

# Effects of the Austrian program for an environmental agriculture (ÖPUL) on humus-content of soil

Working Group of Danube Countries

17<sup>th</sup> Experts Meeting, March 17 – 18, St. Pölten

DI Josef Springer, Chamber of Agriculture

Bewegte Zeiten.  
Starker Partner.



landwirtschaftskammer  
niederösterreich

# The ambitions of ÖPUL...

... are manifold:

- Protection of the soil
- Protection of surface-water and ground-water
- conservation and increase of biodiversity
- conservation of a traditional cultural landscape
- Climate protection
- Prevention of air pollution
- encouragement for the farmers for methods of production on high environmental level
- „low input agriculture“

# Judicial demands and ÖPUL-measurements

All ÖPUL-measurements are on a higher environmental level in comparison with judicial demands!

## Example I:

Maximum admissible amount of fertilizer-nitrogen for wheat-production (harvest: 5 tons per hectare):

- Judicial limitation: 145 kg N/ha
- ÖPUL limitation: 130 kg N/ha

## Example II:

The application of sludge of the waste water treatment on grassland and cropland is judicial allowed (under restricted conditions), for members of ÖPUL it is not allowed (to avoid heavy metals in soil)

# ÖPUL includes a lot of measurements

f. e.

- Organic agriculture
- Environmentally cultivation of cropland and grassland
- Abdiction of well soluble fertilizers and chemical-synthetical pesticides
- Abdiction to fungicides in cereal-growing
- Integrated production of vegetable, potato and sugar-beet
- Uncommonly breeds of farm animals
- Uncommonly races of agricultural crops
- Erosion protection in vineyards and orchards
- **Cultivation of catch crops on arable land**
- Reduced tillage on arable land

# Cultivation of catch crops on arable land

Ambitions:

- To decrease the leaching of nutrients into ground water  
(mainly nitrate)
- To decrease nutrient contamination into surface water  
( mainly phosphate)
- Soil protection against eolian erosion and water erosion
- Contribution to biodiversity  
(flora and fauna)

# Catch Crops

Obligations (shortened overview):

- Cultivation until 20.8. for not hardy catch crops  
(f. e. after cereals, rape)
- Cultivation until 15.10. for hardy catch crops  
(f. e. after maize)
- Cultivation until 31.8. **and**  
using at least 2 different catch crops **and**  
no tillage operation until 1.3. **and**  
no herbicide **and**  
optionally reduced tillage to seed the following crops
- (winter cereals do not activate this measurement!)

# Catch Crops

Which catch crops are mainly used?

- *Phacelia tanacetifolia*



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- *Raphanus sativus*
- *Lathyrus sativus*
- *Sinapis alba*



# Catch Crops

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- *Phacelia tanacetifolia*
- *Fagopyrum esculentum*
- *Linum usitatissimum*
- *Raphanus sativus*
- *Lathyrus sativus*
- *Sipapis alba*
- *Vicia sativa*
- Et cetera



