



# STANDARDISATION

A PROGRESS  
FRAMEWORK FOR ALL

## CEN/TC 455 “PLANT BIOSTIMULANTS”

*I biostimolanti:  
inquadramento normativo  
ed evoluzioni in ambito  
europeo*

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Biostimulants

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11<sup>th</sup> of February 2020 - Bari

Biostimulanti Conference

**afnor**  
NORMALISATION





## **CEN/TC 455 « *PLANT BIOSTIMULANTS* »**

### **EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN) ?**

The European Committee for Standardization (CEN) develops setting European standards (ENs) that are applied across the whole of the European single market.

CEN brings together the national standards agencies of 34 countries and a network of thousands of technical experts from business federations, commercial and consumer organizations, environmental groups and other societal stakeholders.

It will be mandated by the European Commission to develop standards supporting the implementation of the fertilising products regulation and in this context **CEN has created a Technical Committee CEN/TC 455 on Plant Biostimulants.**

AFNOR designs and deploys solutions based on voluntary standards in France and selected other countries. It serves the general interest in its standardization activities and provides services in such competitive sectors.

**AFNOR Normalisation provides the secretariat of CEN/TC 455 Plant Biostimulants.**

# **SUMMARY**

**1) THE NEW EUROPEAN REGULATION FOR FERTILIZING PRODUCTS**

**2) STANDARDIZATION OF PLANT BIOSTIMULANTS AT EUROPEAN LEVEL**

**3) CEN/TC 455 WORKLOAD**

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Agricultural Inputs: A Continuum



### **Biopesticides**

*Weed, disease,  
insect control*

*Pesticides/plant  
regulators*



### **Biostimulants**

*Increased nutrient  
availability/yield/abiotic  
stress tolerance*



### **Fertilizers**

*Macro and micro  
nutrients*

*Soil conditioners*

**Product claims and marketing intent are critical**

**Fertilizing Products**

# CEN/TC 455 « *PLANT BIOSTIMULANTS* » FPR - Fertilising Product Regulation

*The European Parliament voted in 27 March 2019 to approve the compromise text of the EU Fertilising Products Regulation (FPR)*

*The Council will endorse the text on 22 May.*

*Publication in 25 June 2019*

*Entry into force 15 July 2019*

*Application 16 July 2022*

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:170:FULL&from=EN>



# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Structure of FPR – Operative provisions



Chapter 1 - General provisions (art. 1-5)

Chapter 2 - Obligations of economic operators (art. 6-12)

Chapter 3 - Conformity of EU Fertilising Products (art. 13-19)

Chapter 4 - Notification of Conformity Assessment Bodies (art. 20-36)

Chapter 5 - Union market surveillance, control of EU fertilising products entering the Union Market and Union Safeguard Procedure (art. 37-41)

Chapter 6 - Delegated powers and committee procedure (art. 42-45)

Chapter 7 - Amendments (art. 46 –47)

Chapter 8 - Transitional and final provisions (art. 48 –53)

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Structure of FPR – Annexes



### **Annex I - Product Function Categories of EU fertilising products (PFCs)**

- Part 1 - Designation of PFCs
- Part 2 - Requirements related to each PFC

### **Annex II - Component Material Categories (CMCs)**

- Part 1 - Overview of CMCs
- Part 2 - Requirements related to each CMC

### **Annex III - Labelling requirements**

- Part 1 - General labelling requirements
- Part 2 - Product-specific labelling *requirements*
- Part 3 - Tolerance rules

### **Annex IV - Conformity assessment procedures**

- Part 1 - Applicability
- Part 2 - Description (modules)

### **Annex V - EU declaration of conformity**

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Product Function Categories (PFCs)

- PFC 1: Fertiliser
  - A. Organic fertiliser
  - B. Organo-mineral fertiliser
  - C. Inorganic fertiliser
- PFC 2: Liming material
- PFC 3: Soil improver
  - A. Organic soil improver
  - B. Inorganic soil improver
- PFC 4: Growing medium
- PFC 5: Inhibitor
  - A. Nitrification inhibitor
  - B. Denitrification inhibitor
  - C. Urease inhibitor
- PFC 6: Plant biostimulant
  - A. Microbial plant biostimulant
  - B. Non-microbial plant biostimulant
- PFC 7: Fertilising product blend





# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Component Material Categories (CMCs)

- CMC 1: Virgin material substances and mixtures
- CMC 2: Plants, plant parts or plant extracts
- CMC 3: Compost
- CMC 4: Fresh crop digestate
- CMC 5: Digestate than fresh crop digestate
- CMC 6: Food industry by-products
- CMC 7: Micro-organisms
- CMC 8: Nutrient polymers
- CMC 9: Polymers other than nutrient polymers
- CMC 10: Derived products within the meaning of Regulation (EC) No 1069/2009
- CMC 11: By-products within the meaning of Directive 2008/98/EC

### CMC 7 : Positive list of micro-organisms

Azotobacter spp. , Mycorrhizal fungi, Rhizobium spp., Azospirillum spp.

## CEN/TC 455 « *PLANT BIOSTIMULANTS* »

### Definition of PFC 6 – Plant Biostimulant



A plant biostimulant shall be a EU fertilizing product the function of which is to stimulate plant nutrition processes independently of the product's nutrient content with the sole aim of improving one or more of the following characteristics of the plant and the plant rhizosphere:

- nutrient use efficiency,
- tolerance to abiotic stress,
- crop quality traits, or
- availability of confined nutrients in the soil or rhizosphere

## CEN/TC 455 « *PLANT BIOSTIMULANTS* »

### Definition of PFC 6(A) – Microbial Plant Biostimulant



A microbial plant biostimulant shall consist of a micro-organism or a consortium of micro-organisms referred to in CMC 7 in Part II of Annex II.

