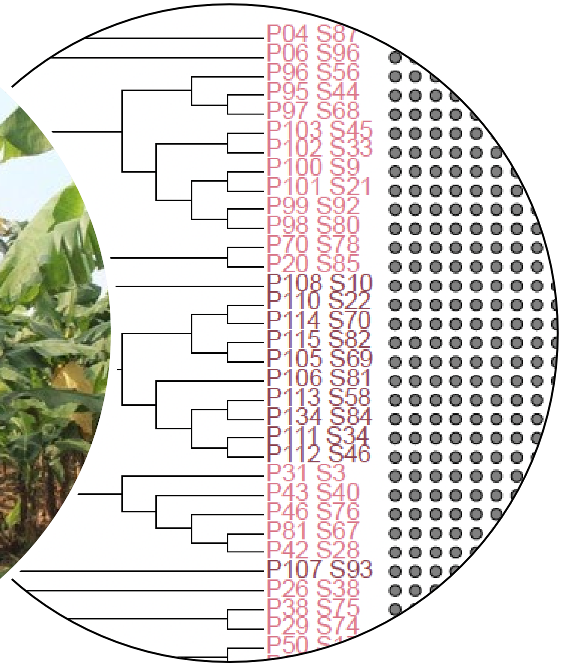
Reflecties op verleden, heden en toekomst van de Fytopathologie

Gert HJ Kema – Wageningen Universiteit – Laboratorium voor Fytopathologie

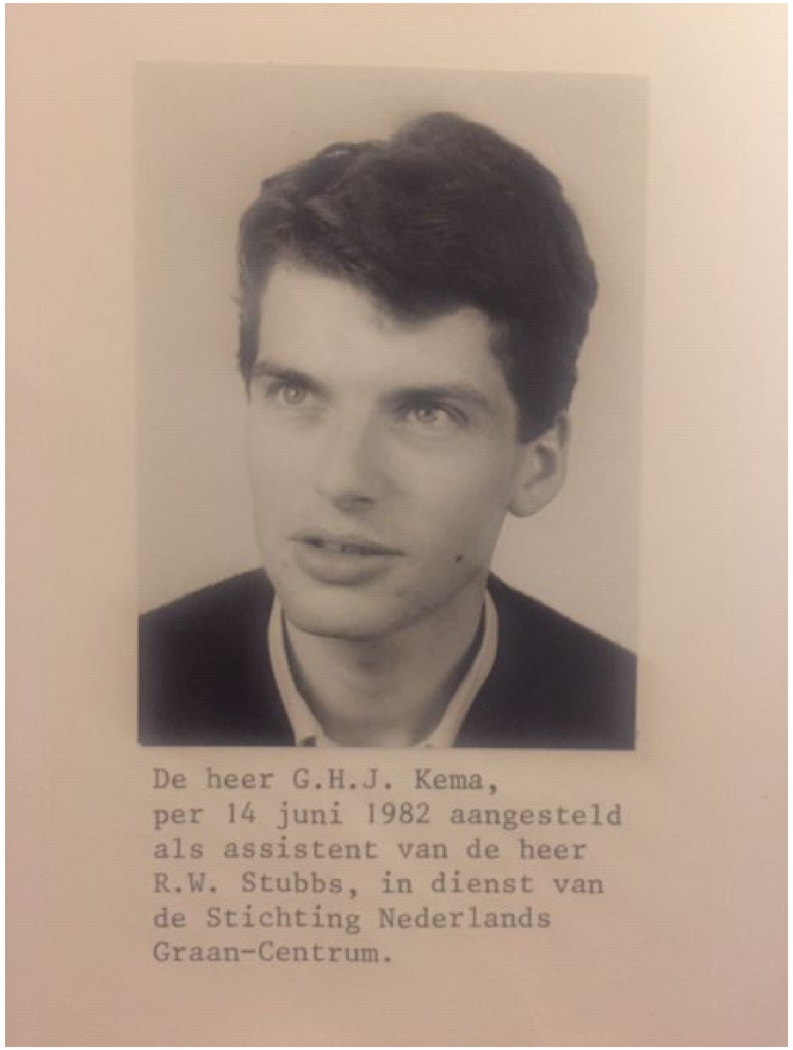


WAGENINGEN
UNIVERSITY & RESEARCH


Instituut voor Planteziektenkundig Onderzoek
1949


WM
57
INVESTIGATIO PESTIBUS OBSTAT

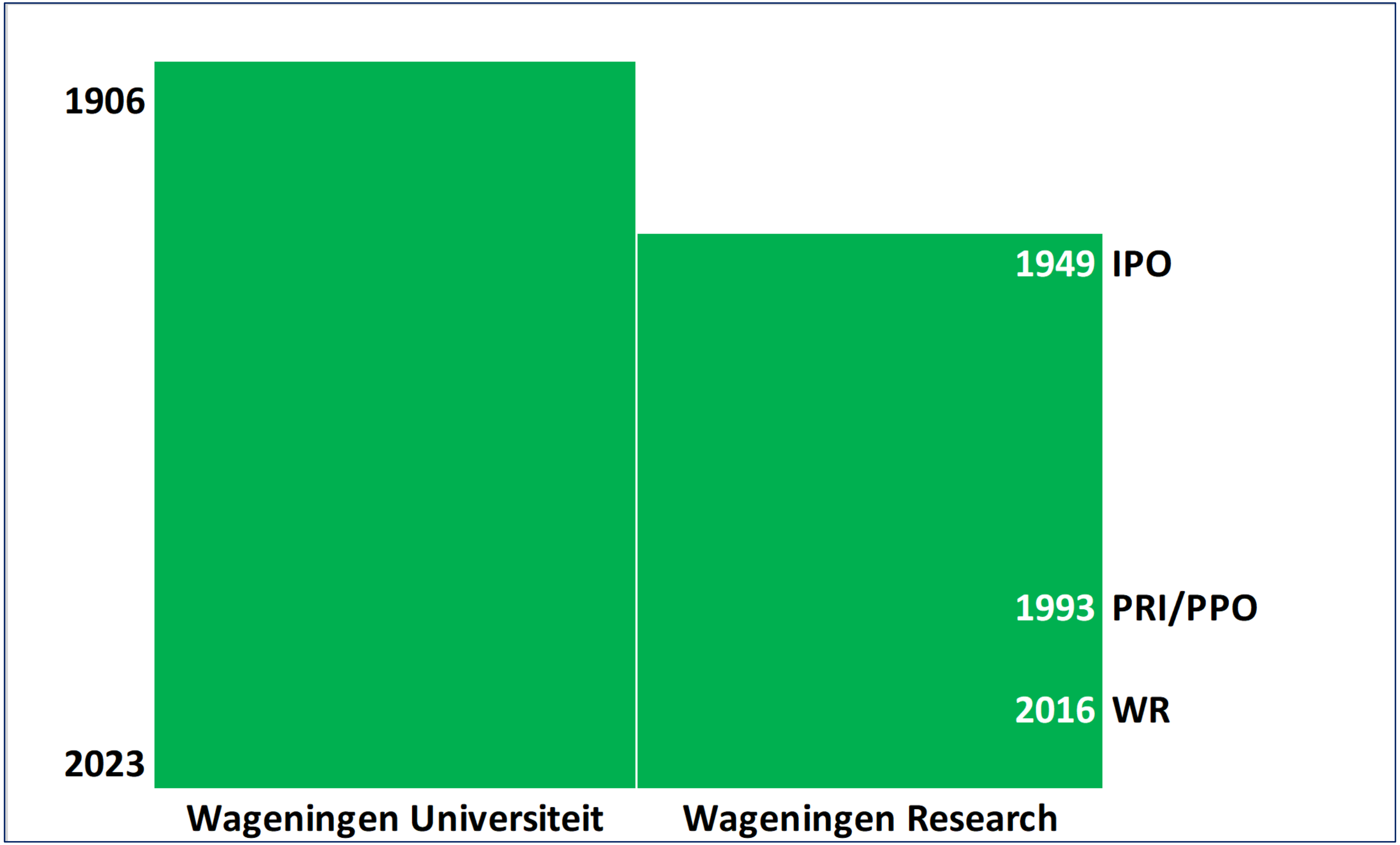
Puccinia striiformis



KNPV voorzitters

1	1891	J.H. Krelage	4
2	1895	**J. Ritzema Bos**	32
3	1928	H. Lindeman	5
4	1933	W.K. Roepke	5
5	1938	**H.M. Quanjer**	8
6	1946	J. Westerdijk	5
7	1951	J.G. ten Houten	6
8	1957	P.M.L. Tammes	6
9	1963	H.J. de Fluiter	6
10	1969	N. van Tiel	6
11	1975	M. Heuver	6
12	1981	A.M. van Doorn	6
13	1987	P. van Halteren	6
14	1993	N.J. Fokkema	6
15	1999	J. van Aartrijk	3
16	2001	**G.H.J. Kema**	10
17	2011	Piet Boonekamp	7
18	2018	Willem Jan de Kogel	4
19	2022	Leendert Molendijk	1

Leerstoelhouders Laboratorium voor Fytopathologie


1906
2023
1949 IPO
1993 PRI/PPO
2016 WR
Wageningen Universiteit
Wageningen Research