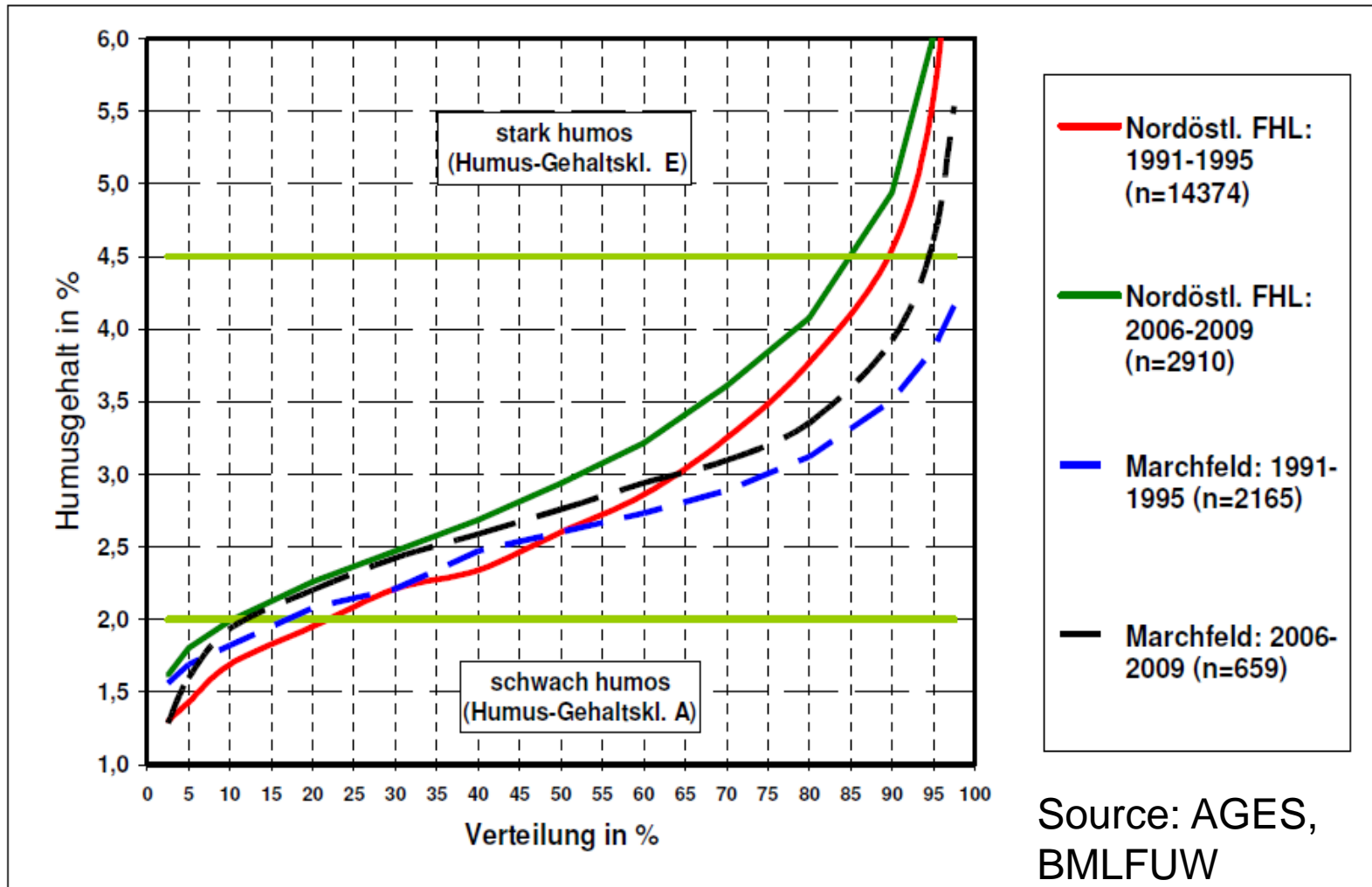
# Participance in Lower Austria

265.000 ha	winter cereals
37.000 ha	perennial forage crops
31.000 ha	rape
23.000 ha	arable land without harvest (for bioversity and environmental protection)
<b>191.000 ha</b>	<b>catch crops</b>
<u>145.000 ha</u>	<u>arable land without crops in autumn</u>
692.000 ha	total arable land