## CEN/TC 455 « *PLANT BIOSTIMULANTS* »

### Definition of PFC 6(B) – Non-microbial Plant Biostimulant



A non-microbial plant biostimulant shall be a plant biostimulant other than a microbial plant biostimulant

# CEN/TC 455 « PLANT BIOSYSTEMIC PESTICIDES »

## Safety parameters



	mg/kg dry matter
Cadmium (Cd)	1,5
Hexavalent chromium (Cr VI)	2
Lead (Pb)	120
Mercury (Hg)	1
Nickel (Ni)	50
Inorganic arsenic (As)	40
Copper (Cu)	600
Zinc (Zn)	1500

*Total Chromium must be checked for labelling  
Phosphonates shall not exceed 0,5 % by mass*

# CEN/TC 455 « PLANT BIOSTIMULANTS »

## Safety parameters



Micro-organisms/their toxins, metabolites FOR MICROBIAL BIOSTIMULANT	Sampling plans		Limit
	n	c	
<b>Salmonella spp</b>	5	0	Absence in 25g or 25 ml
<b>Escherichia coli</b>	5	0	Absence in 1g or 1 ml
<b>Listeria monocytogenes</b>	5	0	Absence in 25g or 25 ml
<b>Vibrio spp</b>	5	0	Absence in 25g or 25 ml
<b>Shigella spp</b>	5	0	Absence in 25g or 25 ml
<b>Staphylococcus aureus</b>	5	0	Absence in 25g or 25 ml
<b>Enterococcaceae</b>	5	2	10 CFU/g
<b>Anaerobic plate count</b> <i>unless the microbial biostimulant is an aerobic bacterium</i>	5	2	10 <sup>5</sup> CFU/g or ml
<b>Yeast and mould count</b> <i>unless the microbial biostimulant is a fungus</i>	5	2	1000 CFU/g or ml

*n* = number of units comprising the sample; *c* = number of sample units giving values over the defined limit

# CEN/TC 455 « PLANT BIOSTIMULANTS »

## Safety parameters



Micro-organisms/their toxins, metabolites FOR NON MICROBIAL BIOSTIMULANT	Sampling plans			Limit
	n	c	m	M
<b>Salmonella spp</b>	5	0	0	Absence in 25g or 25 ml
<b>Escherichia coli</b>	5	5	0	1000 CFU/g or ml
<b>Enterococcaceae</b>	5	5	0	1000 CFU/g or ml

*n* = number of samples to be tested,

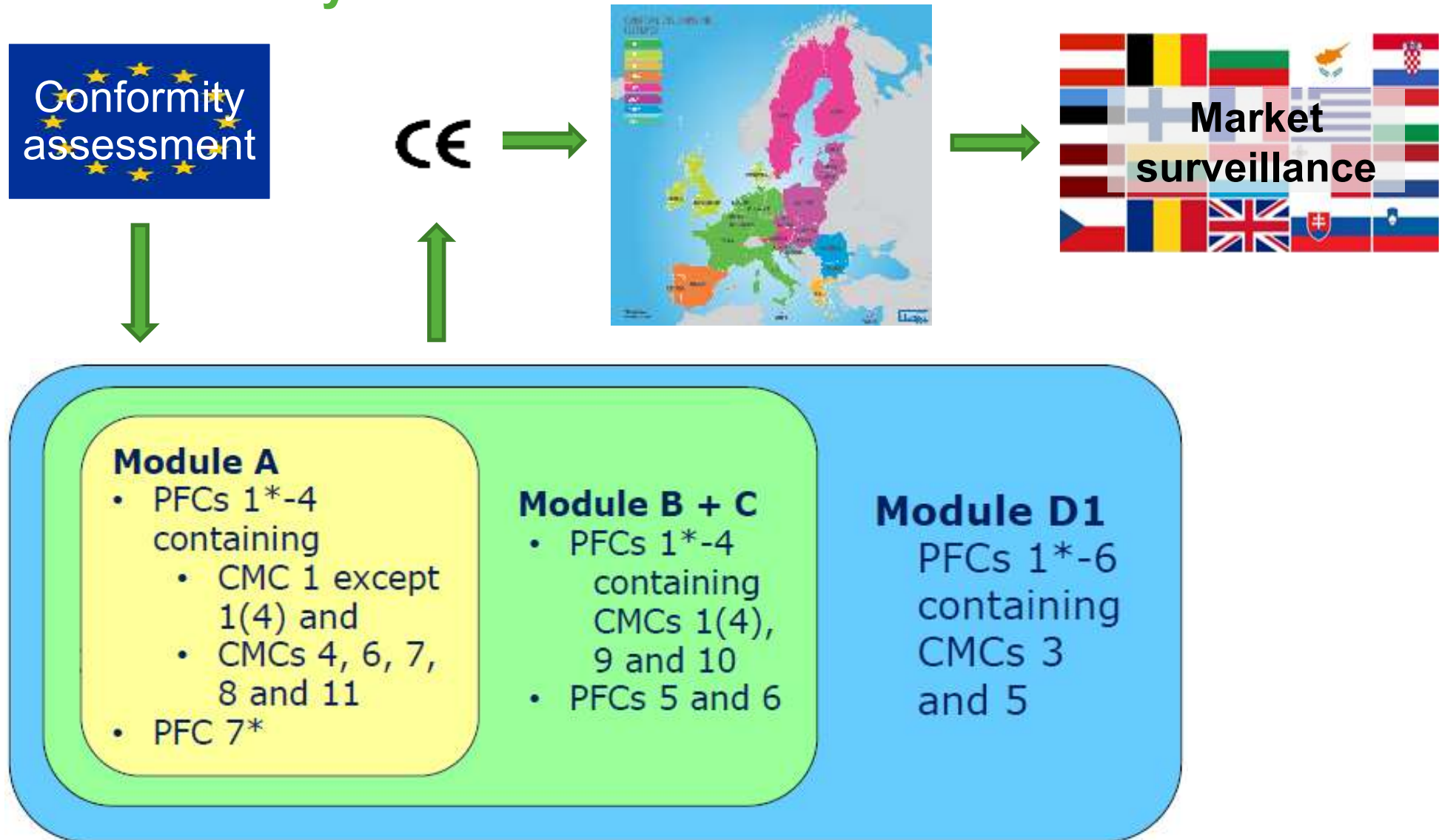
*c* = number of samples where the number of bacteria expressed in CFU may be between *m* and *M*,

