

Integrated agricultural production systems for a sustainable bioeconomy

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ABSTRACT:

Agricultural production is at the heart of Bioeconomy: it provides biomass for food, feed, chemicals, and also bioenergy applications. This includes obvious (food and feed) and less obvious (e.g. fertilizers) bulk products as well as high-value products, e.g. from secondary metabolites. At the same time agricultural systems provide many opportunities for the application of bio-based innovations. For example, bio-based effectors as well as biotechnological applications, which enable farmers to use inputs and natural resources more efficiently. Moreover, a sustainable bioeconomy, requires closing nutrient cycles between plant production and (at least) bulk products through process-technological innovations. Often socio-economic research will be needed to leverage these opportunities for a more sustainable agriculture in the globalized bioeconomic system. Interdisciplinary research approaches are particularly important, when economic and institutional adoption barriers exist or when innovation processes involve direct and indirect environmental and social risks. Research and education for agricultural systems are an essential element for integrated bioeconomy approaches. The talk will discuss the concept of integrated bioeconomy with specific focus on the role of agricultural systems based on work done at the Bioeconomy Science Center – a joint research and education cluster between ForschungszentrumJülich, RWTH Aachen, University of Bonn and University of Düsseldorf in Germany,