ProFarm Blatnice Vás zve na

Den otevřených dveří

22.5.2019 9:00

„Systémy precizního zemědělství v praxi"

Program:

- Představení informačních technologií demonstrační farmy
- Bilance humusu - stávající praxe (kalkulačky) a legislativa
- Organická hnojiva využívaná na farmě (kejda, drůbeží podestýlka, kompost)
- Diskuze a praktické ukázky technologií farmy (ukázka čidel, senzorů, družicových snímků a aplikačních map, představení technického a technologického vybavení farmy presizního zemědělství včetně technologií monitoringu kvalit organických hnojiv)

Kdy:	22. května 2019
Kde:	kulturní dům Blatnice 49.0696897N, 15.8709367E
Čas:	9:00 - 14:00
Kontakt:	Ondřej Doležal - 776578777

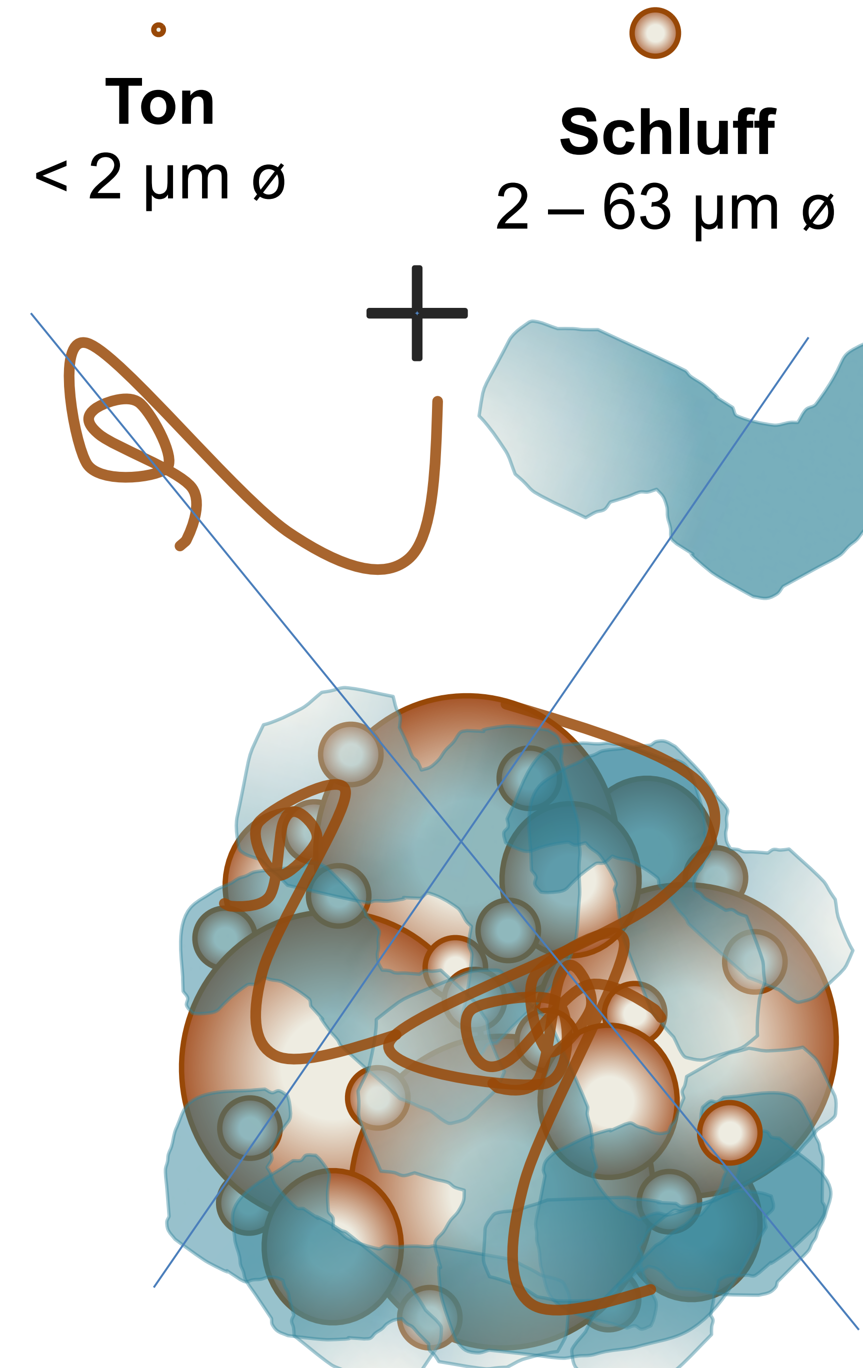
Lektoři:

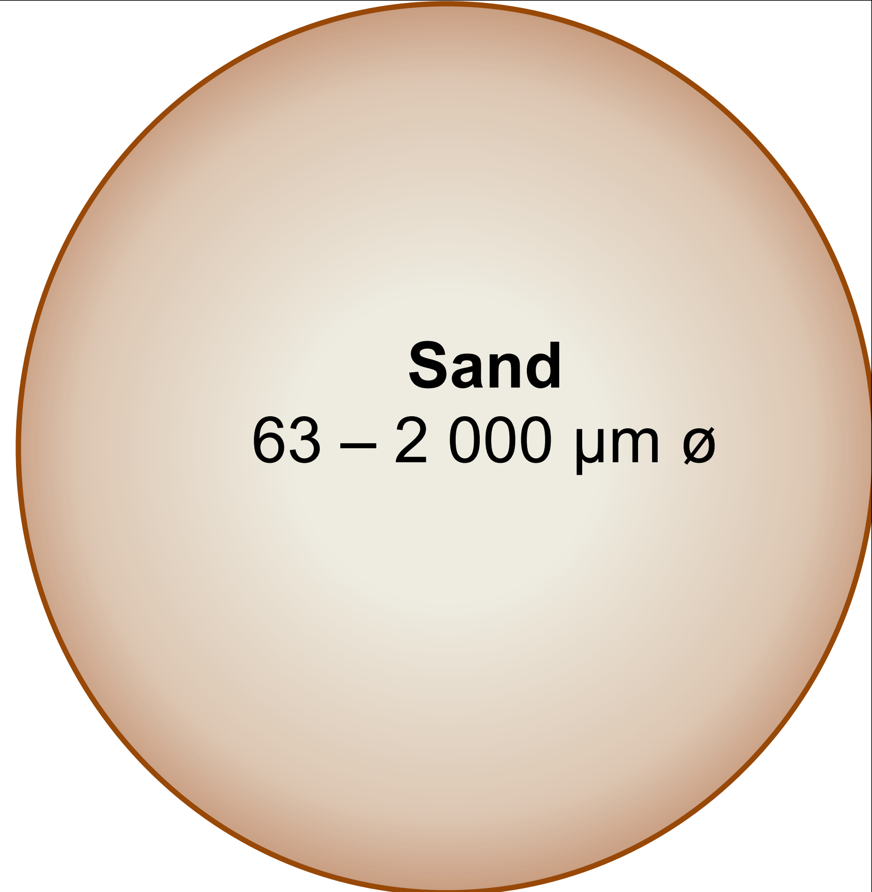
- **Ondřej Doležal, ing. Květuše Hejátková (ZERA)** - představení farmy a plánu činností
- **ing. Jiří Záhora Cs.C. (Mendelu)** - oživení suchem poškozených půd pomocí kompostu
- **ing. Martin Mistr Ph.D. (VÚMOP MZE)**
- **Ludvík Vymlátil (MJM Agro)** - systém precizního zemědělství PreFarm
- **ing. Ondřej Černý (Bayer)** - digitální platforma Climate FieldView
- **Tomáš Zíka (CleverFarm)** - IOT půdní senzory, meteostanice, satelitní snímky
- **Jaroslav Kos, ing. Jiří Kubík (Agrotec)** - představení senzoru Isaria a SoilExplorer
- **Parik Kalenda (Agromex)**
- **Jaroslav Pinkas (AMS Strom Praha** - precizní zemědělství FarmSight