*m* = threshold value for the number of bacteria expressed in CFU that is considered satisfactory,

*M* = maximum value of the number of bacteria expressed in CFU.

# CEN/TC 455 « PLANT BIOSTIMULANTS »

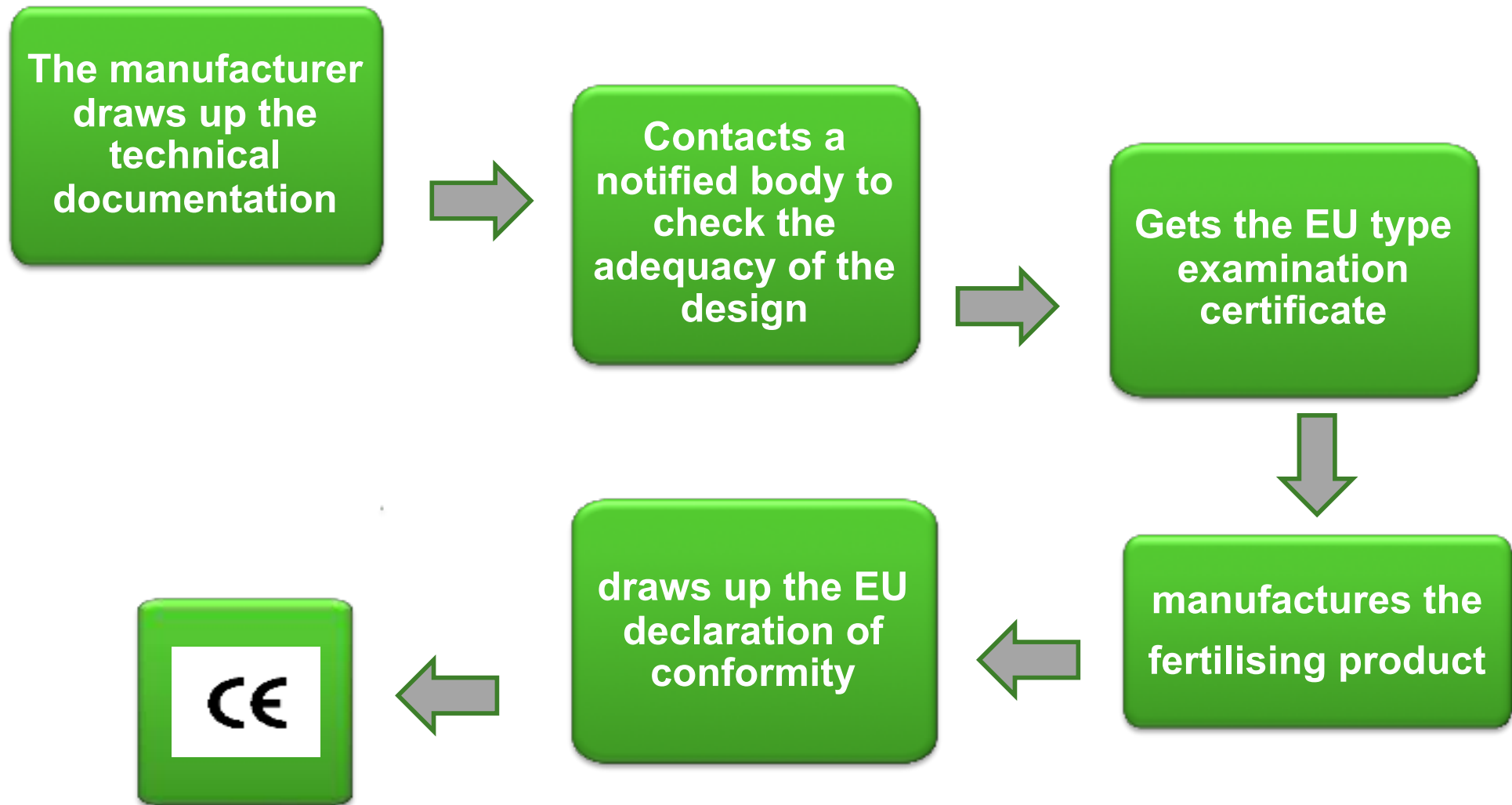
## Conformity assessment





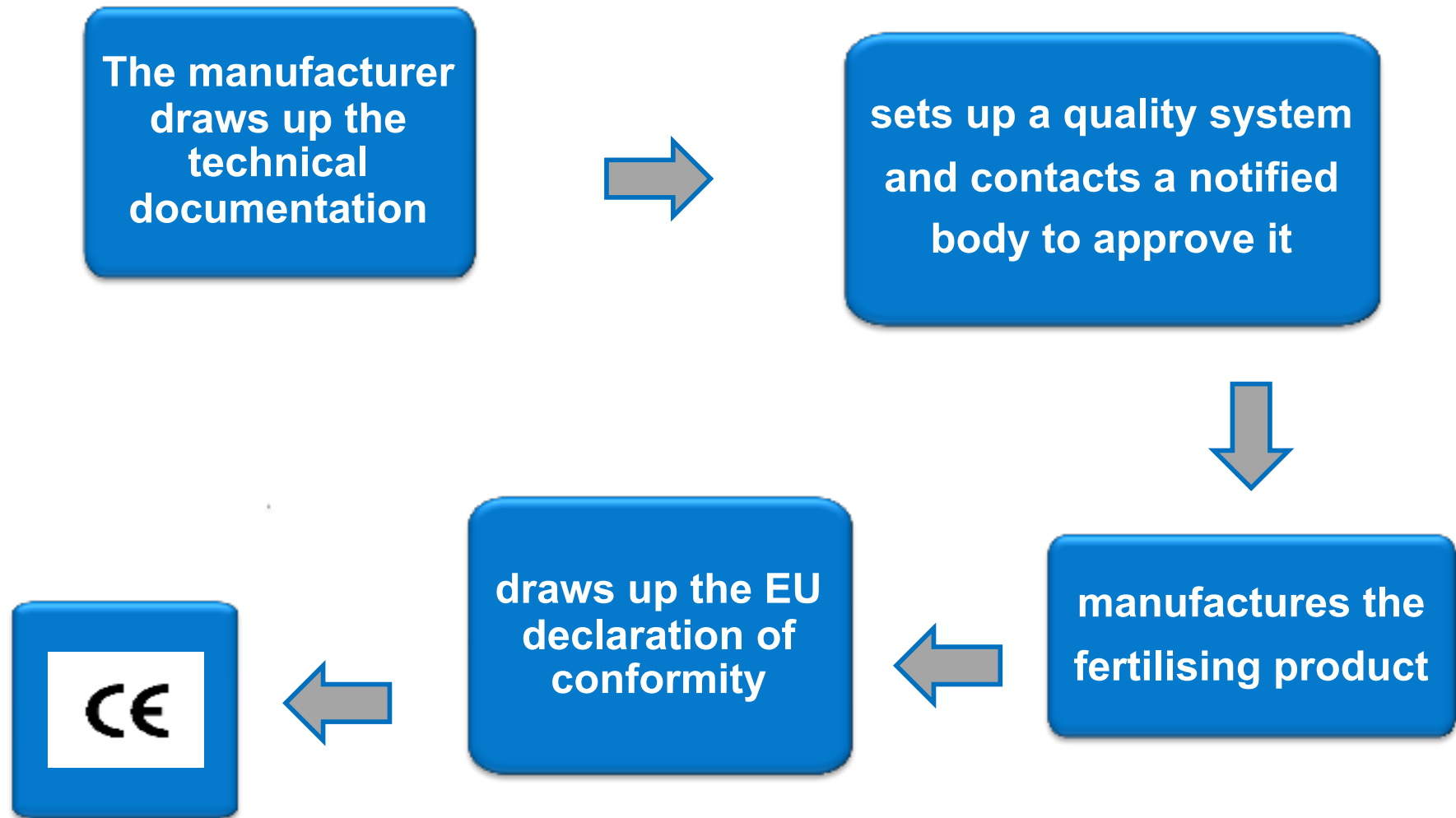
# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## Conformity assessment : module B + C