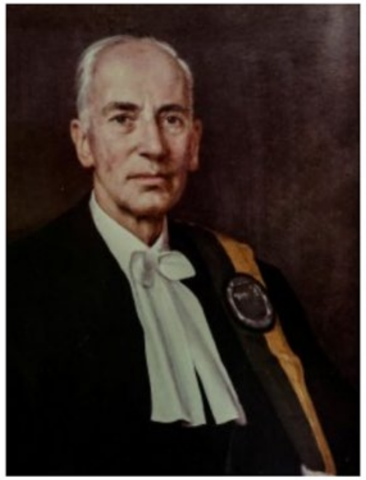
Professor Ritzema Bos
1906 - 1918

Insecten-schimmels

Professor Quanjer
1918 - 1949

Virusziekten

Before the Aula of the Agricultural University of Wageningen

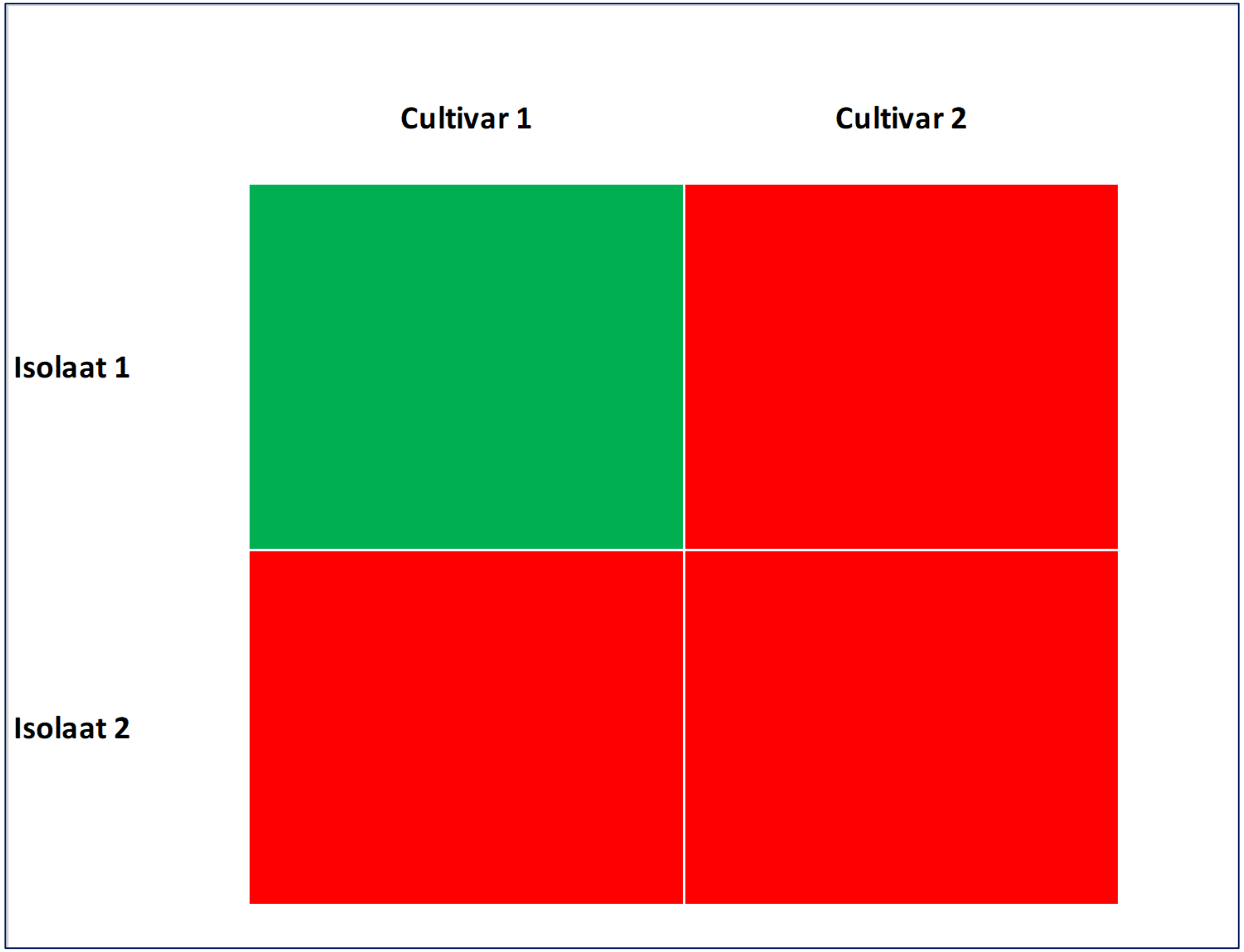


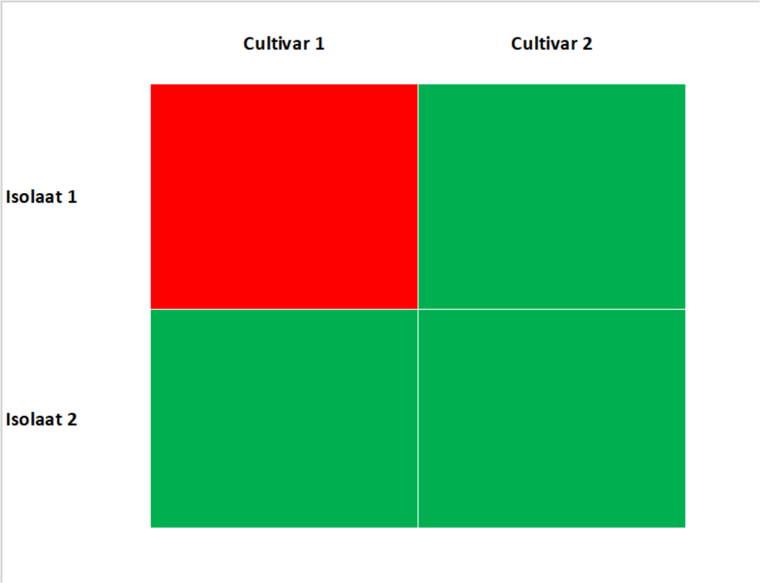
Professor Oort
1949 - 1969

Gen-om-gen

Professor Dekker
1969 - 1989

Fungiciden


Cultivar 1
Cultivar 2
Isolaat 1
Isolaat 2


Cultivar 1
Cultivar 2
Isolaat 1
Isolaat 2

Fargo – North Dakota – HH Flor

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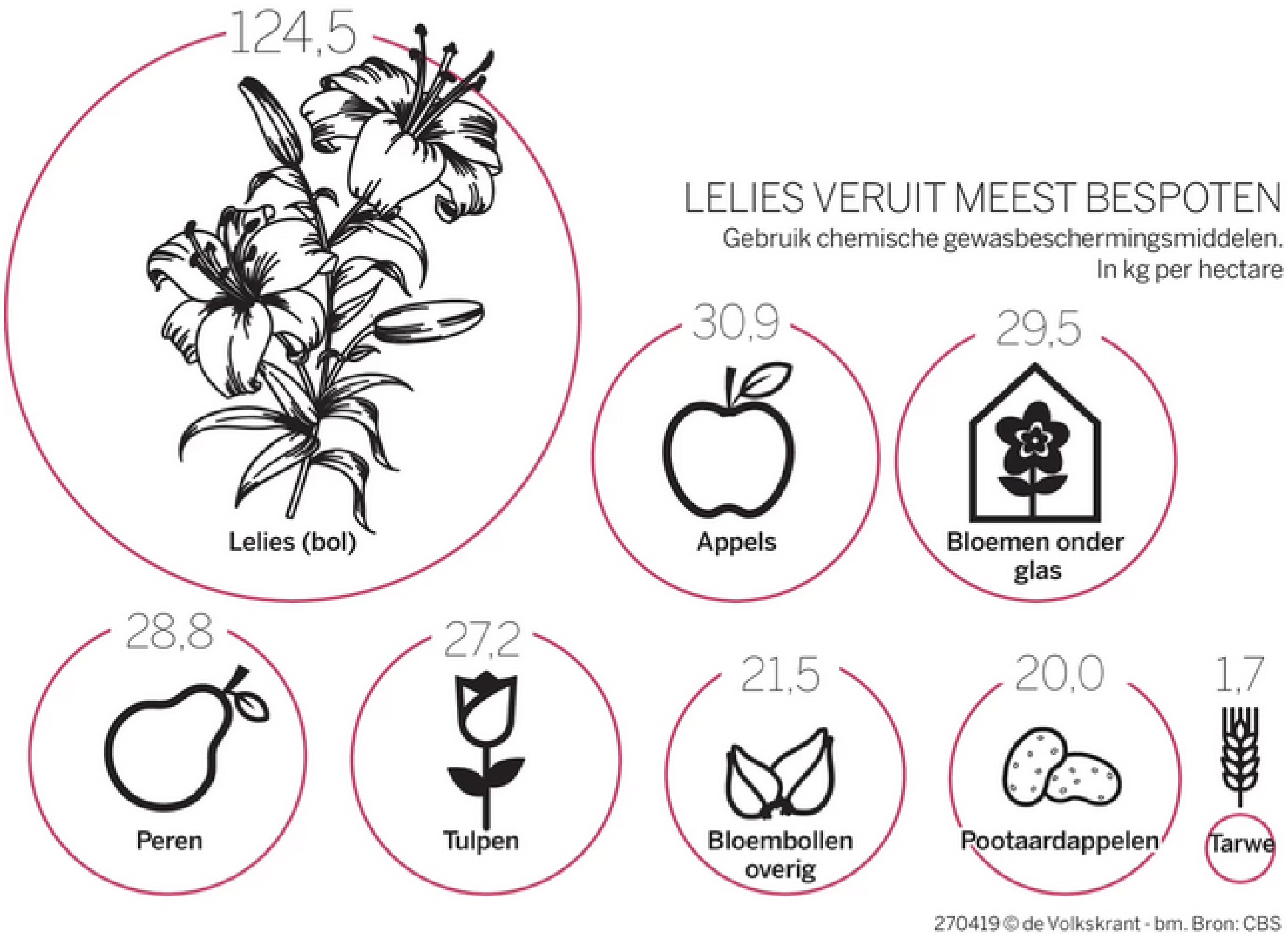
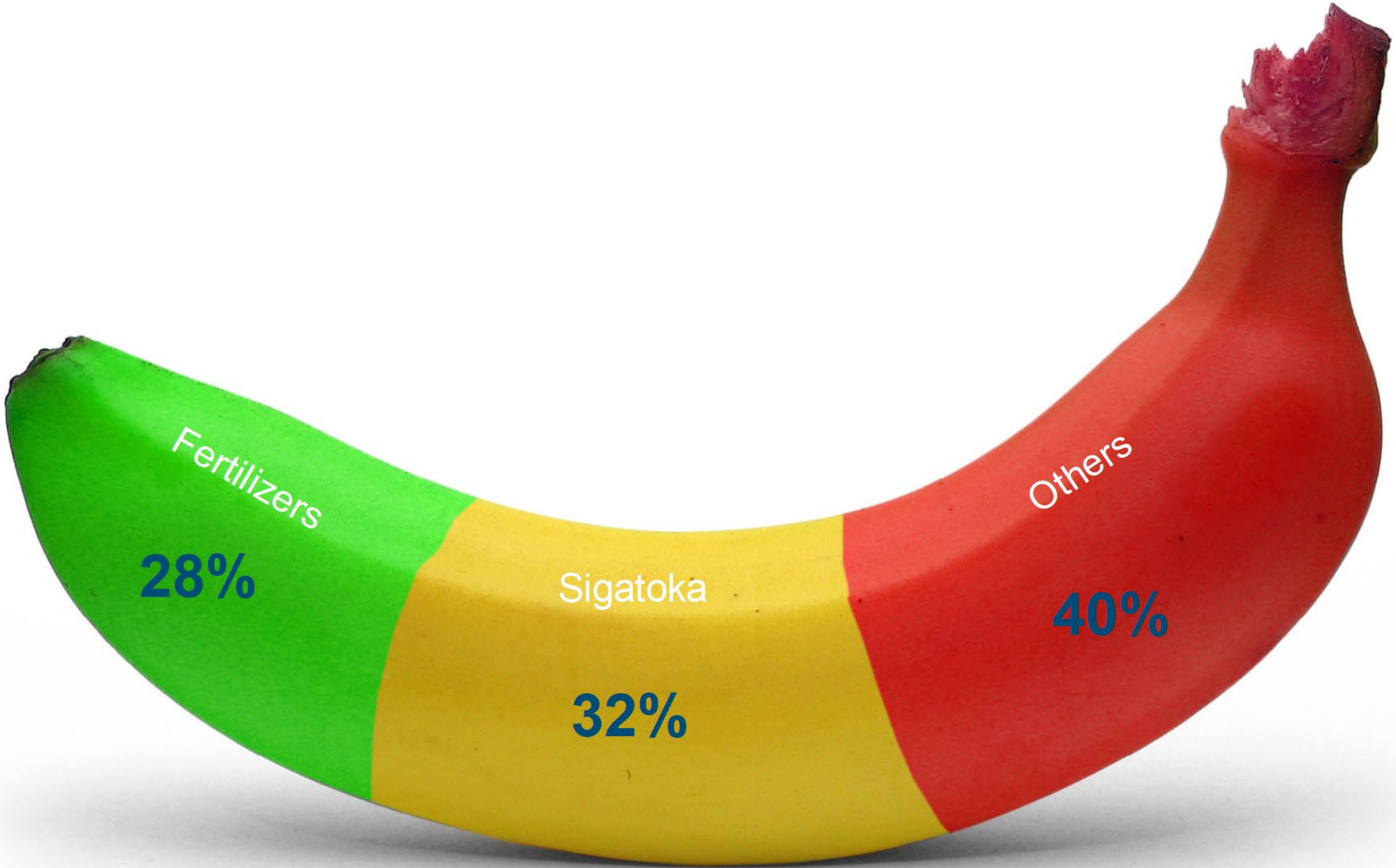
UNIVERSITY & RESEARCH


LELIES VERUIT MEEST BESPOTEN
Gebruik chemische gewasbeschermingsmiddelen.
In kg per hectare
124,5
Lelies (bol)
30,9
Appels
29,5
Bloemen onder glas
28,8
Peren
27,2
Tulpen
21,5
Bloembollen overig
20,0
Pootaardappelen
1,7
Tarwe
270419 © de Volkskrant - bm. Bron: CBS

Black Sigatoka van banaan


Fertilizers
28%
Sigatoka
32%
Others
40%

2030 Targets for sustainable food production

PESTICIDES

50%

Reduce the overall use and risk of chemical and hazardous pesticides

NUTRIENT LOSSES

50%

Reduce nutrient losses by 50% whilst retaining soil fertility, resulting in 20% less fertilisers