profarm blatnice

MINISTERSTVO ZEMĚDĚLSTVÍ

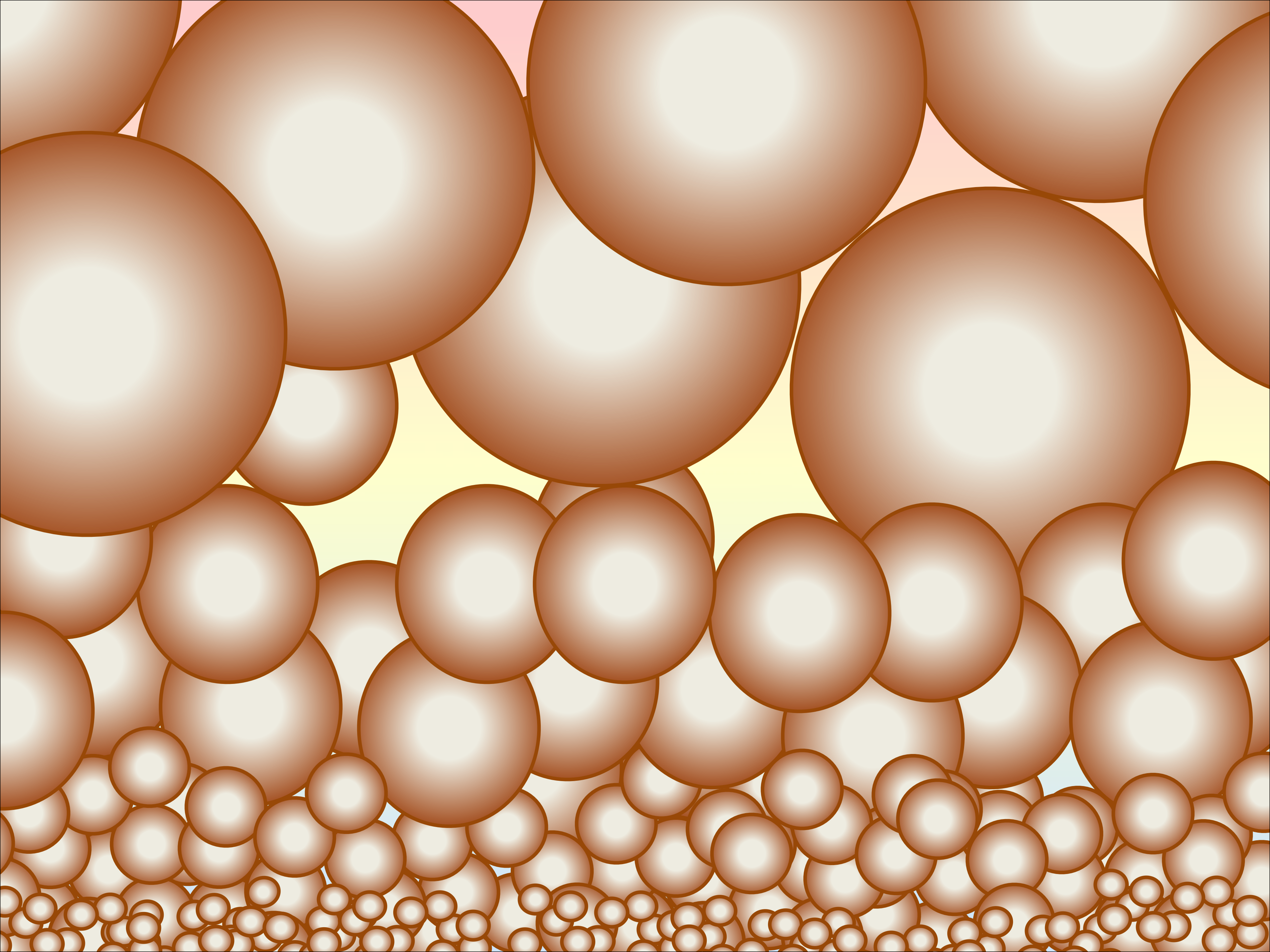
ZERA



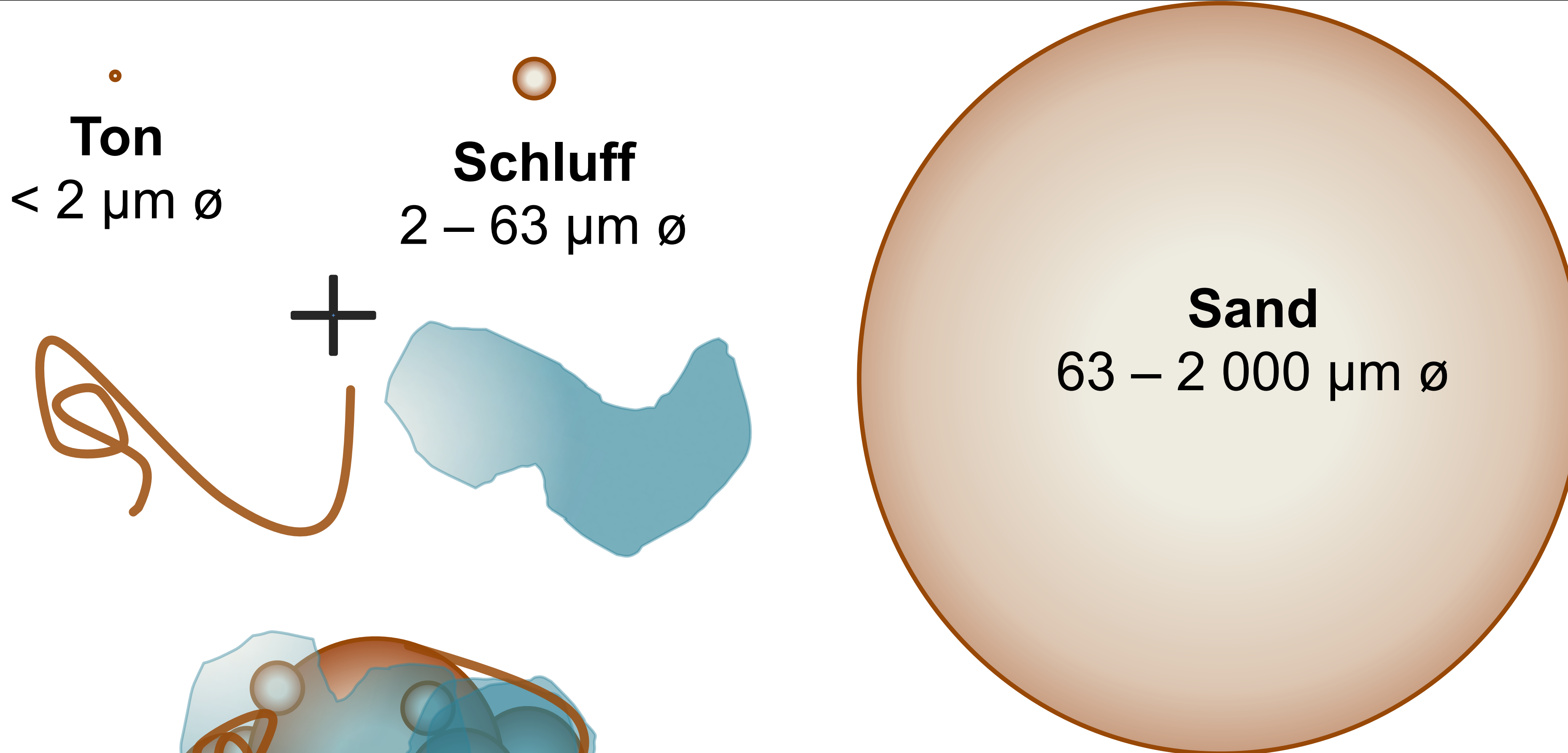


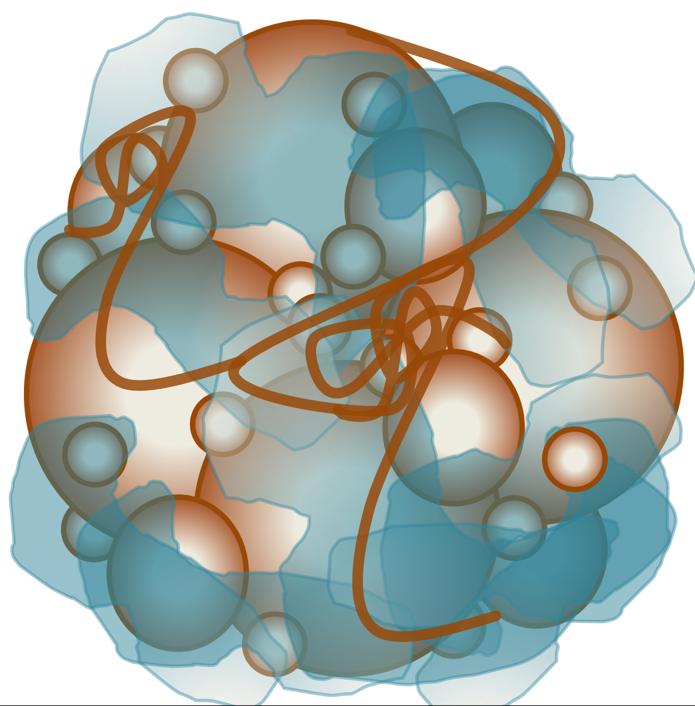
Die Bodenarten

das Diagramm zeigt sie in Abhängigkeit der Korngrößen



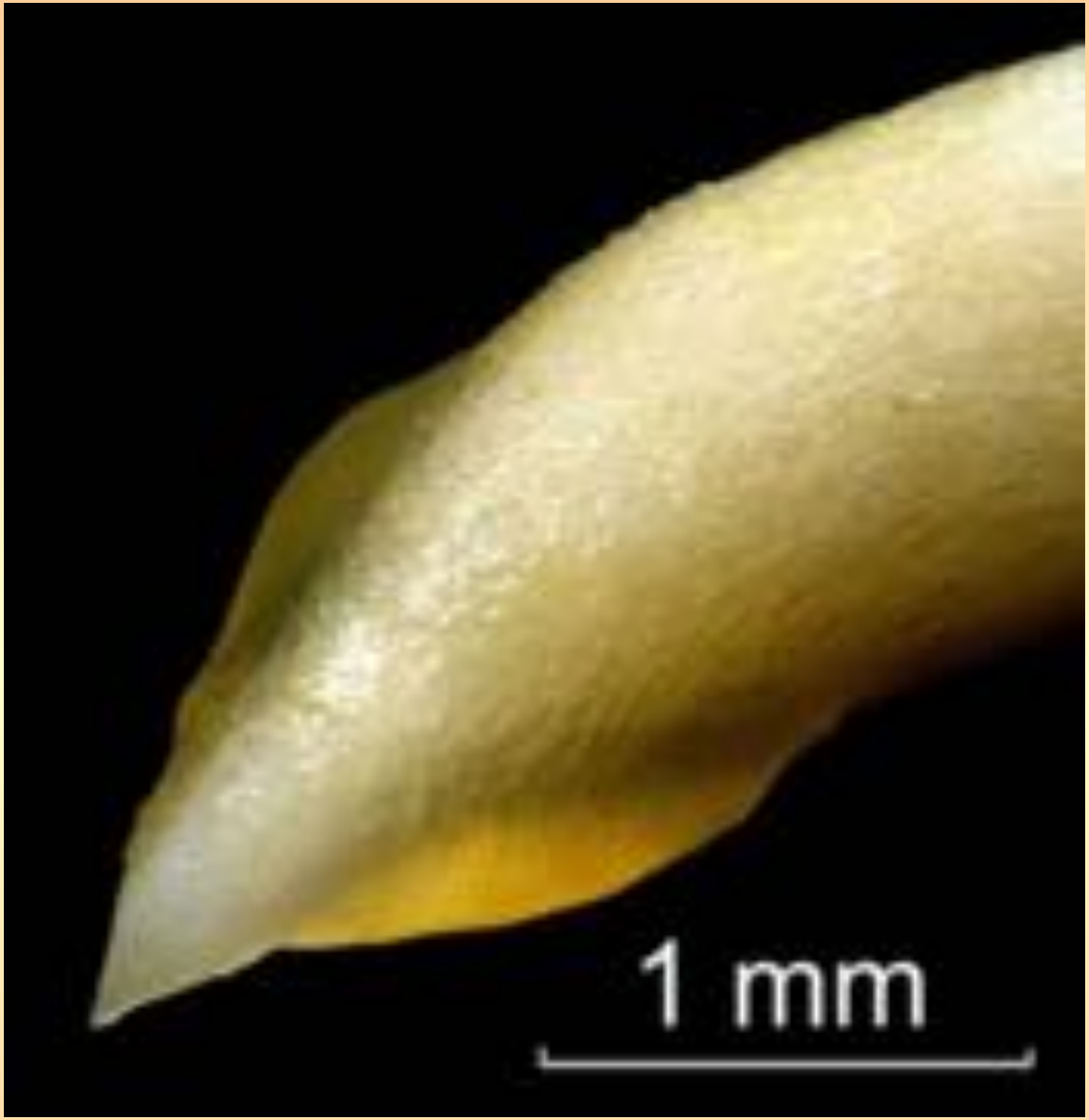

3 2207





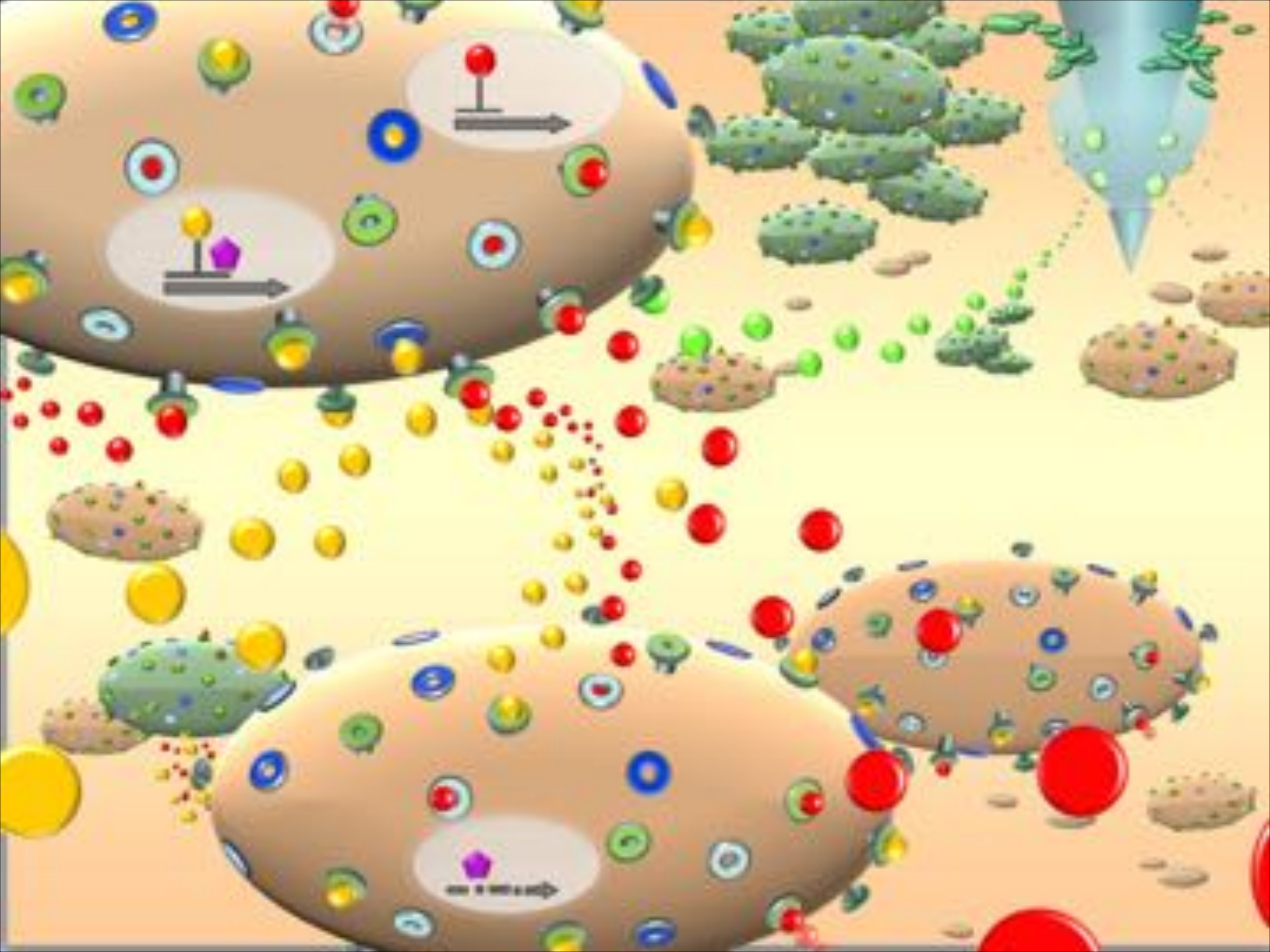
Die Bodenarten

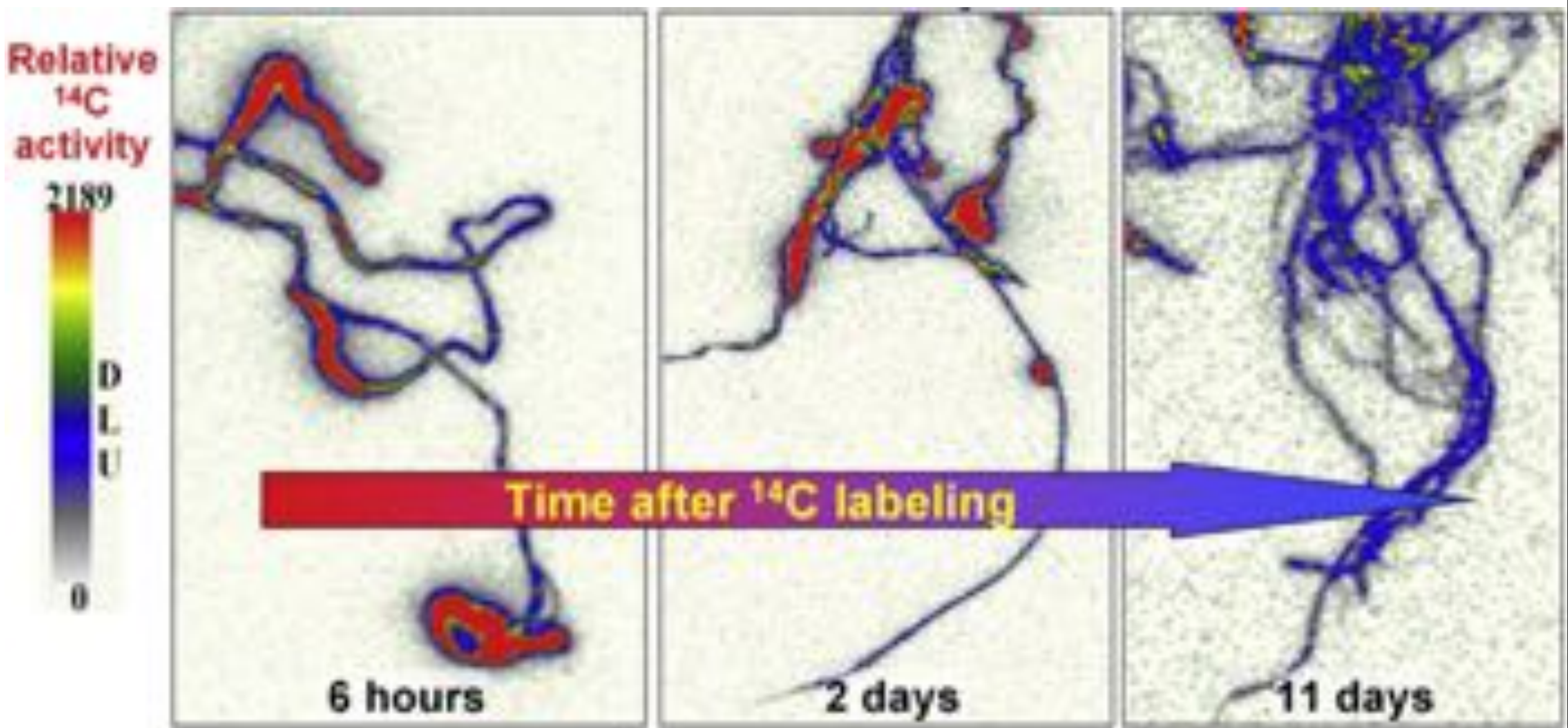
das Diagramm zeigt sie in Abhängigkeit der Korngrößen



