The European Platform

Main Results

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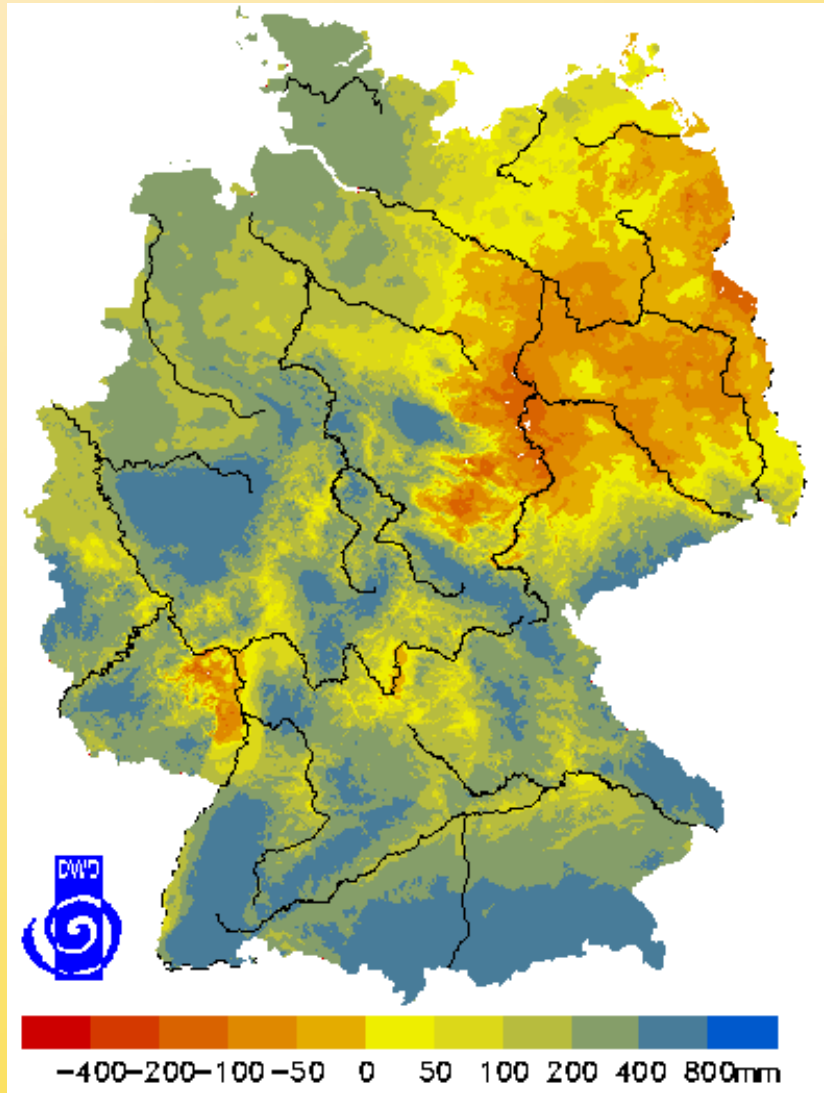
Concluding Conference of the KASSA project
20-21 February 2006, Brussels, Belgium

Pedo-climatic conditions

- average temperatures 5°-12°C
- annual precipitation 400-1200 mm
- cold winters, moderate summers
- huge variety of different soil types and qualities

Long-term average climate water balance

Within a more or less temperate region, we have highly differentiated climatic conditions



Conditions for agriculture

- one vegetation period
- crops grown:
  1. Winter wheat
  2. Winter barley
  3. Rapeseed
  4. Sugar beet
  5. Forage crops (maize etc.)