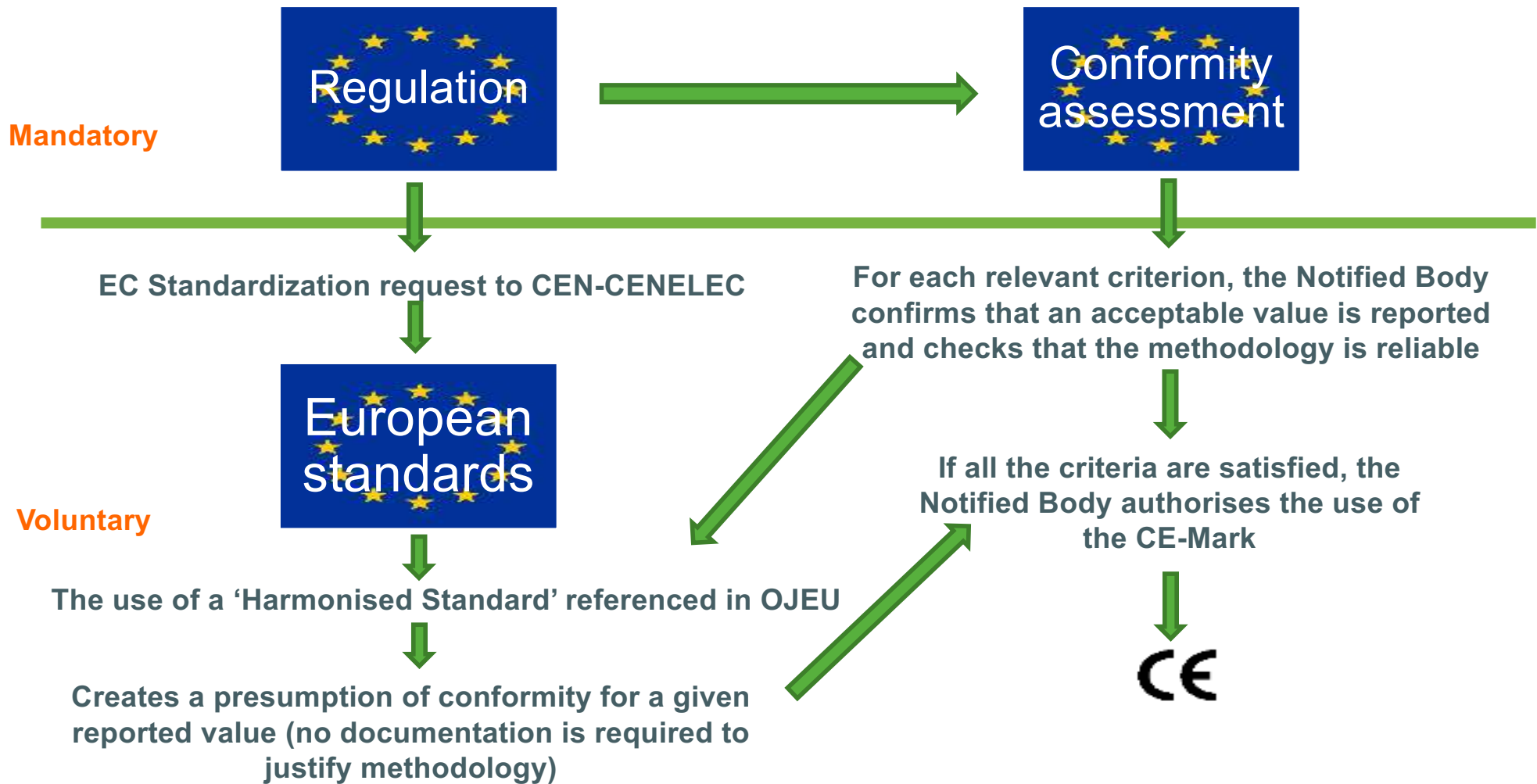
# CEN/TC 455 « *PLANT BIOSYSTEMIC PESTICIDES* »

## Conformity assessment : module D1



# CEN/TC 455 « PLANT BIOSTIMULANTS »

## Relationship between EU legislation & EN standards



# CEN/TC 455 « PLANT BIOSTIMULANTS »

## Relationship between EU legislation & EN standards

Waiting from the Commission the release of the Standardization request



Probably Current February 2020

29.	European Standard: Plant biostimulants - Determination of inorganic arsenic	Determination of the inorganic arsenic content To be developed	01 April 2024
30.	European Standard: Plant biostimulants - Determination of phosphonates	Determination of the phosphonates content To be developed	01 April 2024
31.	European Standard: Plant biostimulants - Determination of chromium VI	Determination of the chromium VI content To use as basis the standards: EN 15192 or ISO 17075-2	01 April 2024
32.	European Standard: Microbial plant biostimulants - Detection of	Detection of <i>Salmonella</i> spp To use as basis standard: EN ISO 6579 or CEN/TR 15215	01 April 2024

# **SUMMARY**

**1) THE NEW EUROPEAN REGULATION FOR FERTILIZING PRODUCTS**

**2) STANDARDIZATION OF PLANT BIOSTIMULANTS AT EUROPEAN LEVEL**

**3) CEN/TC 455 WORKLOAD**

# CEN/TC 455 « *PLANT BIOSTIMULANTS* » GENERAL


## CEN/TC 455 Scope

Standardization of sampling, denominations, specifications (including safety requirements), marking and test methods allowing the verification of product claims for plant biostimulants, including micro-organisms. Plant biostimulants are products, based on substances and/or microorganisms, stimulating plant nutrition processes independently of the product's nutrient content with the sole aim of improving one or more of the following characteristics of the plant: - nutrient use efficiency; - tolerance to abiotic stress; or - crop quality traits; and may be applied to plants or soils. Excluded are plant protection products, fertilizers, liming materials, soil improvers, growing media, and agronomic additives that are already covered by standardization at European level.

## Officers

<b>Chairperson</b>	M. Benoît Planques
<b>Secretary</b>	Ms Stephanie Tiprez

## Further information

<b>CEN Technical Secretariat(s)</b>	<a href="#">AFNOR</a>
<b>CCMC Programme Manager</b>	<a href="#">Dalier Claire</a>
<b>Business Plan</b>	
<b>Activity sector</b>	Fertilizers