Mikrographie der Wurzelkappe mit mucilage (Mais)

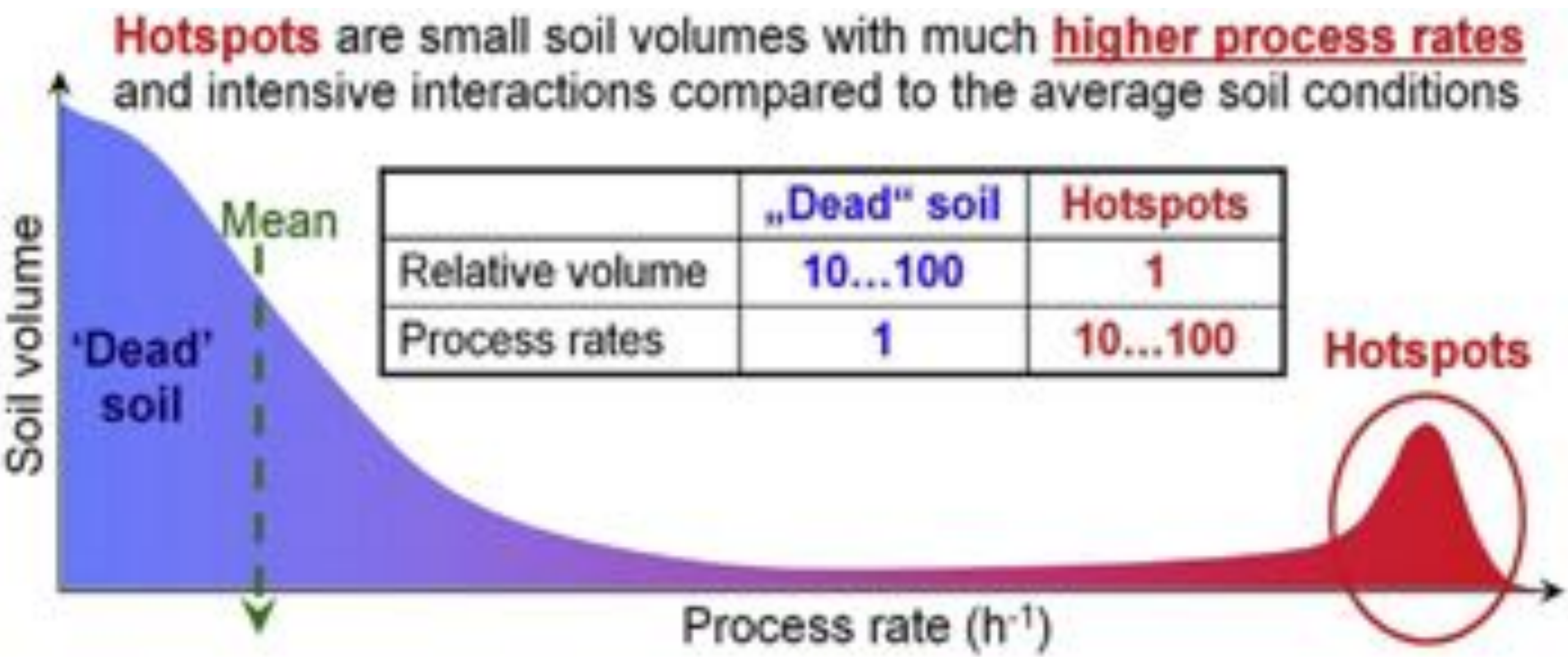
(von V. Sobolev, Agricultural Research Service, United States Department of Agriculture - ARS USDA)





^{14}C imaging of relative ^{14}C activity at the root tips at increasing time after labeling of *Lolium perenne* in $^{14}CO_2$ atmosphere: 6 h, 2 d, and 11 d after the ^{14}C labeling. The color scale presents the ^{14}C activity as digital light units (DLU) (from Pausch and Kuzyakov, 2011, changed)

Y. Kuzyakov, 186 E. Blagodatskaya / Soil Biology & Biochemistry 83 (2015) 184-199

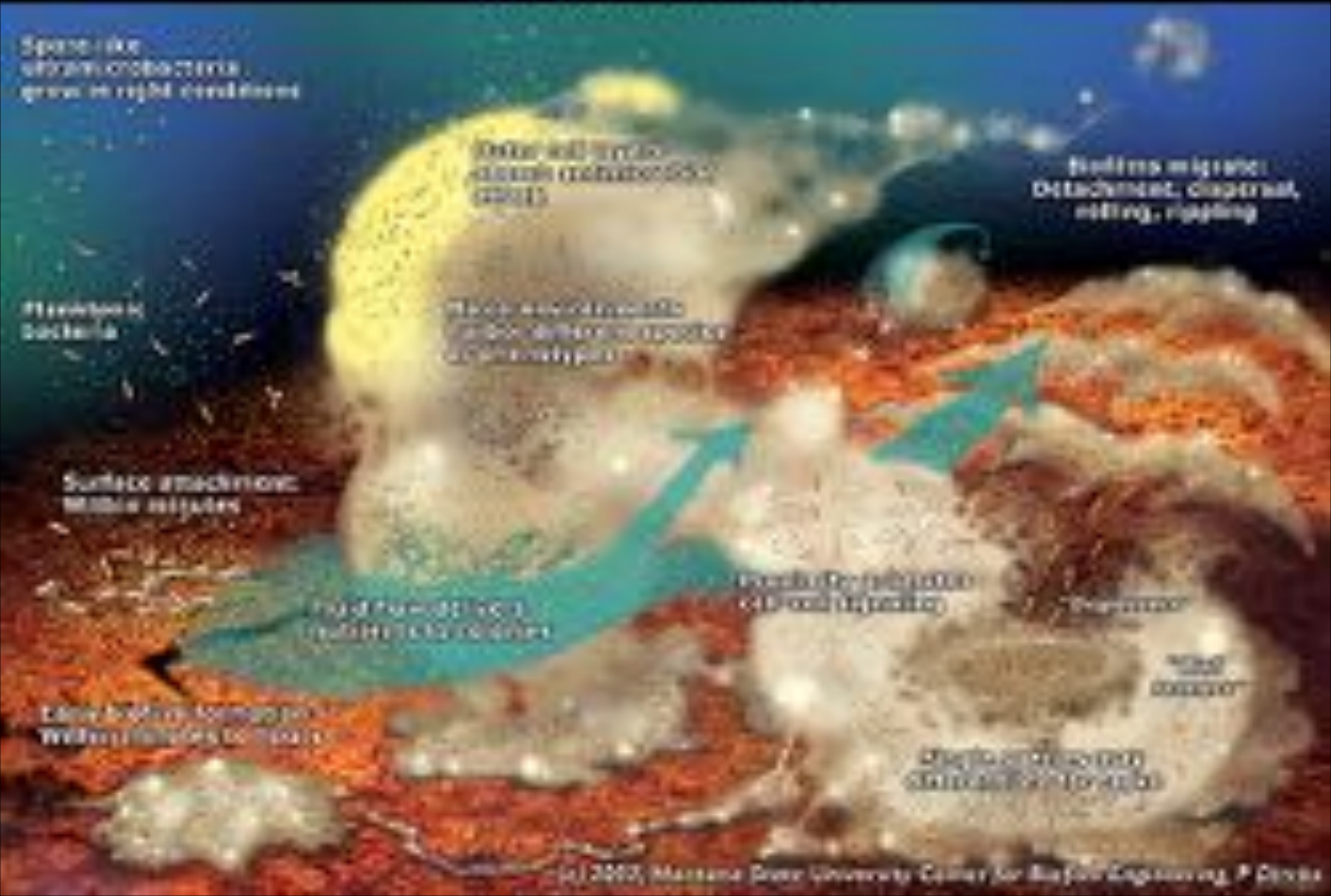


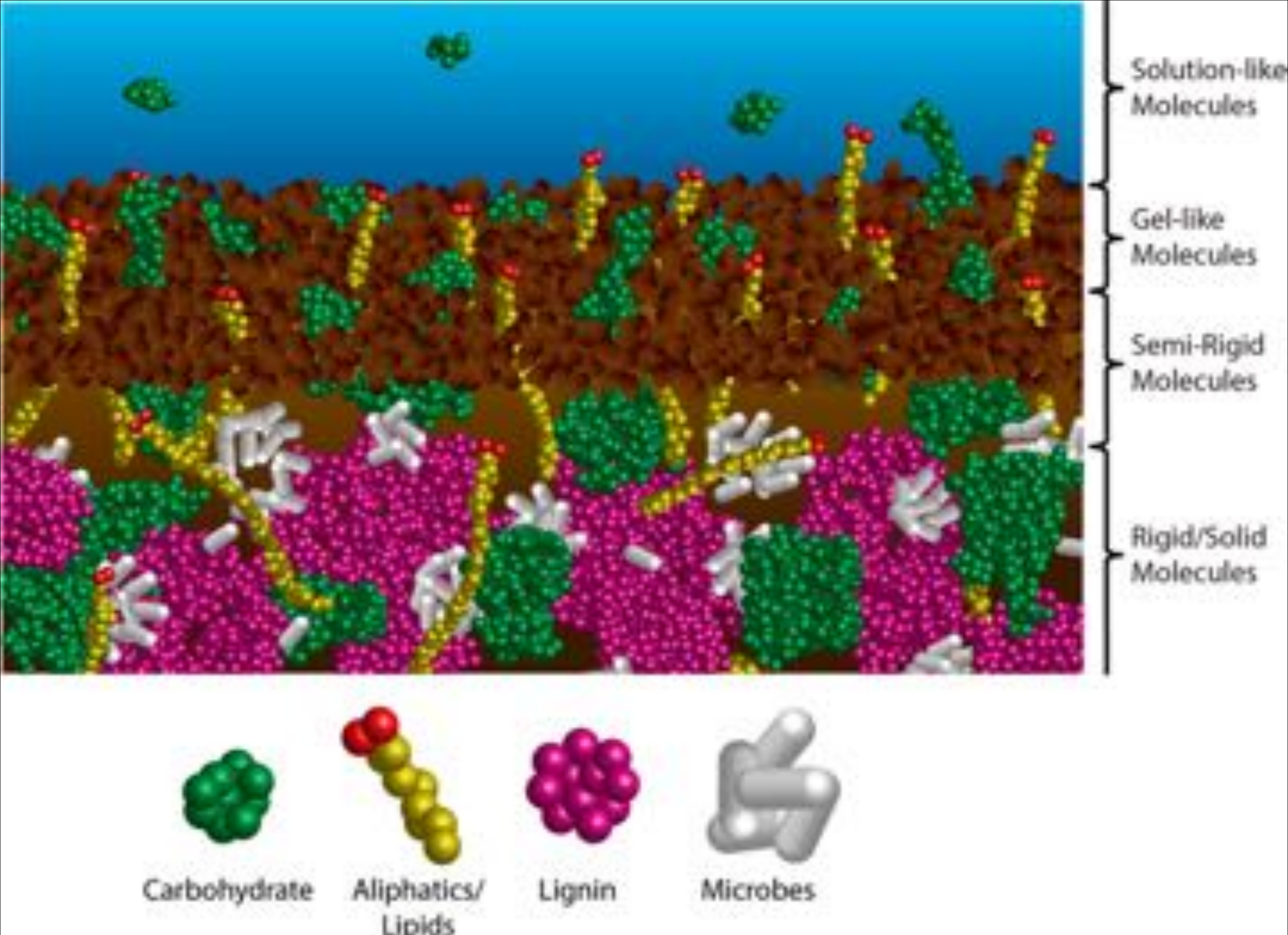
Concept of microbial hotspots in soil: Hotspots are small soil volumes with much higher process rates and intensive interactions compared to the average soil conditions. The Table inset represents the relative volume and process rates in the hotspots and bulk soil. “Mean” represents the weighted average process rates by soil mixing.