- Different socio-economic conditions
- Different political conditions
- „Emerging“ countries

Driving Forces and Constraints

1. Pedo-climatic conditions
2. Agronomic conditions
3. Sociologic conditions
4. Economic conditions
5. Political conditions

Pedo-climatic conditions

Driving Forces	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Soil erosion	++	0	+++ / ++	+++		+	++	+++
Soil crusting	++	0	+ / +	0		++	+	+
Pebble rising	+	0	+ / ++	+		++	+	+
Soil degradation *(compaction…)*	0	0	++ / +++			++	0	++

Constraints	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Soil characteristics *(texture / water-logging)*	+++	+	+++ / +	++		+++	0	++
Soil humidity and temperature	++	++	+ /	+++		+++	0	+

Agronomic conditions

Driving Forces	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Need to increase the soil organic matter	++	0	+ / 0	+		+++	++	++
Trafficability	+	0	++ / +	+		++	+	+
Technology development *(herbicide efficiency, material quality)*	++	0	+ / +++	++		+++	+	+++

Constraints		France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Management issues	weeds	+++	++	+++ / ++	+++		+++	+	+++
	diseases	++	+	+++ / ++	+++		++	+	++
	slugs&mice	++	0	++ / ++	+		+	+	?
	straw residues	++	0	++ / +++	++		++	0	+++
	soil structure	+++	0	0 / +	+		+++	0	++
	rotation	++	0	++ / +	+++		+++	0	+++
	catch crops	++	0	+ / +	+		+	0	++
Lack of references		+++		+ /	+		+	++	+++

Sociologic conditions

Driving Forces	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Labour organization	+++	+++	+++ / +++	+		+	+	++
Association of farmers	++	+++	+ / ++	+++		+	0	+++

Constraints	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Traditional conception of ploughing *(psychologic change)*	+++	++	++ / +	++		+++	0	+++
Marginalization *(neighbours, development networks)*	+++	0	0 / 0	++		++	0	++
Investment to gain specific knowledge	++	0?	++ / ++	++		++	+	+++

Economic conditions

Driving Forces	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Cost reduction *(fuel consumption, machinery costs)*	+++	+++	+++ / +++	++		+++	++	+++
Labour time	+++	+++	+++ / +++	+		+	++	+++
Increase or stabilization of yields *(in areas with medium level of yields)*	++	0?	0 / 0	++		++	++	+

Constraints	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Material investment	+++	+++	++ / ++	++		++	+++	+++
Diminution of yields *(in areas with high level of yields)*	+++	+	+++ / +++	+		+	++	+
Transition period	+++	+	+ / ++	+++		+	+	+

Political conditions

Driving Forces	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Political decision induces economic consequences	++	0	++ / ++	++		+	+	++
Regulation measures	+	0	+ / +	+		++	0	++
Subsidies	0	0	++ / ++	+++		+++	0	+++

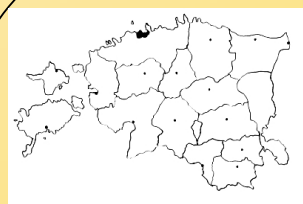
Constraints	France	Denmark	Germany West/East	Norway	UK	Estonia	CZ.Rep	Ukraine
Restriction *(e.g. restriction of burning straws, date of application of N fertilizers)*	++	++	+ / +	++		++	+	+
Pesticide use reduction	+++	0	++ / ++	+++		++	0	++

Constraints

Low temperature
Water logging
Low thickness of soil
Low bioactivity

Anaerobiosis
Short vegetation period

NORTH



SOUTH

Drought
hazardous deflation

Water deficiency
High temperature
Evaporation intensity

Extension of CA in the European Platform

	RT		NT	
	Area (ha) (date)	% of the agricultural used area	Area (ha) (date)	% of the agricultural used area
France	1 373 800 (2001)	4.6%	50 000 (2001)	0.2%
Germany	3 400 000 (2004)	20%	510 000 (2004)	3.0%
Denmark	150 000 (2004)	6.8%	~ 0 (2004)	
Norway	158 000 * (2004)	15%	6 000 (2004)	0.6%
United Kingdom	1 416 000** (2000)	7.7%	24 000 (2000)	0.1%
Estonia	160 000	16%	10 000	1%
Czech Republic	750 000 (2005)	18%	150 000 (2005)	3.5%
Ukraine	9 400 000 (2005)	24%	50 000 (2005)	0.1%