## TC Electronic Platform

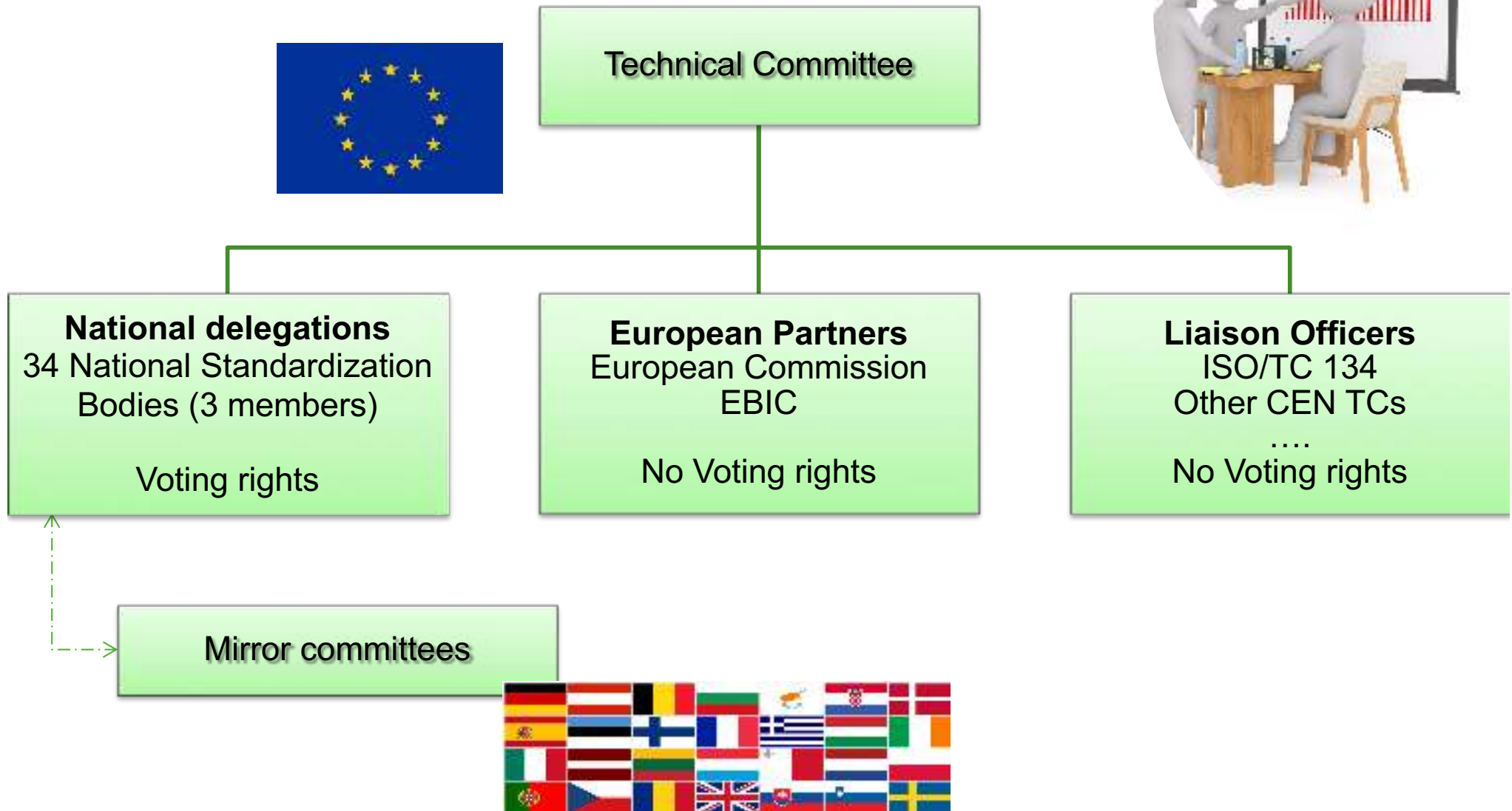
<b>Platform</b>	
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### Liaison Agent from ISO/TC 134:

- Deren CHU (China, SAC)

[https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP\\_ORG\\_ID:2279055&cs=1F04757AD7A7D81CCF8FDCBFEF1883680](https://standards.cen.eu/dyn/www/f?p=204:7:0:::FSP_ORG_ID:2279055&cs=1F04757AD7A7D81CCF8FDCBFEF1883680)