Y. Kuzyakov, 186 E. Blagodatskaya / Soil Biology & Biochemistry 83 (2015) 184-199

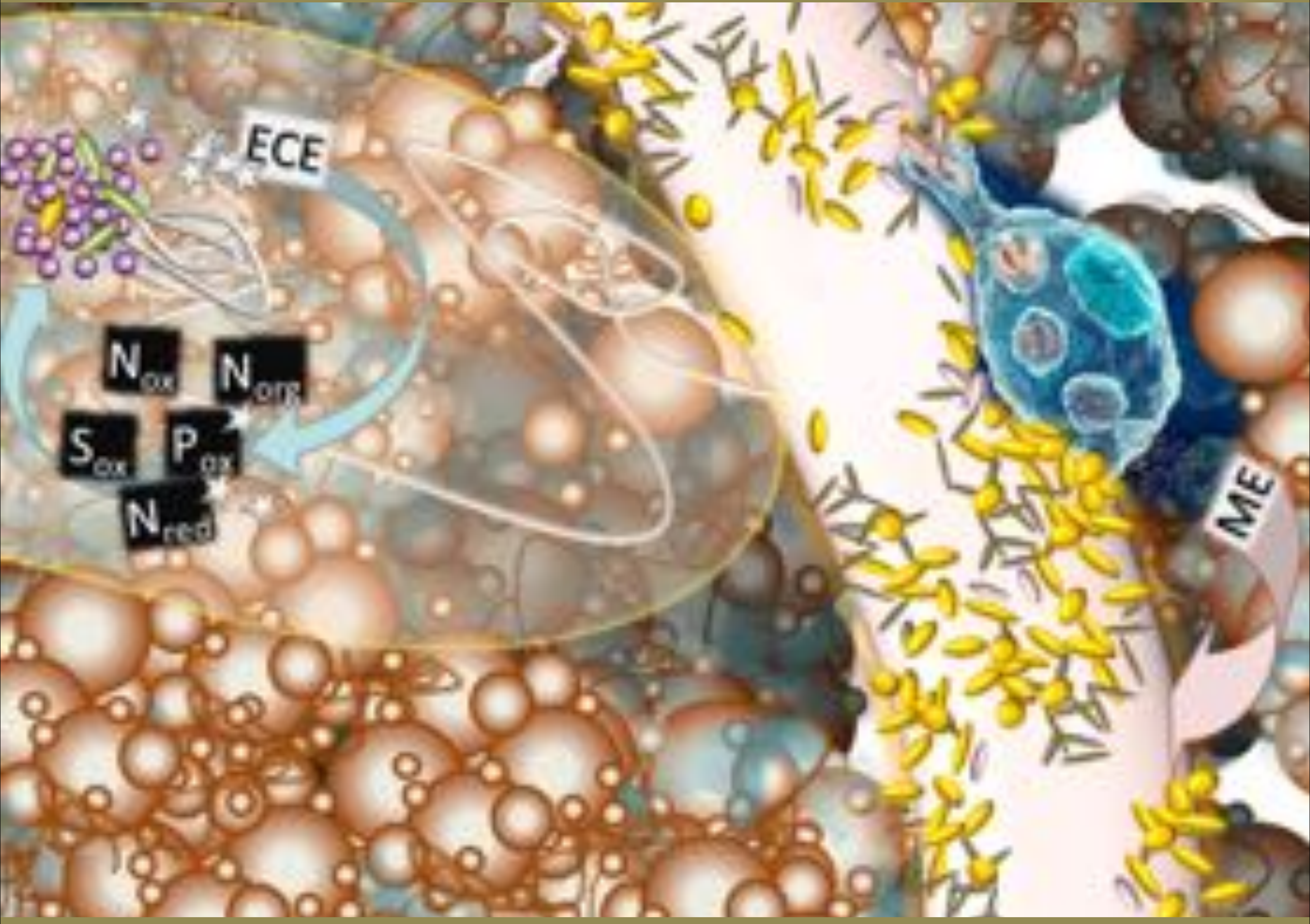
Microbial Biofilms: Sticking Together for Success

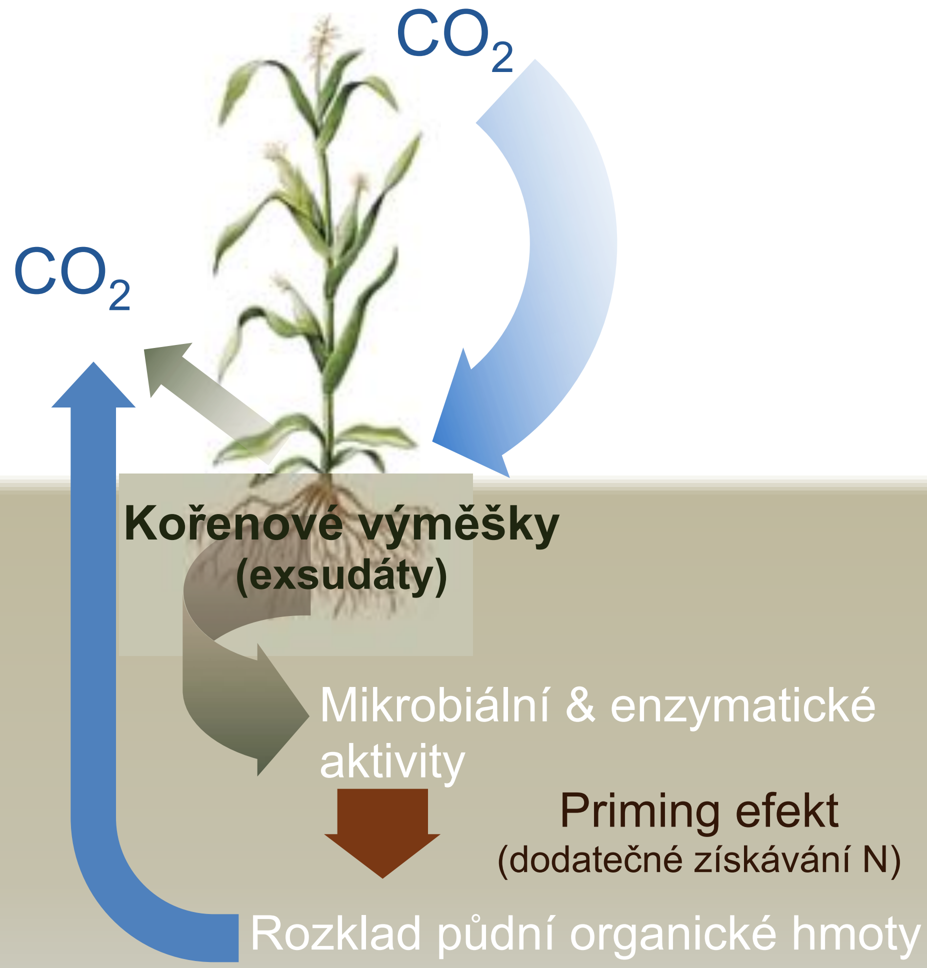
Single-celled microbes readily form communities in resilient structures that provide advantages of multicellular organization.



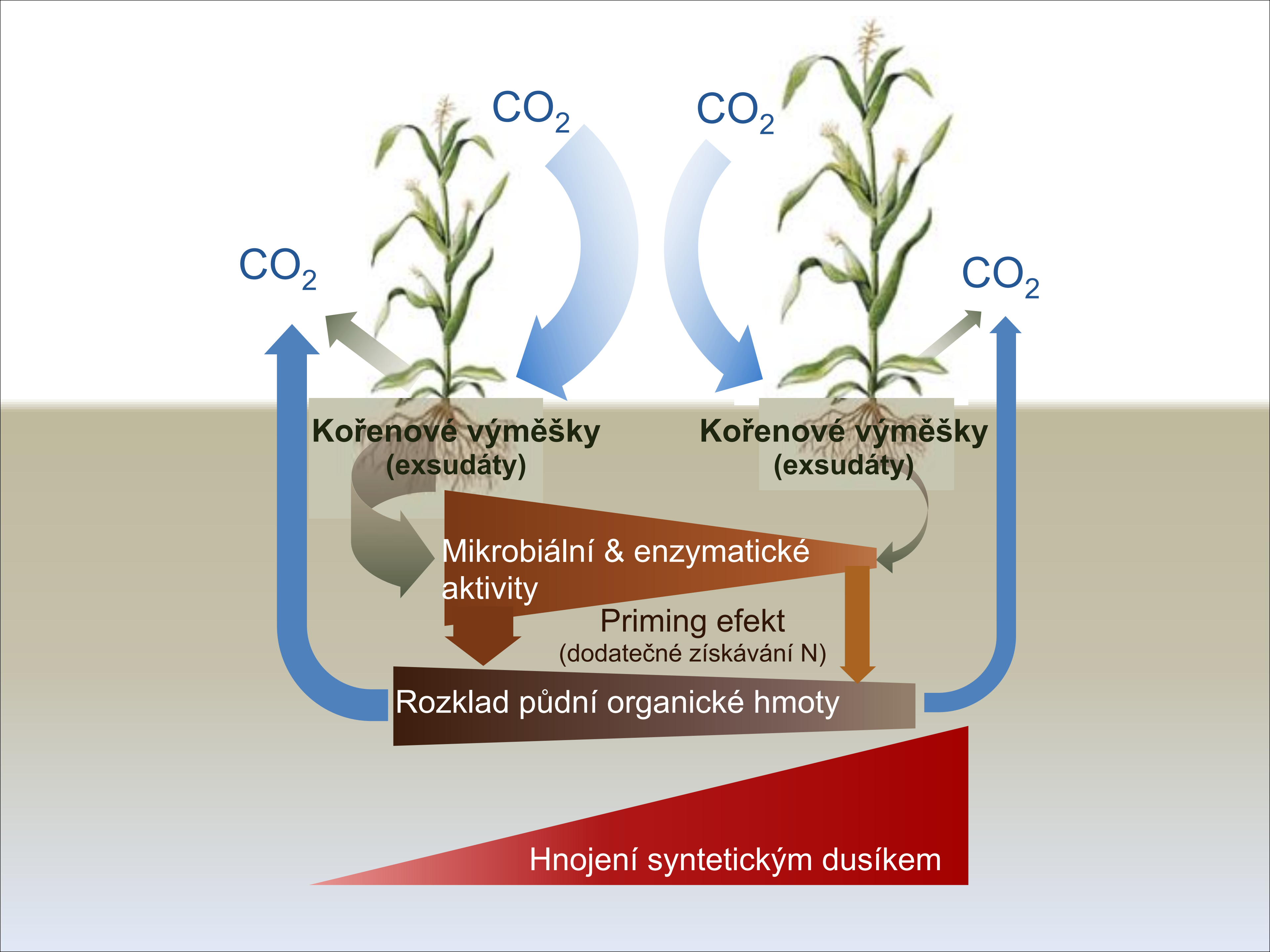


Masoom Hussain et al., Environ. Sci. Technol. 2016, 50, 1670−16


ECE
Nox
Norg
Sox
Pox
Nred
ME



CO_2
CO_2
Kořenové výměšky
(exsudáty)
Mikrobiální & enzymatické
aktivity
Priming efekt
(dodatečné získávání N)
Rozklad půdní organické hmoty



CO_2
CO_2
CO_2
CO_2
Kořenové výměšky
(exsudáty)
Kořenové výměšky
(exsudáty)
Mikrobiální & enzymatické aktivity
Priming efekt
(dodatečné získávání N)
Rozklad půdní organické hmoty
Hnojení syntetickým dusíkem

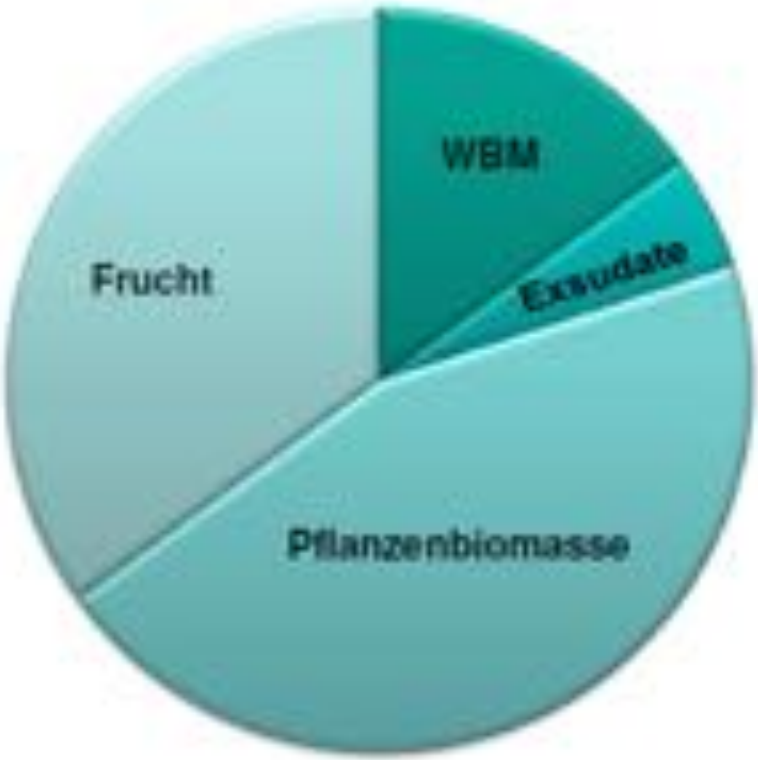
Maiswurzelspitze mit Schleimabsonderung (Exsudat)