The European Platform
Partners

Norway

United Kingdom

Estonia

Denmark

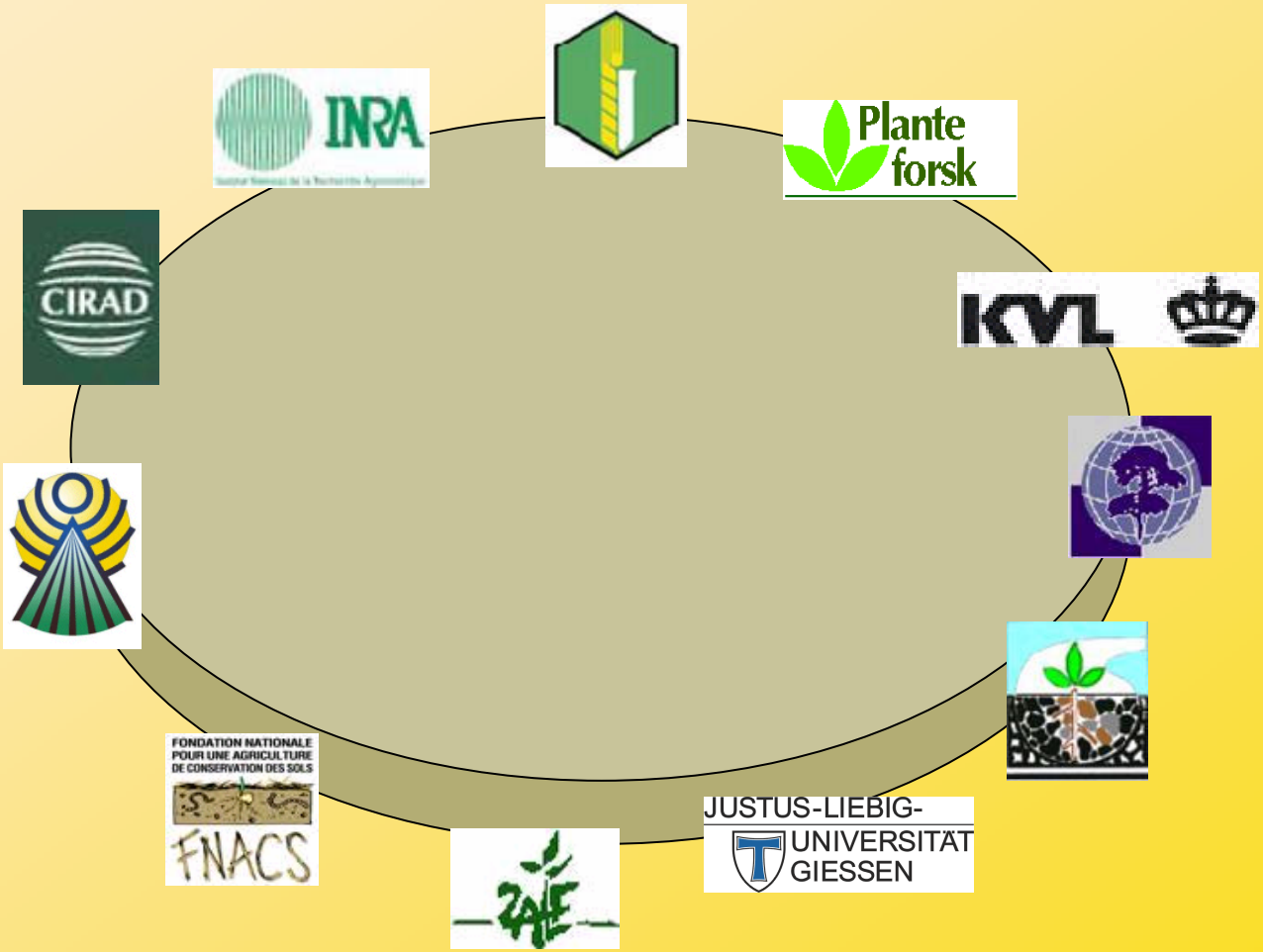