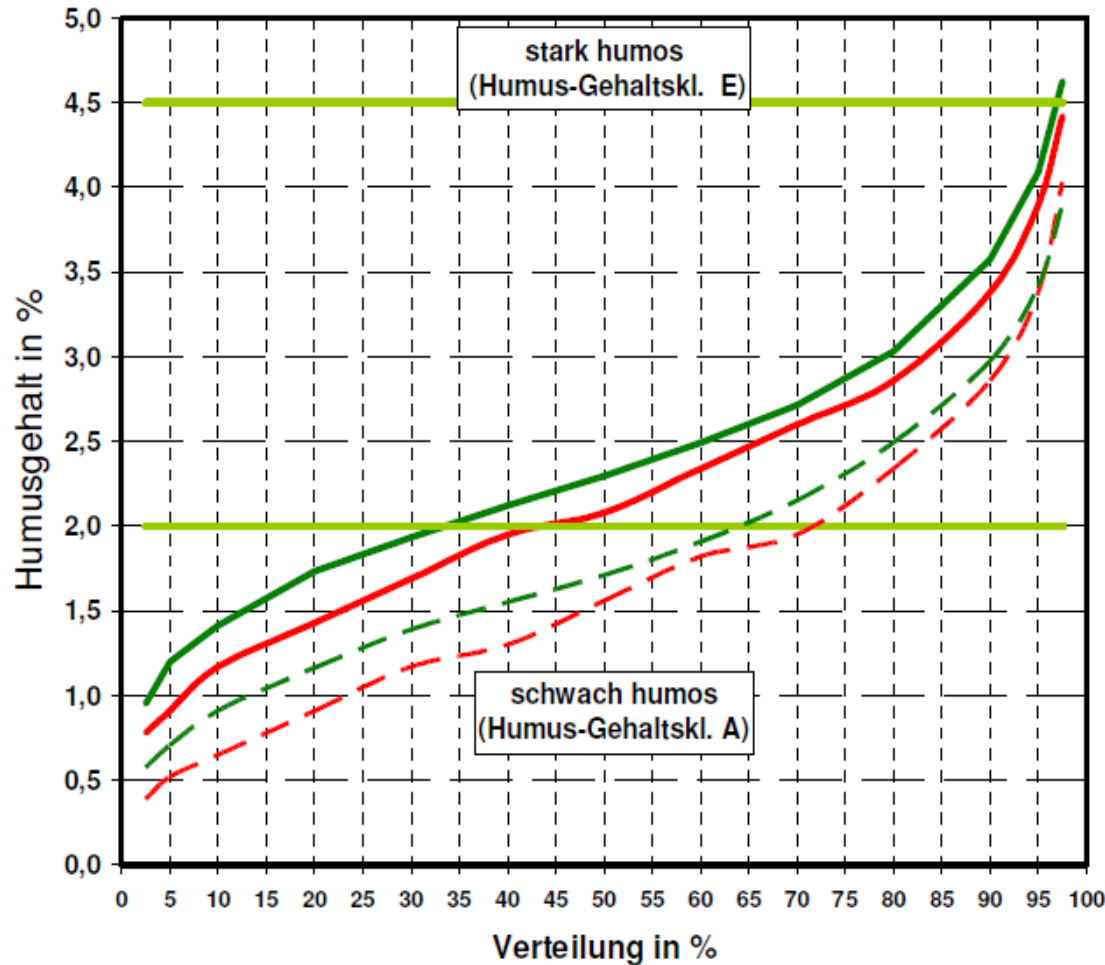
# Humus content increases in lower Austria (arable land)



