Input Use in Conservation Agriculture (Reg Ag) in Germany

Authored by
Maximilian Meister (NABU-Germany)
Dr. Jana Epperlein (GKB/ECAF Germany)
Prof. Dr. Ulrich Groß (University of Applied Science Weihenstephan Triesdorf)

Wednesday, 9th April 2025

Joint study –
NABU; GKB; HSWT

“Healthier soils, lower costs, sustainable yields: How conservation agriculture (CA) reaps benefits”

(March 2025)

OVERVIEW OF THE PARTICIPATING FARMS

Cluster according to soil-climatic conditions

HIGH-YIELD AGRICULTURAL AREAS I
High soil qualities, high precipitation, high yield potential

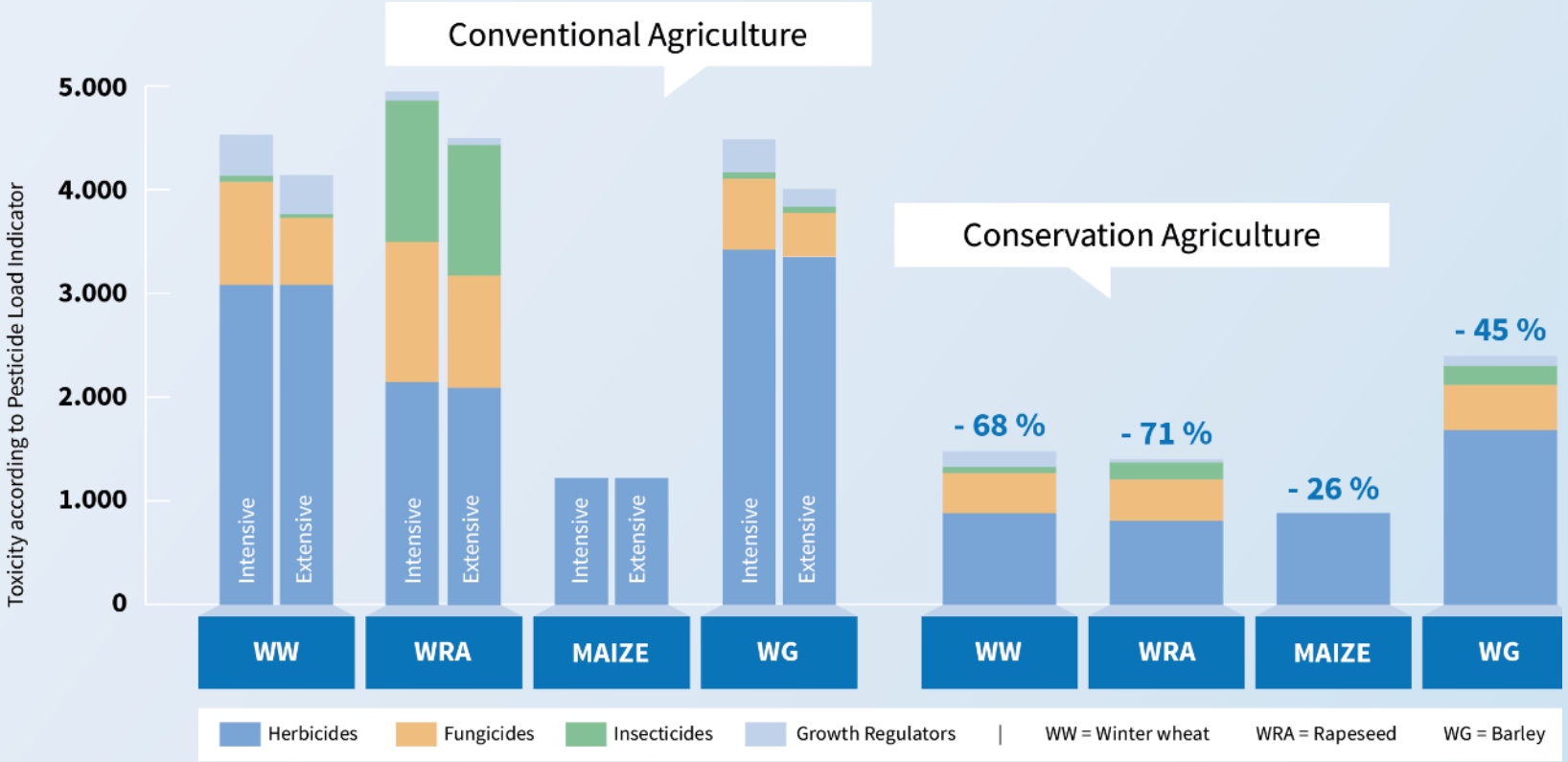
HIGH-YIELD AGRICULTURAL AREAS II
Heavy soils, high precipitation

