



How agriculture and forestry can contribute to the bioeconomy – view from research

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Where innovation will come from

Resource use efficiency and resource stewardship

Enrich / enhance beneficial plant compounds for healthy human nutrition and animal feed

Improve plant composition and performance for novel (non-food) products

Resilient plants – improve plant health

Resilient plants – increase yield and yield stability in dynamic environments

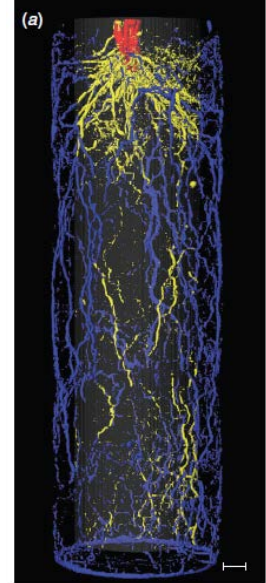
Closer interaction of stakeholders, sharing of resources etc.



Where innovation will come from

Resource use efficiency and resource stewardship

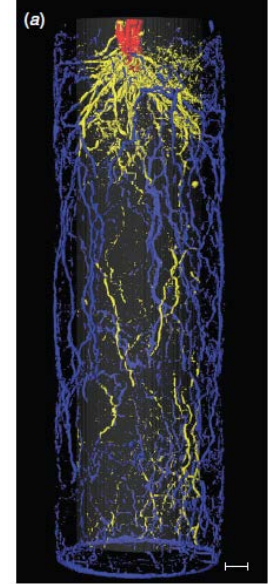
- Roots with increased acquisition of nutrients reducing the need of fertilizer, causing higher efficiency fertiler use and less environmental footprint



Where innovation will come from

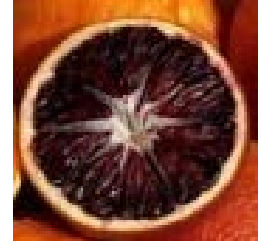
Resource use efficiency and resource stewardship

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Beneficial plant compounds for healthy human nutrition

- Improve plants' composition (plant pigments, plant secondary metabolites) and processing to finally have a positive effect on food and human health



Where innovation will come from

Improve plant composition and performance for novel (non-food) products

- Improving cell wall digestability for agro-waste utilisation



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Resilient plants – improve plant health

- Generate novel resistances and resistance mechanisms for existing and new (climate change) disease



sensitive resistant



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Resilient plants – improve plant health

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Resilient plants – increase yield and yield stability in dynamic environments

- Improving drought resistance and multistress performance
- Improving yield per water input (water use efficiency)



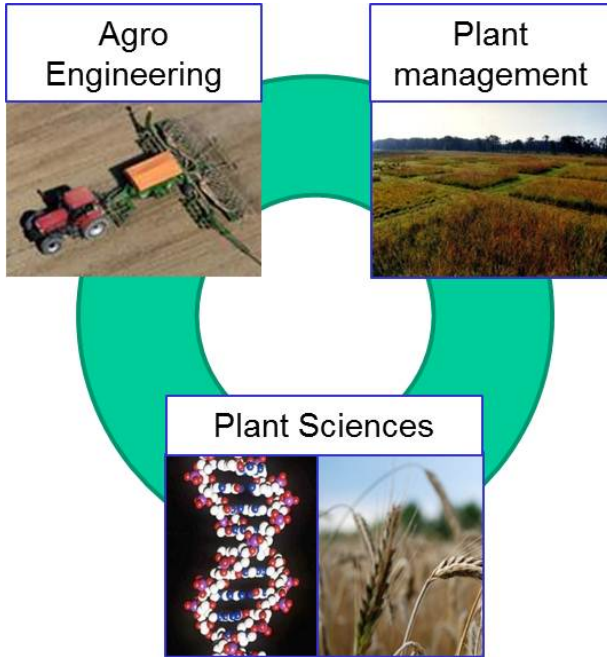
Cooperation – cycle of all 4 components

Best impact by joint approach of basic research, applied research, knowledge transfer and innovation framework – e.g. in the societal challenge programme at European level

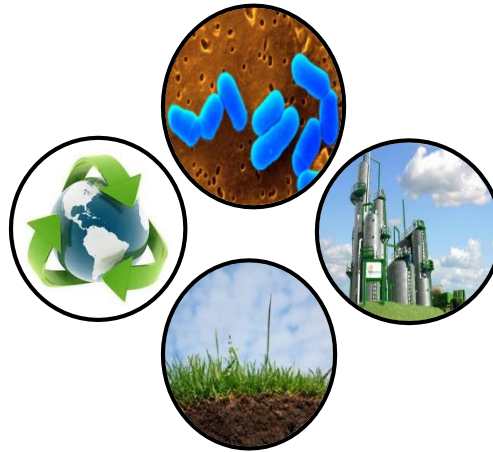


Integrated approaches

Integrated approach to agricultural improvement across all technologies



Integrated bioeconomy



Sustainable Bioeconomy

Global cooperation and responsibility



Integrating is on its way

Increase impact of agricultural and forestry research

- The Digital Seed Bank
- Biofortification
- Increasing / enriching agricultural diversity

... with the **Global Plant Council**



Complementing top-down by bottom-up approaches

First promising examples

- FACCE-JPI Stakeholder Advisory Board (ETPs)
- EIP Sustainable Agriculture Productivity and Sustainability Steering Board
- EC Call for Expert Advisors for Horizon 2020
- EPSO observer in ERA-CAPS

Still much more needed

- International cooperation (SFIC process, Developing countries etc.)
- More JPIs, ERA-Nets
- EIT
- Bioeconomy network (build on positive start in BECOTEPS) ...



Key messages

- **Science tackling central issues of grand challenges**
 - E.g. Closing the gap between farmers and researchers: farmers state what they need & Researchers tell what they can deliver (*Georg Haeusler*)
 - **Science (basic and applied) requires collaborative effort** to develop new opportunities for concrete targets
 - **Science (basic and applied) needs to be part of the cycle** with knowledge transfer and innovation
- **Science goes beyond borders**
 - For research purposes
 - For implementation in Europe
 - To address global needs
- **Science needs and wants to be part of the system**

EIP – a good start

Encourage all initiatives to work towards joint goals,
Identify AND address gaps- towards a holistic approach

Moving from notes to music !
– Thank you for your attention