ANTIMICROBIALS

50%

Reduce sales of antimicrobials for farmed animals and aquaculture

ORGANIC FARMING

25%

Increase the percentage of organically farmed land in the EU

#EUFarm2Fork #EUGreenDeal

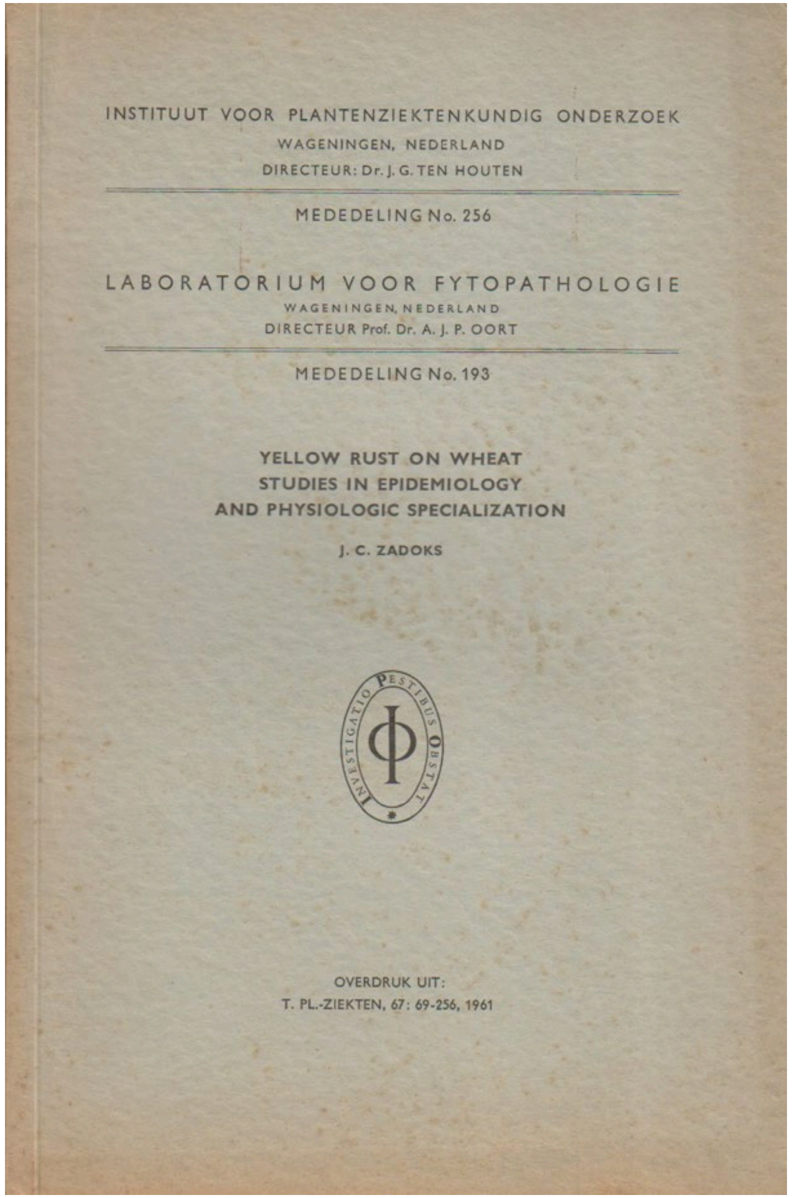
Professor Zadoks
1989 - 1991

Professor de Wit
1989 - 2013

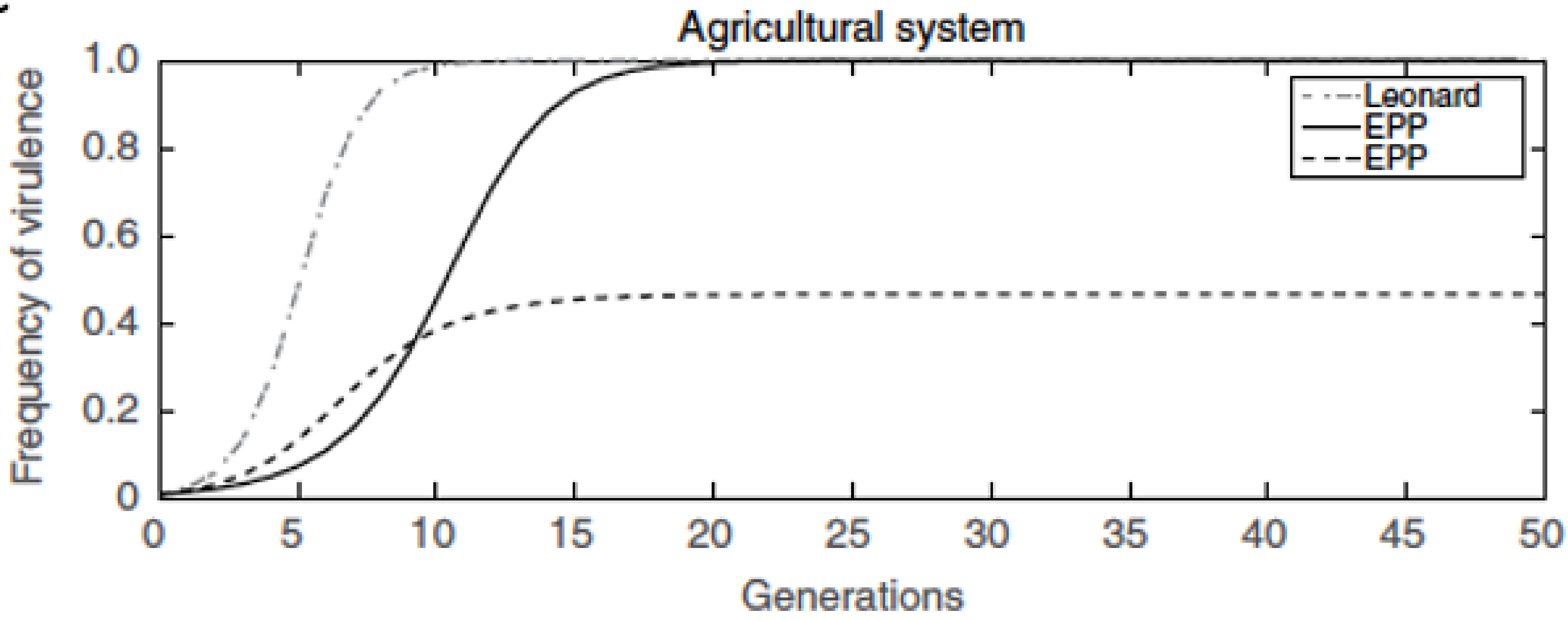
Epidemiologie

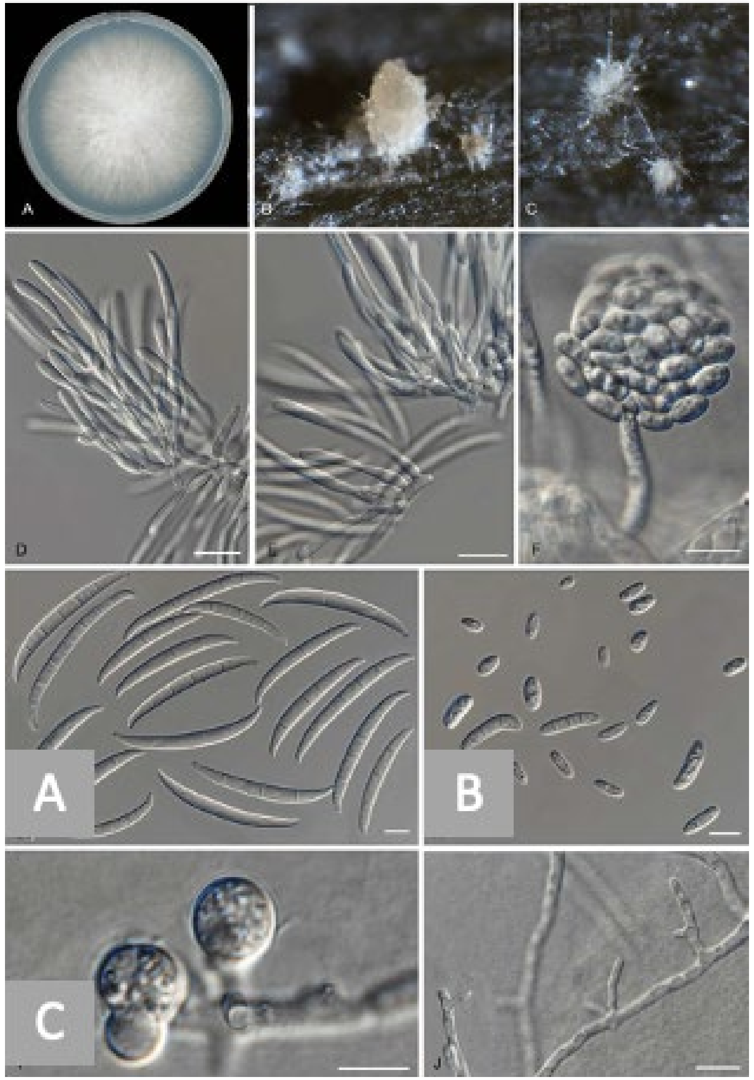
Moleculaire fytopathologie

Cladosporium - tomaat

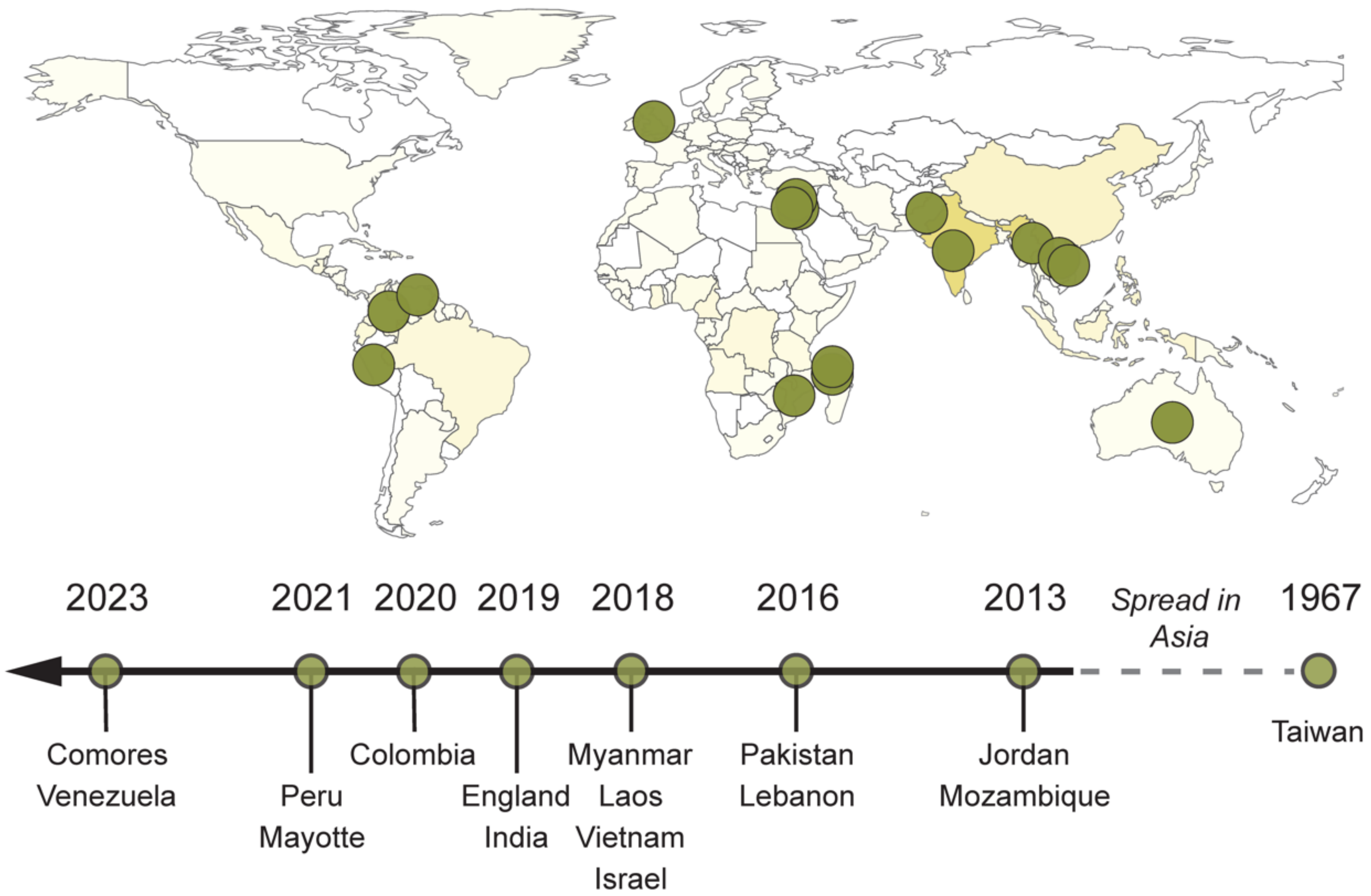

INSTITUUT VOOR PLANTENZIEKTENKUNDIG ONDERZOEK
WAGENINGEN, NEDERLAND
DIRECTEUR: Dr. J. G. TEN HOUTEN
MEDEDELING No. 256
LABORATORIUM VOOR FYTOPATHOLOGIE
WAGENINGEN, NEDERLAND
DIRECTEUR Prof. Dr. A. J. P. OORT
MEDEDELING No. 193
YELLOW RUST ON WHEAT
STUDIES IN EPIDEMIOLOGY
AND PHYSIOLOGIC SPECIALIZATION
J. C. ZADOKS
OVERDRUK UIT:
T. PL.-ZIEKTEN, 67: 69-256, 1961

