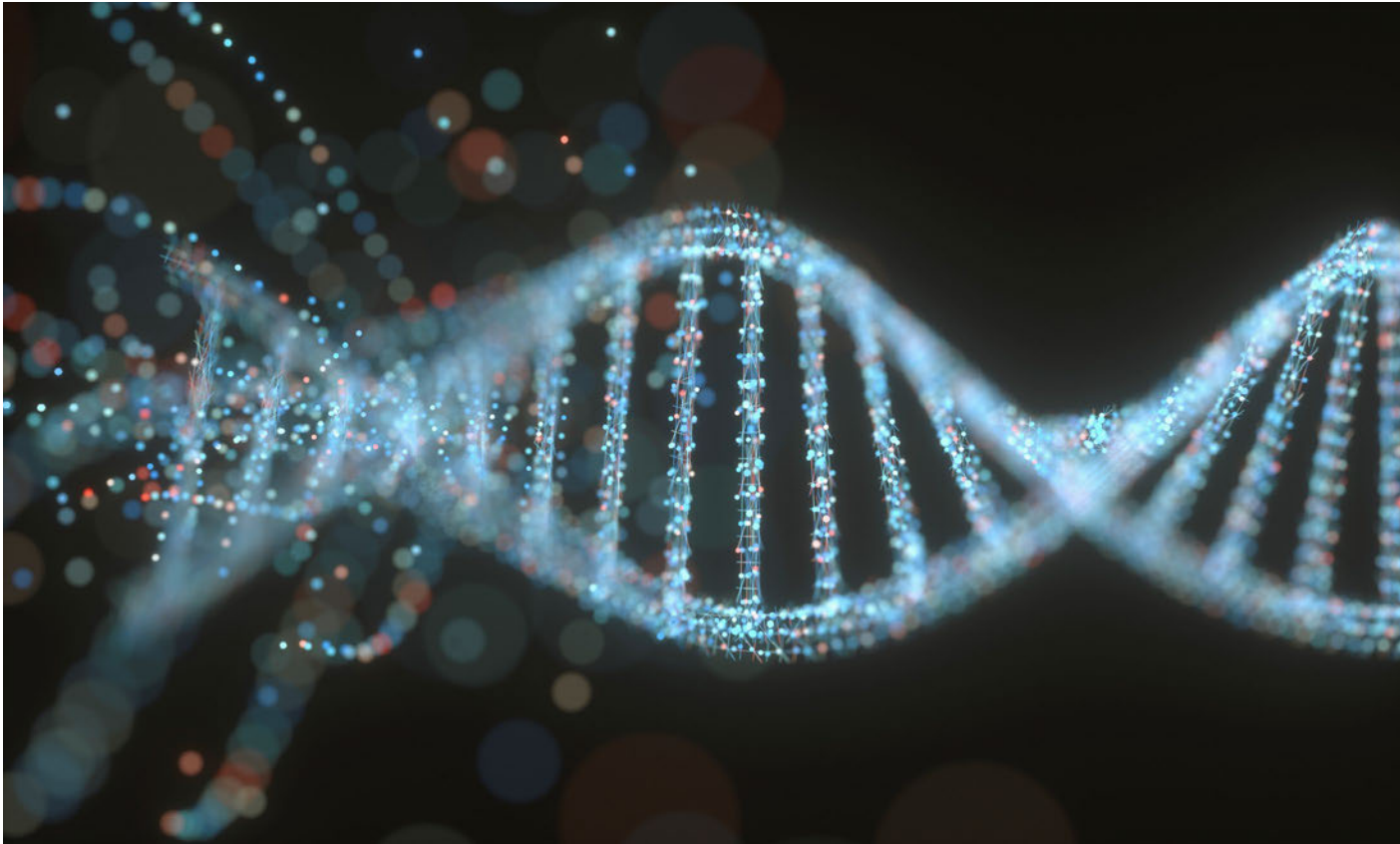




# TODAY

- How did agriculture change over time?
- What is Conventional Plant breeding?
- What are New genomic techniques (NGTs)? Why do we need them (NOW!)?

# DNA- THE CODE OF LIFE



ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACGACGTAAGTGGCC  
CTCGTTAACGTTGCAAGTATGC  
AAACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTACC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGTACGTGTCATAGTAGC  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTT  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CCTCGTTAACGTTGCAAGTAT  
TAAACTGTTGCAATGCCGTAC

...a bunch of ATCG's

# SPONTANEOUS GENETIC CHANGES OCCUR IN NATURE

ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTGCCC  
CTCGTTAACGTTGCAAGTATGC  
AAACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTACC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTTG  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CGCCTCGTTAACGTTGCAAGT  
CGTAAACTGTTGCAATGCCGT



**Genetic changes lead to evolution and biodiversity**

# Favourable changes in DNA

*“Humans have been selecting favourable changes for 10,000 years”*



# Genetic changes-DIVERSITY

*Did you know this is the same plant species?*





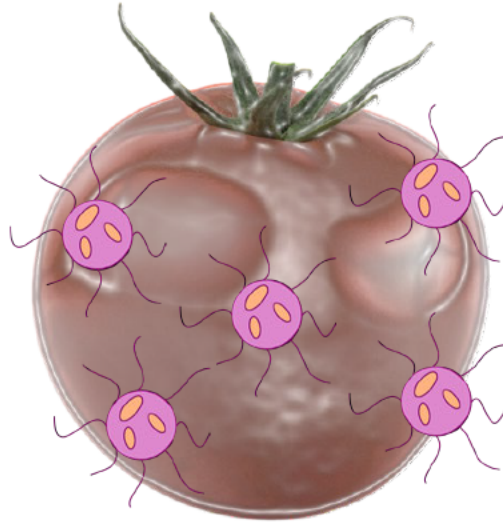
# Plant breeding

*“The science of selecting desired, hereditary traits to create new varieties.”*



# Why do we need diversity?

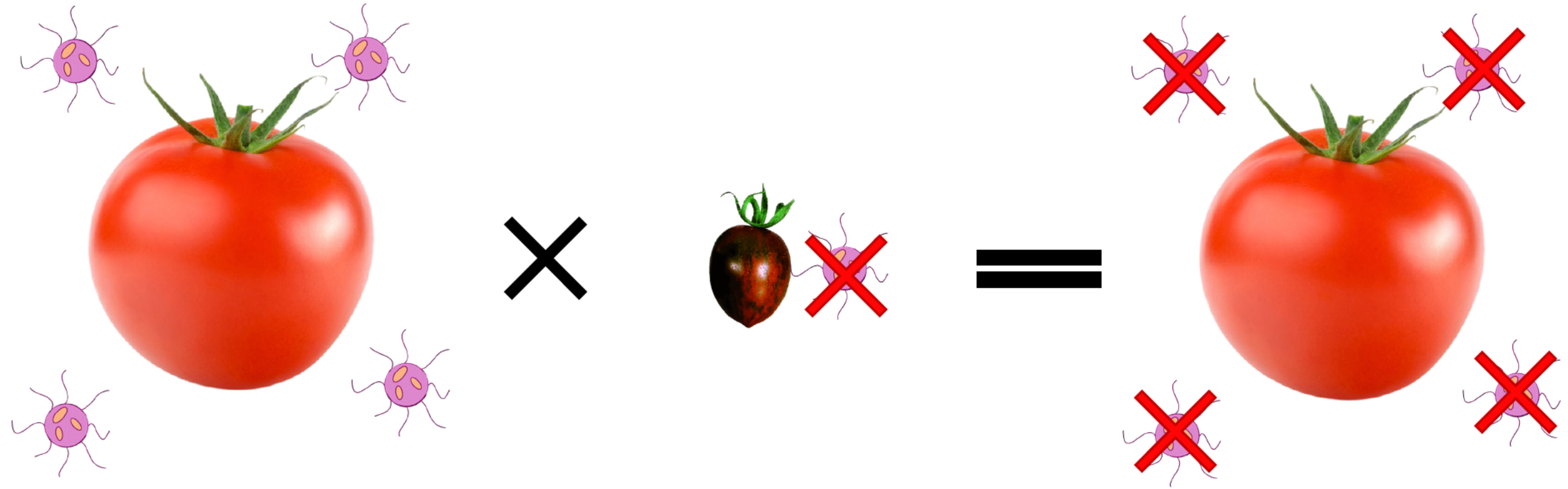
## Why do we need plant breeding today?



*Plant diseases affect both farmers and consumers!*



# Example | *Virus resistance*

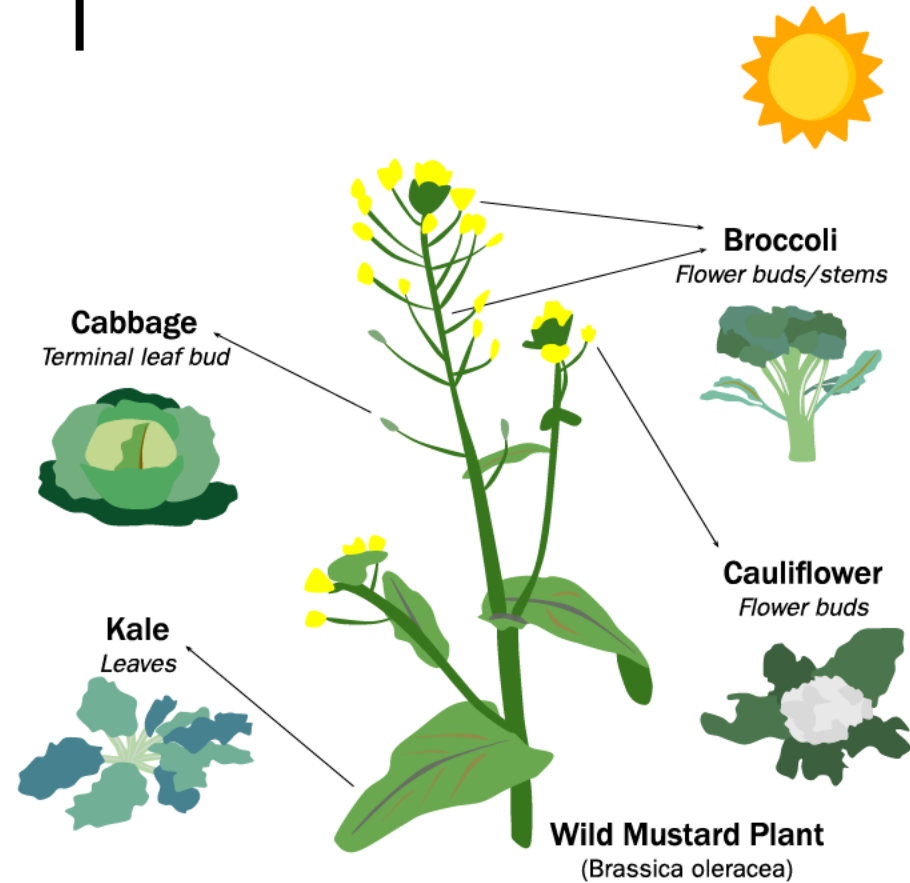


# Cross breeding

ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAAACGCGTAACTGCCC  
CTCGTTAACGTTGCAAGTATGC  
AAACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTACC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTTG  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CGCCTCGTTAACGTTGCAAGT  
CGTAAACTGTTGCAATGCCGT