# CEN/TC 455 « PLANT BIOSTIMULANTS » WHO PARTICIPATE?



# CEN/TC 455 « *PLANT BIOSTIMULANTS* » STRUCTURE

## CEN/TC 455 Subcommittees and Working Groups

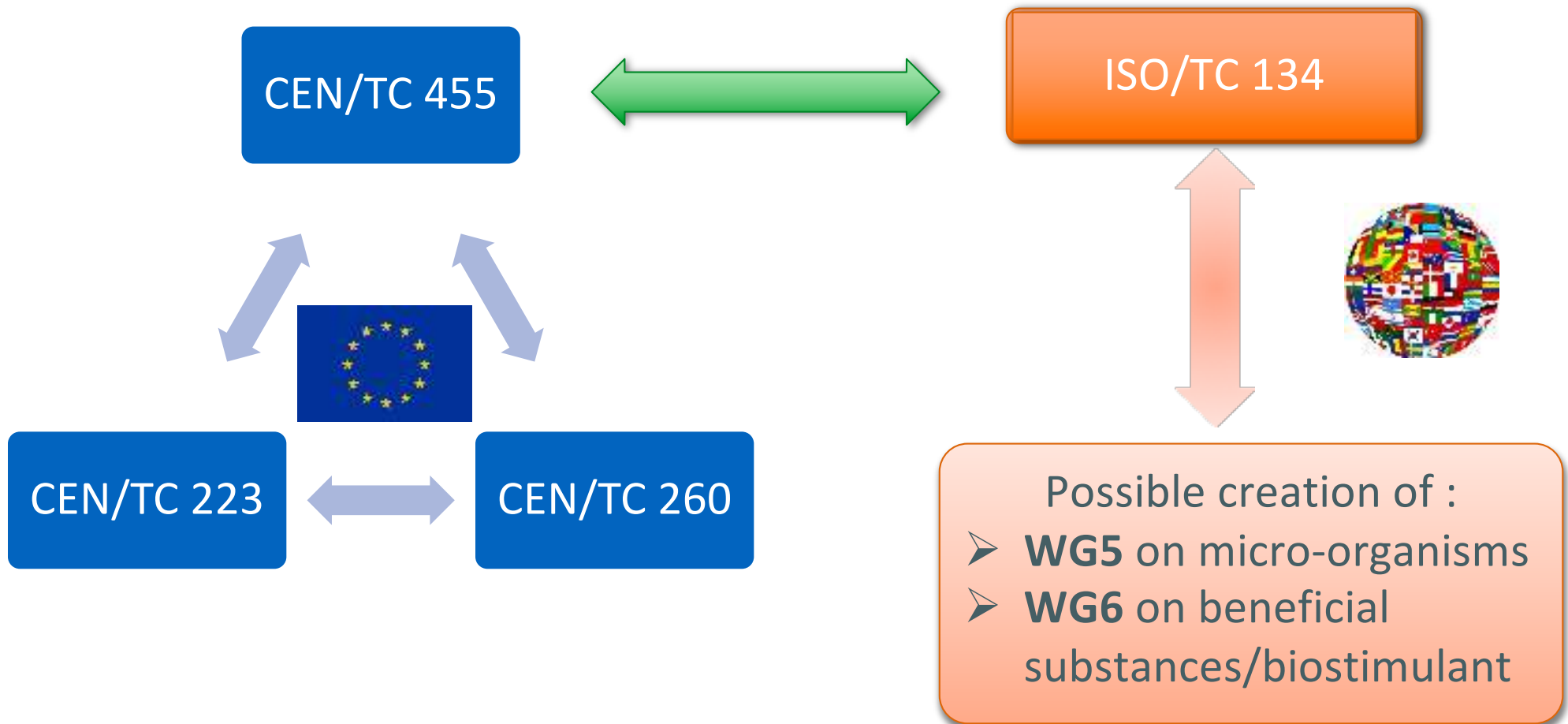


Working group	Title		
<a href="#">CEN/TC 455/WG 1</a>	Sampling		Czech Republic
<a href="#">CEN/TC 455/WG 2</a>	Claims		France
<a href="#">CEN/TC 455/WG 3</a>	Pathogenic and non-pathogenic microorganisms		The Netherlands
<a href="#">CEN/TC 455/WG 4</a>	Other safety parameters		Czech Republic
<a href="#">CEN/TC 455/WG 5</a>	Labelling and denominations		Italy



# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## MAIN LIAISONS FOR COORDINATION AT EU AND ISO LEVELS



# **SUMMARY**

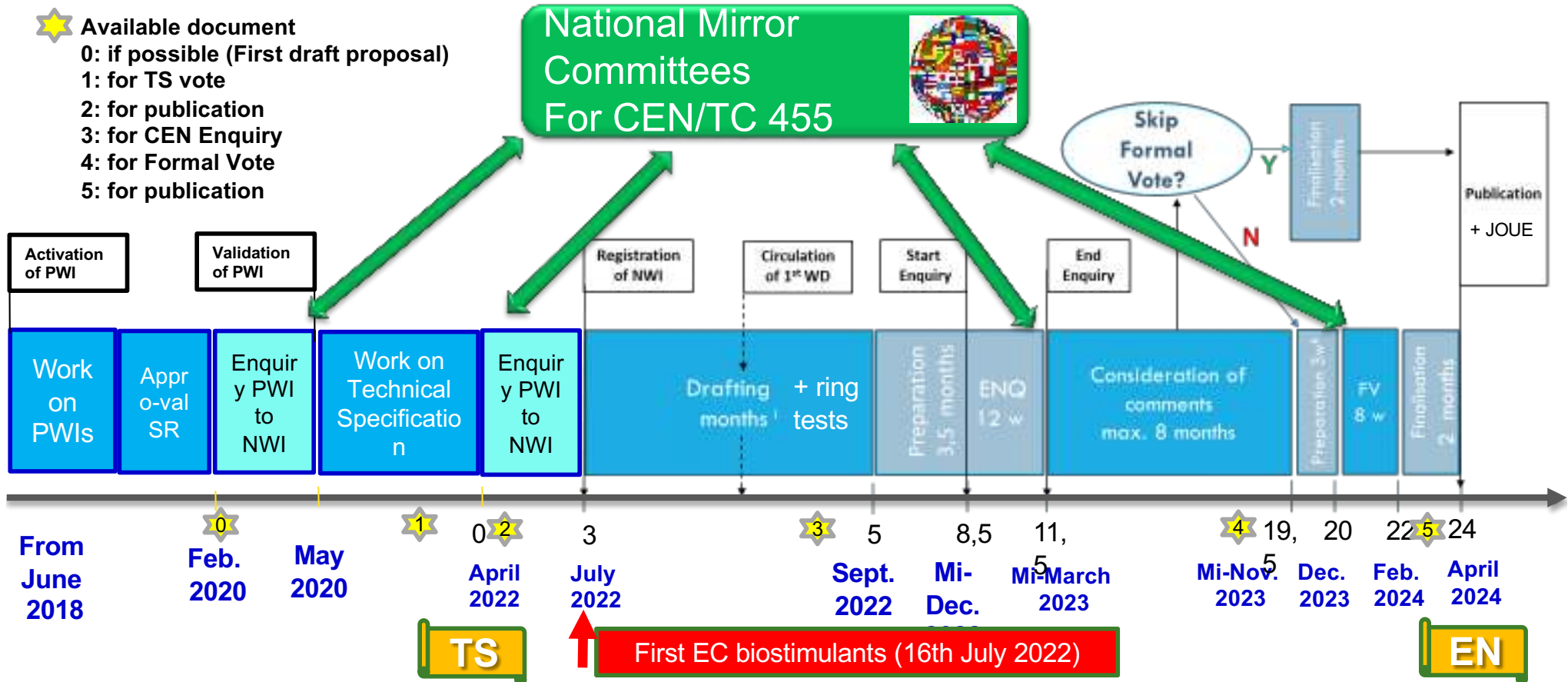
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# CEN/TC 455 « PLANT BIOSTIMULANTS »