C


Agricultural system
Frequency of virulence
Generations
Leonard
EPP
EPP
0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
30
35
40
45
50


A
B
C

Tropical Race 4 (TR4) verspreiding sinds 1960s



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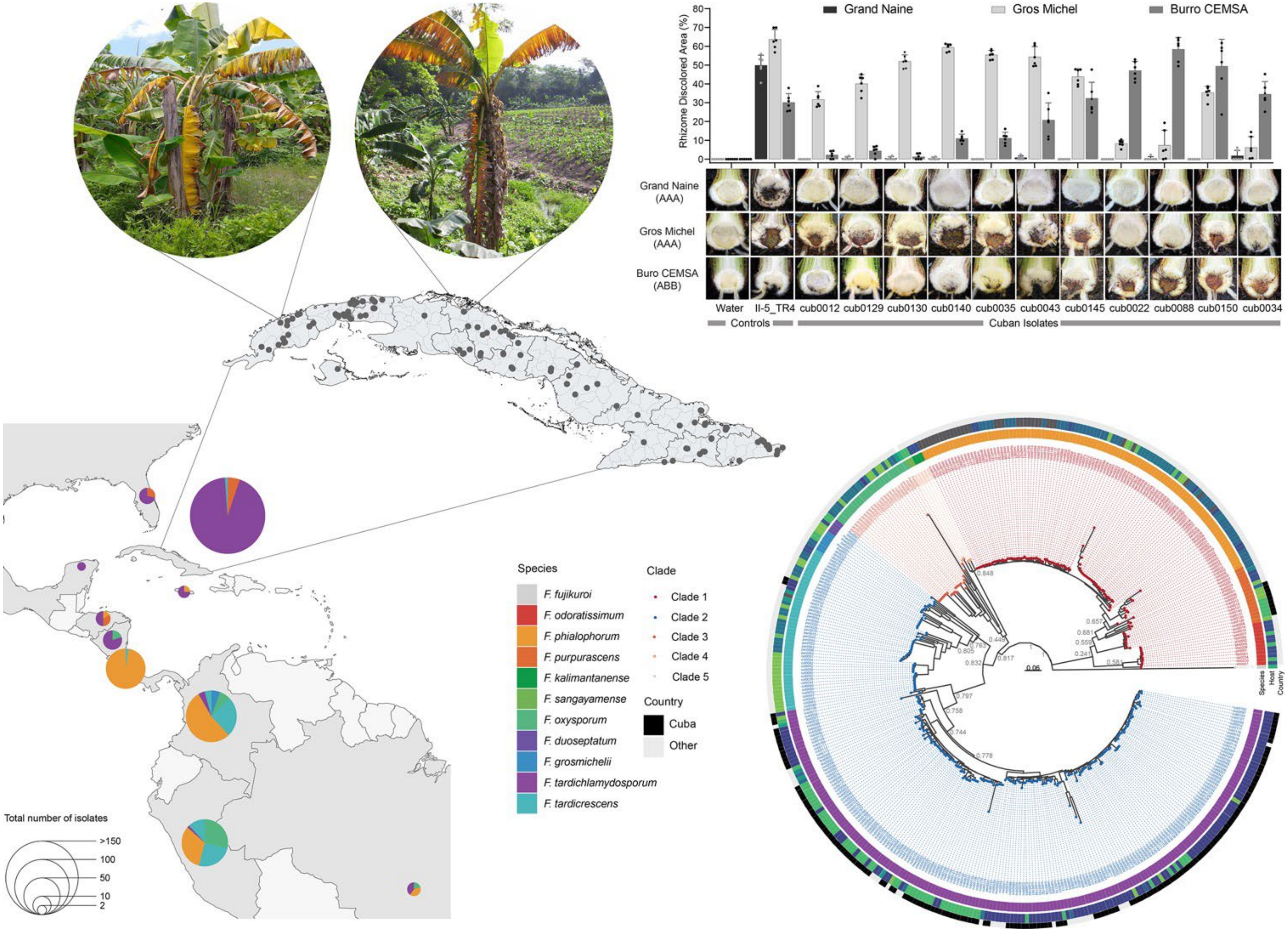


Rhizome Discolored Area (%)
Grand Naine
Gros Michel
Burro CEMSA
Grand Naine (AAA)
Gros Michel (AAA)
Buro CEMSA (ABB)
Water
II-5_TR4
cub0012
cub0129
cub0130
cub0140
cub0035
cub0043
cub0145
cub0022
cub0088
cub0150
cub0034
Controls
Cuban Isolates
Species
F. fujikuroi
F. odoratissimum
F. phialophorum
F. purpurascens
F. kalimantanense
F. sangayamense
F. oxysporum
F. duoseptatum
F. grosmichelii
F. tardichlamydosporum
F. tardicrescens
Clade
Clade 1
Clade 2
Clade 3
Clade 4
Clade 5
Country
Cuba
Other
Total number of isolates
>150
100
50
10
2
Species
Host
Country

MOLECULAR PLANT-MICROBE INTERACTIONS
Vol. 4, No. 1, pp. 52-59, 1991

Cloning and Characterization of cDNA of Avirulence Gene *avr9* of the Fungal Pathogen *Cladosporium fulvum*, Causal Agent of Tomato Leaf Mold

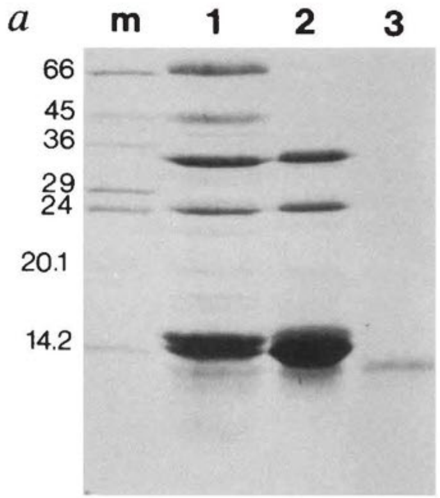
Jan A. L. van Kan, Guido F. J. M. van den Ackerveken, and Pierre J. G. M. de Wit

Agricultural University Wageningen, Department of Phytopathology, 6700 EE Wageningen, The Netherlands.
Received 7 August 1990. Accepted 27 August 1990.

Host resistance to a fungal tomato pathogen lost by a single base-pair change in an avirulence gene

Matthieu H. A. J. Joosten, Ton J. Cozijnsen & Pierre J. G. M. De Wit*

Department of Phytopathology, Wageningen Agricultural University, PO Box 8025, 6700 EE Wageningen, The Netherlands



HOST genotype specificity in interactions between biotrophic pathogens and plants in most cases complies with the gene-for-gene model[1]; success or failure of infection is determined by absence or presence of complementary genes, avirulence and resistance genes,