8-12 years

*“Humans have been corssing favourable changes for 200 years”*



**Variation**

*What if we are unable to find  
genetic variation suitable to  
meet the needs of today?*

# Mutation breeding

*"Humans have been inserting favourable and unfavourable mutations since a 100 years"*

```
ATGATCTCGTTAACGTTGCAAC
TGC- AAAGTGTGCAATGCCG
CGTGTCATAGT----- AGT
ACCCTAAAGGTGTGCGCGTAC
CCCGTAA-CA- CGTAACTGCCC
CTCGTTAACGTTGCAAGTATG
AA-CGTTGCAAT- CGTACGTG
CATAGTAGCGTCATGCAGTAC
AAAGGTGTGCGCCTCG- GTT
GCAAGTATGCGTAAACTGTTG
TGCCGT- GTCATAGTAGCGT
ATGCAGTACCCTAAAG- GCG
TGC- TGGACTAAGTATGCGTAA
TGTTGCAATGCCGTACGTGTC
GTAGCGTCATGCAGTAC- AA
AGGTGTG- CCTCGTTAACGTT
AAGTATGCGTAAACTGTTGCA
```



6-7 years

# Precision breeding

*“New genomic techniques like CRISPR-Cas”*



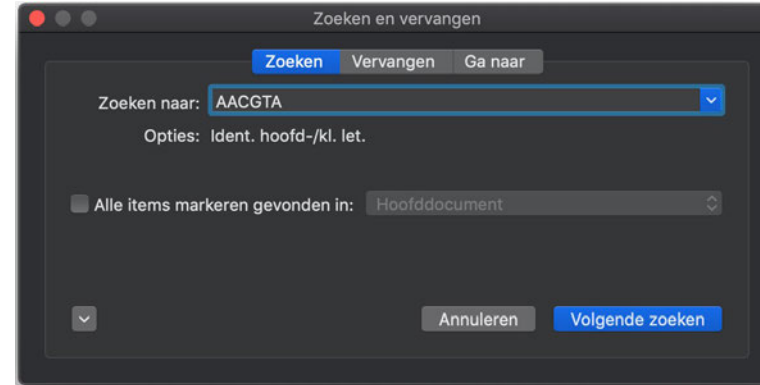
*“There is enormous power in this genetic tool, which affects us all. It has not only revolutionised basic science, but also resulted in **innovative crops** and will lead to ground-breaking new medical treatments.”* (Claes Gustafsson, chair of the Nobel Committee for Chemistry)



# New Genomic Techniques (NGTs)

ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTGCCC  
CTCGTTAACGTTGCAAGTATG  
AACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTAC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGTACGTGTCATAGTAGC  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTT  
ATGCCGTACGTGTCATAGTAGC  
CATGCAGTACCCTAAAGGTGT  
CCTCGTTAACGTTGCAAGTAT  
TAACTGTTGCAATGCCGTAC

*Scientists have been using CRISPR-Cas genome editing to specifically insert favorable mutations since 2014*



2-4 years

# How is NGT different from GMO?

*“NO FOREIGN DNA!”*

*“Possibility of no foreign DNA in the final plant product*

*“The final plant cannot be differentiated from a conventionally bred plant”*

*“Similar risks as conventionally bred plants”*

*“These changes could also occur in nature”*



NGT bred tomato



Conventionally bred tomato



# CRISPR-Cas

*How do NGT's compare to mutagenesis?*

ATGATCTCGTTAACGTTGCAAC  
TGC-AACTGTTGCAATGCCG  
CGTGTCATAGT-AGT  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTCCC  
CTCGTTAACGTTGCTATGC  
AAAGGTTGCAATGACGTG  
CATAGCGTGCAGTACC  
AAAGGTCCTCGTGT  
GCAAGCGTAAACTGTTG  
TGCCGTGTCATAGTAGCGT  
ATGCAGTACCCTAAAGTGCG  
TGCTGGACTAAGTATGCGTAA  
TGTTGCAATGCCGTACGTGTC  
GTAGCGTCATGCAGTACCTAA  
AGGTGTGCTCGTTAACGTT  
AAGTATGCGTAAACTGTTGCA



Mutation Breeding  
6-7 years

ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
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AAACTGTTGCGGTACG  
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GCAAGCGTAACTGTTG  
TGCCGTACGTGTCAAGTAGC  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTT  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CCTCGTTAACGTTGCAAGTAT  
TAAACTGTTGCAATGCCGTAC



NGTs  
2-4 years

# NGTs | *What has been achieved so far?*



Vitamin D enriched tomatoes  
*Nutritional traits*



Domesticated groundcherry  
*“New” crops*



Non-allergenic wheat  
*No more allergies*

# NGTs | *What has been achieved so far?*



Ever-white mushrooms  
*Less food waste*



Oil-production in canola  
*Palm oil replacement*



Virus-resistant cassava  
*Better yields*



# NGTs | Advantages

Compared to conventional breeding, NGTs:

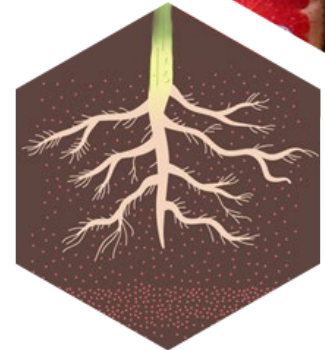
- **Faster** development of new varieties (climate change resilient)
- More **Sustainable**
- **Cheap** to use, that can benefit SMEs
- Allow to **breed difficult crops** (e.g. wheat)
- Allow to **domesticate wild ancestors**



# NGTs | Why do we need them?

NPBTs are **promising techniques** to supply the market with:

- **healthy, nutritious,**
- **climate-proof,**
- **disease-resistant,** and
- **sustainable** crops.



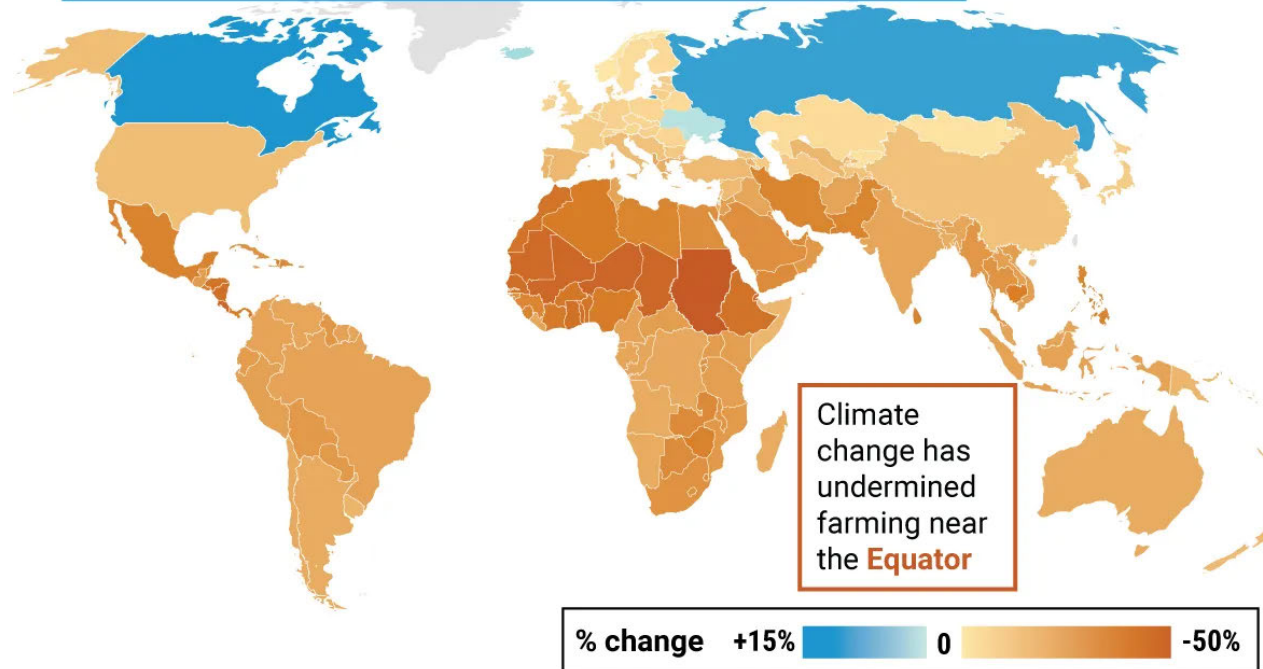
# NGT | *The European situation*

- NGT **plants** are regulated as **GMO's** (2001 directive)
- Practically **impossible** to bring to market
- Although **mutagenesis** products are GMO, they are **exempted** from risk analyses, given their long safety track record (before the adoption of the 2001 Directive).

## Has climate change hurt or helped farmers?

Effect of climate change on agricultural productivity growth (% change 1965-2020)

Farming has been boosted by climate change in only **5 countries**



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Source: Cornell University

**GZERO**



# NGTs | *Final thoughts*

Using NGTs in plant breeding is **not going to solve the global food crisis** by itself...