SANDY, DRY SOIL
Lower soil qualities, low yield potential

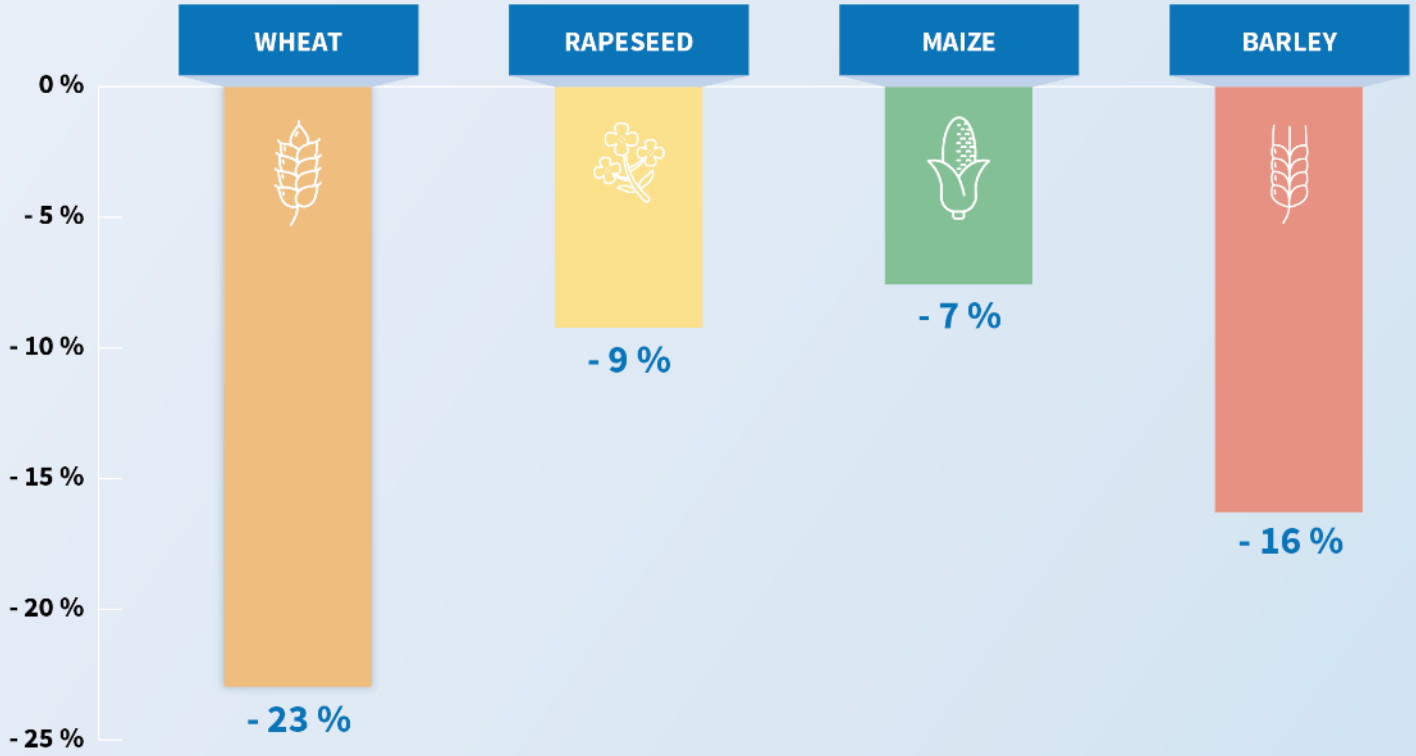
LOAMY OR SANDY SOIL
Sufficient precipitation