Ukraine

Czech Republic

Germany

France

Round table
three meetings in Grignon, Prague, Giessen



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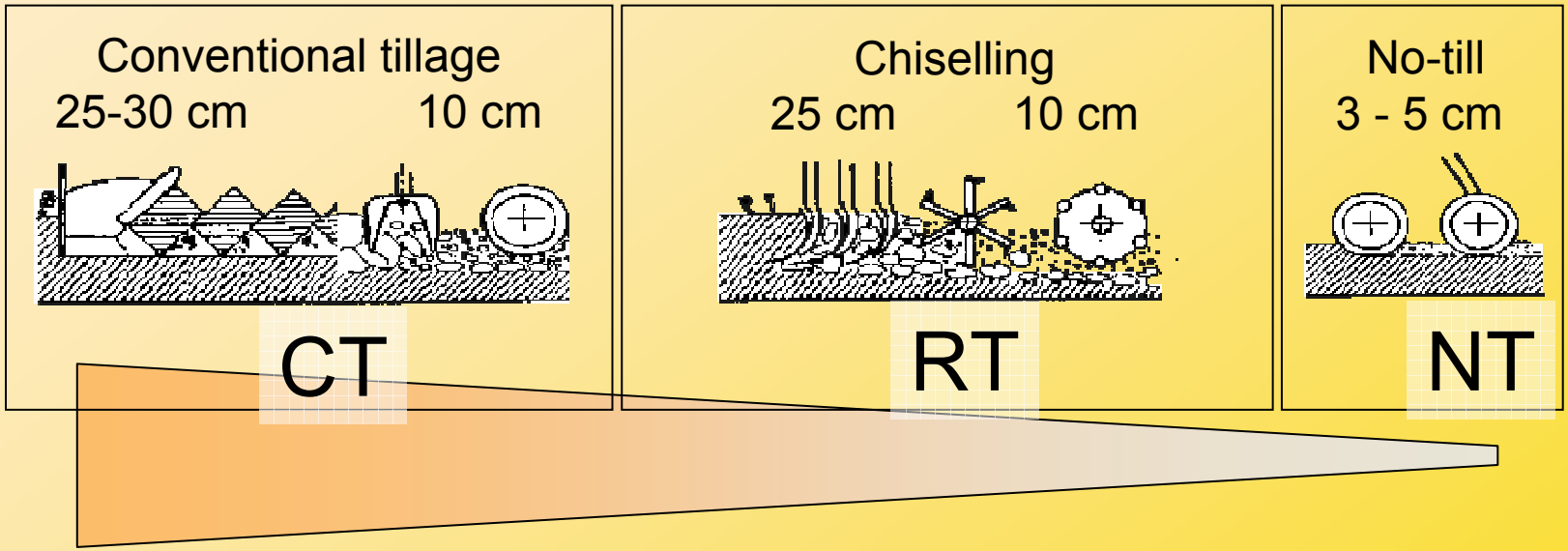