... but it can be a **powerful tool** to bring more **nutritional**, more **drought-tolerant**, more **disease-resistant** and more **salty-soil tolerant** crops to the market **faster**.

To ensure **food security**, we need to use **all the tools** we have!

# OUR GOALS

## *Genesprout Initiative*



An early-stage researcher initiative for open dialogue on new genomic techniques and the policy thereof



### **Inform Society**

*We host open access information so that society can have an informed opinion on the future (technologies) of agriculture.*



### **Stimulate Open Dialogue**

*We host dialogue sessions to stimulate dialogue on New Plant Breeding Techniques, their policy and implications in agriculture.*



### **Represent Young Researchers**

*We aim to give a voice to students and young plant researchers on the topic of New Plant Breeding Techniques and their policy.*



### **Influence EU policy**

*We want to influence the current EU policy to enable the use of New Plant Breeding Techniques in a responsible, future-proof manner.*

# Join Us!

Become an Ambassador



Let your your voice be  
heard as an Ambassador!



# QUESTIONS & DISCUSSION

---





Nikita Sajeev

PhD Candidate Wageningen

University and Research

Board member GeneSprout Initiative

[www.genesproutinitiative.com](http://www.genesproutinitiative.com)



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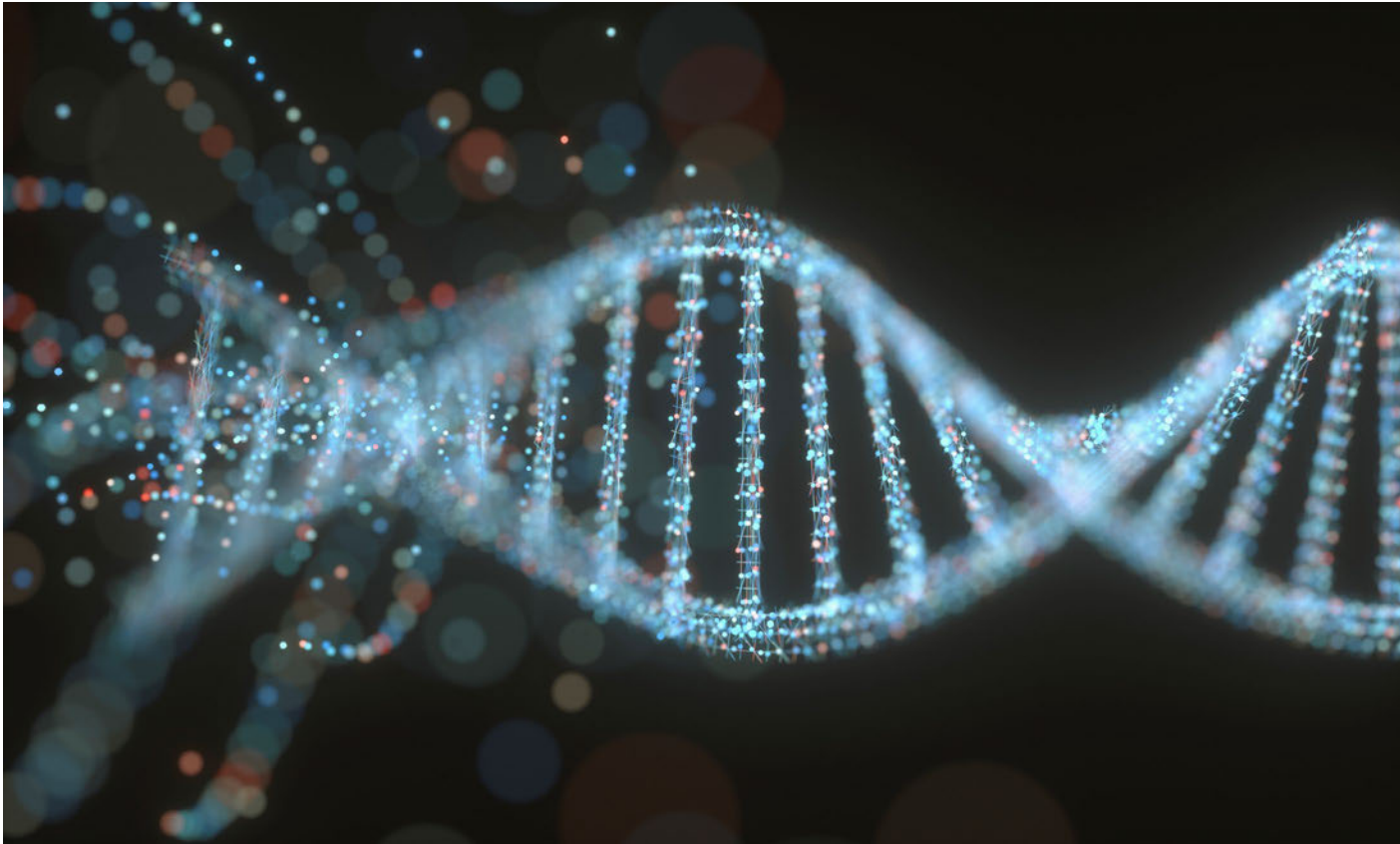
GeneSproutInitiative



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AAACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTAC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGTACGTGTCATAGTAGC  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTT  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
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CATAGTAGCGTCATGCAGTACC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTTG  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CGCCTCGTTAACGTTGCAAGT  
CGTAAACTGTTGCAATGCCGT



**Genetic changes lead to evolution and biodiversity**

# Favourable changes in DNA

*“Humans have been selecting favourable changes for 10,000 years”*



# Genetic changes-DIVERSITY

*Did you know this is the same plant species?*



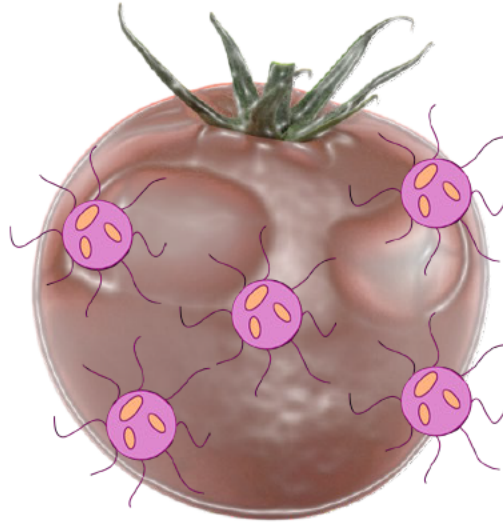
# Plant breeding

*“The science of selecting desired, hereditary traits to create new varieties.”*



# Why do we need diversity?

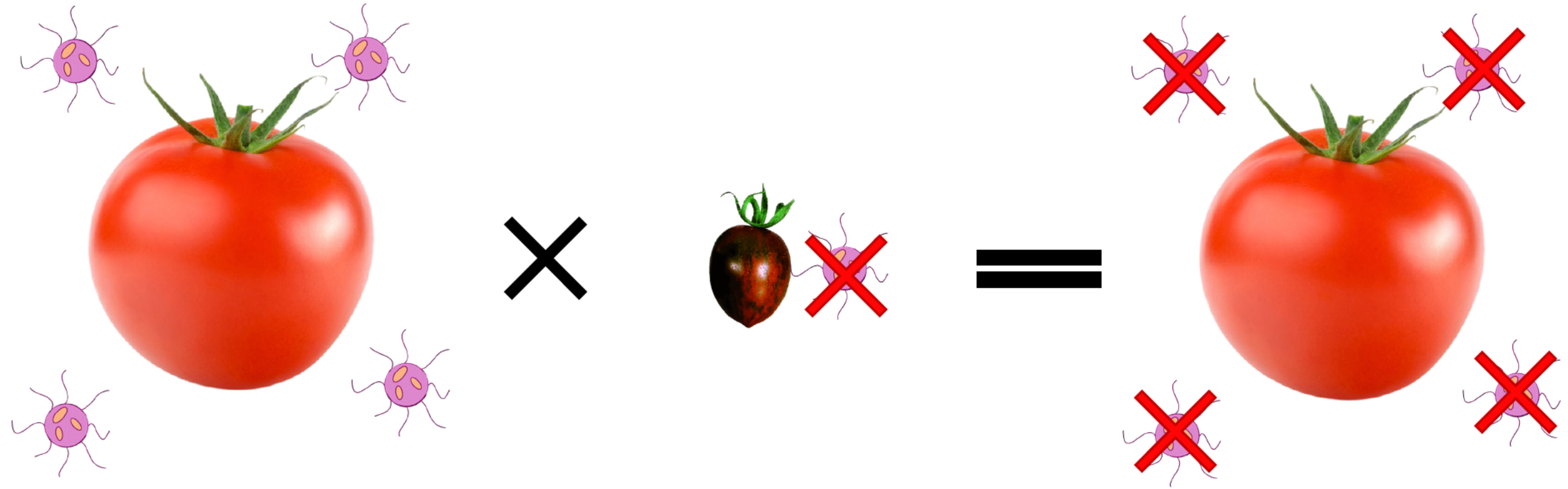
## Why do we need plant breeding today?