- 17 Farms
- Min. 3 years of Conservation Agriculture
  - Min. soil disturbance
  - Soil cover
  - Max. plant diversity
- Analysed parameters:
  - Plant protection
  - Nitrogen fertilizer
  - Fuel
  - Soil health
  - Yield

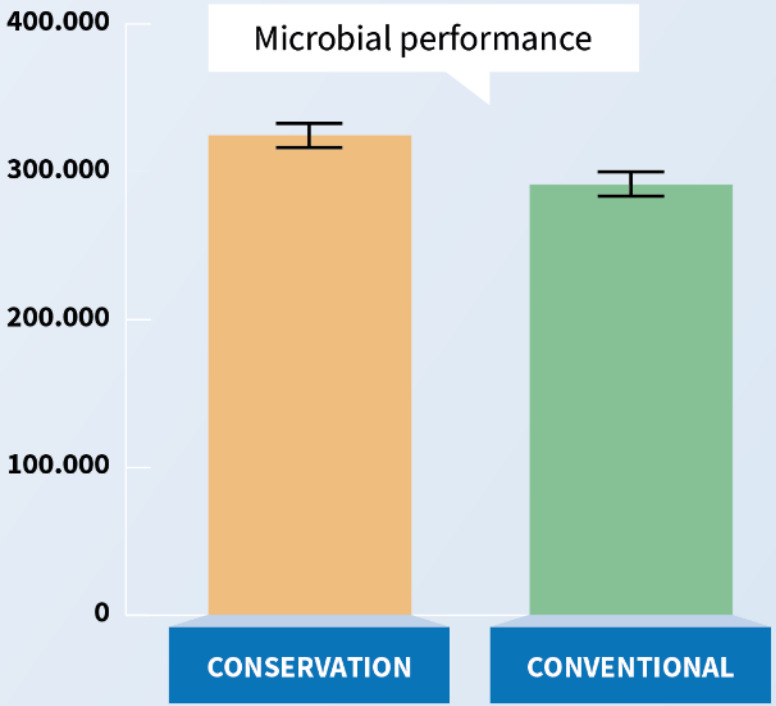
Relative Reduction of Toxicity in Conservation Agriculture