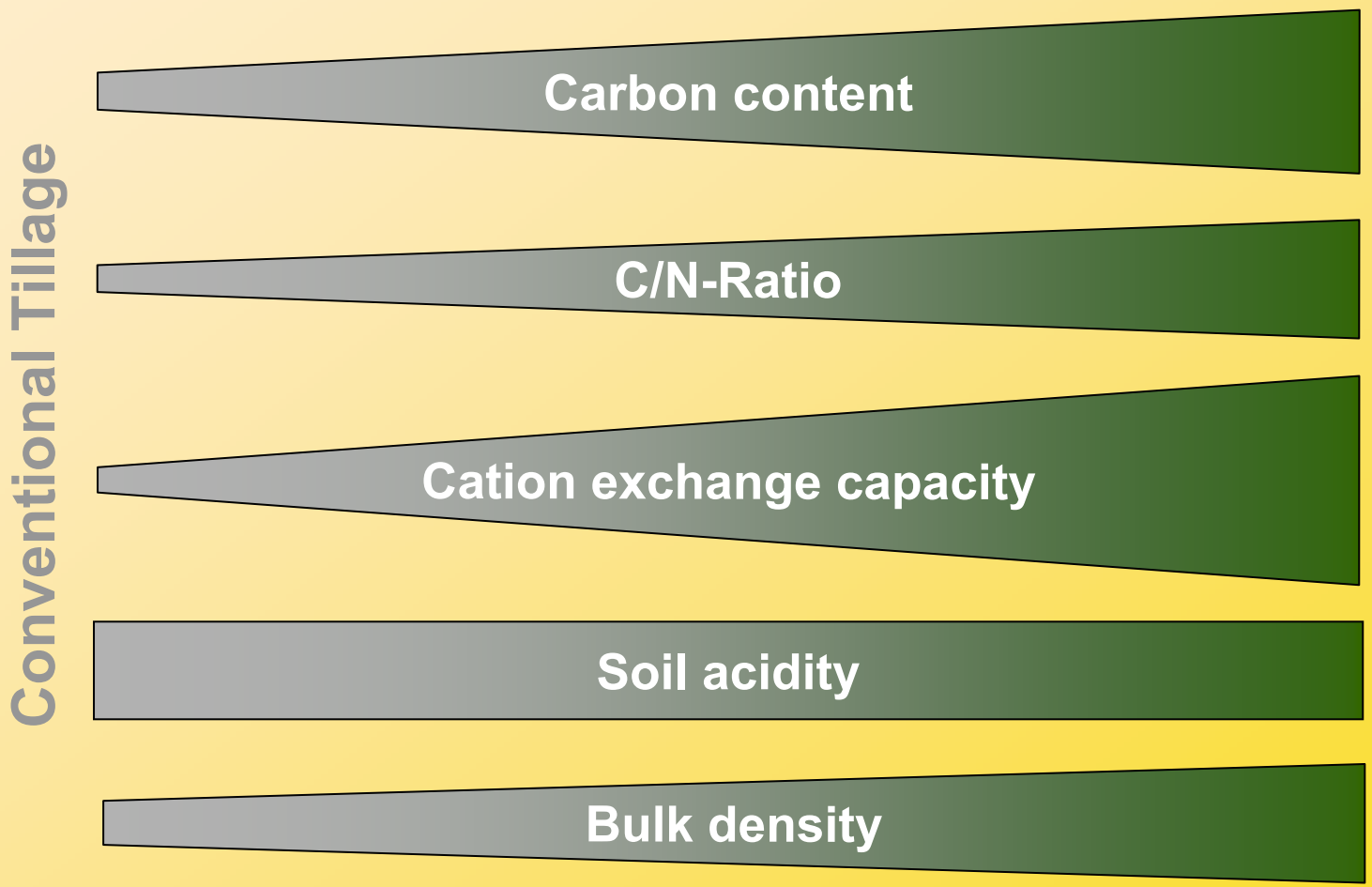
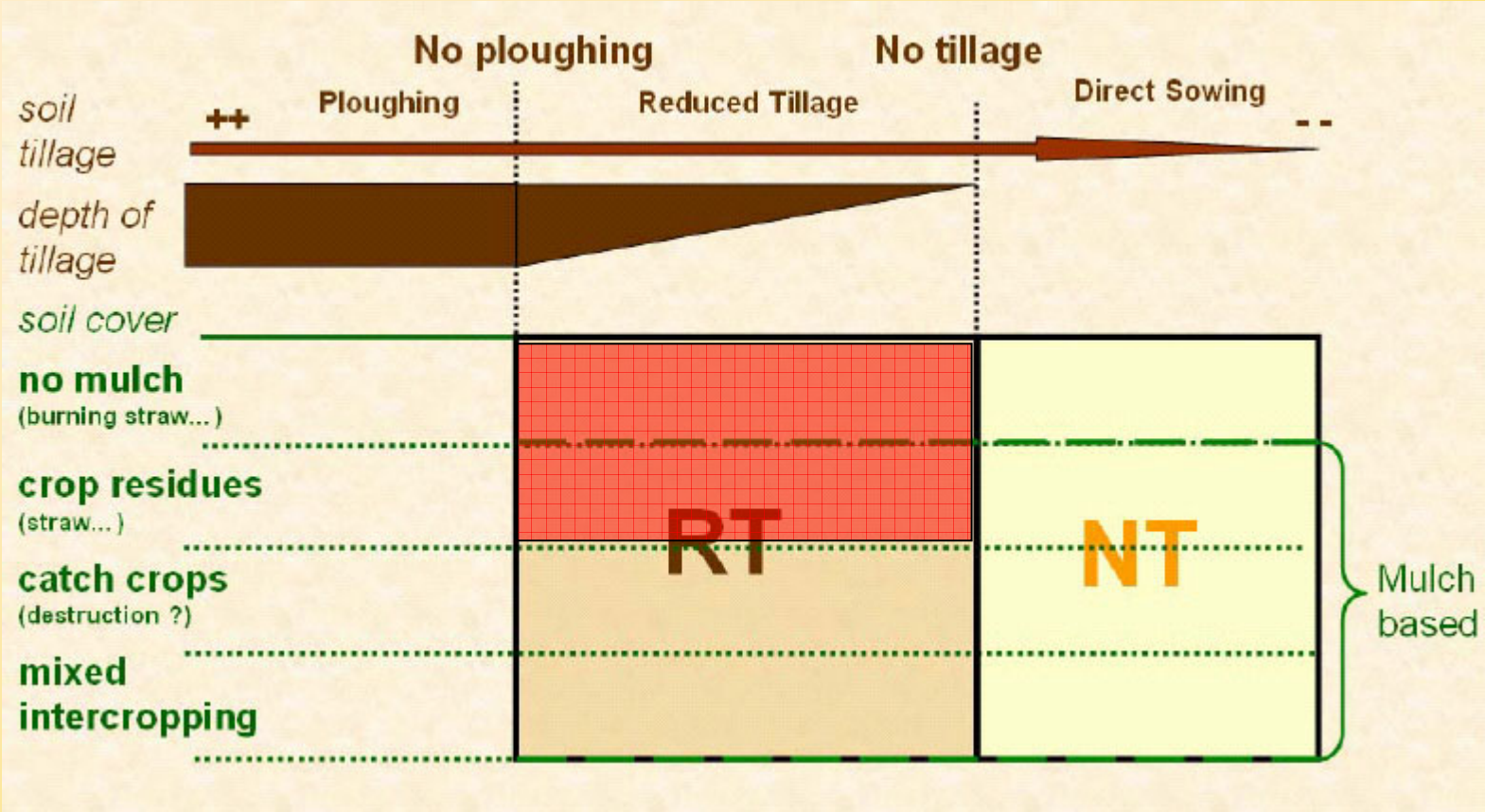
To till or not to till?