*Plant diseases affect both farmers and consumers!*



# Example | *Virus resistance*



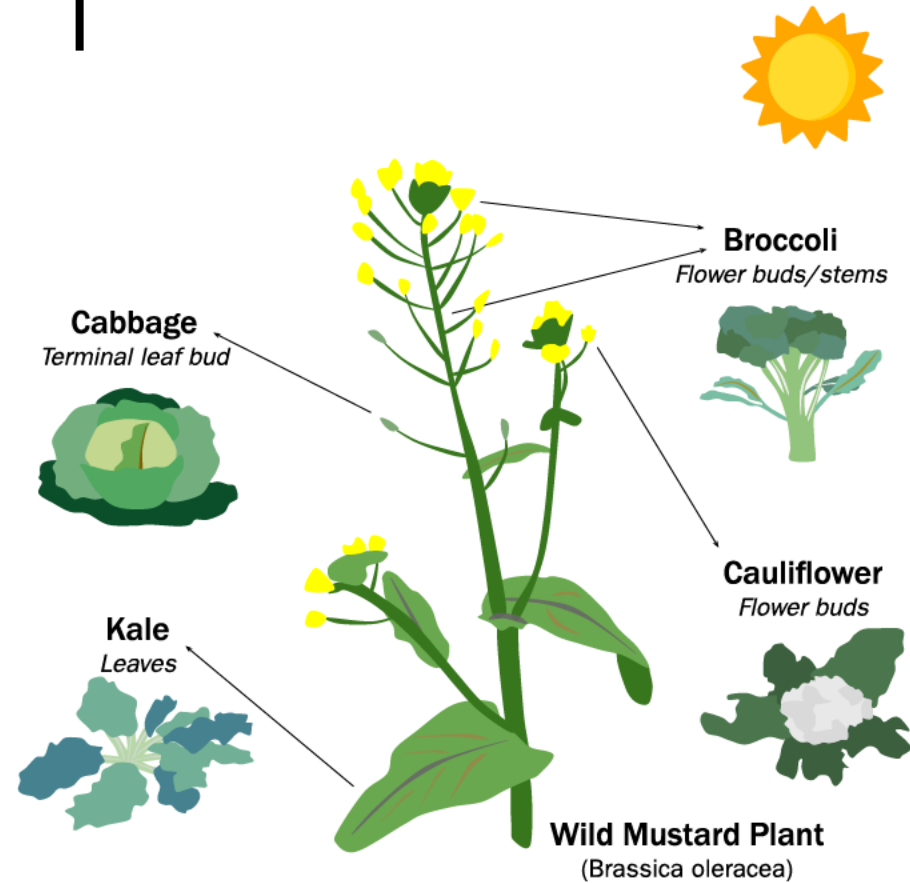


# Cross breeding

ATGATCTCGTTAACGTTGCAAC  
TGC GTAAACTGTTGCAATGCC  
CGTGT CATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTGCCC  
CTCGTTAACGTTGCAAGTATGC  
AAACTGTTGCAATGCCGTACG  
CATAGTAGCGTCATGCAGTAC  
AAAGGTGTGCGCCTCGTTAAC  
GCAAGTATGCGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTTG  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CGCCTCGTTAACGTTGCAAGT  
CGTAAACTGTTGCAATGCCGT

8-12 years

*“Humans have been corssing favourable changes for 200 years”*



**Variation**

*What if we are unable to find  
genetic variation suitable to  
meet the needs of today?*

# Mutation breeding

*“Humans have been inserting favourable and unfavourable mutations since a 100 years”*

```
ATGATCTCGTTAACGTTGCAAC
TGC- AAAGTGTGCAATGCCG
CGTGTCATAGT----- AGT
ACCCTAAAGGTGTGCGCGTAC
CCCGTAA-CA- CGTAACTGCCC
CTCGTTAACGTTGCAAGTATG
AA-CGTGTGCAAT- CGTACGTG
CATAGTAGCGTCATGCAGTAC
AAAGGTGTGCGCCTC- GAT- GT
GCAAGTATGCGTAAACTGTTG
TGCCGT- GTCATAGTAGCGT
ATGCAGTACCCTAAAG- GTGCG
TGC- TGGACT- AAGTATGCGTAA
TGTTGCAATGCCGTACGTGTC
GTAGCGTCATGCAGTAC- C- A
AGGTGTG- CCTCGTTAACGTT
AAGTATGCGTAAACTGTTGCA
```



6-7 years

# Precision breeding

*“New genomic techniques like CRISPR-Cas”*



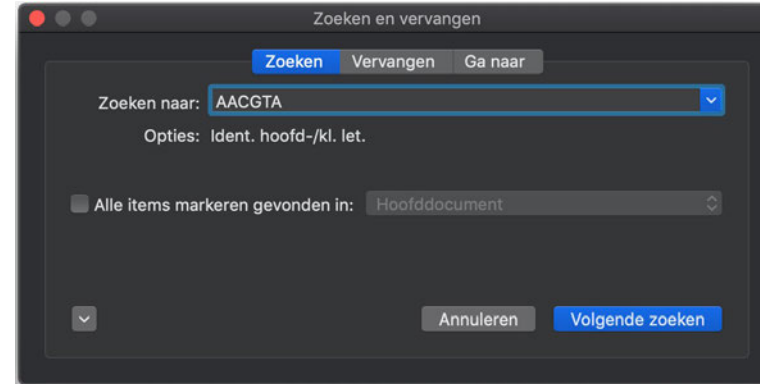
*“There is enormous power in this genetic tool, which affects us all. It has not only revolutionised basic science, but also resulted in **innovative crops** and will lead to ground-breaking new medical treatments.”* (Claes Gustafsson, chair of the Nobel Committee for Chemistry)



# New Genomic Techniques (NGTs)

*Scientists have been using CRISPR-Cas genome editing to specifically insert favorable mutations since 2014*

```
ATGATCTCGTTAACGTTGCAAC
TGCGTAAACTGTTGCAATGCC
CGTGTCATAGTAGCGTCATGC
ACCCTAAAGGTGTGCGCGTAC
CCCGTAAACGACGTAAGTCCC
CTCGTTAACGTTGCAAGTATG
AACTGTTGCAATGCCGTACG
CATAGTAGCGTCATGCAGTAC
AAAGGTGTGCGCCTCGTTAAC
GCAAGTATGCGTAAACTGTTG
TGCCGTACGTGTCATAGTAGC
ATGCAGTACCCTAAAGGTGTG
TGCAAGTATGCGTAAACTGTTG
ATGCCGTACGTGTCATAGTAGC
CATGCAGTACCCTAAAGGTGTG
CCTCGTTAACGTTGCAAGTATG
TAAACTGTTGCAATGCCGTAC
```



2-4 years

# How is NGT different from GMO?

*“NO FOREIGN DNA!”*

*“Possibility of no foreign DNA in the final plant product*

*“The final plant cannot be differentiated from a conventionally bred plant”*

*“Similar risks as conventionally bred plants”*

*“These changes could also occur in nature”*



NGT bred tomato



Conventionally bred tomato



# CRISPR-Cas

*How do NGT's compare to mutagenesis?*

ATGATCTCGTTAACGTTGCAAC  
TGC- AAAC TGTGCAATGCCG  
CGTGTCATAGT AGT  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTCCC  
CTCGTTAACGTTGC ATGC  
AAACGTTGCAAT TACGTG  
CATAGCGT GCAGTAC  
AAAGGTG CCTCGTGT  
GCAAG CGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGT GCG  
TGCTGGACTAAGTATGCGTAA  
TGTTGCAATGCCGTACGTGTC  
GTAGCGTCATGCAGTACCTAA  
AGGTGT CCTCGTTAACGTT  
AAGTATGCGTAAACTGTTGCA



Mutation Breeding  
6-7 years

ATGATCTCGTTAACGTTGCAAC  
TGCGTAAACTGTTGCAATGCC  
CGTGTCATAGTAGCGTCATGC  
ACCCTAAAGGTGTGCGCGTAC  
CCCGTAACTGCGTAACTGCCC  
CTCGTTAACGTTGC ATGC  
AAACTGTTGCAAT TACGTG  
CATAGTAGCGT GCAGTAC  
AAAGGTG CCTCGTGT  
GCAAG CGTAAACTGTTG  
TGCCGT GTCATAGTAGCGT  
ATGCAGTACCCTAAAGGTGTG  
TGCAAGTATGCGTAAACTGTT  
ATGCCGTACGTGTCATAGTAG  
CATGCAGTACCCTAAAGGTGT  
CCTCGTTAACGTTGCAAGTAT  
TAAACTGTTGCAATGCCGTAC



NGTs  
2-4 years

# NGTs | *What has been achieved so far?*



Vitamin D enriched tomatoes  
*Nutritional traits*



Domesticated groundcherry  
*“New” crops*



Non-allergenic wheat  
*No more allergies*

# NGTs | *What has been achieved so far?*



Ever-white mushrooms  
*Less food waste*



Oil-production in canola  
*Palm oil replacement*



Virus-resistant cassava  
*Better yields*



# NGTs | Advantages

Compared to conventional breeding, NGTs:

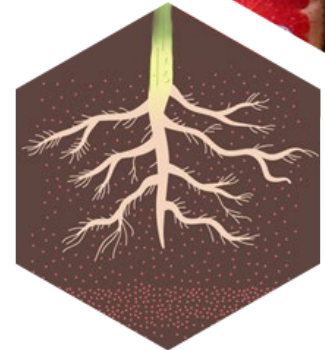
- **Faster** development of new varieties (climate change resilient)
- More **Sustainable**
- **Cheap** to use, that can benefit SMEs
- Allow to **breed difficult crops** (e.g. wheat)
- Allow to **domesticate wild ancestors**



# NGTs | Why do we need them?

NPBTs are **promising techniques** to supply the market with:

- **healthy, nutritious,**
- **climate-proof,**
- **disease-resistant,** and
- **sustainable** crops.