Professor Thomma
2013 - 2018

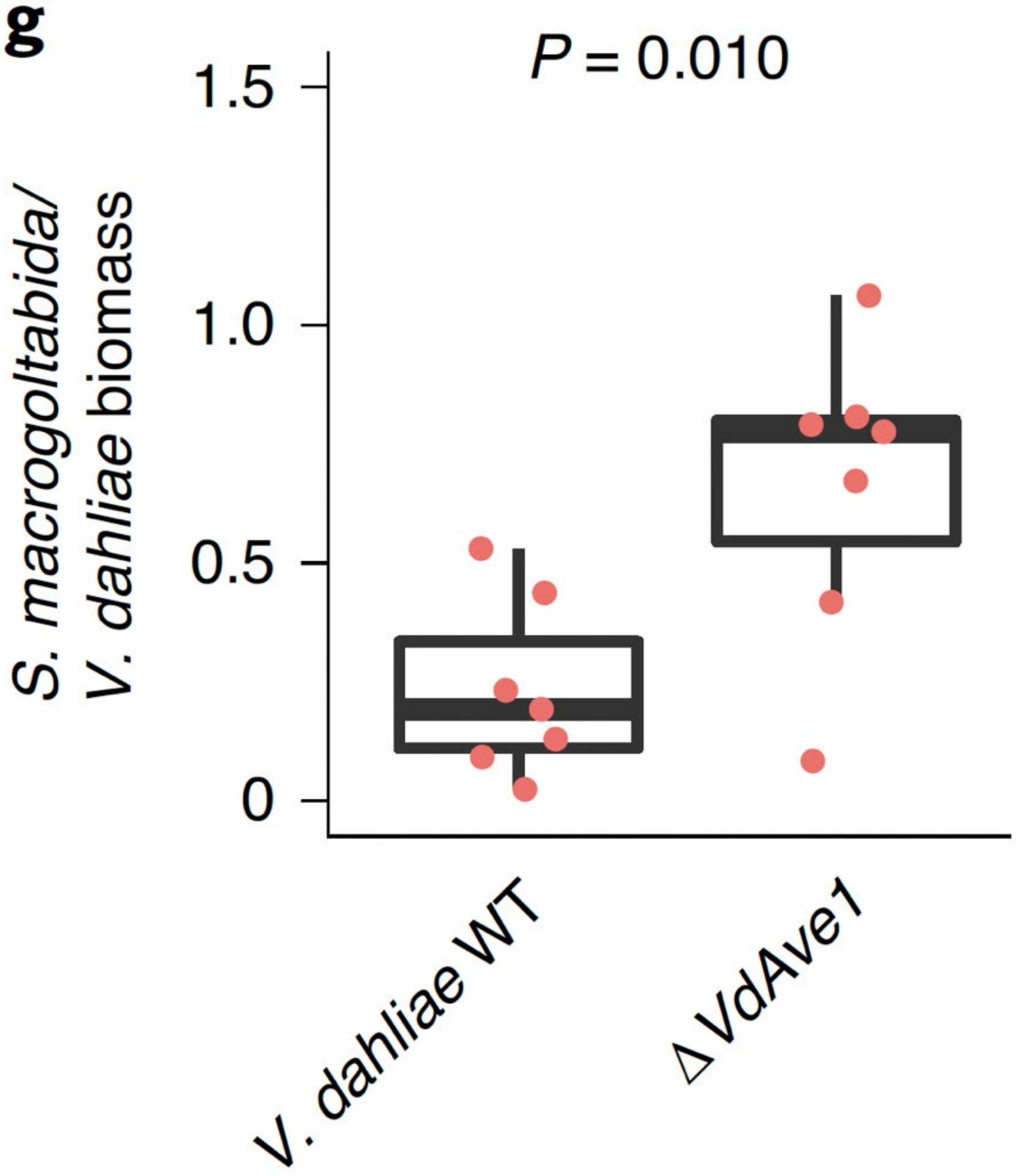
Moleculaire fytopathologie

Verticillium – niches

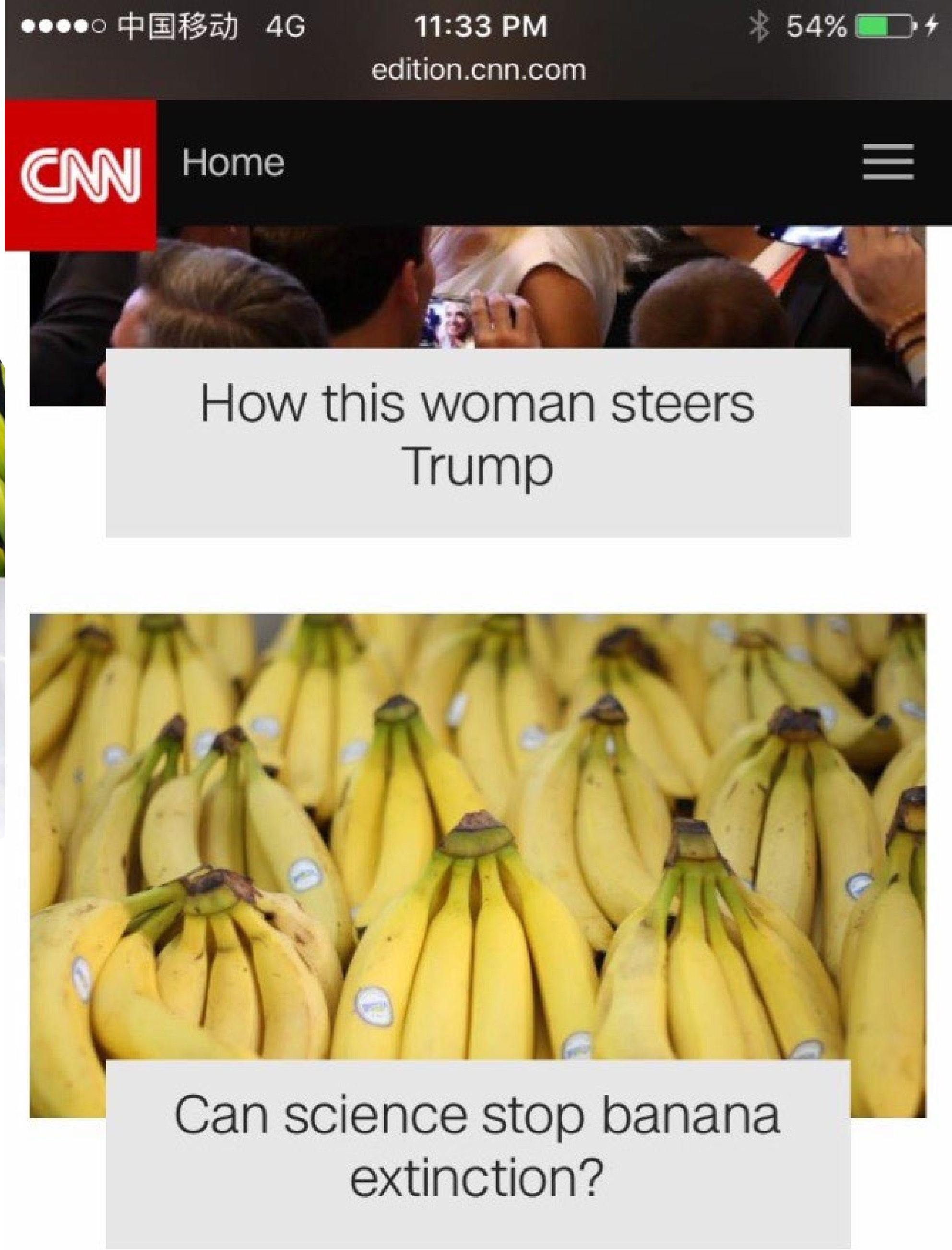
Professor Kema
2018 -

Fytopathologie

banaan

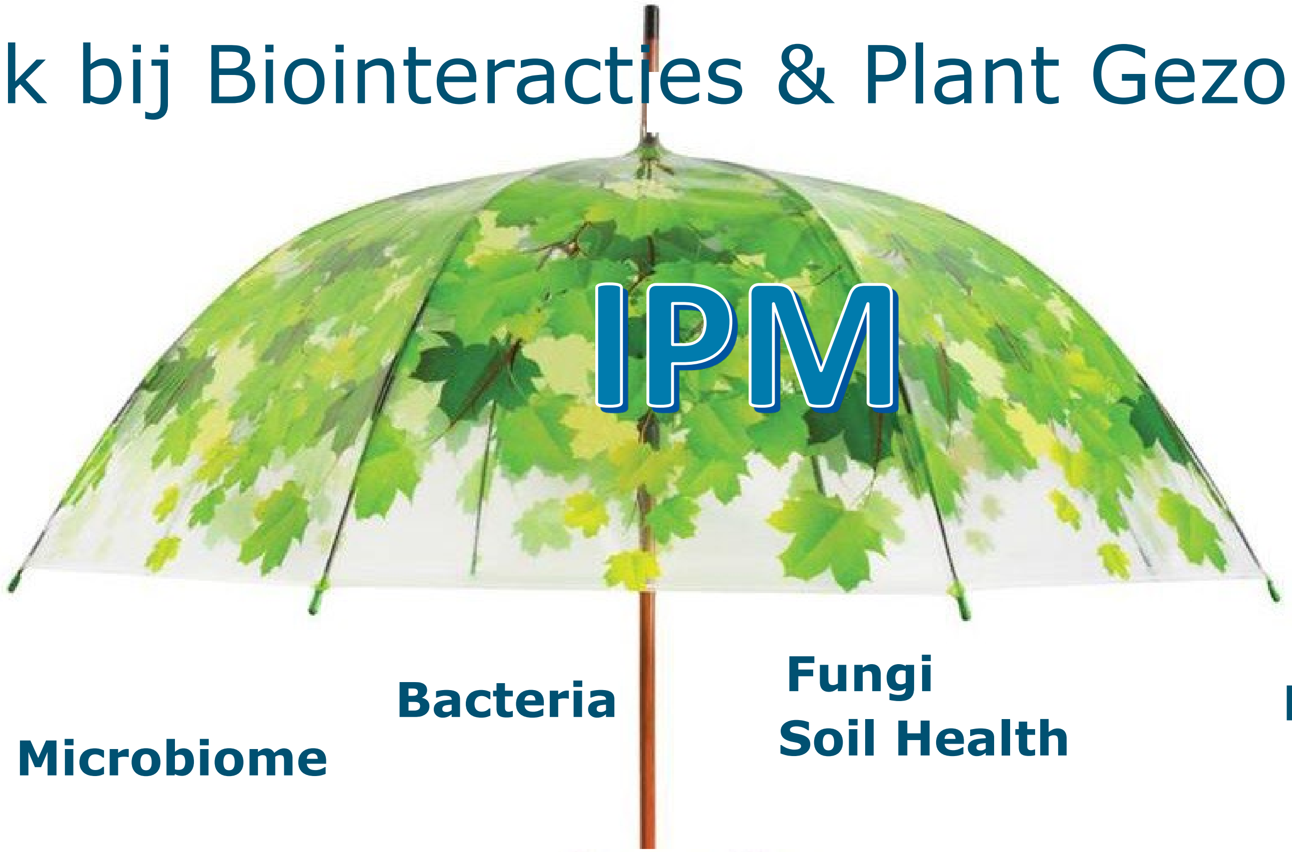

g
P = 0.010
1.5
1.0
0.5
0
S. macrogoltabida/
V. dahliae biomass
V. dahliae WT
ΔVdAve1

Meanderen


●●●●○ 中国移动 4G
11:33 PM
54%
edition.cnn.com
CNN
Home
How this woman steers Trump
Can science stop banana extinction?


1kg

Onderzoek bij Biointeracties & Plant Gezondheid



- Viruses
- Bacteria
- Fungi
- Soil Health
- Food safety
- Microbiome
- Plant Health

- Diagnostics
- Bee Health
- Genomics
- Biological Control
- Phytosanitary Research
- Epigenetics
- Prime Diagnostics

Strategie

1. Levensstijl en transities
2. Genoom evolutie
3. Waardplant-microbe communicatie en Interfaces
4. Van defense naar gewasbescherming