Christoph Feigentreu

Deutsche Saatveredelung AG

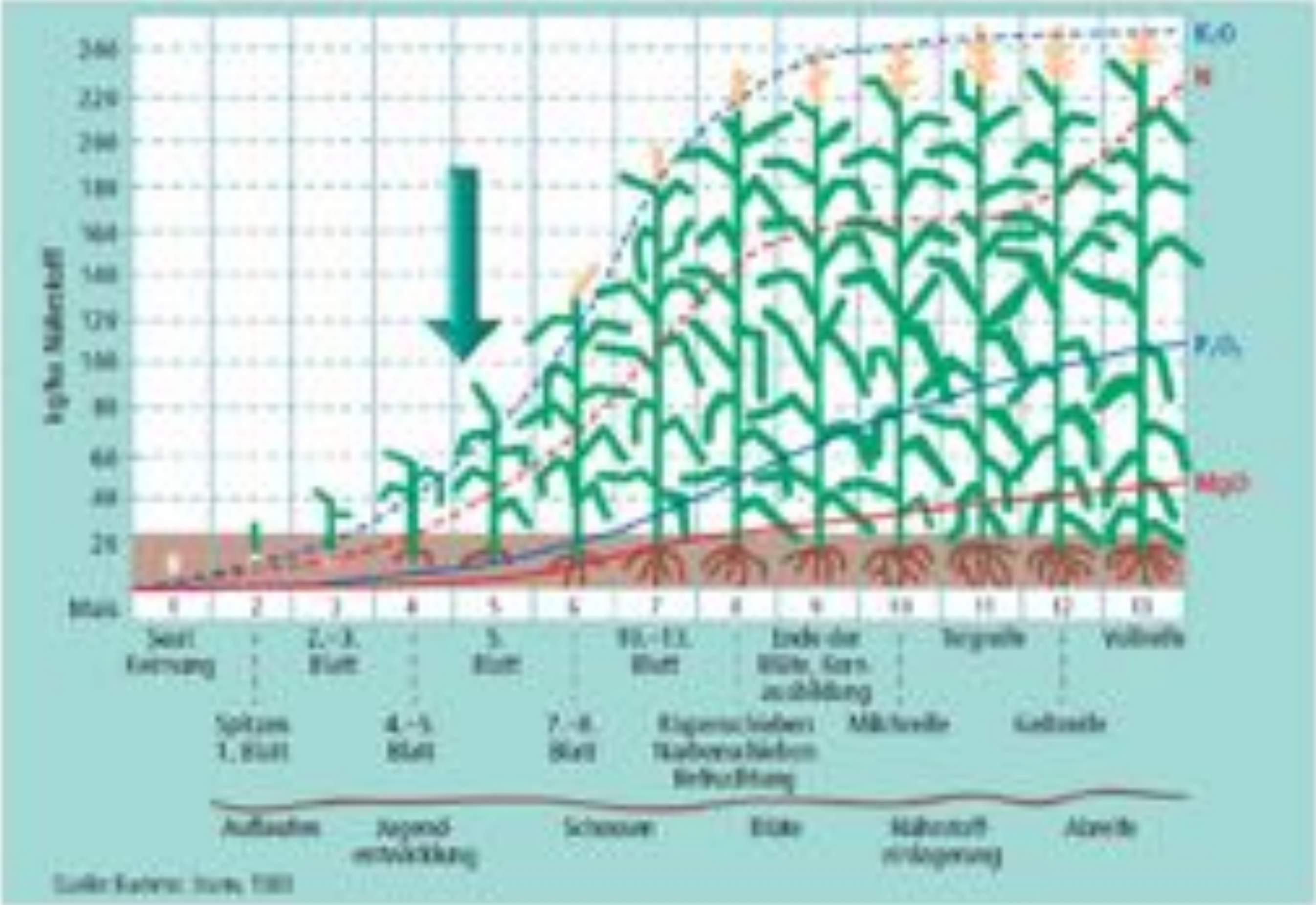
Kaindorf, 23.01.2018

Ergebnis im gestörtem Boden:



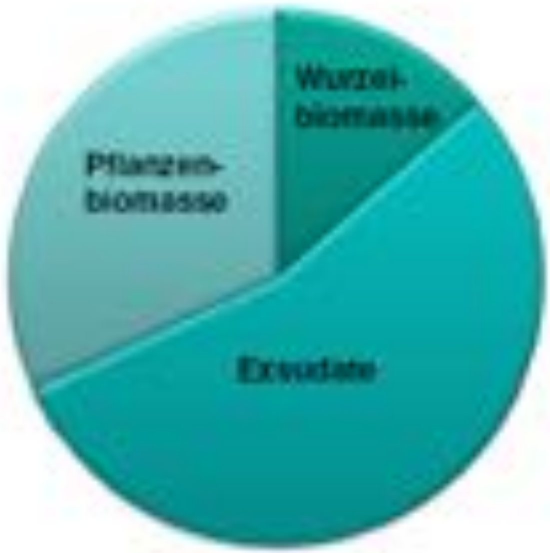
ca. 50 % der Pflanzenbiomasse befindet sich im Boden