# NGT | *The European situation*

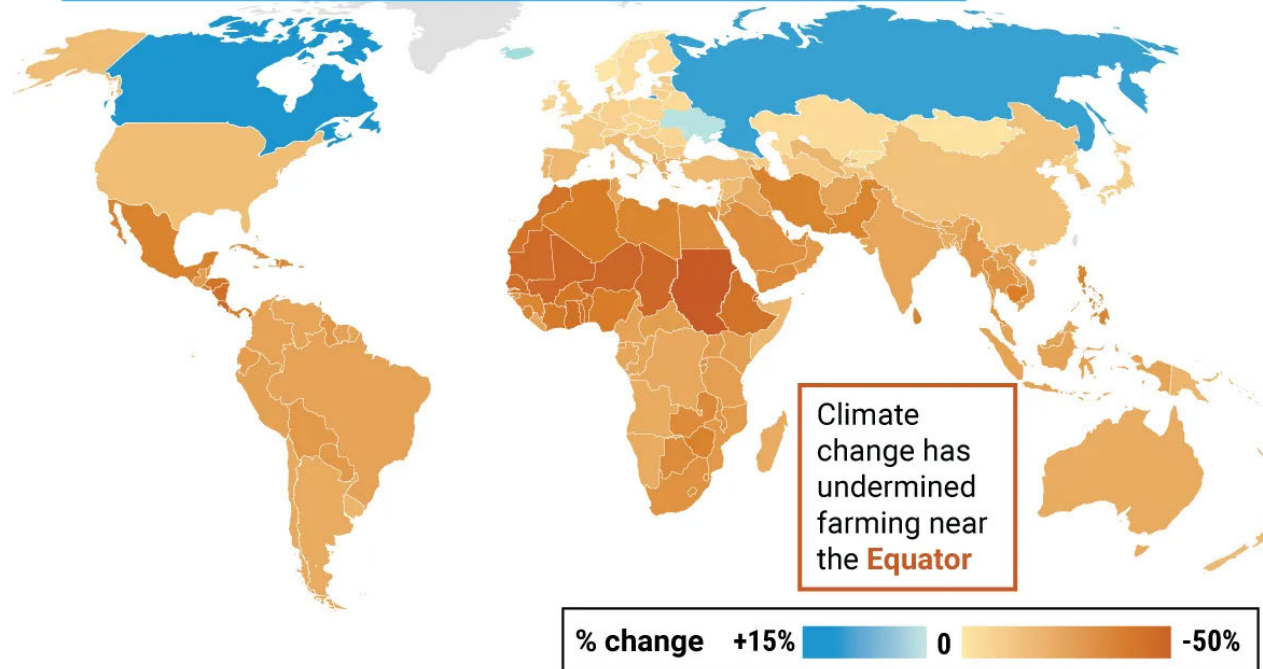
- NGT **plants** are regulated as **GMO's** (2001 directive)
- Practically **impossible** to bring to market
- Although **mutagenesis** products are GMO, they are **exempted** from risk analyses, given their long safety track record (before the adoption of the 2001 Directive).



## Has climate change hurt or helped farmers?

Effect of climate change on agricultural productivity growth (% change 1965-2020)

Farming has been boosted by climate change in only **5 countries**



Subscribe to our global politics newsletter Signal at [gzeromedia.com](https://gzeromedia.com)

Source: Cornell University

**GZERO**

# NGTs | *Final thoughts*

Using NGTs in plant breeding is **not going to solve the global food crisis** by itself...

... but it can be a **powerful tool** to bring more **nutritional**, more **drought-tolerant**, more **disease-resistant** and more **salty-soil tolerant** crops to the market **faster**.

To ensure **food security**, we need to use **all the tools** we have!

# OUR GOALS

## *Genesprout Initiative*



An early-stage researcher initiative for open dialogue on new genomic techniques and the policy thereof



### **Inform Society**

*We host open access information so that society can have an informed opinion on the future (technologies) of agriculture.*



### **Stimulate Open Dialogue**

*We host dialogue sessions to stimulate dialogue on New Plant Breeding Techniques, their policy and implications in agriculture.*



### **Represent Young Researchers**

*We aim to give a voice to students and young plant researchers on the topic of New Plant Breeding Techniques and their policy.*



### **Influence EU policy**

*We want to influence the current EU policy to enable the use of New Plant Breeding Techniques in a responsible, future-proof manner.*

# Join Us!

Become an Ambassador



Let your your voice be  
heard as an Ambassador!



# QUESTIONS & DISCUSSION

---



**Van:** [HollandBIO & Plantum](#)  
**Aan:** 5.1.2.e  
**Onderwerp:** Participation link for today's webinar on new plant breeding techniques  
**Datum:** dinsdag 5 juli 2022 11:23:21

---



Dear 5.1.2.e,

Thank you for registering for the webinar on new genomic techniques. We hope to see you today for an informative and inspiring webinar from 15.00-16.30h CEST.

[Go to webinar](#)

#### Program

During the webinar we will inform you on new breeding techniques and why the ongoing legislative process affects your organisation as well.

5.1.2.e (Genesprout Initiative) will go over the scientific part of new genomic techniques.

Representatives from the involved Dutch ministries present the ongoing legislative process from a governmental point of view.

5.1.2.e (HollandBIO) and 5.1.2.e (Plantum) present their respective positions on new genomic techniques.

#### Practical information

Date: 5th July 2022

Time: 15.00-16.30h CEST

Location: [Digital - join via this link](#)

HollandBIO & Plantum





**Van:** 5.1.2.e  
**Aan:** 5.1.2.e ) - DGMT"; 5.1.2.e @hollandbio.nl"; 5.1.2.e @plantum.nl";  
5.1.2.e @hollandbio.nl  
**Onderwerp:** presentatie webinar Rijk  
**Datum:** dinsdag 5 juli 2022 11:51:05  
**Bijlagen:** [050722 Presentatie webinar plantum en hollandbio.pptx](#)

---

Ha allen,

Hierbij de presentatie van 5.1.2.e en mij voor vanmiddag.

Met vriendelijke groet,

5.1.2.e

Beleidsmedewerker Biotechnologie & Crisisbeleidsadviseur Fytosanitair

.....  
**Directie Plantaardige Agroketens en Voedselkwaliteit**

**Ministerie van Landbouw, Natuur en Voedselkwaliteit**

Bezuidenhoutseweg 73 | 2594 AC | Den Haag

Postbus 20401 | 2500 EK | Den Haag  
.....

**M 06** 5.1.2.e

[www.rijksoverheid.nl/Inv](http://www.rijksoverheid.nl/Inv)

Van: 5.1.2.e  
Aan: 5.1.2.e @minienw.nl  
Cc: 5.1.2.e  
Onderwerp: RE: Retail webinar - Schedule and playbook  
Datum: dinsdag 5 juli 2022 11:26:41  
Bijlagen: NGT\_retailer\_event\_2022\_N5.pptx

Let op, in deze e-mail verzonden door 5.1.2.e @wur.nl, zijn één of meerdere verdachte links gevonden die uit voorzorg aangepast zijn, zodat deze opnieuw gecontroleerd worden bij het aanklikken. Links kunnen misbruikt worden om malware op uw systeem te installeren. Klik alleen op nog aanwezige links als de e-mail afkomstig is van een door u vertrouwde afzender.

Indien dit niet het geval is dient u deze e-mail direct te verwijderen.

DICTU Servicedesk

Dear 5.1.2.e and 5.1.2.e

Thank you for the info and sorry for the delay. Please find attached my PPT for today.

See you soon!  
Cheers,  
5.1.2.e

PhD Student, Wageningen Seed Lab, Laboratory of Plant Physiology  
Wageningen University and Research Center  
Droevendaalsesteeg 1, Building 107, 6708PB, Wageningen  
Email: 5.1.2.e @wur.nl  
LinkedIn: <https://www.linkedin.com/in/nikita-sajeev-2766a664/>

Co-founder and Board Member, GeneSprout Initiative  
Email: [info@genesproutinitiative.com](mailto:info@genesproutinitiative.com)  
Website: <https://www.genesproutinitiative.com/>  
[Facebook](#) | [Twitter](#) | [LinkedIn](#) | [Instagram](#)

From: 5.1.2.e @hollandbio.nl>  
Sent: Monday, July 04, 2022 4:58 PM  
To: 5.1.2.e @plantum.nl>; 5.1.2.e @minInv.nl; 5.1.2.e @minienw.nl' 5.1.2.e @minienw.nl>; 5.1.2.e @wur.nl>  
Cc: 5.1.2.e @hollandbio.nl>  
Subject: RE: Retail webinar - Schedule and playbook

Hi all,  
  
For your information hereby the list of organizations that registered for tomorrow's webinar.  
See you tomorrow in Zoom!

Best wishes,  
5.1.2.e

Van: 5.1.2.e @plantum.nl>  
Verzonden: maandag 4 juli 2022 16:06  
Aan: 5.1.2.e @minienw.nl' 5.1.2.e @wur.nl>  
Cc: 5.1.2.e @hollandbio.nl>; 5.1.2.e @hollandbio.nl>  
Onderwerp: Retail webinar - Schedule and playbook

Dear all,  
  
Please find below an indication of the schedule of the whole webinar, including an estimation of when you will give your respective presentations.  
Please note: **you can already join the Zoom meeting at 14.50, we kindly ask you to do so.**

|             |                  |
|-------------|------------------|
| 15.00-15.20 | 5.1.2.e kick-off |
| 15.25-15.35 | 5.1.2.e          |
| 15.35-15.50 | 5.1.2.e          |
| 15.50-16.15 | 5.1.2.e          |

We also kindly ask you to share your own slides during the webinar. This way you don't have to say 'next slide' every time which might be nicer. Please

do share your slides with either **5.1.2.e** or myself before the webinar so we may help in case of technical difficulties. If you join the Zoom already at 14.50h we can do a quick test with slide-sharing in Zoom if you prefer.

If there are any questions, please feel free to contact **5.1.2.e** or myself!