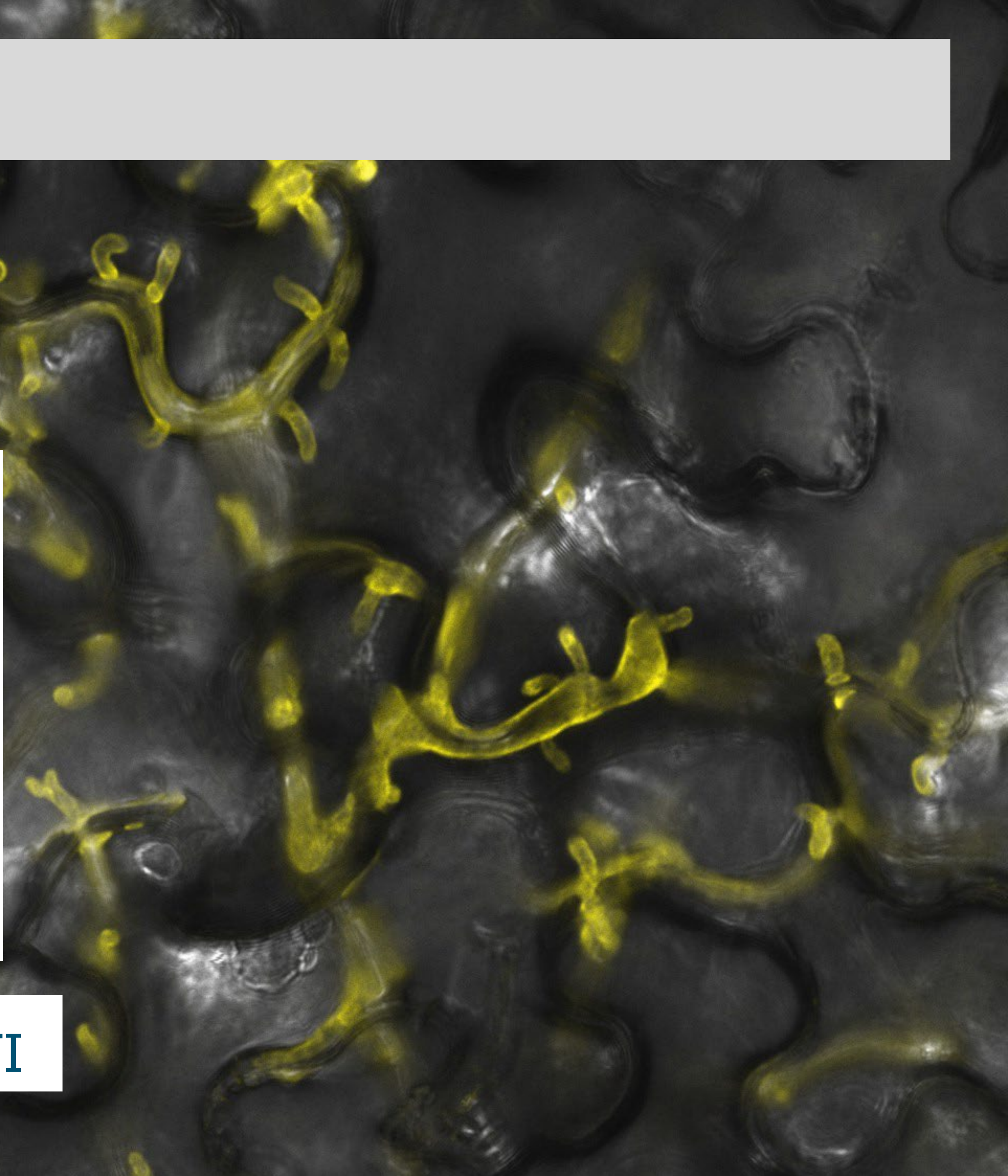
WAGENINGEN UNIVERSITY & RESEARCH

1

Francine GOVERS

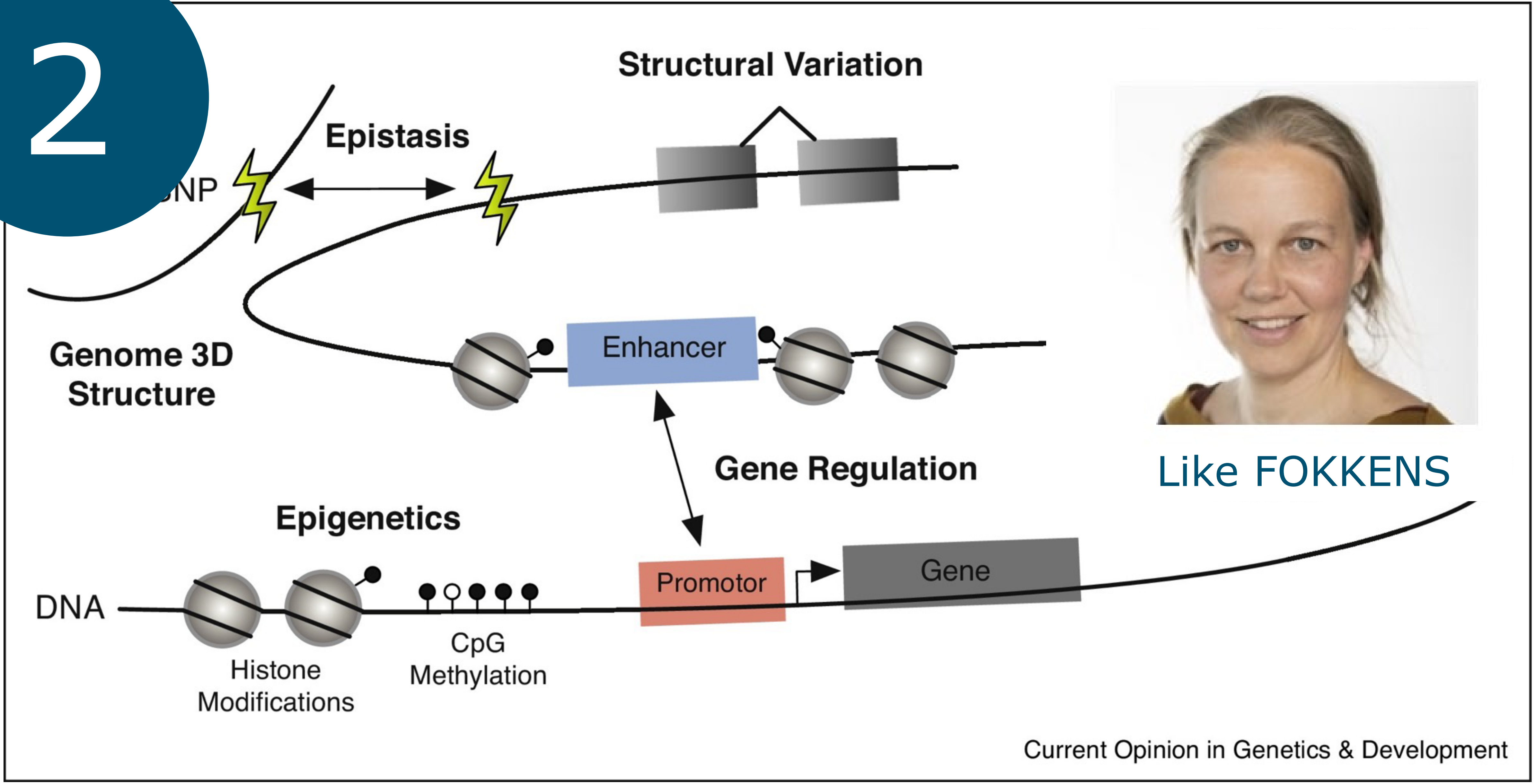
Edouard EVANGELISTI

Levensstijl en transities



Edouard EVANGELISTI

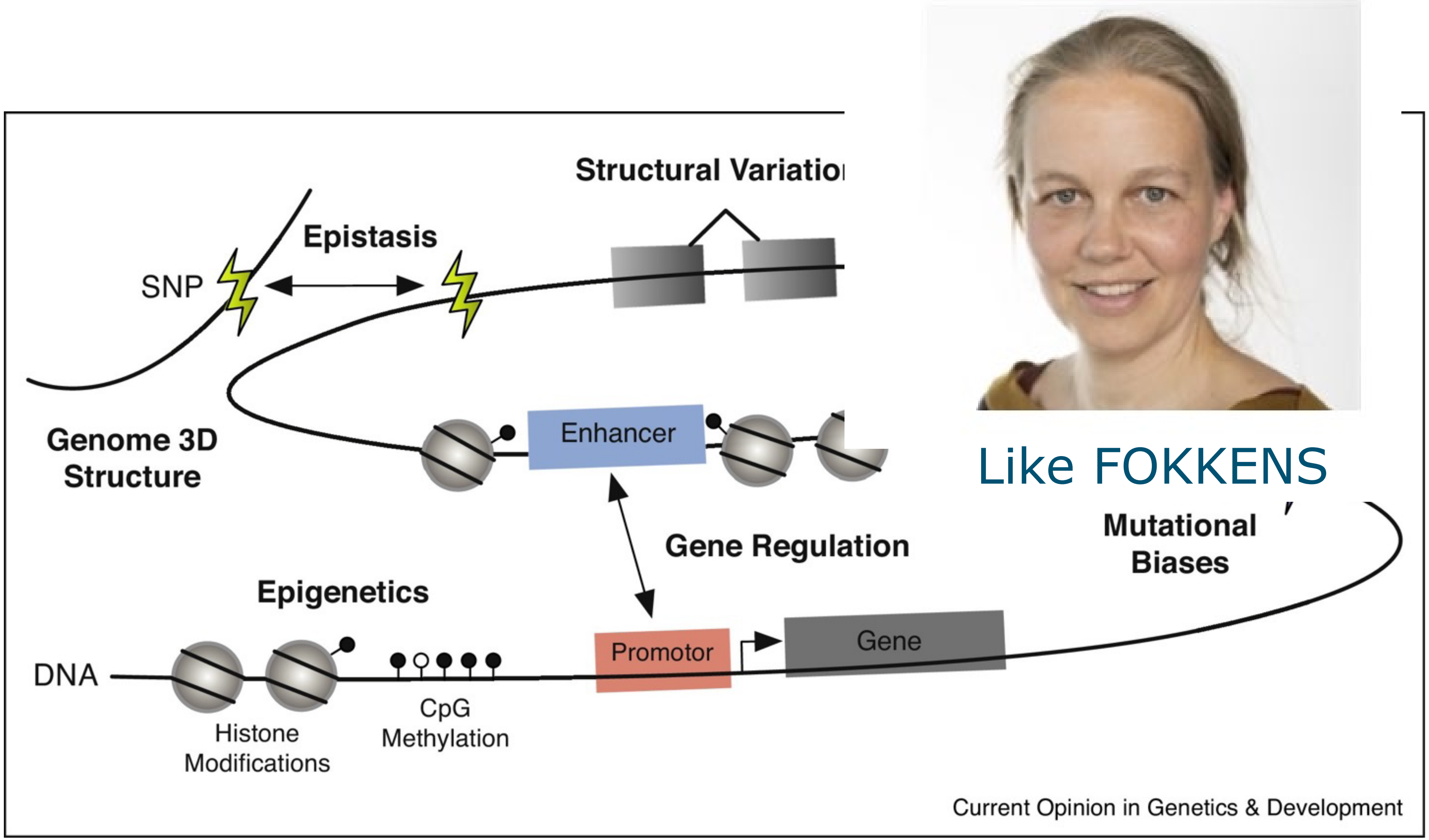
2



Current Opinion in Genetics & Development

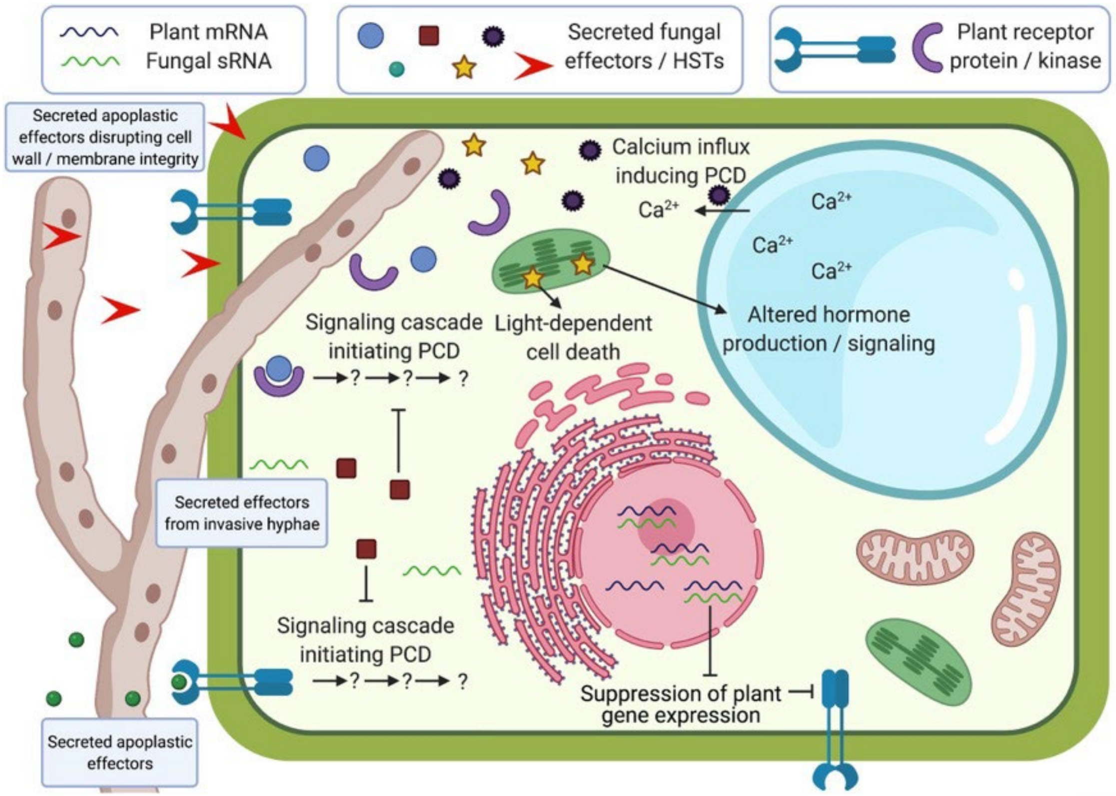
Like FOKKENS

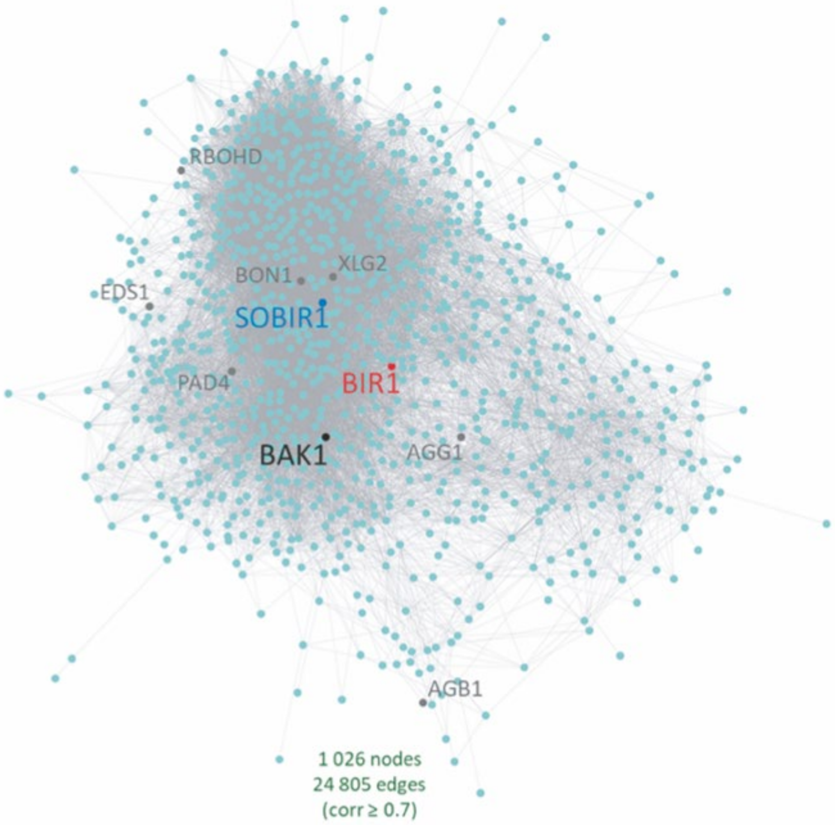
Genoom evolutie



Like FOKKENS

3