Verlauf der Nährstoffaufnahme und Entwicklungsstadien von Körnermais



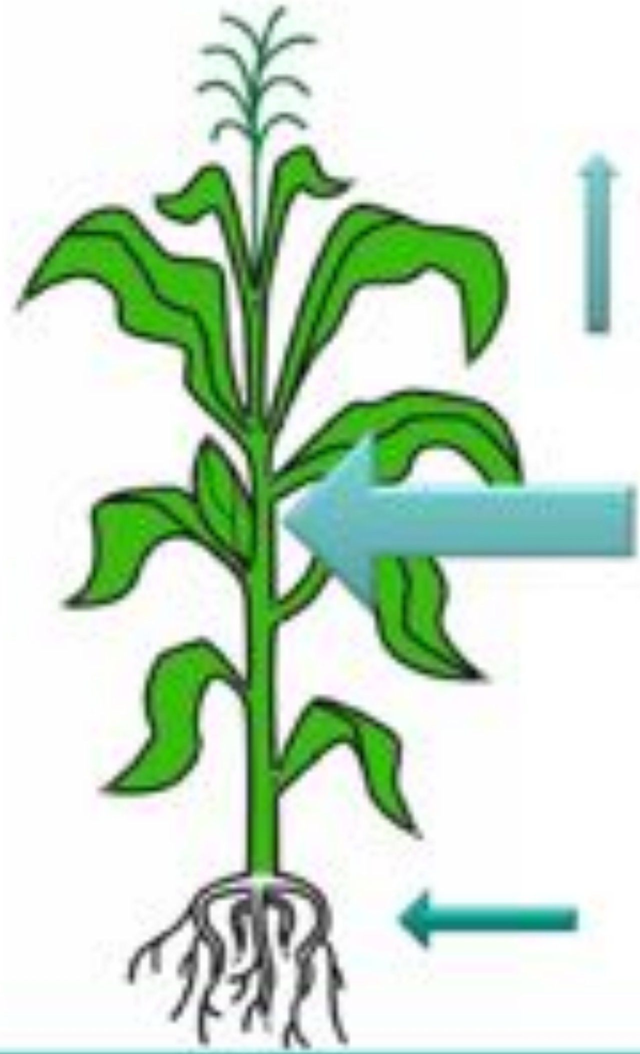
3- 5 Blattstadium

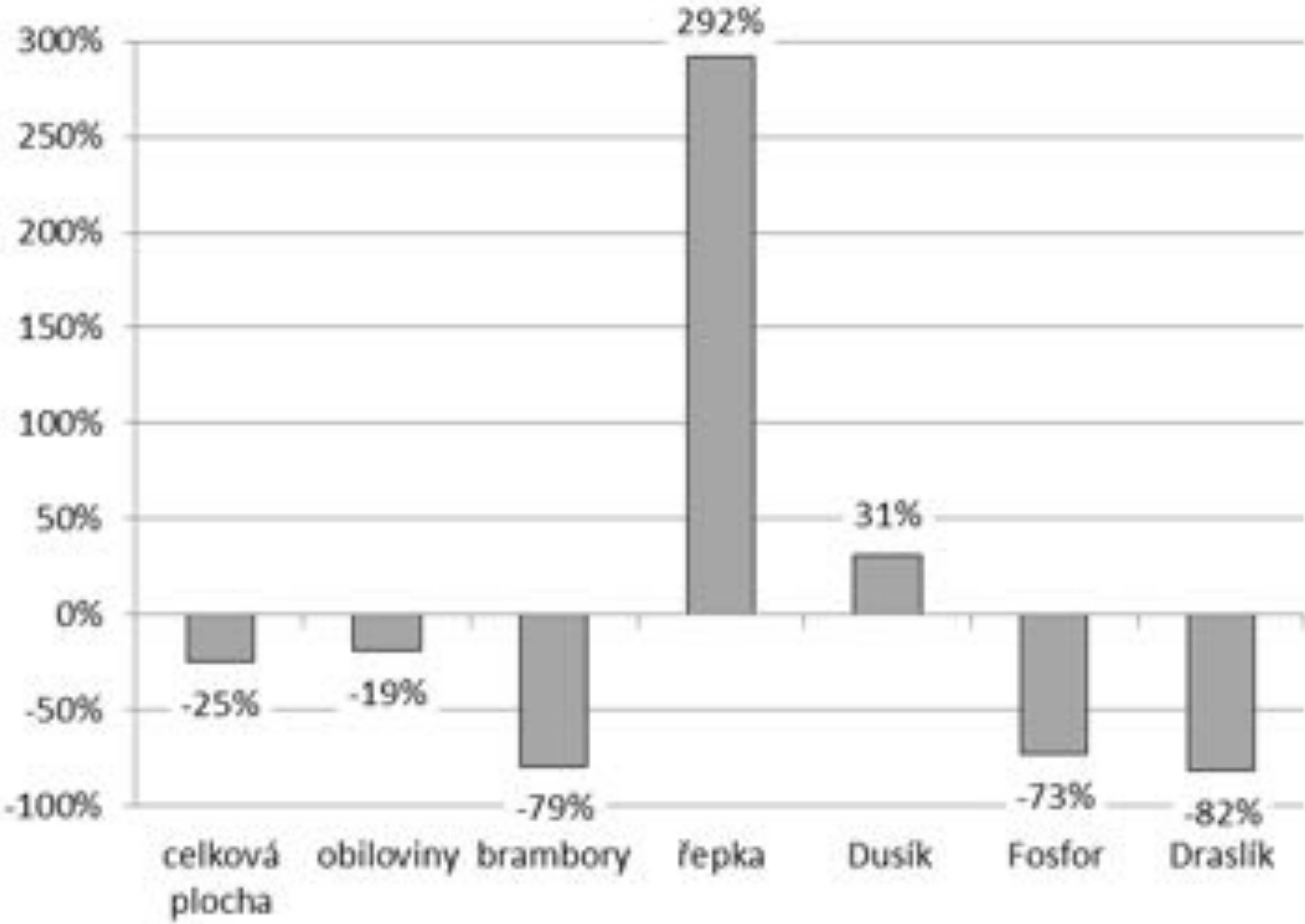
6- 13 Blattstadium



Beginn Fruchtbildung

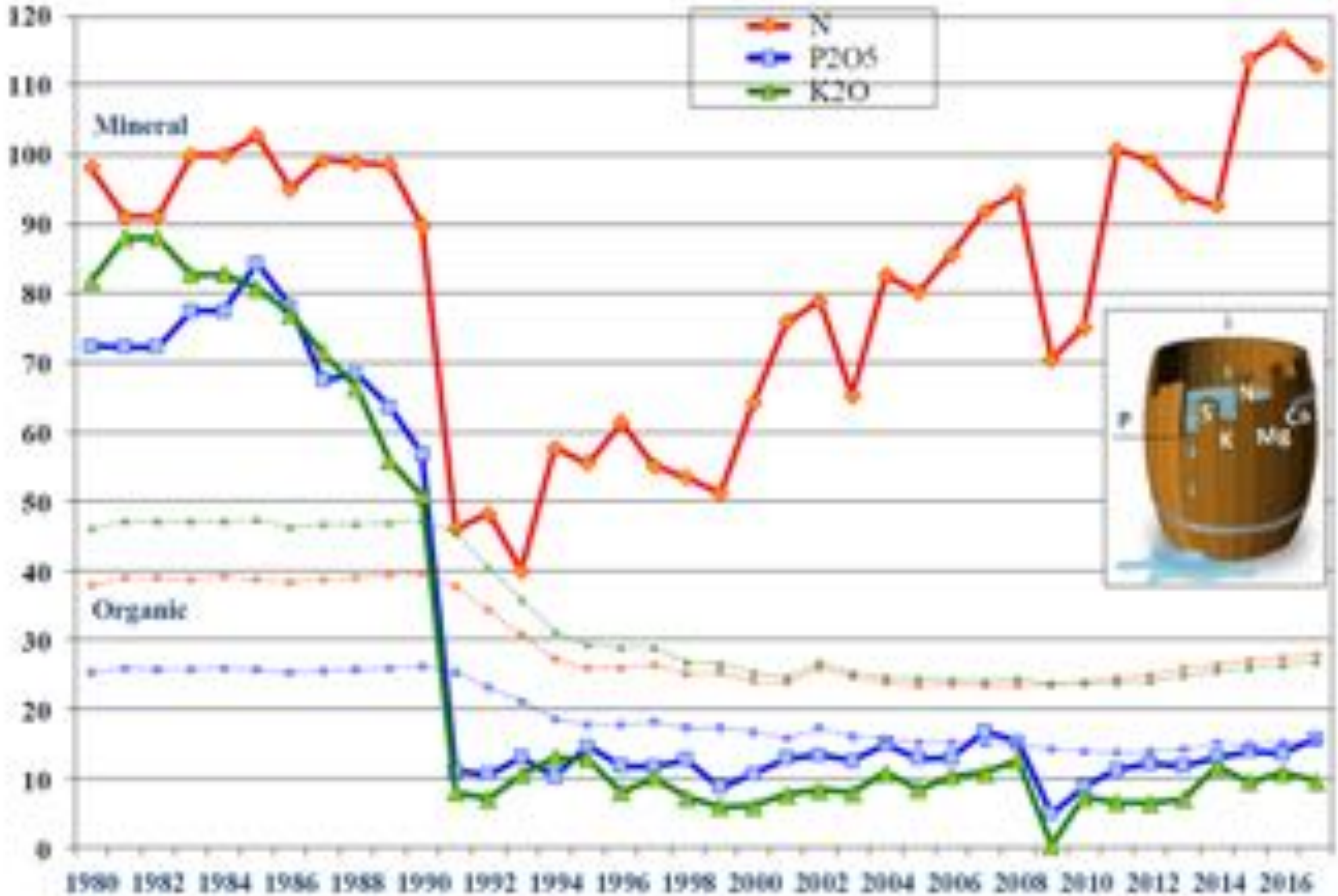
Fruchtbildung



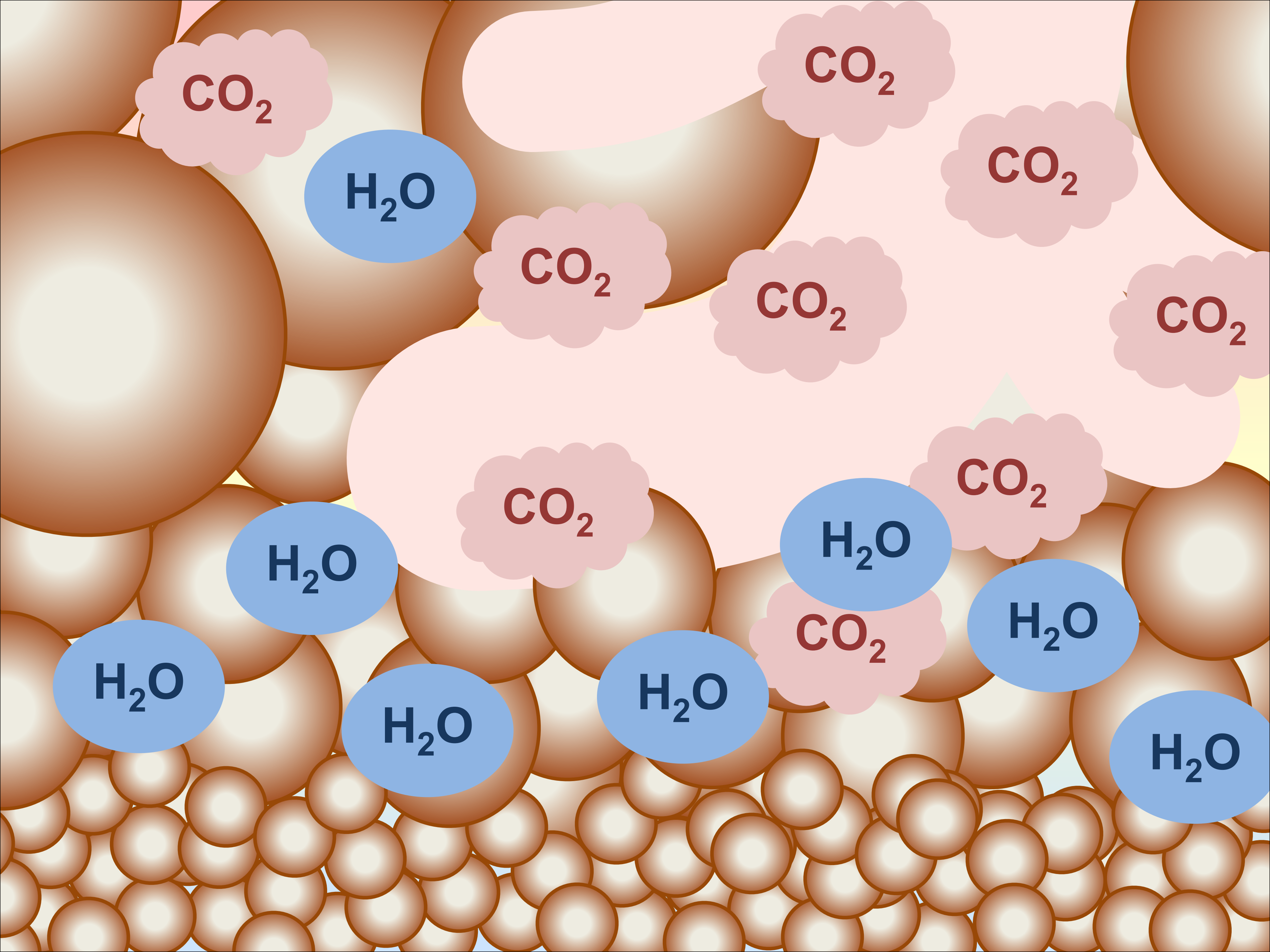

300%
250%
200%
150%
100%
50%
0%
-50%
-100%
292%
31%
-25%
-19%
-79%
-73%
-82%
celková plocha
obiloviny
brambory
řepka
Dusík
Fosfor
Draslík

Average fertilizers consumption in the Czech Republic

(kg of nutrients per 1 ha UAA: 3,5 mil. ha in 2017)



Soil structure, fertilizer management and crop cultivation in Czech agriculture
Jan Klír, Crop Research Institute, Praha – Ruzyně; Michal Hejcman, Czech University of Life Sciences Prague


CO_2
CO_2
H_2O
CO_2
CO_2
CO_2
CO_2
CO_2
CO_2
H_2O
H_2O
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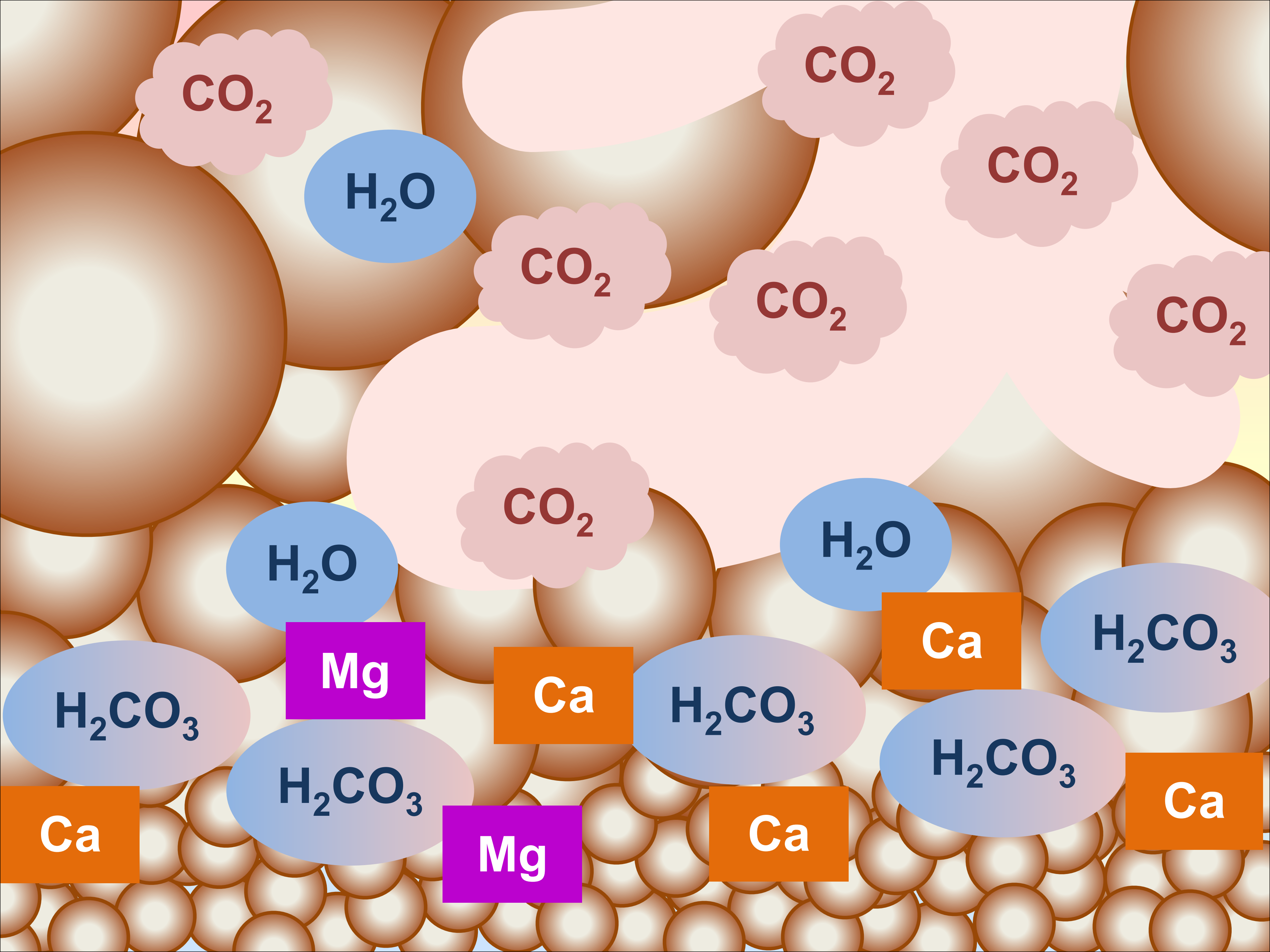
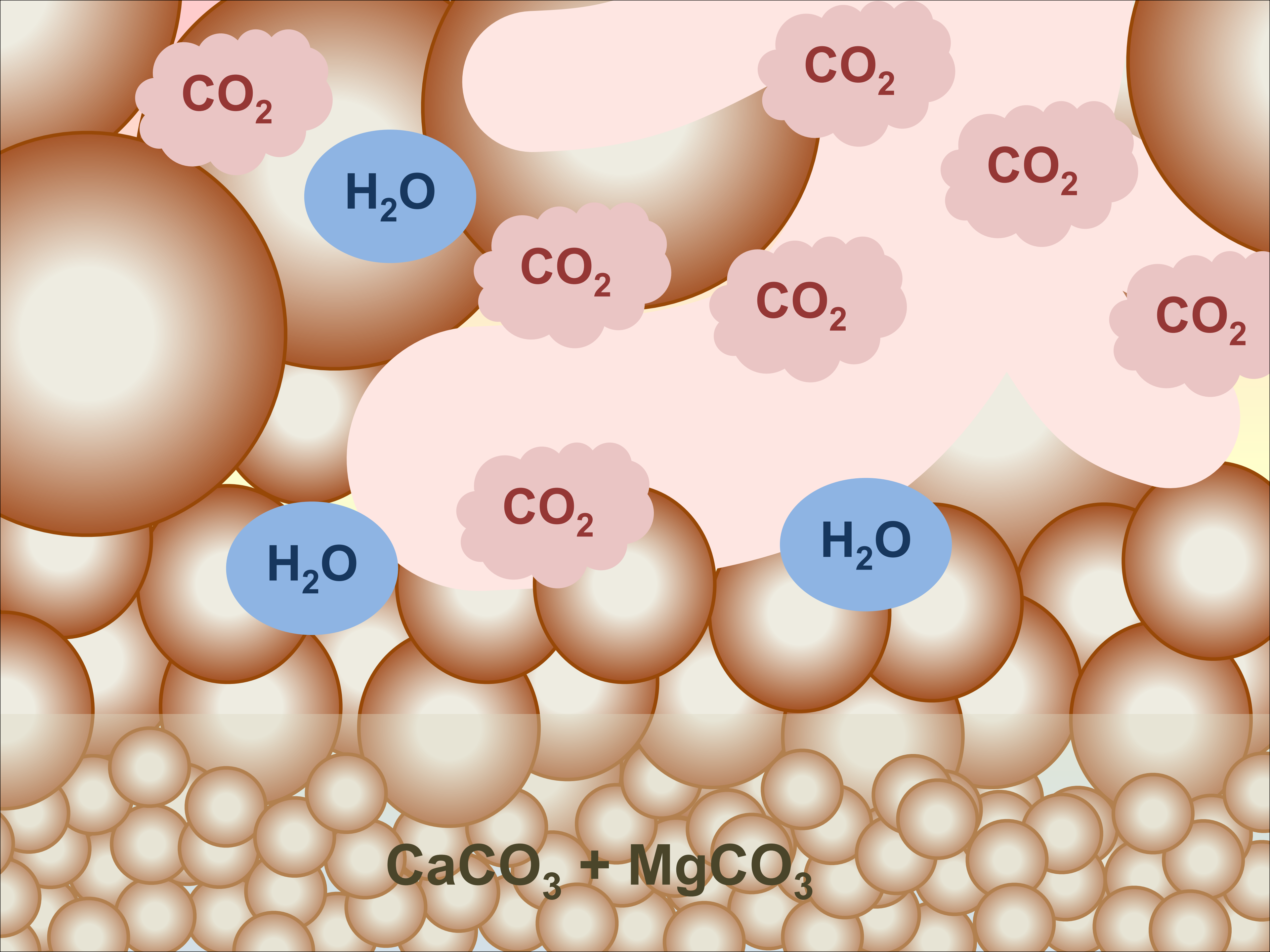
CO_2
H_2O
H_2O
H_2O
H_2O