Effects on soil properties



Techniques of Conservation Agriculture



Our approach

Why? Where? How?

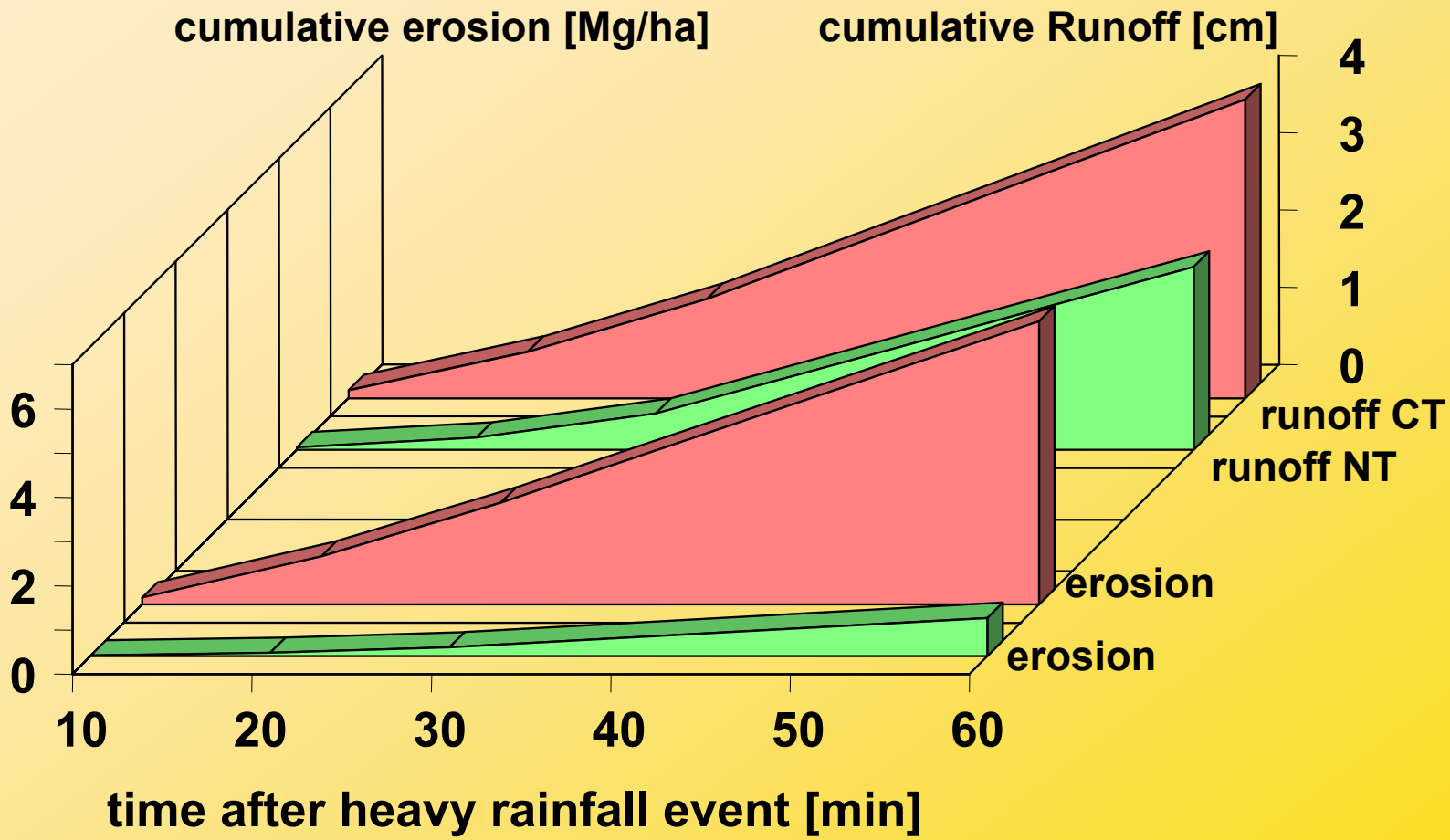
"I should change what I can change"

Why
should I change to CA?