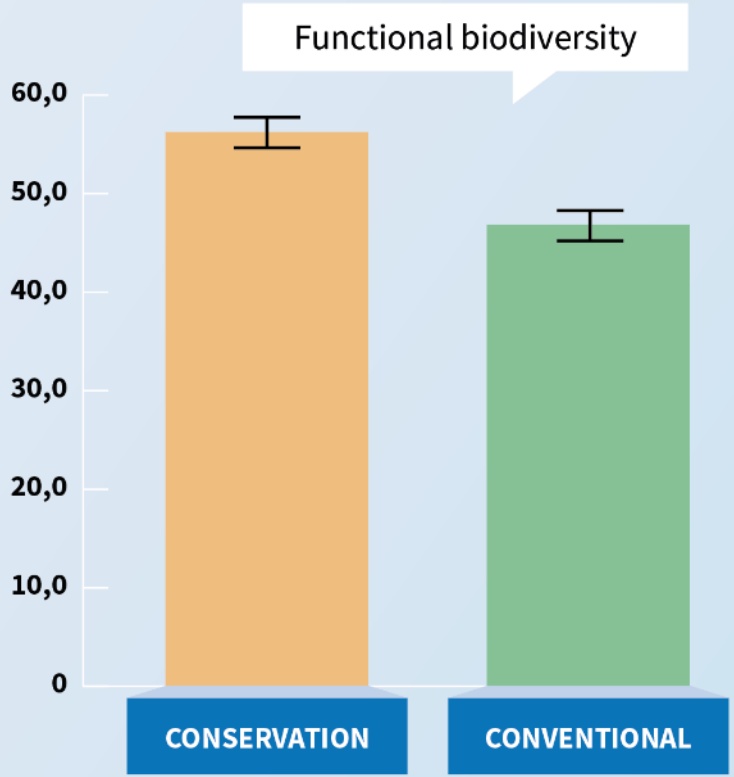


Relative Reduction of Nitrogen Use in Conservation Agriculture

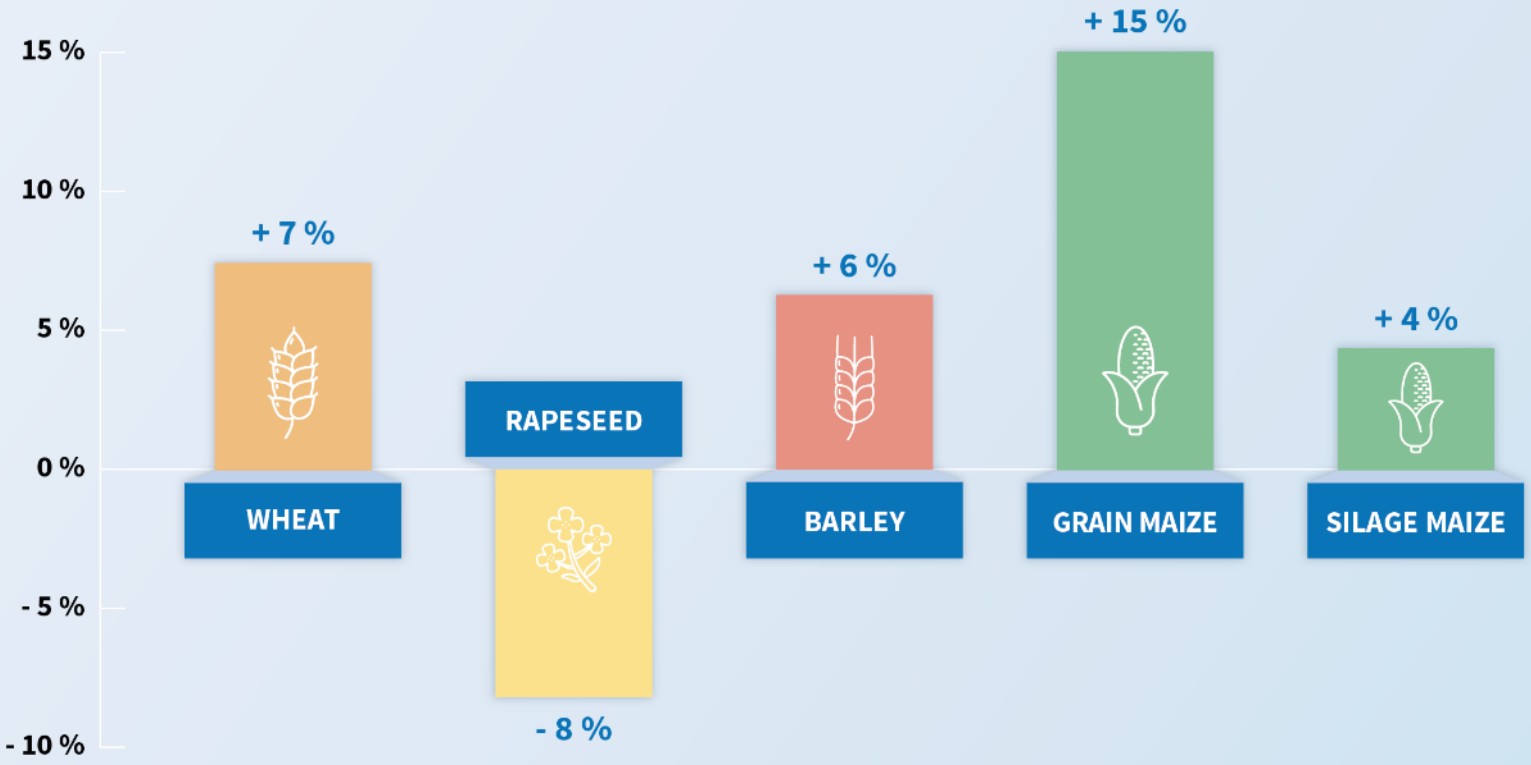


Improved Soil Health in Conservation Agriculture

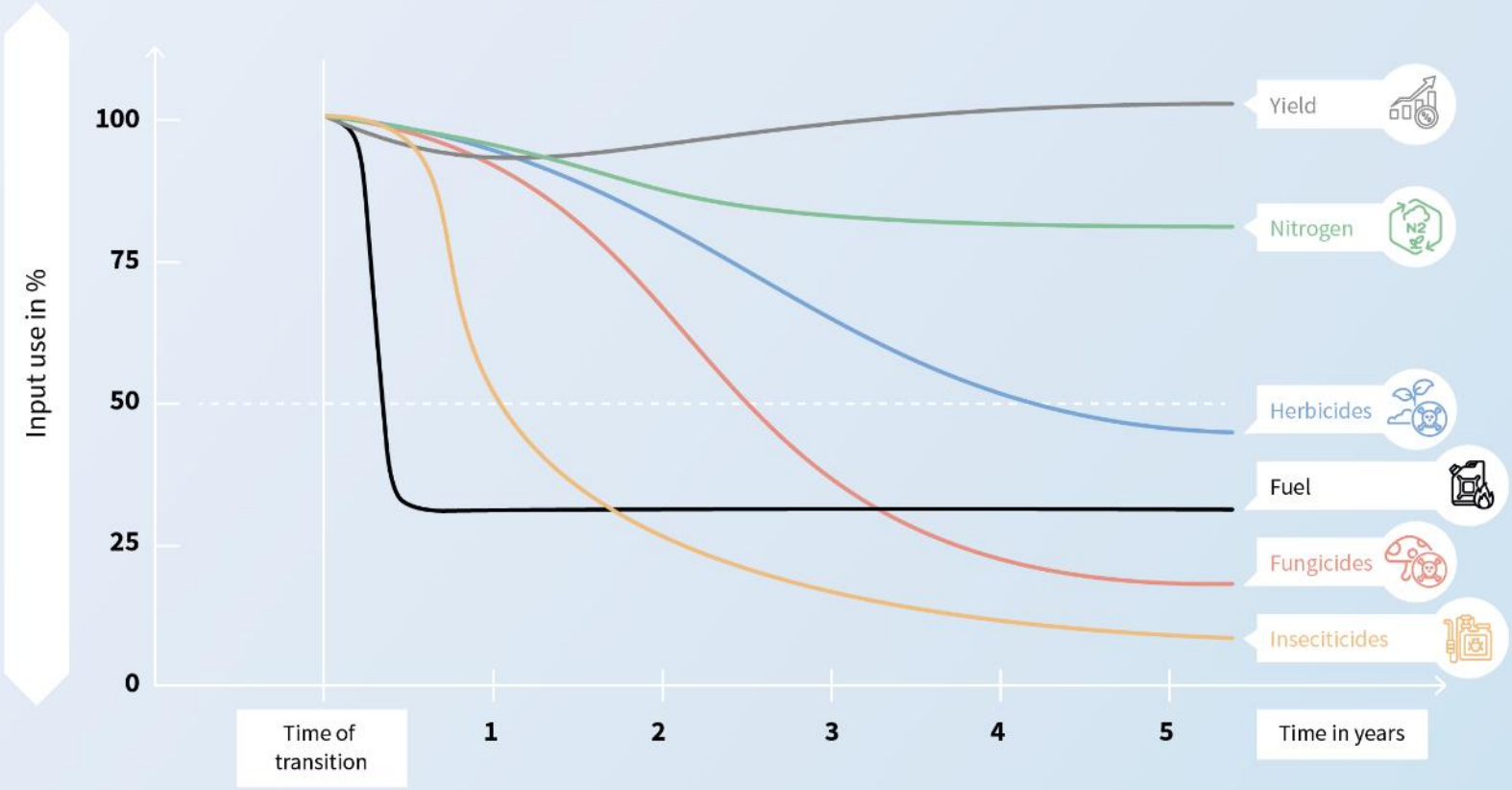




Relative Yield Increase in Conservation Agriculture



Input Use & Yield in Conservation Agriculture during Transition Phase



Take Home

- Up to - 70 % Toxicity Reduction (Pesticide Load Indicator)
  - Over 50 % Reduction in Average
- 15 - 20 % Nitrogen Use Reduction
- Up to 70 % Fuel Reduction
- Improved Soil Health (Microbial Performance & Functional Biodiversity)
- + 5 % higher Yield
- Up to 15 % higher Profits in Conservation Agriculture (Winter Wheat)