CO2
CO2
CO2
H2O
CO2
CO2
CO2
CO2
CO2
H2O
H2O
Mg
Ca
Ca
H2CO3
H2CO3
H2CO3
H2CO3
H2CO3
Ca
Mg
Ca
Ca


CO2
H2O
CO2
CO2
CO2
CO2
CO2
CO2
H2O
H2O
CaCO3 + MgCO3

Visualizing roots impact on soil structure

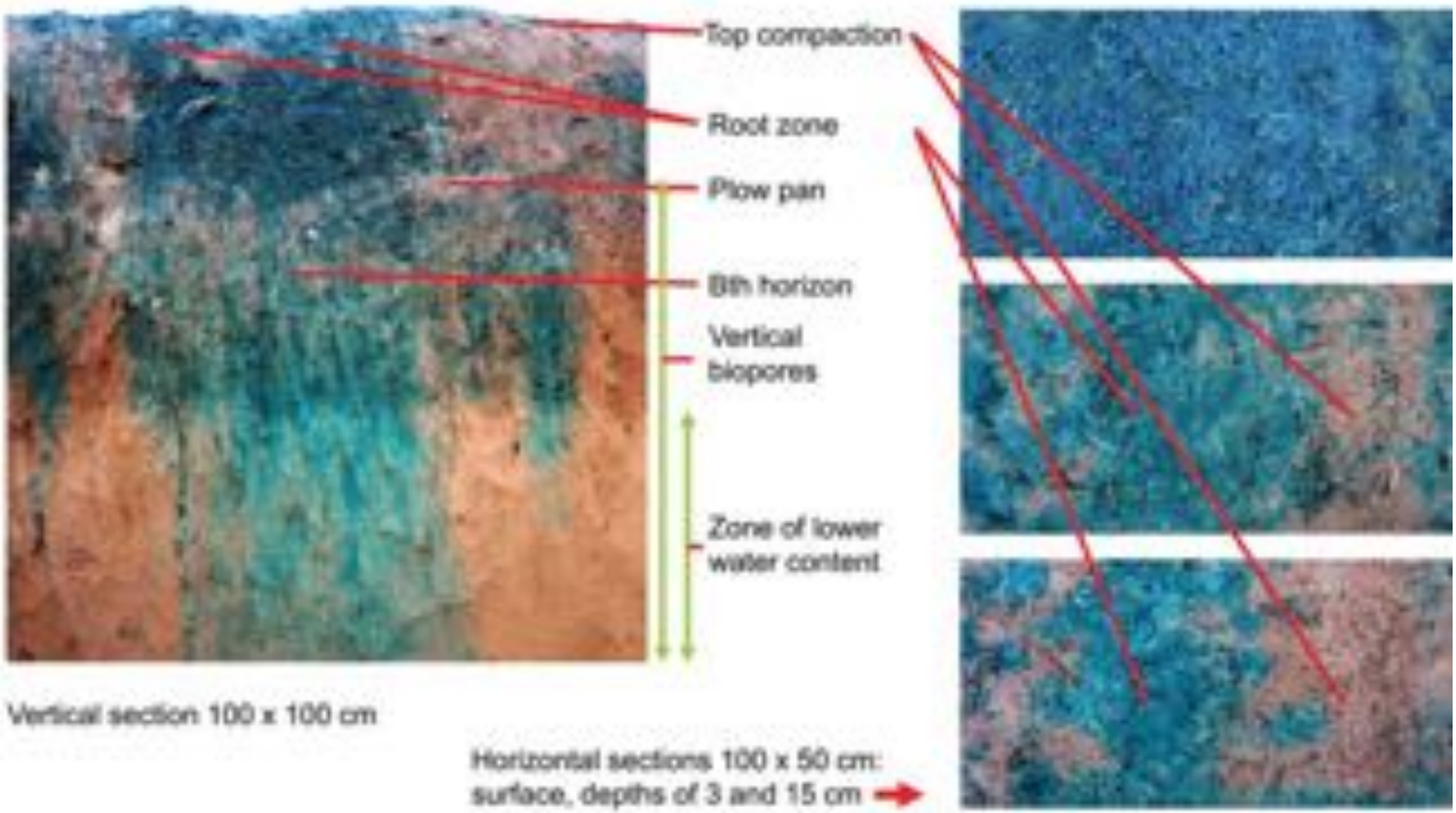
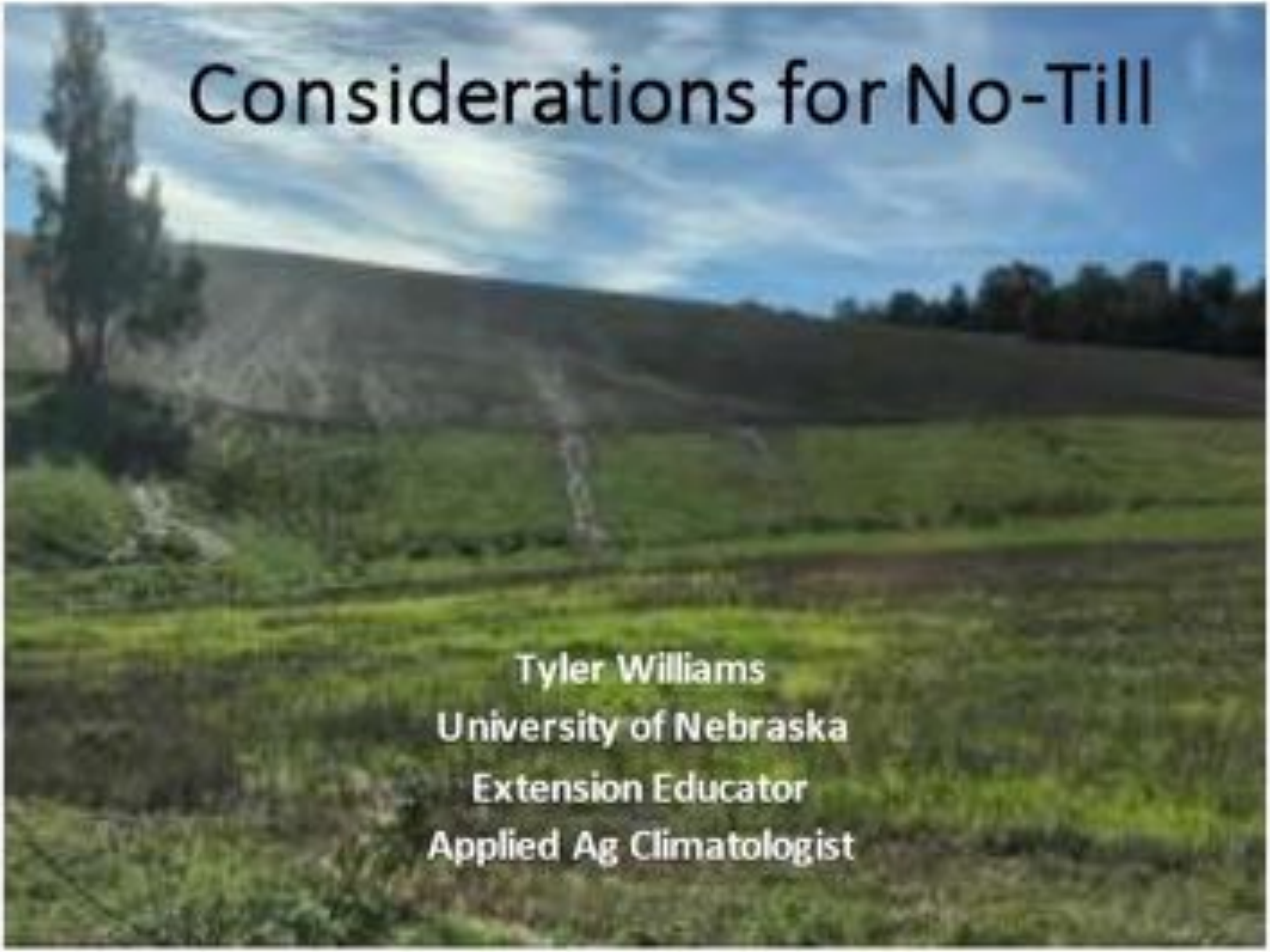


Fig. 1. Field soil sections.

Kodešová, R., et al. 2015: Using dye tracer for visualizing roots impact on soil structure and soil porous systém. Biologia 70/11: 1439—1443

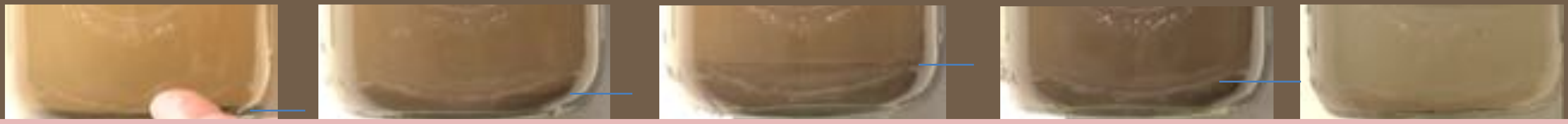


Considerations for No-Till

Tyler Williams
University of Nebraska
Extension Educator
Applied Ag Climatologist


Paul Jasa
University of Nebraska Extension Engineer


Soil Erosion and Runoff Demo
4:48 / 22:14



식물병연구
Res. Plant Dis. 23(3): 212-227 (2017)
Mini-Review | Open Access
https://doi.org/10.5423/RPD.2017.23.3.212

The Gac/Rsm Signaling Pathway of a Biocontrol Bacterium, *Pseudomonas chlororaphis* O6

Anne J. Anderson[1], Beom Ryong Kang[2], and Young Cheol Kim[2]*

[1]*Department of Biology, Utah State University, Logan, UT 84332-5305, USA*
[2]*Department of Applied Biology, College of Agriculture and Life Sciences, Chonnam National University, Gwangju 61186, Korea*

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E-mail: yckimyc@jnu.ac.kr

https://microbewiki.kenyon.edu/index.php/File:P._Cloroaphis.jpg

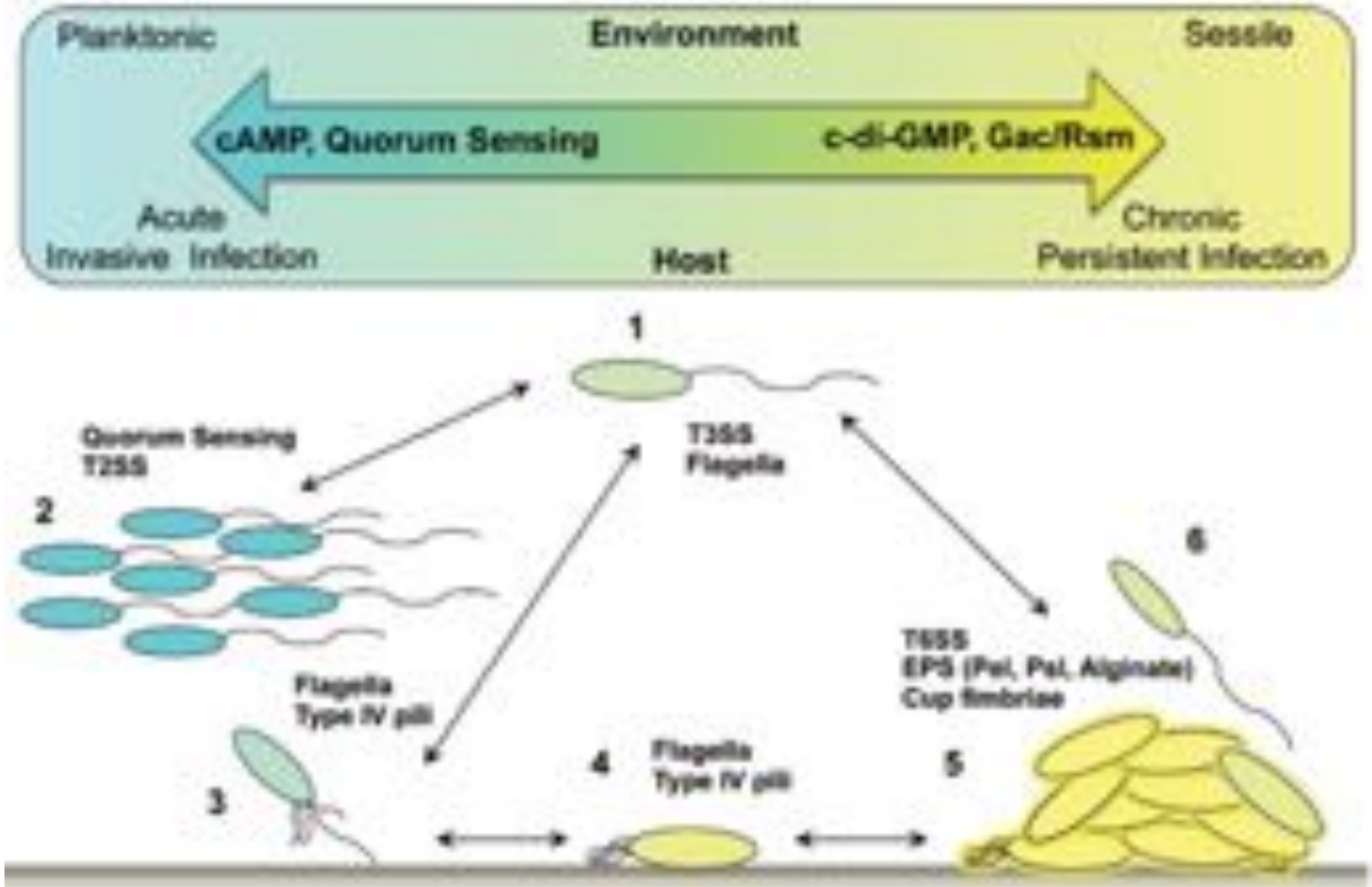


Figure 2. *Pseudomonas aeruginosa* exhibits parallel lifestyle extremes in the environment and human host. The interplay of four global regulatory pathways (cAMP, c-di-GMP, Quorum sensing and Gac/Rsm) appears to create a phenotypic continuum that controls transition between a planktonic and sessile lifestyle within the environment; and plays an analogous role in human infection by inversely controlling acute and chronic infection phenotypes.

1. In the environment *P. aeruginosa* can exist as planktonic cells or small groups of free living motile organisms, providing the means to colonize new environmental niches. **2.** As the population increases, cells associate as a quorum, producing QS signal molecules and exhibit social behaviors (degradative enzyme and toxin secretion), which promote nutrient acquisition and group survival among environmental predators. **3.** Upon interaction with a solid surface, *P. aeruginosa* can attach via Tfp or flagella. **4.** Following loose-attachment, *P. aeruginosa* may exhibit surface motility utilizing Tfp or flagella to move toward nutrients. Upon generation of an intimate surface attachment, *P. aeruginosa* may initiate microcolony formation. **5.** Eventually *P. aeruginosa* becomes sessile and produces exopolysaccharides that encase the bacteria in a complex matrix, which protects the bacteria from environmental fluctuations and provides a physical barrier against predators. **6.** Unknown environmental signal(s), or stochastic processes, cause members of the sessile community to become motile, leave the biofilm, and return to a planktonic lifestyle.

Coggan, Kimberly A. and Matthew C Wolfgang. "Global regulatory pathways and cross-talk control pseudomonas aeruginosa environmental lifestyle and virulence phenotype." Current issues in molecular biology 14.2 (2012): 47-70.