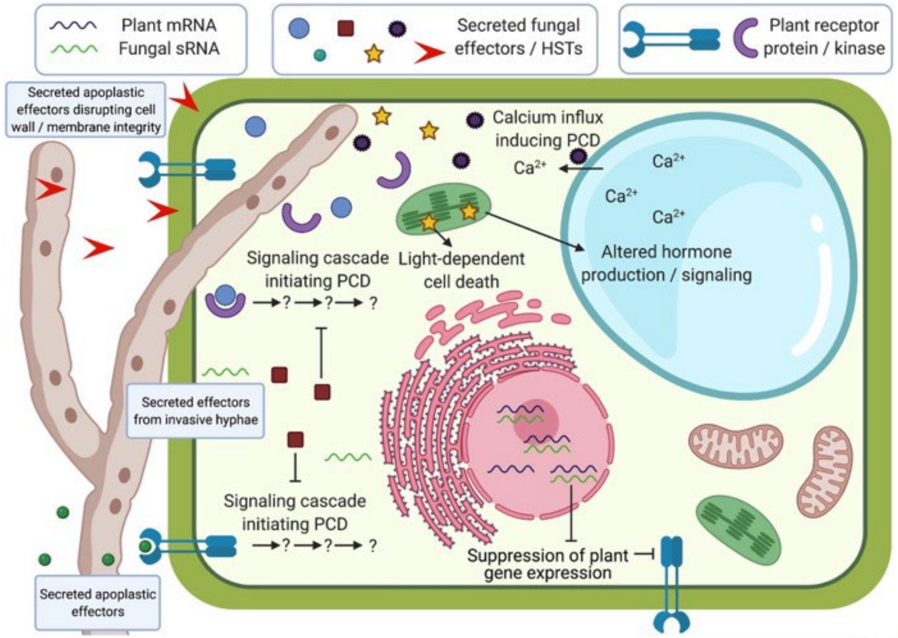


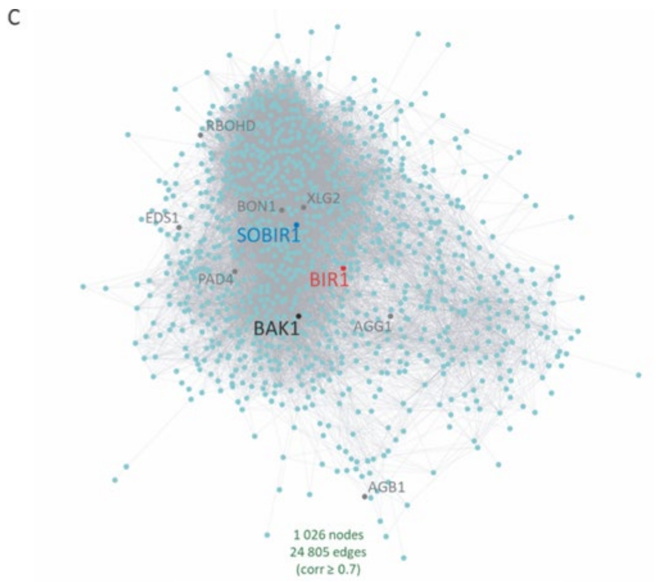


Jan VAN KAN

Matthieu JOOSTEN

Waardplant-microbe communicatie en interfaces

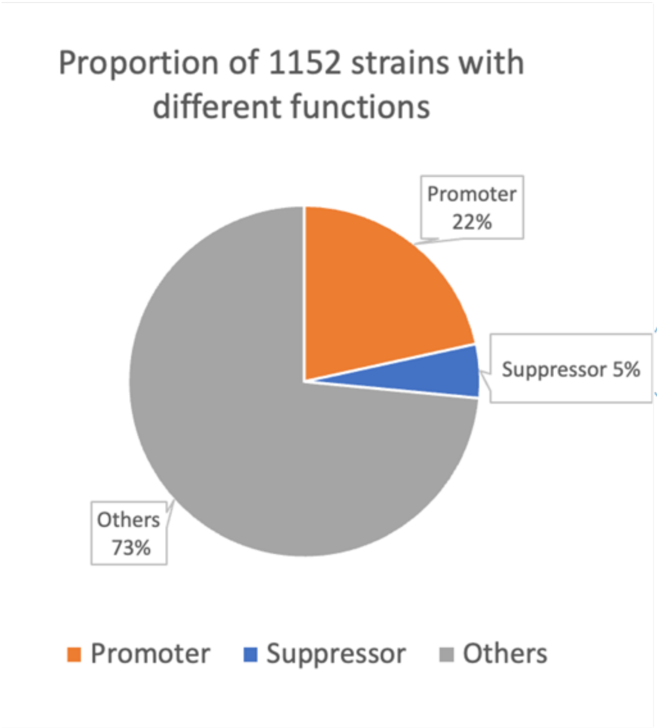


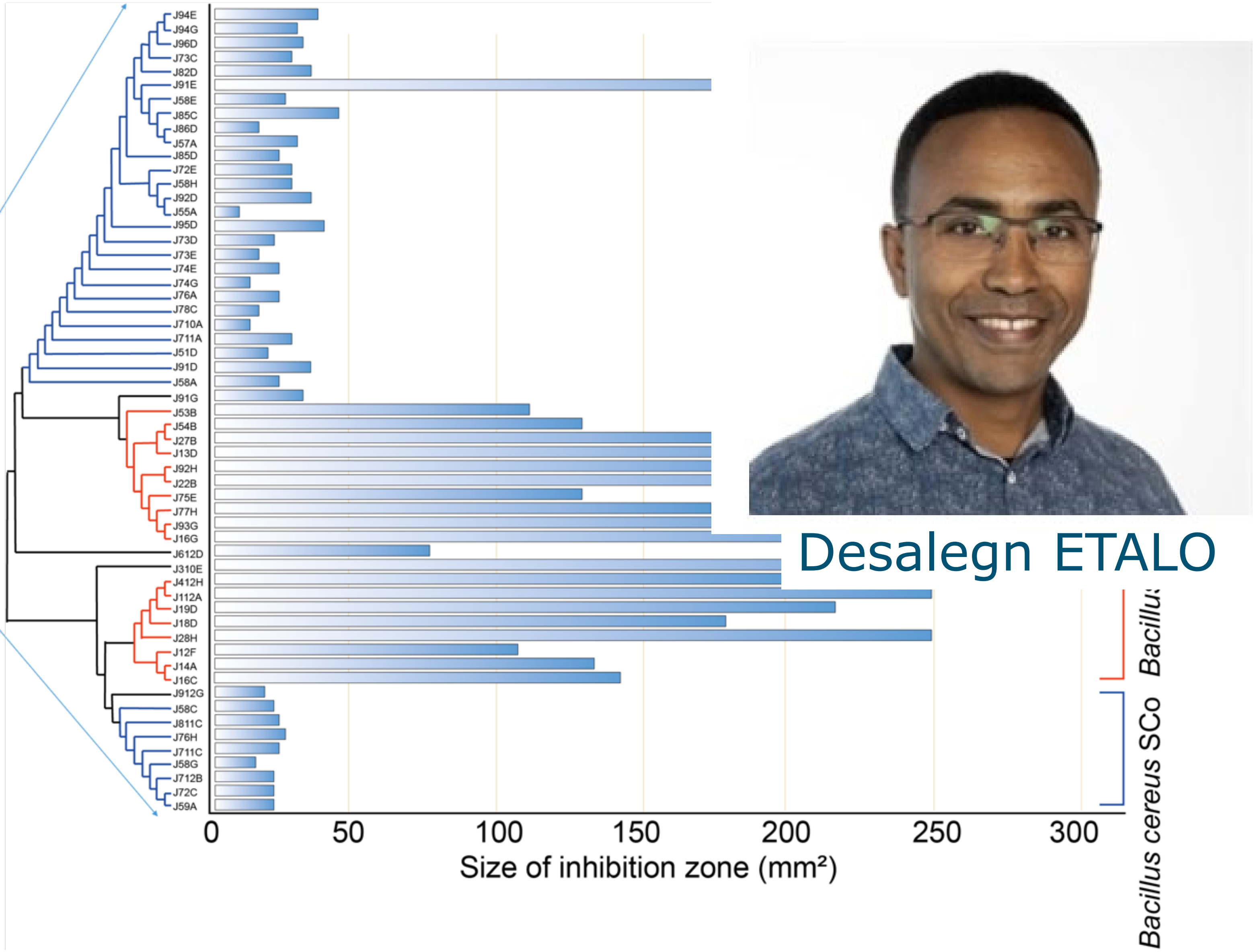


Jan VAN KAN

Matthieu JOOSTEN

4





Desalegn ETALO

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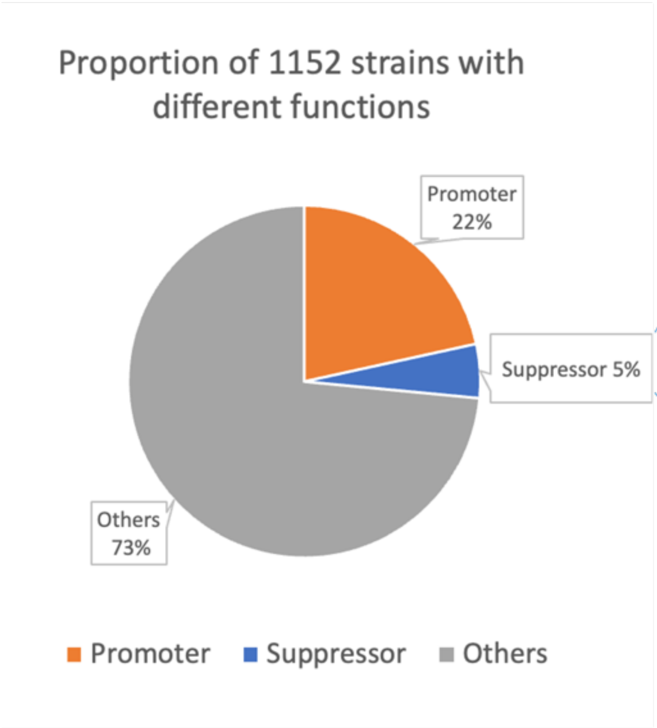
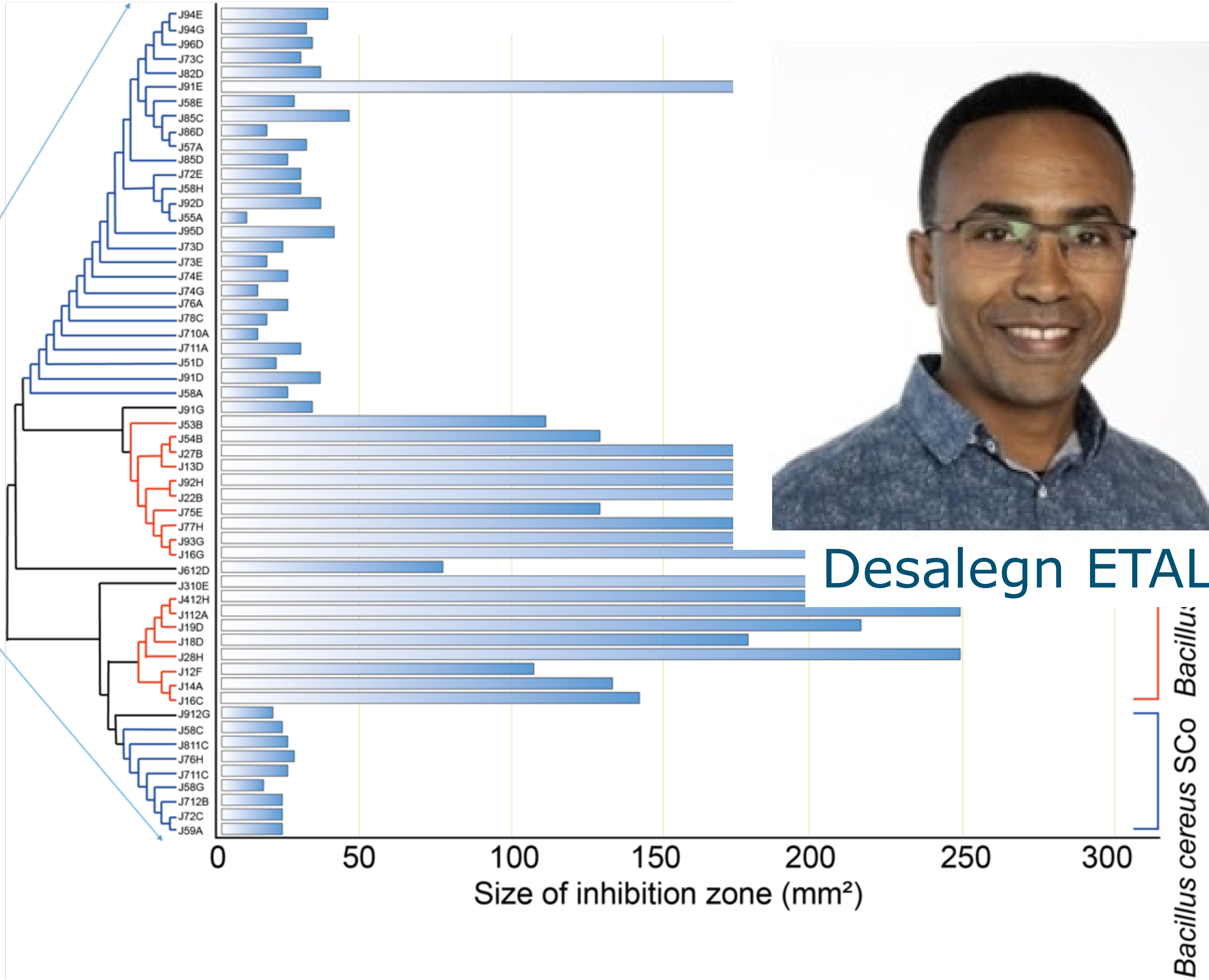
UNIVERSITY & RESEARCH

