Organic arable crops and its technical approach compared to conventional arable farming at test field in wagna

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humus theory – mineral theory

Albrecht Daniel Thaer (1752 - 1828)

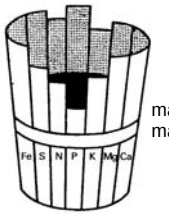
„Fertility of a soil depends on its humus-content

… all organic substances contain the matter to produce and finish any vegetable crop.“

Justus von Liebig (1803 – 1873)

Minimum principle

„Soil fertility stands in relation to its content of nutrients. Fertilizer application means, to replace the withdrawn nutrients.“



maximum filling level = maximum yield

Literatur: Grundsätze der rationellen Landwirtschaft. Viertes Hauptstück. Agrikultur. Erster Abschnitt.

Die Lehre von der Düngung. Preußische Akademie der Wissenschaften zu Berlin.

principles of organic farming

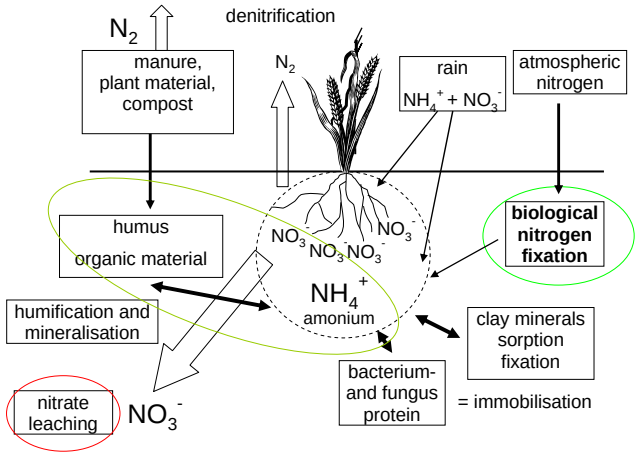
Completing cycles
- Manure is used accurate
- respect crop rotation

Saving resources
- fossile energy
- limited resources even like ground water

Avoid poisonous substances
- no chemical pesticides
- manure is prepared

Animal friendly and surface-linked livestock
- livestock is strictly linked to surface
- z.B. piggery per ha: organic: 14 places
  conventional: 28 places

factors of the nitrogen cycling



test field in wagna

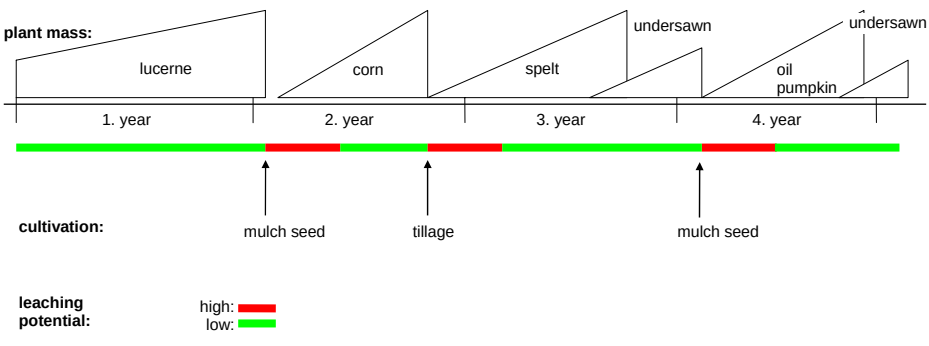
Organic plot

- 1. year: **lucerne**
- 2. year: **corn**
- 3. year: **spelt**
  - white clover is undersawn
- 4. year: **oil pumpkin**
  - lucerne is undersawn

conventional plot

- 1. year: **corn**
  - intercrop (rye, rape)
- 2. year: **corn**
- 3. year: **winter barley**
  - intermediat crop (mustard)
- 4. year: **oil pumpkin**
  - ryegrass is undersawn

crop rotation in organic farming



facts an assumptions

- no chemical pesticides on the organic plot
- smaller yields and also lower nitrogen withdrawals by organic farming
- biological nitrogen fixation corresponds to characteristic values
- yields contain as much nitrogen as legumes can fix
- cultivation intensity in organic plot is lower than in conventional plot
- humus content in the organic plot should increase

Thank´s for your attention!