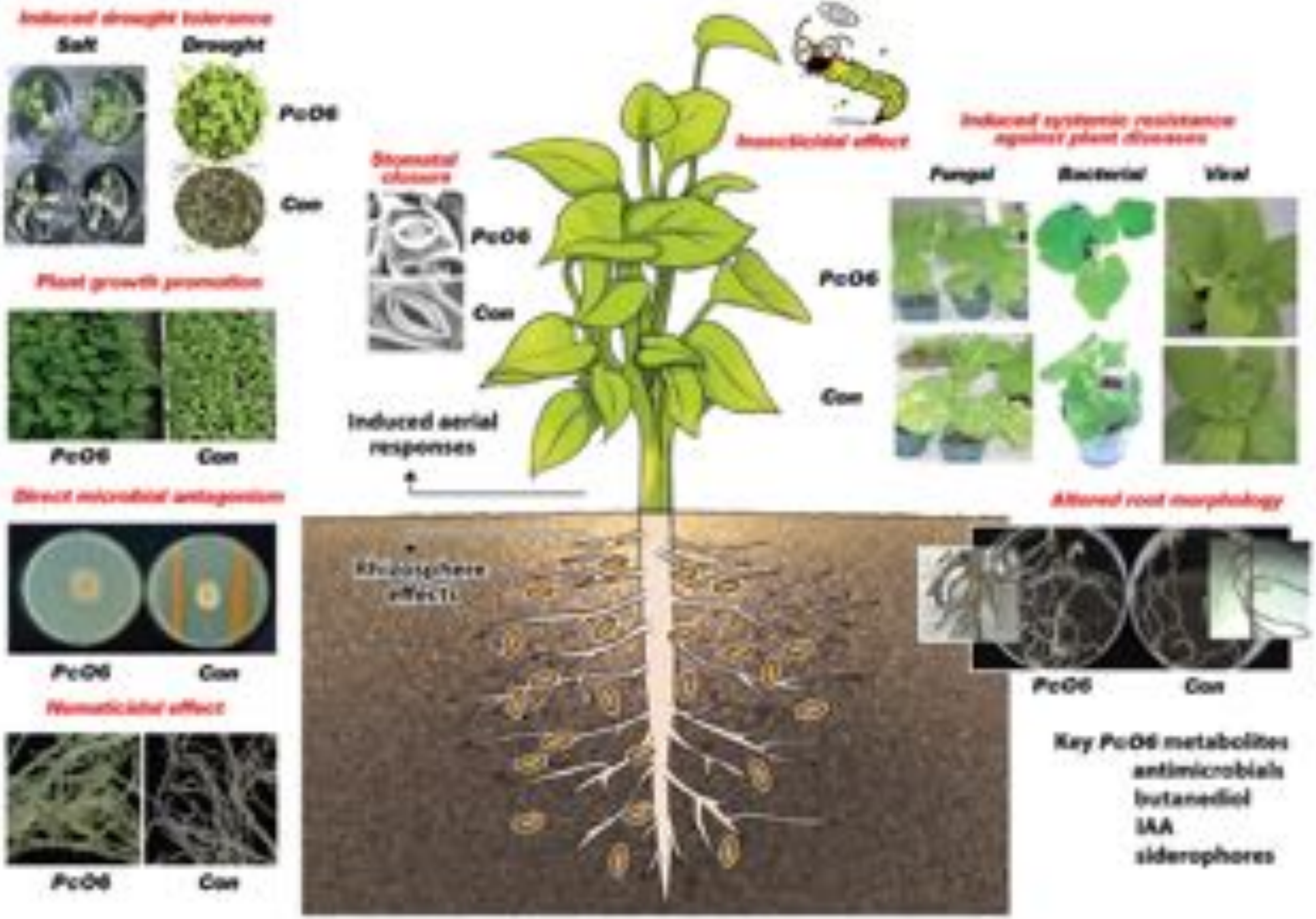


Fig.1. Beneficial effects of *Pseudomonas chlororaphis* O6 root colonization on plant health. *P. chlororaphis* O6 produces many metabolites that are directly antagonistic to plant pathogens, including nematodes and insects. Microbial colonization alters root morphology, increases plant growth, and induces systemic resistance against plant diseases. Control of Fe availability by *P. chlororaphis* O6 metabolites is an important feature in the rhizosphere. Partial stomatal closure induced by a volatile metabolite from *P. chlororaphis* O6, butanediol, is involved in the mechanism that induces systemic resistance against plant diseases and abiotic stresses.

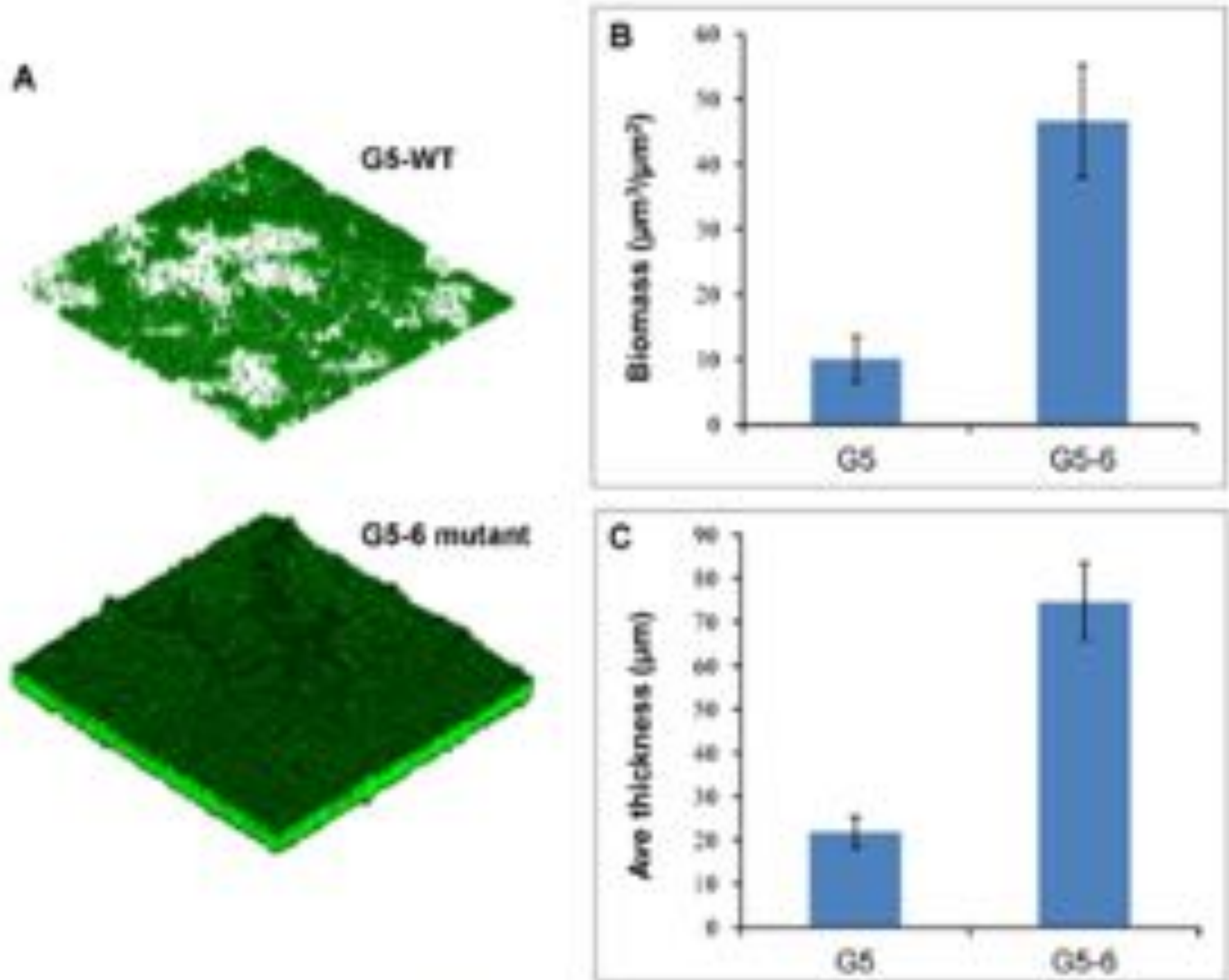


Fig 4. *gacA* inactivation induced biofilm formation. A, biofilm formation after 48 hr incubation at 30°C with shaking at 80 rpm was visualized by CLSM. **B**, biofilm biomass and **C**, the average thickness were quantified between the wild type G5 and the *gacA* mutant G5-6 using COMSTAT2 software ($p<0.01$).

Li J, Yang Y, Dubern JF, Li H, Halliday N, et al. (2015) Regulation of GacA in Pseudomonas chlororaphis Strains Shows a Niche Specificity. PLOS ONE 10(9): e0137553. https://doi.org/10.1371/journal.pone.0137553
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0137553

Feldrandkompostierung in Kärnten

Kaindorf, 22. Jänner 2019

(Florian Amlinger)
Robert Unglaub
Peter Kuschnig

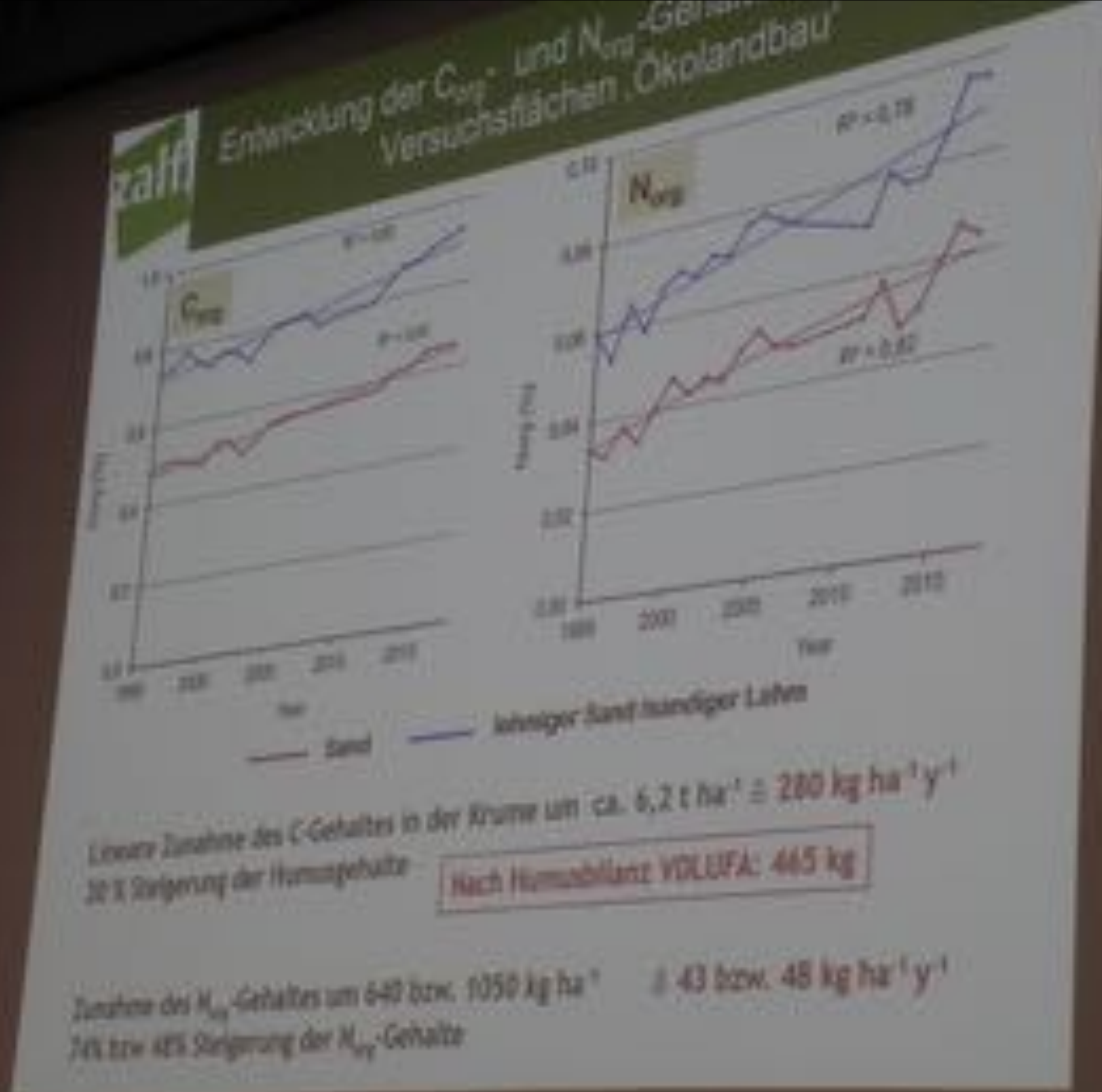
Das Pilotprojekt in Eberndorf: Feldrandkompostierung von Grüngut

KOMPOST
ENTWICKLUNG & BERATUNG

Umsetzen

Ausbringung Kompost

KOMPOST
ENTWICKLUNG & BERATUNG


Entwicklung der Corg- und Norg-
Versuchsflächen ‚Ökolandbau'
Corg
Norg
Year
Sand
lehmiger Sand/sandiger Lehm
Lineare Zunahme des C-Gehaltes in der Krume um ca. 6,2 t ha-1 ≙ 280 kg ha-1 y-1
30 % Steigerung der Humusgehalte
Nach Humusbilanz VDLUFA: 465 kg
Zunahme des Norg-Gehaltes um 640 bzw. 1050 kg ha-1 ≙ 43 bzw. 48 kg ha-1 y-1
74% bzw 48% Steigerung der Norg-Gehalte

…. děkujeme