Best regards,

**5.1.2.e**

Policy advisor

+31 (0) **5.1.2.e**

**Plantum**



address: Vossenburchkade 68 | 2805 PC Gouda  
telephone: +31 182 **5.1.2.e**  
reg no : Rotterdam 24319599  
[http://secure-web.cisco.com/1kb3hfVIXUJTfVSjzbaA1rtTCE2WekZ6s5tarvy4Tys\\_OSIXPZenH4vmWYf9O9hixE7TWht9JYoJun\\_5SYSIYBmbRCDXD44\\_ik-hHxTfnUneJnJpi0sV\\_z4pwF5WP\\_zm5gi28-o3ZQqSJz4MMz400MS-DXluka5PbDrd22tx1kfp7iibYFA09sey8-ZR3p9y2P5qBY5faPU3WSznhH2qvGdc1ayZtfGavhmM7FnoRnshjengPiiB9x-Dh3\\_Qt3Dxo/http%3A%2F%2Fwww.plantum.nl](http://secure-web.cisco.com/1kb3hfVIXUJTfVSjzbaA1rtTCE2WekZ6s5tarvy4Tys_OSIXPZenH4vmWYf9O9hixE7TWht9JYoJun_5SYSIYBmbRCDXD44_ik-hHxTfnUneJnJpi0sV_z4pwF5WP_zm5gi28-o3ZQqSJz4MMz400MS-DXluka5PbDrd22tx1kfp7iibYFA09sey8-ZR3p9y2P5qBY5faPU3WSznhH2qvGdc1ayZtfGavhmM7FnoRnshjengPiiB9x-Dh3_Qt3Dxo/http%3A%2F%2Fwww.plantum.nl)  
website: [web.cisco.com/1kb3hfVIXUJTfVSjzbaA1rtTCE2WekZ6s5tarvy4Tys\\_OSIXPZenH4vmWYf9O9hixE7TWht9JYoJun\\_5SYSIYBmbRCDXD44\\_ik-hHxTfnUneJnJpi0sV\\_z4pwF5WP\\_zm5gi28-o3ZQqSJz4MMz400MS-DXluka5PbDrd22tx1kfp7iibYFA09sey8-ZR3p9y2P5qBY5faPU3WSznhH2qvGdc1ayZtfGavhmM7FnoRnshjengPiiB9x-Dh3\\_Qt3Dxo/http%3A%2F%2Fwww.plantum.nl](http://secure-web.cisco.com/1kb3hfVIXUJTfVSjzbaA1rtTCE2WekZ6s5tarvy4Tys_OSIXPZenH4vmWYf9O9hixE7TWht9JYoJun_5SYSIYBmbRCDXD44_ik-hHxTfnUneJnJpi0sV_z4pwF5WP_zm5gi28-o3ZQqSJz4MMz400MS-DXluka5PbDrd22tx1kfp7iibYFA09sey8-ZR3p9y2P5qBY5faPU3WSznhH2qvGdc1ayZtfGavhmM7FnoRnshjengPiiB9x-Dh3_Qt3Dxo/http%3A%2F%2Fwww.plantum.nl) | [www.plant-kracht.nl](http://www.plant-kracht.nl)  
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**Van:** 5.1.2.e )  
**Verzonden:** woensdag 6 juli 2022 10:58  
**Aan:** 5.1.2.e )  
**Onderwerp:** RE: Gerichte survey NGTs  
**Bijlagen:** Targeted survey print EC.pdf

Nu met bijlage

---

**Van:** 5.1.2.e  
**Verzonden:** woensdag 6 juli 2022 10:55  
**Aan:** 5.1.2.e @wur.nl>; 5.1.2.e @wur.nl>; 5.1.2.e @minlnv.nl>  
**Onderwerp:** Gerichte survey NGTs

Ha 5.1.2.e en 5.1.2.e

We hebben als lidstaat een gerichte survey ontvangen over de het NGT-wetgevings initiatief. Zouden we het daar vrijdag even over kunnen hebben in het kader van B.O onderzoek? Ik heb de vragenlijst in de bijlage gezet, maar hier hoeven wij niet alles van in te vullen. Wij zouden graag jullie expertise willen bevragen over de volgende pagina's:

7, 8, 9 (het gaat hier om de lijst van criteria bovenaan pagina 9, is dit een goede lijst wat jullie betreft?), 15, 16, 17, 32, 33, 34, 39 en 40

Ik begrijp dat het kort dag is, dus een indicatie is ook goed genoeg. Ik weet niet wanneer jullie op vakantie gaan, maar de deadline is 10 Augustus, dus als we dieper op de stof in willen gaan is dit ook later mogelijk.

Met vriendelijke groet,

5.1.2.e  
 Beleidsmedewerker Biotechnologie & Crisisbeleidsadviseur Fytosanitair

.....

**Directie Plantaardige Agroketens en Voedselkwaliteit**  
**Ministerie van Landbouw, Natuur en Voedselkwaliteit**

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Postbus 20401 | 2500 EK | Den Haag

.....

**M** 06 5.1.2.e

[www.rijksoverheid.nl/lnv](http://www.rijksoverheid.nl/lnv)

**Van:** 5.1.2.e  
**Aan:** 5.1.2.e - DGMI"  
**Cc:** 5.1.2.e  
**Onderwerp:** Aanbod vanuit voedselketen om mee te praten  
**Datum:** donderdag 7 juli 2022 13:14:43

---

Beste 5.1.2.e

Zie onder mail en aanbod van 5.1.2.e. 5.1.2.e is hoofd R&D van een van de grootste groente- en fruitbedrijven van Nederland: <https://www.bakkerbarendrecht.nl/>, strategisch partner van Albert Heijn en was dinsdagmiddag bij onze webinar aanwezig.

Hij wil graag meepraten zoals je kunt lezen. Het lijkt me goed om mee te connecten en wellicht uit te nodigen voor de aankomende beraadsgroep dit najaar?

Ik heb 5.1.2.e geantwoord en aangegeven dat ik deze mail naar jou zou doorzetten en voorgesteld om binnenkort alvast met hem te meeten (dan kan ik hem bijv alvast wat meer achtergrond geven over de beraadsgroep).

Met vriendelijke groeten,

5.1.2.e

---

**Van:** 5.1.2.e @bakkerbarendrecht.nl>

**Verzonden:** dinsdag 5 juli 2022 16:49

**Aan:** 5.1.2.e @hollandbio.nl>

**Onderwerp:** RE: Participation link for today's webinar on new plant breeding techniques

Good afternoon,

Thanks for the presentations we heard this afternoon.

Personally I'm not involved in breeding and I have the feeling that this doesn't connect to the agrofood industry.

It is more an in depth discussion. And not about the solutions for modern challenges and consumers.

As Bakker we are service provider for fresh fruits and vegs for retail in Europe.

We have many challenges. As there are availability, acceptable prices, product quality & shelf life, taste&flavour, preferably Dutch produce, less pesticide use and fertilizer use- versus higher disease pressure, nitrogen en CO2 discussions, water quality, biodiversity, climate change, etc. Looking to specific challenges we would like to have solutions for disease pressure in bananas, virus problems in tomato, salt resistance in lettuces, more uniformity in peaches, increased yields in fresh herbs, longer shelf life and better taste in strawberry, etc. These are just some examples.

Moreover we want consumers to eat more f&v in their diet, because this will improve quality of life and minimise the health care costs. So that's a big objective for all of us in the vegetal sector. Many times we assume breeding could offer good solutions. But we should close the GAP between the practical agro food chains and the solutions, which these techniques could offer.

So I want to propose to have an open discussion about the solutions for the agrofood chains,



including the consumers.

Only when we can explain the added value, consumers will think about it. And it is necessary that the politics support us.

And of course traceability and transparency are always important points to keep into our minds. I'm available to join this discussion.

Best regards

5.1.2.e

Head R&D Bakker Barendrecht

---

**Van:** 5.1.2.e <[5.1.2.e@hollandbio.nl](mailto:5.1.2.e@hollandbio.nl)>

**Verzonden:** dinsdag 5 juli 2022 11:22

**Aan:** 5.1.2.e <[5.1.2.e@bakkerbarendrecht.nl](mailto:5.1.2.e@bakkerbarendrecht.nl)>

**Onderwerp:** Participation link for today's webinar on new plant breeding techniques

**LET OP:** Deze e-mail is afkomstig van buiten de organisatie. Klik niet op links of bijlagen tenzij u de afzender herkent en weet dat de inhoud veilig is.

**CAUTION:** This email originated from outside of the organization. Do not click links or attachments unless you recognize the sender and know the content is safe.



Dear R. Wessels,

Thank you for registering for the webinar on new genomic techniques. We hope to see you today for an informative and inspiring webinar from 15.00-16.30h CEST.

[Go to webinar](#)

### Program

During the webinar we will inform you on new breeding techniques and why the ongoing legislative process affects your organisation as well.

**5.1.2.e** (Genesprout Initiative) will go over the scientific part of new genomic techniques.

Representatives from the involved Dutch ministries present the ongoing legislative process from a governmental point of view.

**5.1.2.e** (HollandBIO) and **5.1.2.e** (Plantum) present their respective positions on new genomic techniques.

### **Practical information**

Date: 5th July 2022

Time: 15.00-16.30h CEST

Location: [Digital - join via this link](#)

HollandBIO & Plantum

## Brainstorm over hoe WUR een bijdrage kan leveren aan een vervolg op de EC studie over nieuwe genomische technieken

5.1.2.e (WUR)

Versie 28 juni 2021

Doel van deze notitie: basis voor overleg met LNV over mogelijke rol van WUR in vervolg op EC-studie.

## 1. Aanleiding en vertrekpunt

Commission staff working document **Study on the status of new genomic techniques under union law and in light of the Court of Justice ruling in Case C-528/16**. Gepubliceerd op 29 april 2021: [EC study on new genomic techniques | Food Safety \(europa.eu\)](#)

Begin van de herfst 2021 wordt een roadmap opgesteld voor de aangekondigde impact assessment, inclusief een methodologie beschrijving (voorbereiding daarvan ligt bij LNV)

WUR kan een bijdrage leveren aan de uitvoering van deze impact assessment middels een consultatie.

Belangrijkste kritiek op EC rapport tot nog toe is dat er een heel circus wordt opgetuigd tav regelgeving van NGT terwijl er nog geen toepassingen zijn die laten blijken dat ze bijdragen aan verduurzaming van de landbouw of aanpassing aan klimaat, en het is ook onwaarschijnlijk dat die gaan komen volgens deze partijen.

LNV geeft aan behoefte te hebben aan scenarioanalyses (zie 2.) en demo's (zie 3.) om met kennis en demonstraties van concrete toepassingen **de verdere invulling op basis van de roadmap te faciliteren.**

2. **Scenario en impact-analyse** van mogelijke opties waarmee de toelating van NGT in de nieuwe EU wetgeving zal worden geregeld (bv wel of niet regelen via annex 1B). O.a. wordt genoemd het extra criterium "bijdrage aan verduurzaming landbouw".