Van defense naar gewasbescherming





Desalegn ETALO

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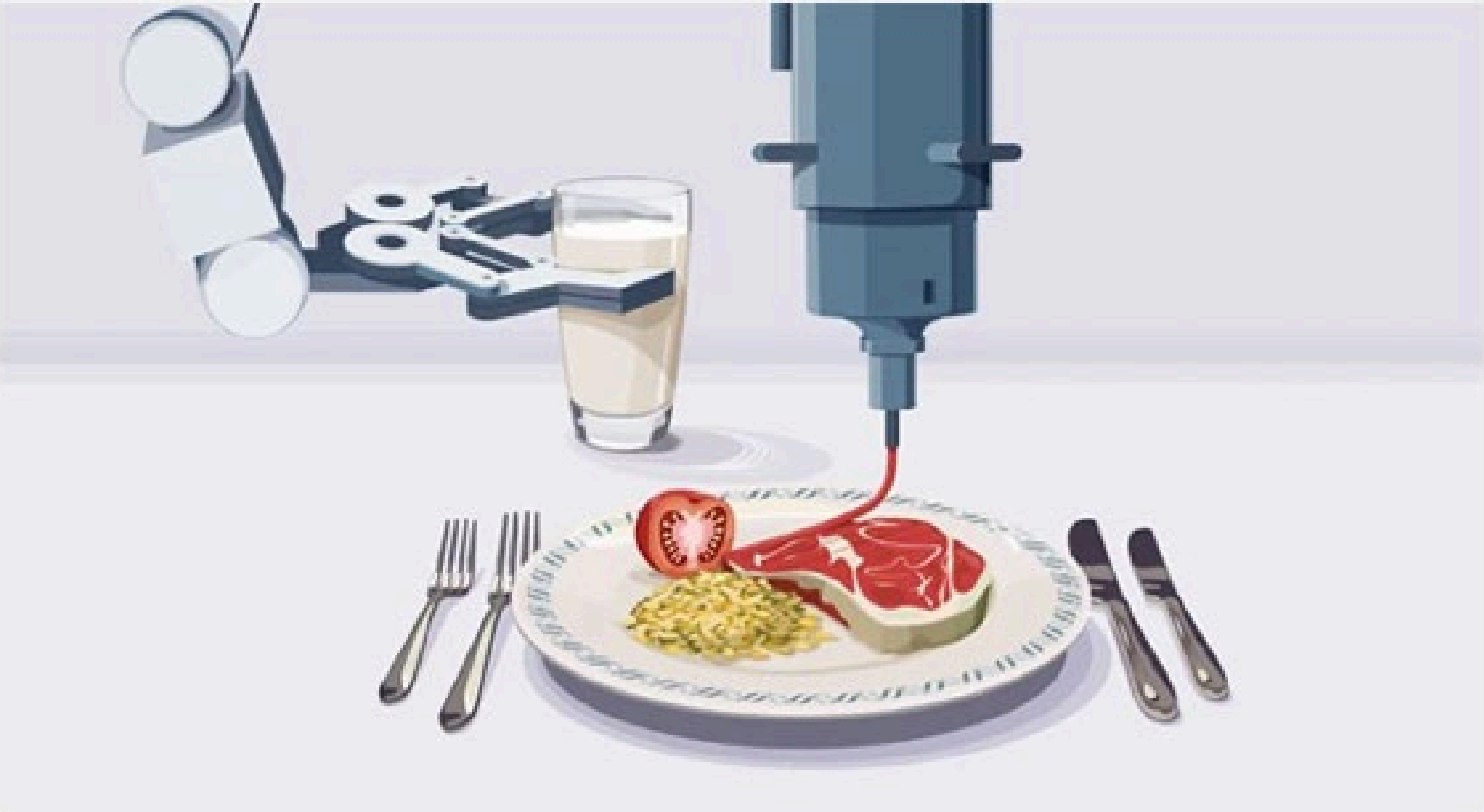
The future of food



(Simon Bradbrook)

Engineered food might change the way we eat

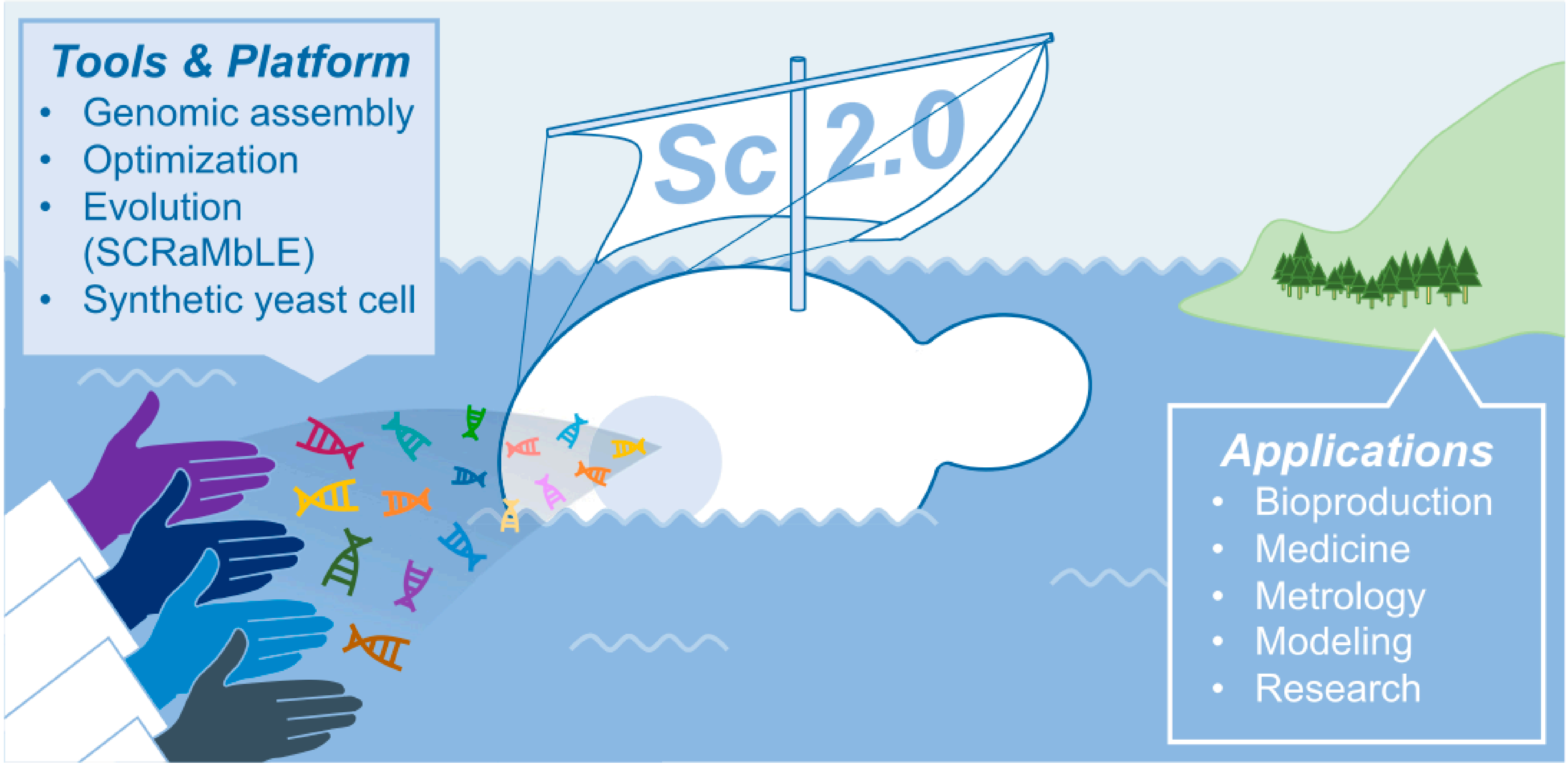
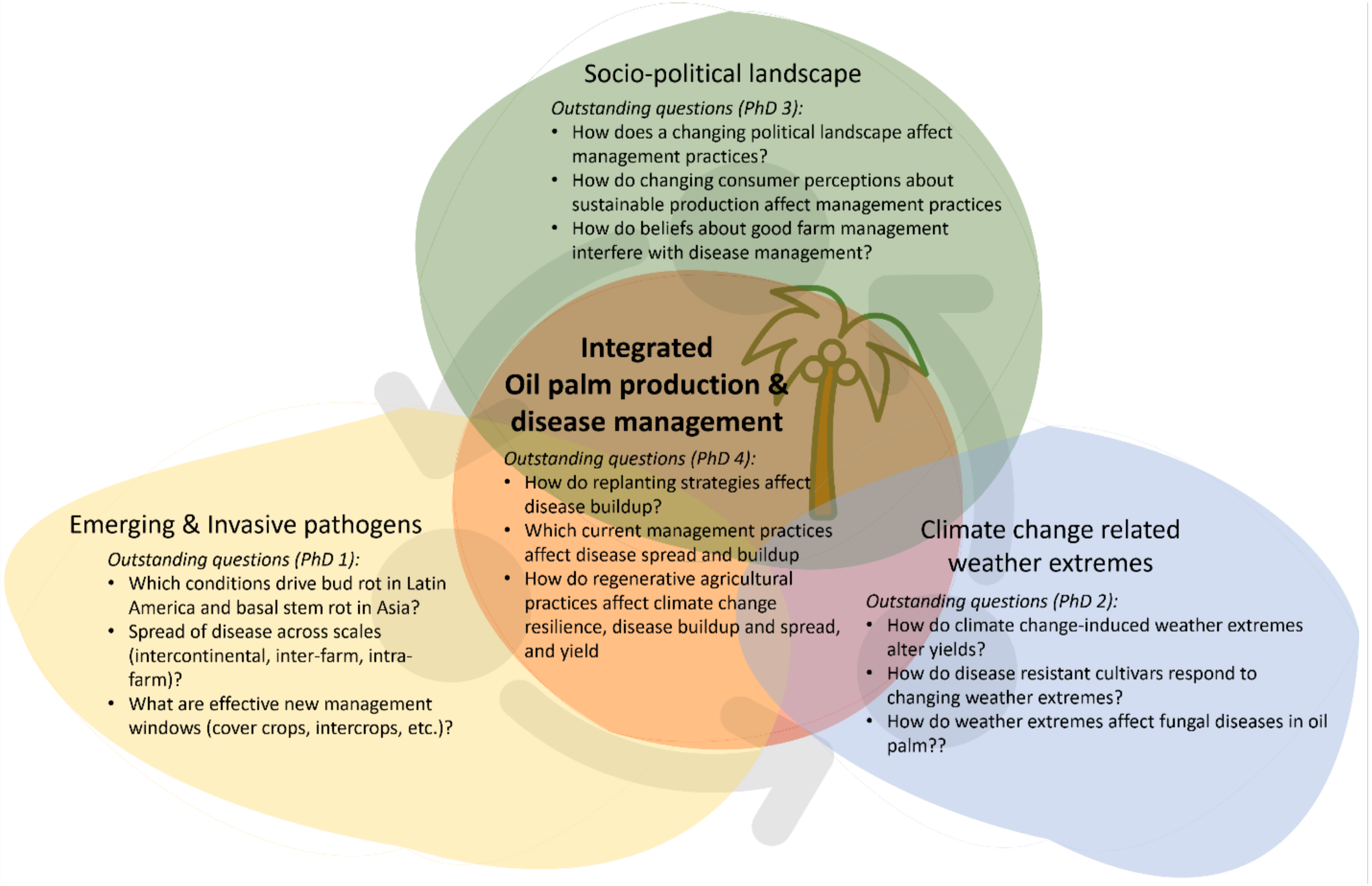


Figure 1. Sailing into the era of bespoke biology

The Sc2.0 consortium is an international effort, focused on yeast, to engineer and synthesize the whole genome of a eukaryotic cell. This special issue reports progress to build and deliver the tools and cell platform necessary to chart new courses, advancing foundational knowledge and applications in biotechnology.

Interdisciplinair onderwijs en onderzoek



100 jaar Fytopathologie in Wageningen

1. Onderwijs

2. Onderzoek

3. Vertaalslag van cel naar veld, regio, continent(en)

4. Samenwerking en interdisciplinariteit