Source: AGES,  
BMLFUW



# Humus content increases in lower austria (vineyards)

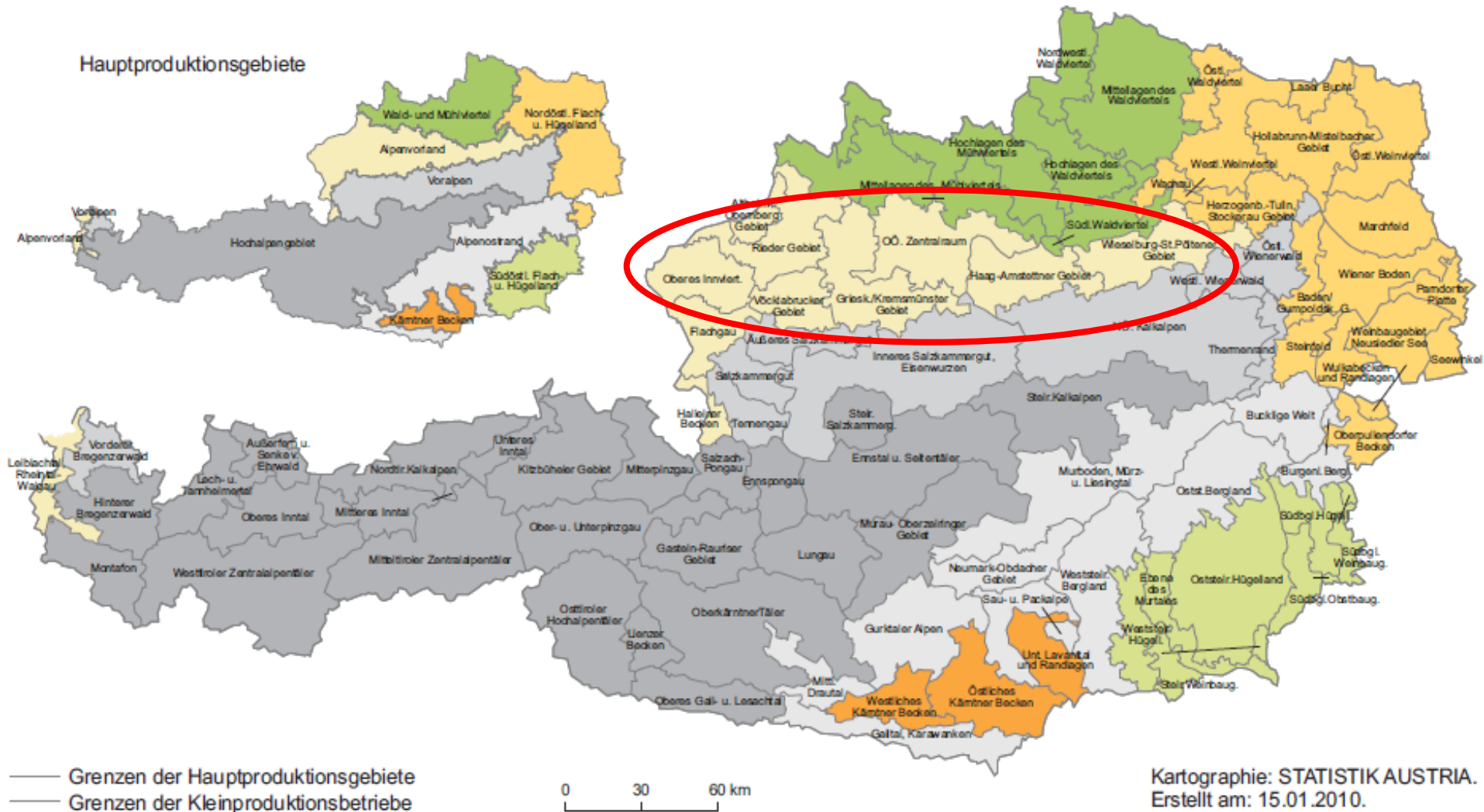


Source: AGES,  
BMLFUW

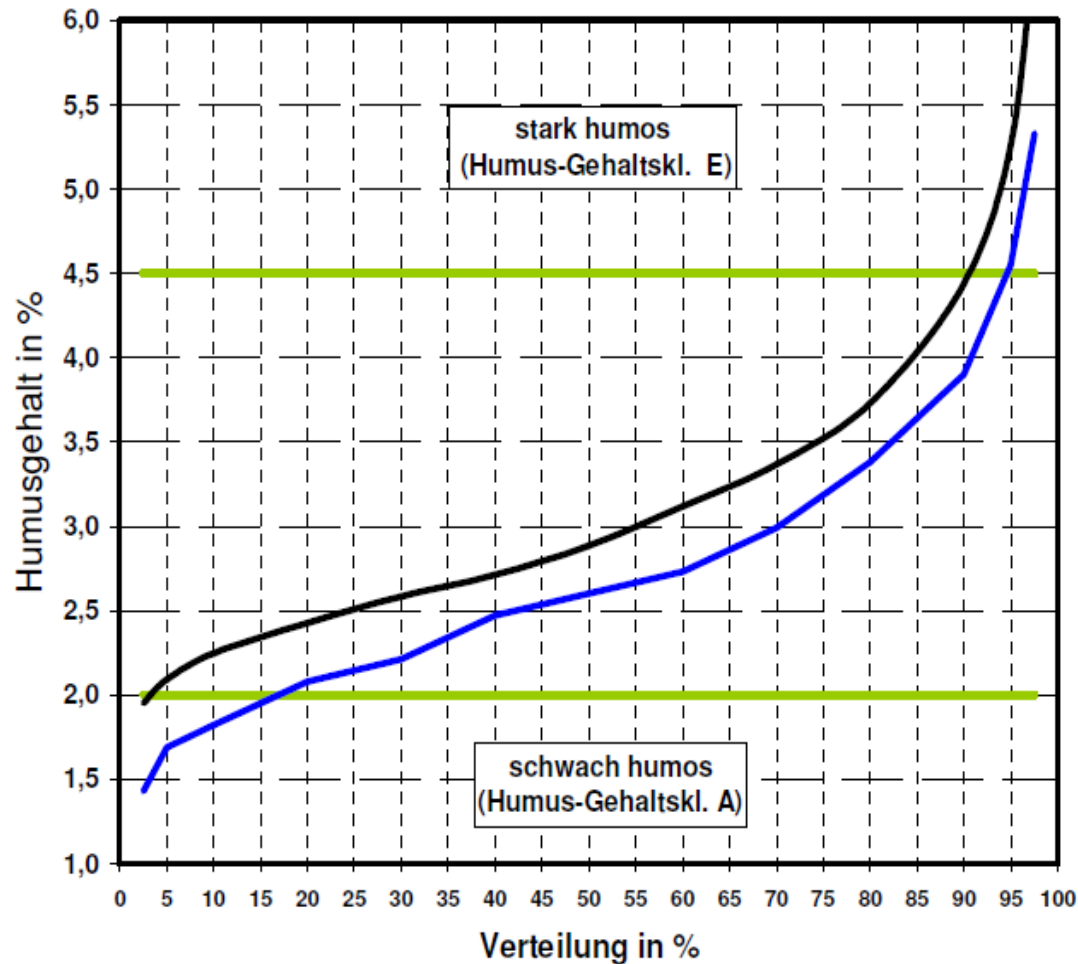
# Areas of agrarian production in Austria