WUR kan hier op basis van eigen resultaten (o.a. appel, aardappel) case-wijze analyseren wat NGT betekent in termen van **versnelling, verruiming van mogelijkheden en kostenbesparing tov van veredeling** die op dit moment niet gereguleerd is. Voordelen liggen met name op het terrein van gewasbescherming (ziekteresistenties als essentiële eigenschappen voor alle minimale-input landbouwpraktijken). LNV geeft aan dit relevante toepassingen te vinden, maar is ook zeker geïnteresseerd in toepassingen van NGT die leiden tot gewassen die beter **bestand zijn tegen droogte en hitte**. Vanuit het onderzoek zijn we echter nog niet zo ver dat we daar concrete toepassingen voor beschikbaar hebben. Dit onderzoek tbv opheffen abiotische stress zit nog vooral in een fundamenteel stadium. Voor de stap naar het gebruik van NGTs is nog nodig vast te stellen welke van de genen die hierbij betrokken zijn, op praktijkschaal zodanig effect hebben dat ze ervoor zorgen dat een ras meer resiliënt kan worden geteeld. De praktijkproeven die hiervoor nodig zijn, zijn bovendien nu nog lastig vanwege de regelgeving.

Erder hebben we de casus besproken van tarwe die veilig is voor mensen met coeliakie door gene editing van gluten genen. Dit zou een meerjarig, internationaal onderzoeksproject kunnen zijn met een grote communicatie-component omdat het een eigenschap is die direct van belang is voor consumenten, maar het heeft geen directe relatie met verduurzaming van de landbouw.

LNV is ook geïnteresseerd in analyse van mogelijke NGT toepassingen die leiden tot grotere **biodiversiteit/variëteit** binnen en tussen gewassen en teelten. Een voorbeeld in aardappel zou kunnen zijn om **landrassen** te verbeteren met Phytophthora R genen via cisgenese. In Europa kun je zo'n vraag moeilijk voorstellen, maar hij werd in 2016 in Rome op een FAO bijeenkomst letterlijk gesteld door een vertegenwoordiger van lokale boerenorganisatie in de Andes, waar inheemse landrassen worden bedreigd omdat Phytophthora, door de opwarming van het klimaat, steeds hoger opkomt.

Tenslotte heeft LNV behoefte aan een brede analyse van **IP** aspecten van NGT in aanvulling op onze recente publicatie "IP en GAP". **Monopolies**

**MKB**

**Biologische landbouw**

### 3. Demo's en show cases van NGT toepassingen

Doel van deze **demo's in het veld** zouden kunnen zijn.

- a. Onderbouwd met uitstekende wetenschap actoren beleid, NGO's, de samenleving in het algemeen te laten zien wat de voordelen en nadelen zijn van toepassingen van NGT tov klassieke veredelingsprogramma's, zodat een ieder daar een goede onderbouwde mening over kan vormen.
- b. Concreet laten zien wat het betekent voor verduurzaming als de huidige regelgeving "not fit to purpose" blijft.
- c. Een casus brengen tot een toelating??

WUR heeft hier al veel ervaring mee opgedaan in het DuRPh-programma dat volledig gefinancierd was door de overheid (2006-2016). **In dit vervolgtraject** zou er voor gekozen kunnen worden vanaf begin nauw samen te werken met andere onderzoeksgroepen in Europa en met veredelingsbedrijven (snelle stappen naar de praktijk). Financiering door die bedrijven ligt nu overigens nog niet voor de hand.

Een showcase (bv demo in het veld) kan bestaan uit:

- a. Klassiek cisgeen (zo mogelijk al met plaatsing gericht in gebied met goede expressie, maar is niet essentieel). We kunnen dan verder met de resistentie in aardappel (phytophthora). Is direct voortbouwen op wat we in DuRPh deden, maar zou dan meer Europees gericht moeten zijn. **Dus met vreemd DNA? Ook antibioticaresistentiegenen?**
- b. Gerichte knock-out (gene editing) die leidt tot een nuttige eigenschap. Voor appel en tarwe is het lopend onderzoek veelbelovend maar nog niet aan demo's toe. Wel zijn er waarschijnlijk geschikte toepassingen in oliegewassen (Crambe, Camelina (huttentut) en Calendula) met tweeledig doel: 1. Verbetering samenstelling olie in de zaden, 2. Rest van de zaden is bruikbaar als eiwitrijk veevoer (leidend tot een dual-purpose crop).
- c. Vorm van nul-segregatie (early flowering, ..). Hiervoor hebben we geen materiaal voorhanden dat een demo rechtvaardigt. Er zijn nul-segreganten met bacterievuur-resistentie in appel via toepassing van early flowering, en de eigenschap zit nu in een cultuurachtergrond maar nog niet in lijnen waarvan we weten dat ze een goede kwaliteit hebben als ras.



## **MVO submission to the Inception Impact Assessment - legislation for plants produced by certain new genomic techniques**

MVO - The Netherlands Oils and Fats Industry welcomes the announcement that the European Commission will prepare a policy initiative on plants obtained by targeted mutagenesis and cisgenesis, after its study on new genomic techniques (NGTs) indicated that current GMO legislation was not fit for purpose for these innovative technologies. MVO calls on the Commission to put forward a science based legislative proposal that will enable the adoption of new safe breeding innovations and remove the unjustified NGT-related barriers to international trade in agricultural products, including food and feed.

MVO believes that a leading principle for the envisaged legislation should be that it is not justified to apply different levels of regulatory oversight (e.g. authorisation and labelling) to similar products with a similar safety profile (plants conventionally bred vis-à-vis plants obtained from certain NGTs), as the EC study itself has already indicated.

### **Clear, flexible and proportionate**

MVO is of the opinion that the new legislation should cover clear definitions and principal criteria to assess whether plant varieties resulting from targeted mutagenesis and cisgenesis fall into the same category as their conventional equivalent. The new legislation should be flexible enough to accommodate future innovations without disproportionate revisions and allow for a proportionate risk assessment only when a relevant product-based differentiation (vis-à-vis conventional products) is identified.

### **Labelling**

MVO considers mandatory labelling of food and feed developed by NGTs and which are similar to conventional products to be a serious breach of the principles of non-discrimination and proportionality. Furthermore, according to the EU Reference Laboratory, it is highly improbable that enforcement laboratories would be able to detect the presence of genome-edited plant products in food or feed entering the EU market without prior information on the altered DNA sequences.

### **Sustainability**

Products developed by NGTs can contribute to the EU sustainability objectives. MVO believes that any sustainability assessment should be based on scientific and objective criteria. All plants – irrespective of their breeding method - should be assessed in the same, non-discriminatory and WTO compliant way. Sustainability provisions should therefore not be implemented in legislation that only covers one specific technology. Such an approach would fail to account for the environmental, social and economic dimensions of sustainability.

**Aan:** 5.1.2.e  
**Cc:** 5.1.2.e  
**Onderwerp:** RE: Draft presentation NGT fact finding study , for your review and possible comments  
**Datum:** dinsdag 24 mei 2022 11:00:10  
**Bijlagen:** [image003.png](#)  
[image004.gif](#)  
[image005.png](#)  
[smime.p7s](#)

---

Hoi 5.1.2.e,  
 Bedankt voor de mogelijkheid tot reageren.

Een klein detail, maar voel je vrij om deze te negeren:

De opmerking "In most cases it is not possible to confirm how a change in the genome was obtained."

Wat mij betreft is het niet relevant **hoe** de verandering tot stand is gekomen (m.a.w. door welke techniek), maar eerder of het man-made was, of een spontane mutatie. Verder is 'in most cases it is not possible..' alleen een verwachting bij het aantonen van een enkele nucleotide die veranderd is. Zeker niet bij alle varianten van NGT.

Als laatste:

"International database for the identification and detection of GMOs"

Jazeker! WFSR (NL) en BVL (DE) werken met 3 partners samen in de GGO database

Euginius ([www.euginius.eu](http://www.euginius.eu)). Daar staan momenteel al ~52 gene-edited entries in.

Uit een OECD-overleg van afgelopen week weet ik dat er ook een initiatief is uit Japan om een dergelijke database te maken. Dat is jammer, want Euginius kan al heel veel...

En de paar slides staan in schril contrast met de inspanning die jij en je collega's met de FFM hebben gehad ;-)

Groet,  
 5.1.2.e

5.1.2.e | Wageningen Food Safety Research (part of Wageningen University & Research)

PO Box 230, 6700 AE Wageningen, Akkermaalsbos 2 (building 123), 6708 WB Wageningen, Netherlands

5.1.2.e | [5.1.2.e@wur.nl](mailto:5.1.2.e@wur.nl) | +31 (0) 317 5.1.2.e (mobile) | [www.wur.nl/food-safety-research](http://www.wur.nl/food-safety-research)

Wednesday is my regularly day off

Emailh\_logowur



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**From:** 5.1.2.e @nvw.nl>

**Sent:** dinsdag 24 mei 2022 08:14

**To:** 5.1.2.e @minienw.nl>; 5.1.2.e

@ILenT.nl>; 5.1.2.e

@minInv.nl>; 5.1.2.e @wur.nl>

**Subject:** FW: Draft presentation NGT fact finding study , for your review and possible comments

Hoi,

De komende SCoPAFF GMM staat de fact finding missie over NGT's op de agenda. De missieleidster zal daar een korte presentatie geven. We krijgen (tot morgen 14.00) de tijd om een reactie te geven op deze presentatie (aangehecht: findings op slides 5 en 6). Wil een van jullie nog een reactie geven?

Met vriendelijke groet,

5.1.2.e



**Van:** 5.1.2.e [redacted] <[redacted]@ec.europa.eu>

**Verzonden:** maandag 23 mei 2022 19:04

**Aan:** 5.1.2.e [redacted] <[redacted]@nvwa.nl>

**CC:** 5.1.2.e [redacted] <[redacted]@ec.europa.eu>; 5.1.2.e [redacted]

[redacted] <[redacted]@ec.europa.eu>; 5.1.2.e [redacted]

[redacted] <[redacted]@ec.europa.eu>; 5.1.2.e [redacted]

[redacted] <[redacted]@ec.europa.eu>

**Onderwerp:** Draft presentation NGT fact finding study , for your review and possible comments

Dear 5.1.2.e [redacted]

Please find attached the draft presentation of our fact-finding studies of NGT. I want to emphasize that this is still the draft, and I am sharing it with you and Germany only at this stage. This way you can inform me if there is anything that you would want us to take out or re-word, as you did not yet have the possibility to give your input on the report that is under preparation.

I would appreciate to receive your **agreement or comments by 2 pm (Brussels time) tomorrow Tuesday**. Please let me know if you need more time, and I will see how this can be arranged. The two slides that will benefit from your input are slide 5 and 6 (Preliminary findings 1 and 2).