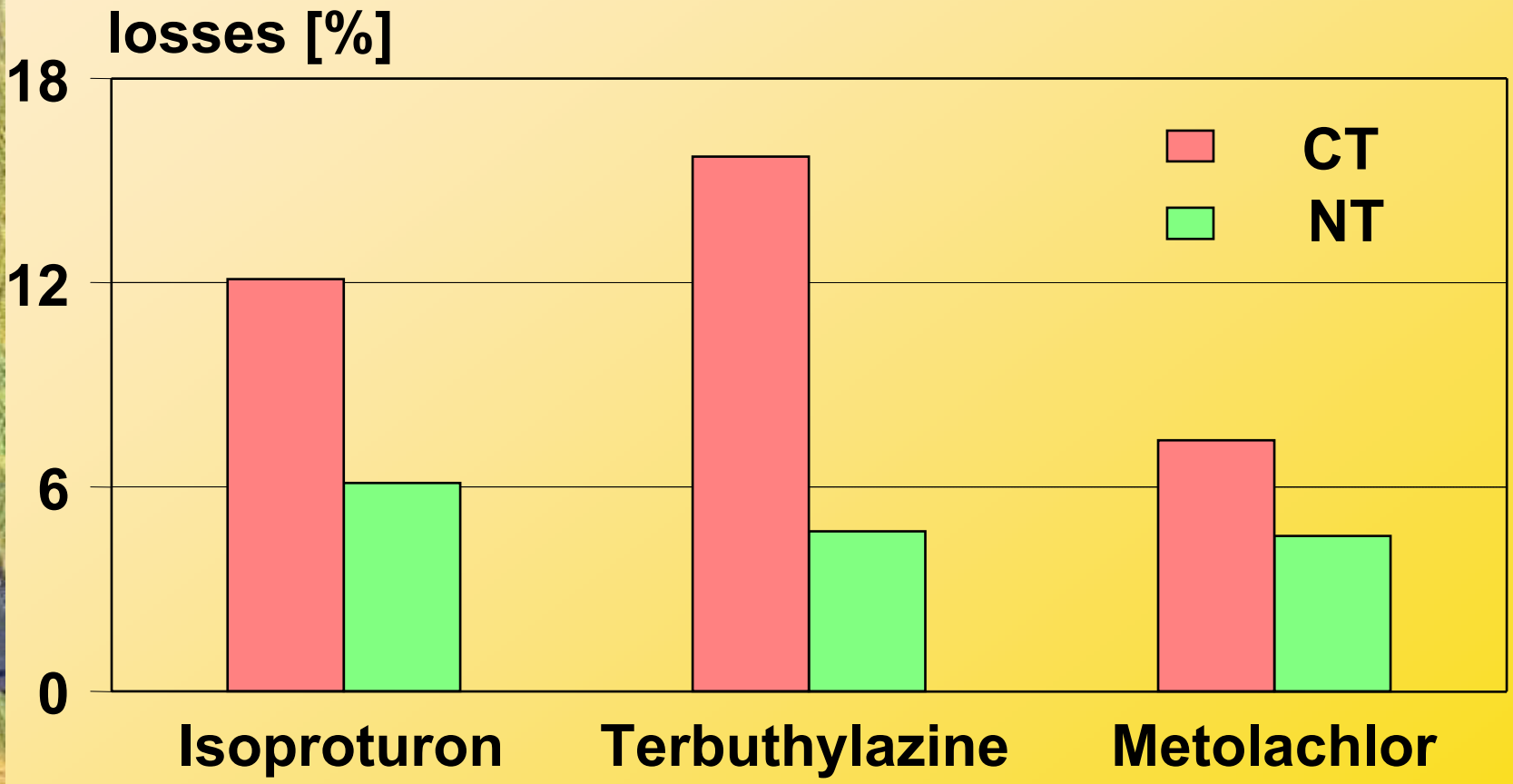
- Profitability
- Biodiversity and biological activity
- Organic matter, carbon sequestration and soil physics
- Erosion mitigation
- Pollution and contamination
- Water balance
- Sociological aspects

Erosion

Soil and water: carrier for substances



Pesticides
Losses of herbicides



Where
should I change to CA?

- Conditions of technical changes
- Environmental conditions
- Agronomical conditions
- Farm or unit size

Where
mineral component x crop

Crop / Mineral component	Winter wheat	Spring wheat oats	Spring barley
Clay			
Sandy silty clay			
Clay loam			
Sandy silty clay loam			
Sand, silt			

Where
mineral component x precipitation

Precipitation / Mineral component	Low	Medium	High
Clay			
Sandy silty clay			
Clay loam			
Sandy silty clay loam			
Sand, silt			

Where
mineral component x length of growing period

Mineral component \ Length of growing period	Long	Medium	Short
Clay			
Sandy silty clay			
Clay loam			
Sandy silty clay loam			
Sand, silt			

Where
mineral component x permeability/drainage

Permeability-drainage / Mineral component	Good	Medium	Bad
Clay			
Sandy silty clay			
Clay loam			
Sandy silty clay loam			
Sand, silt			

How
can I change to CA?

- Access to technology
- Access to finance
- Management of soil structure
- Weed and pest management
- Management of cover crops and residues
- Management of rotation
- Risks/benefits assessment
- Step by step process
- Governance

KASSA

Technique

Conclusions

- Up to now, low adoption of conservation agriculture in practice
- A lot of basic research sometimes based on long-term experiments
- Cost reduction most important driving force
- Erosion and degradation of soils driving forces in some cases
- Most soils are suitable
- Large farms are favoured
- Pollutants behave differently in differently tilled soils

- Process toward CA is on-going step-by-step
- Economic, technical, and sociological risks should be assessed
- Knowledge generation and sharing is the key point

Erosion

Compaction

KASSA

Weeds

Pollution


GULDSMEDEN
VOERHØJ
maskinstation
v/ Ole Østergård Poulsen
Vmax