## STANDARD DEVELOPMENT ON CEN/TC 455



# CEN/TC 455 « *PLANT BIOSTIMULANTS* » WORK PROGRAM – WG 1

Project reference	Status	WG	Current Stage
(WI=00455005) Plant Biostimulants - Sampling	Preliminary	1	2018-08-08
(WI=00455019) Plant biostimulants - Sample preparation	Preliminary	1	2019-07-02

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## WORK PROGRAM – WG 2

Project reference	Status	WG	Current Stage
(WI=00455008) Plant biostimulants - General principles	Preliminary	2	2018-08-08
(WI=00455002) Plant biostimulants - Tolerance to abiotic stress	Preliminary	2	2018-08-08
(WI=00455007) Plant biostimulants - Crop quality	Preliminary	2	2018-08-08
(WI=00455020) Plant biostimulants – Claims - Availability of confined nutrients in the soil or rhizosphere	Preliminary	2	2019-07-02
(WI=00455001) Plant biostimulants - Nutrient use efficiency	Preliminary	2	2018-08-08

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## WORK PROGRAM – WG 3

Project reference	Status	WG	Current Stage
(WI=00455021) Plant biostimulants - Determination of the anaerobic plate count	Preliminary	3	2019-07-02
(WI=00455013) Plant biostimulants - Determination of Shigella spp. including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455027) Plant biostimulants - Determination of Escherichia coli including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455023) Plant biostimulants - pH in microbial products – Part 1: Determination of pH	Preliminary	3	2019-07-02
(WI=004550XX) Plant biostimulants - Determination of microorganisms concentration	Preliminary	3	
(WI=00455033) Plant biostimulants - Determination of the yeast and mould content	Preliminary	3	2019-07-02

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## WORK PROGRAM – WG 3

Project reference	Status	WG	Current Stage
(WI=00455014) Plant biostimulants - Determination of <i>Staphylococcus aureus</i> including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455026) Plant biostimulants - Determination of <i>Vibrio</i> spp. including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455016) Plant biostimulants - Determination of <i>Listeria monocytogenes</i> including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455017) Plant biostimulants - Determination of <i>Salmonella</i> spp including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455024) Plant biostimulants - Determination of Enterococcaceae including respective toxins and metabolites	Preliminary	3	2019-07-02
(WI=00455022) Plant biostimulants - Determination of mycorrhizal fungi	Preliminary	3	2019-07-02
(WI=00455018) Plant biostimulants - Determination of <i>Rhizobium</i> spp.	Preliminary	3	2019-07-02
(WI=00455031) Plant biostimulants - Determination of <i>Azobacter</i> spp.	Preliminary	3	2019-07-02
(WI=00455015) Plant biostimulants - Determination of <i>Azospirillum</i> spp.	Preliminary	3	2019-07-02

# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## WORK PROGRAM – WG 4

Project reference	Status	WG	Current Stage
(WI=00455025) Plant biostimulants – Determination of dry matter	Preliminary	4	2019-07-02
(WI=00455009) Plant Biostimulants - Digestion by aqua regia for subsequent determination of elements	Preliminary	4	2018-11-23
(WI=00455010) Plant biostimulants - Determination of elements (Cd, Pb, Ni, As, Cr, Cu and Zn)	Preliminary	4	2018-11-23
(WI=00455034) Plant biostimulants – Determination of inorganic arsenic	Preliminary	4	2019-07-02
(WI=00455011) Plant biostimulants - Determination of chromium (VI)	Preliminary	4	2018-11-23
(WI=00455012) Plant biostimulants - Determination of mercury	Preliminary	4	2018-11-23
(WI=00455028) Plant biostimulants – Determination of phosphonates	Preliminary	4	2019-07-02



# CEN/TC 455 « *PLANT BIOSTIMULANTS* »

## WORK PROGRAM – WG 5

Project reference	Status	WG	Current Stage
(WI=00455003) Plant biostimulants - Terminology	Preliminary	5	2018-08-08
(WI=00455006) Plant biostimulants - Quantity/volume	Preliminary	5	2018-08-08
(WI=00455030) Plant biostimulants - Determination of the chloride in the absence of organic material	Preliminary	5	2019-07-02

**CEN/TC 455 « PLANT BIOSIMULANTS »**  
**BUT AT THE END...**





**THANKS A LOT FOR YOUR  
ATTENTION !**

**QUESTIONS/COMMENTS?**

**Benoît Planques**

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Chair of CEN/TC 455

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