Kind regards,

5.1.2.e [redacted]

[redacted]  
External Auditor



**European Commission**  
DG Sante – Health and Food Safety  
Unit F3 – Plants and Organics

Grange, Ireland, Co. Meath  
Tel: +353 5.1.2.e [redacted]  
5.1.2.e [redacted] <[redacted]@ec.europa.eu>



[https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/eu-solidarity-ukraine\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/eu-solidarity-ukraine_en)

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verzenden van berichten.

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**Van:** 5.1.2.e <[redacted]> [\\_DGMI](#)  
**Aan:** 5.1.2.e <[redacted]>  
**Onderwerp:** RE: Draft Report\_Fact-finding study of the Netherlands\_DG(SANTE) 2022-7397\_Genetically Modified Organisms\_7 to 11 February 2022  
**Datum:** dinsdag 7 juni 2022 16:00:00  
**Bijlagen:** [image001.jpg](#)

---

Hallo allemaal,

We hebben binnen IenW het conceptrapport besproken, en we hebben geen inhoudelijke opmerkingen.

We zien ook geen bezwaar tegen publiceren. Het Nederlandse vertaalde rapport zal ik t.z.t. ook nalopen.

Groet,  
 5.1.2.e <[redacted]>

5.1.2.e <[redacted]> MSc  
**Senior Beleidsadviseur Biotechnologie en Nanotechnologie**  
 .....  
**Directie Omgevingsveiligheid en Milieurisico's**  
**DG Milieu en Internationaal**  
**Ministerie van Infrastructuur en Waterstaat**  
 Rijnstraat 8 2515 XP DEN HAAG  
 .....  
**M** 06 5.1.2.e <[redacted]>  
**E** 5.1.2.e <[redacted]> [@minienw.nl](mailto:[redacted]@minienw.nl)  
 .....  
 ma-di-wo-do-vr aanwezig

---

**Van:** 5.1.2.e <[redacted]> [@nvwa.nl](mailto:[redacted]@nvwa.nl)>  
**Verzonden:** maandag 30 mei 2022 20:10  
**Aan:** 5.1.2.e <[redacted]> - DGMI <5.1.2.e <[redacted]> [@minienw.nl](mailto:[redacted]@minienw.nl)>; 5.1.2.e <[redacted]> [@minInv.nl](mailto:[redacted]@minInv.nl)>; 5.1.2.e <[redacted]> [@ILenT.nl](mailto:[redacted]@ILenT.nl)>; 5.1.2.e <[redacted]> [@wur.nl](mailto:[redacted]@wur.nl)>  
**Onderwerp:** FW: Draft Report\_Fact-finding study of the Netherlands\_DG(SANTE) 2022-7397\_Genetically Modified Organisms\_7 to 11 February 2022

Hallo 5.1.2.e <[redacted]>

Aangehecht het concept rapport en begeleidende brief van HFAA aangaande de fact finding studie over NGT's.  
 We krijgen nog een vertaling naar het Nederlands. Vanaf dat moment hebben we 25 werkdagen om inhoudelijk te reageren op het concept.  
 Daarnaast heeft HFAA in de brief de volgende vraag voorgelegd: of wij bezwaar hebben dat dit rapport publiek gepubliceerd wordt? De bedoeling was van niet, maar Duitsland heeft verzocht het rapport van de fact finding in Duitsland wel te publiceren.

Graag dus jullie reactie op het inhoudelijke concept (ik zal de NL vertaling doorsturen zodra ik die krijg) en de vraag hoe jullie tegen publiek publiceren ervan kijken.

Met vriendelijke groet,  
 5.1.2.e <[redacted]>

---

**Van:** 5.1.2.e <[redacted]> [@ec.europa.eu](mailto:[redacted]@ec.europa.eu)>  
**Verzonden:** maandag 30 mei 2022 18:21  
**Aan:** 5.1.2.e <[redacted]> [@nvwa.nl](mailto:[redacted]@nvwa.nl)>; NVWA  
 Klantcontactcentrum <[info@nvwa.nl](mailto:info@nvwa.nl)>  
**CC:** [bre-lnv@minbuza.nl](mailto:bre-lnv@minbuza.nl); [bre@minbuza.nl](mailto:bre@minbuza.nl)

**Onderwerp:** Draft Report\_Fact-finding study of the Netherlands\_DG(SANTE) 2022-7397\_Genetically Modified Organisms\_7 to 11 February 2022

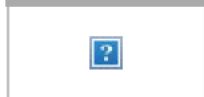
Attn: 5.1.2.e, Senior Inspector, Enforcement Expertise, Netherlands Food and Consumer Product Safety Authority (NVWA)  
c.c.: 5.1.2.e, Ambassador, Permanent Representation of the Netherlands to the EU

On behalf of 5.1.2.e, Director, please find attached the above-mentioned fact-finding study draft report, together with the associated annex and cover letter.

Please note that the cover letter and report have been sent for translation into Dutch and will be forwarded to you as soon as they become available.

Kind regards,

5.1.2.e



**European Commission**

Directorate-General for Health and Food Safety  
Directorate F – Health and food audits and analysis  
Unit F3 – Plants and organics  
GRAN 0/175  
Grange, Dunsany, Co. Meath, Ireland  
Email: 5.1.2.e@ec.europa.eu

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**Van:** 5.1.2.e  
**Aan:** 5.1.2.e  
**Cc:** 5.1.2.e  
**Onderwerp:** RE: Test of connection before fact finding study 2022-7397, block the time +N Presentatie 5.1.2.e  
**Datum:** dinsdag 1 februari 2022 13:19:00  
**Bijlagen:** [image001.png](#)  
[20220208 fact finding mission GMO.pdf](#)  
[220208 Fact-finding mission DG SANTE WFSR 5.1.2.e Prins V1.pdf](#)

---

Hoi 5.1.2.e,

Hierbij een aangepaste versie van mij, en de presentatie van 5.1.2.e  
 De presentatie van 5.1.2.e heb ik nog niet.  
 Kun je svp mijn pdf rondsturen naar de delegatie, en niet de ppt?

Uiteraard behouden wij ons de vrijheid om op detail-niveau de presentatie aan te passen.  
 SVP de presentaties ook niet buiten de fact-finding te verspreiden. Dat zal ik uiteraard ook niet doen met de LNV/ILT presentaties.

Groetjes,  
 5.1.2.e

5.1.2.e | Wageningen Food Safety Research (part of Wageningen University & Research)  
 PO Box 230, 6700 AE Wageningen, Akkermaalsbos 2 (building 123), 6708 WB Wageningen, Netherlands  
 5.1.2.e @wur.nl | +31 (0) 317 5.1.2.e (mobile) | [www.wur.nl/food-safety-research](http://www.wur.nl/food-safety-research)  
 Wednesday is my regularly day off

Emailh\_logowur



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**From:** 5.1.2.e  
**Sent:** maandag 31 januari 2022 11:56  
**To:** 5.1.2.e @nvwa.nl>  
**Cc:** 5.1.2.e @minienw.nl>; 5.1.2.e @ILenT.nl>; 5.1.2.e @minInv.nl>  
**Subject:** RE: Test of connection before fact finding study 2022-7397, block the time +N Presentatie 5.1.2.e

Beste 5.1.2.e  
 (even zonder 5.1.2.e,

Hebben we de inloggegevens voor Webex al wel gekregen? Ik kan ze niet vinden in deze uitnodiging, of een andere uitnodiging.

Verder heb ik ook mijn presentatie toegevoegd. Er staat redelijk wat tekst op, maar dan is het ook makkelijker door te lezen voor de vertalers. Ik zal ook stukken overslaan, en stukken verduidelijken.

Als er abjecte fouten en onoverkomelijkheden in staan, dan hoor ik dat graag!

Groetjes,  
 5.1.2.e

5.1.2.e | Wageningen Food Safety Research (part of Wageningen University & Research)



PO Box 230, 6700 AE Wageningen, Akkermaalsbos 2 (building 123), 6708 WB Wageningen, Netherlands  
5.1.2.e @wur.nl | +31 (0) 317 5.1.2.e (mobile) | [www.wur.nl/food-safety-research](http://www.wur.nl/food-safety-research)  
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-----Original Appointment-----

**From:** 5.1.2.e @nvwa.nl > On Behalf Of 5.1.2.e

**Sent:** vrijdag 28 januari 2022 17:46

**To:** 5.1.2.e

**Subject:** FW: Test of connection before fact finding study 2022-7397, block the time

**When:** maandag 31 januari 2022 13:00-14:00 (UTC+00:00) Dublin, Edinburgh, Lisbon, London.

**Where:** Webex

Beste 5.1.2.e ,

Voor komende maandag tussen 13.00 en 14.00 zal HFAA een test meeting opzetten via WebEx om na te gaan of de techniek afdoende werkt.

Ik zal in ieder geval deelnemen aan deze test. Ik verwacht dat als het mij zal lukken, dat het jullie ook zal lukken, maar het is niet onverstandig om zelf ook ergens gedurende dit uur proberen aan te haken bij de test meeting.

Met vriendelijke groet,  
5.1.2.e

-----Oorspronkelijke afspraak-----

**Van:** 5.1.2.e @ec.europa.eu >

**Verzonden:** vrijdag 28 januari 2022 17:33

**Aan:** 5.1.2.e

@mapa.es; 5.1.2.e @izslt 5.1.2.e @mzh.government.bg; 5.1.2.e  
@ec.europa.eu; 5.1.2.e

**Onderwerp:** Test of connection before fact finding study 2022-7397, block the time

**Tijd:** maandag 31 januari 2022 13:00-14:00 (UTC+00:00) Dublin, Edinburgh, Lissabon, Londen.

**Locatie:** Webex

Dear all,

It is confirmed that we will hold the test meeting Monday 31 January, 14.00 (CET). I know that this was not possible for all, but it was the time that was best for most participants. Sorry about that Ivelin, I hope you can make it to the test after all.

We will use Webex, and the meeting link will be sent before the meeting starts (I do not have it yet).

I wish you all a good weekend and look forward to "meeting" you on Monday.

Kind regards,

5.1.2.e

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