Landwirtschaftliche Haupt- und Kleinproduktionsgebiete Österreichs, Gebietsstand 2010

Hauptproduktionsgebiete



# Humus content increases in lower Austria (arable land)



In this area „reduced tillage“ is marginal!

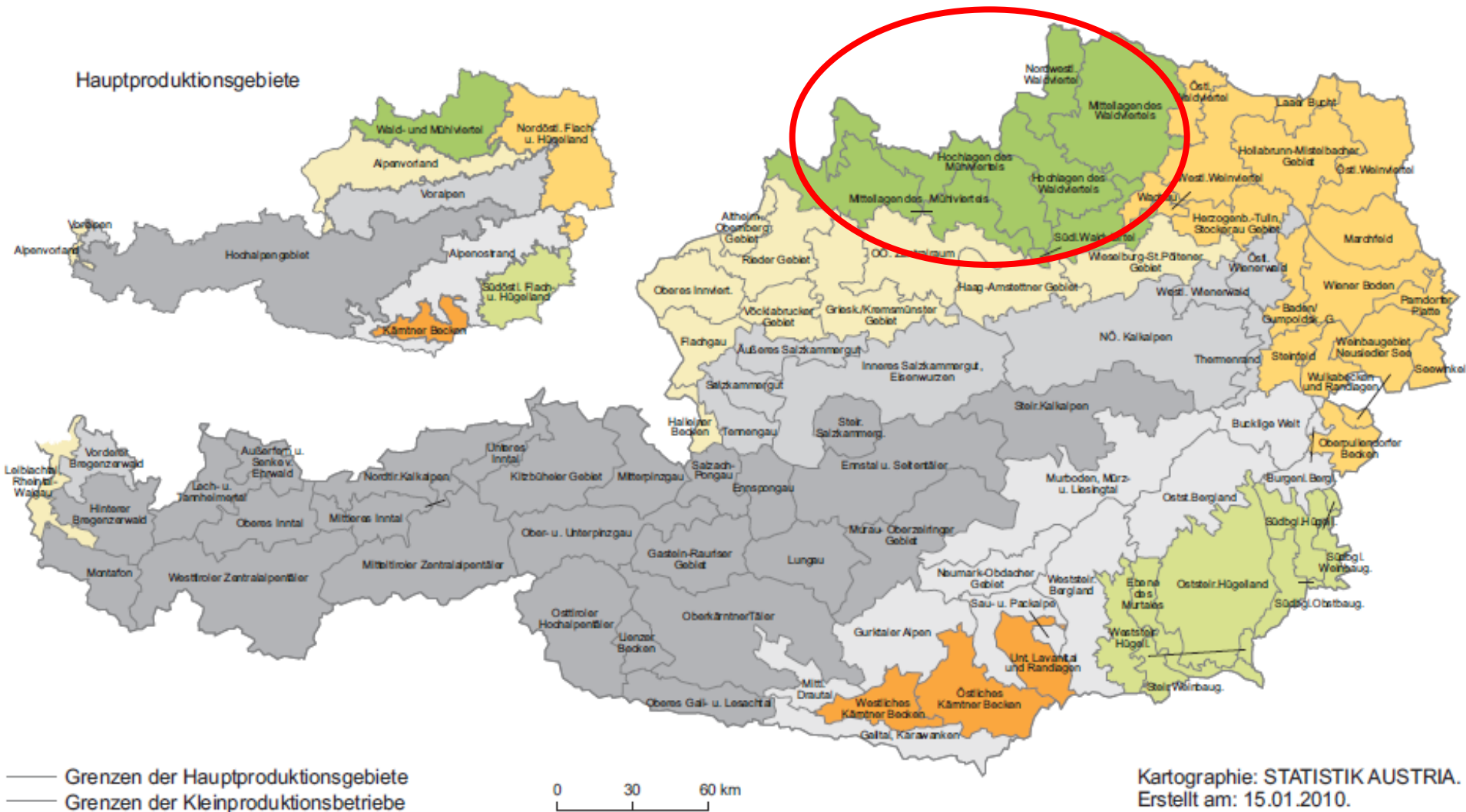
Alpenvorland:  
1991-1995 (n=6238)

Alpenvorland:  
2006-2009 (n=1457)

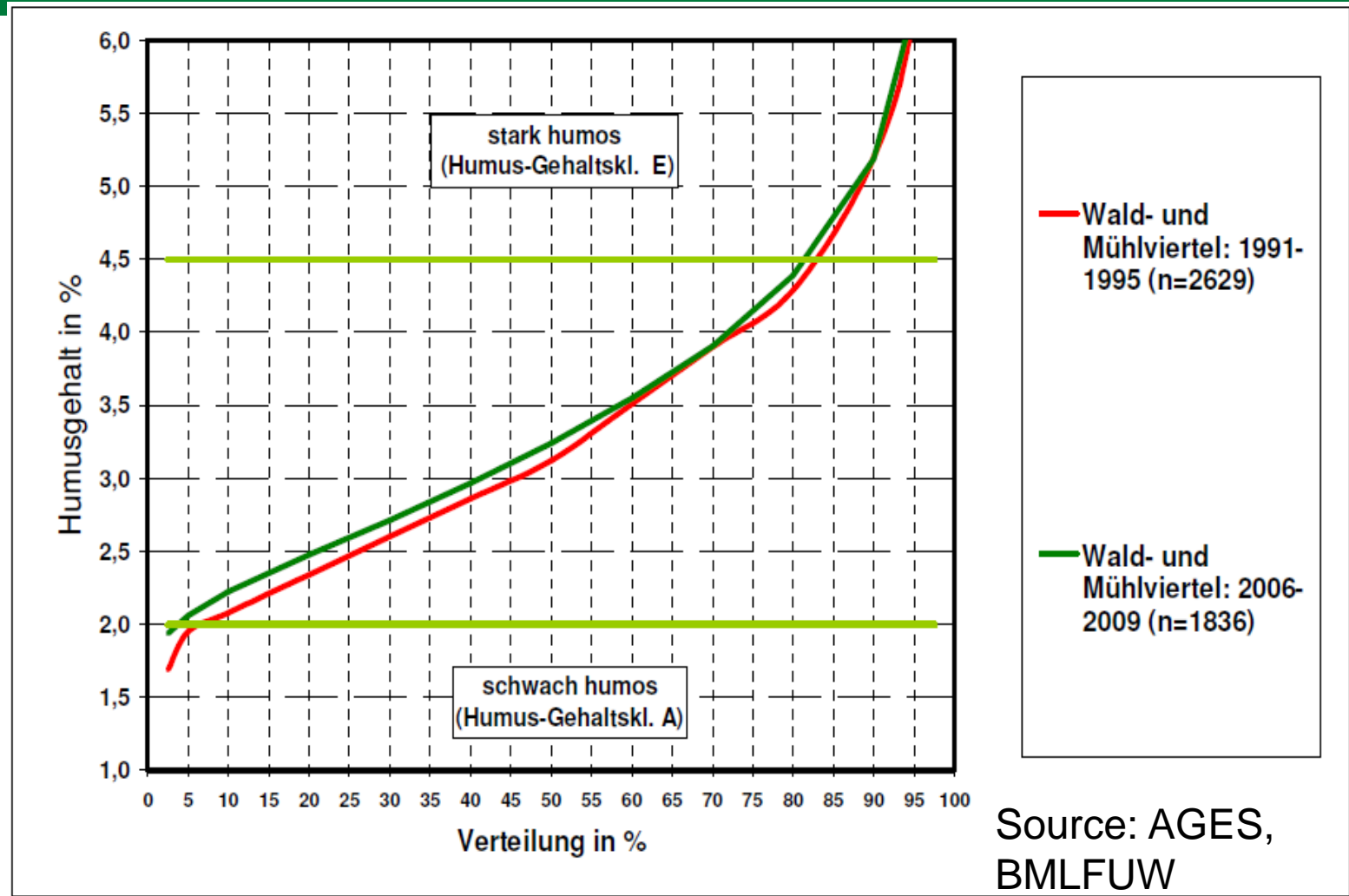
Source: AGES,  
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# Humus content increases in lower austria (arable land)



# Conclusion

ÖPUL

with the voluntary and incentive measurements

**„Cultivation of catch crops on arable land“ and  
„Reduced tillage“**

is qualified to increase the organic matter in soil