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Farm level adaptations to high energy prices

– Germany –

Simon Walther, *agri benchmark* Cash Crop

Beijing, Aug 18th 2009

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Structure

1. **German farm gate prices**
2. **Changes in crop rotations?**
3. **Case study: Adaptation of a top performing German farm**
4. **Conclusions**

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German farm gate prices

Commodities, inputs

- ⇒ World market prices adapted
- ⇒ Sugar beets (Ethanol): 43 USD/t

Straw

- ⇒ Straw can substitute oil for heating (small heat/power plants)
- ⇒ Equivalent price (baled straw @ field): 177 USD/t

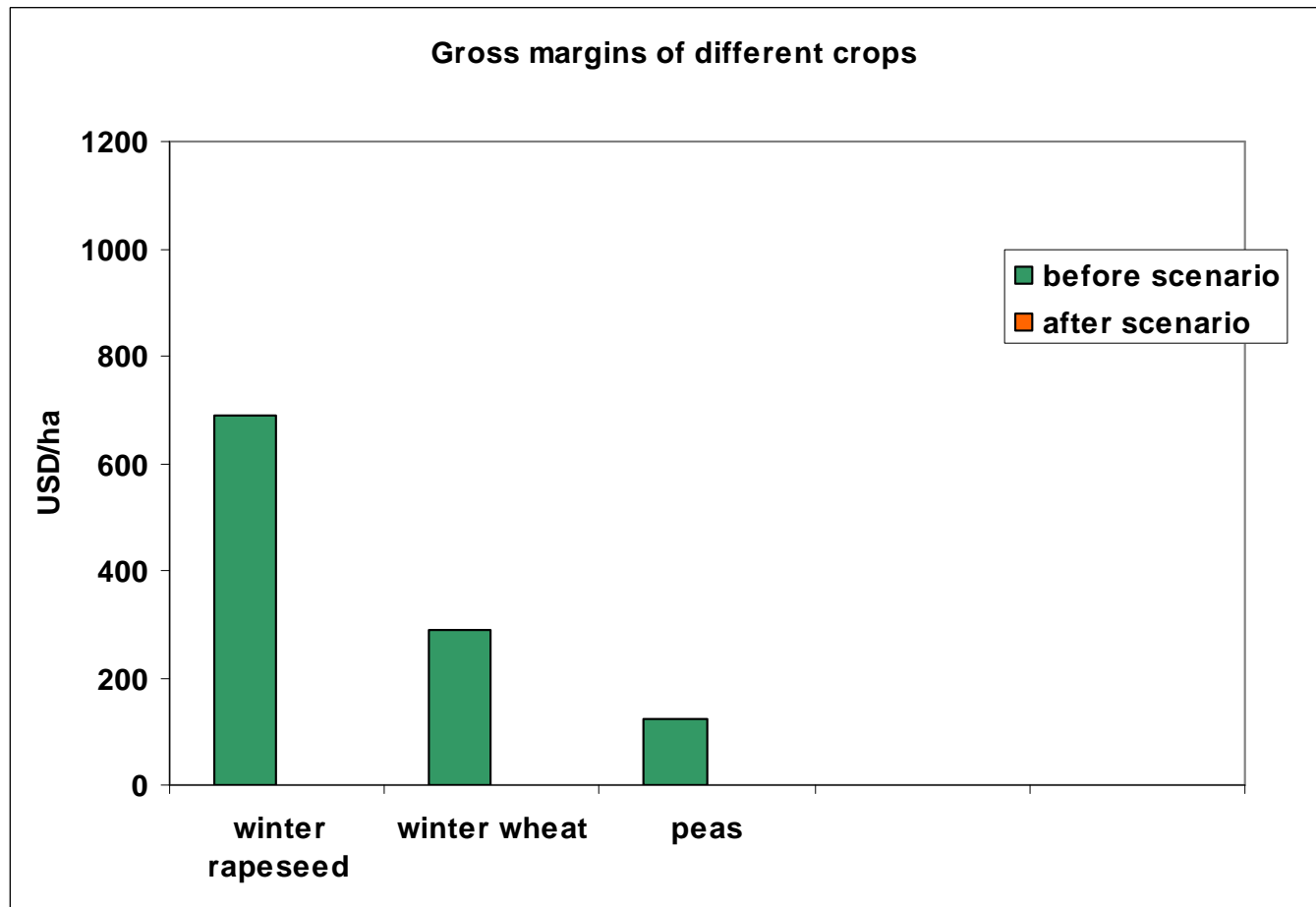
Organic fertilizers

- ⇒ Estimates based on 2008 peak prices
- ⇒ Meat and bone meal: 130 USD/t (was: 73)
- ⇒ Dry chicken dung: 50 USD/t (was: 26)

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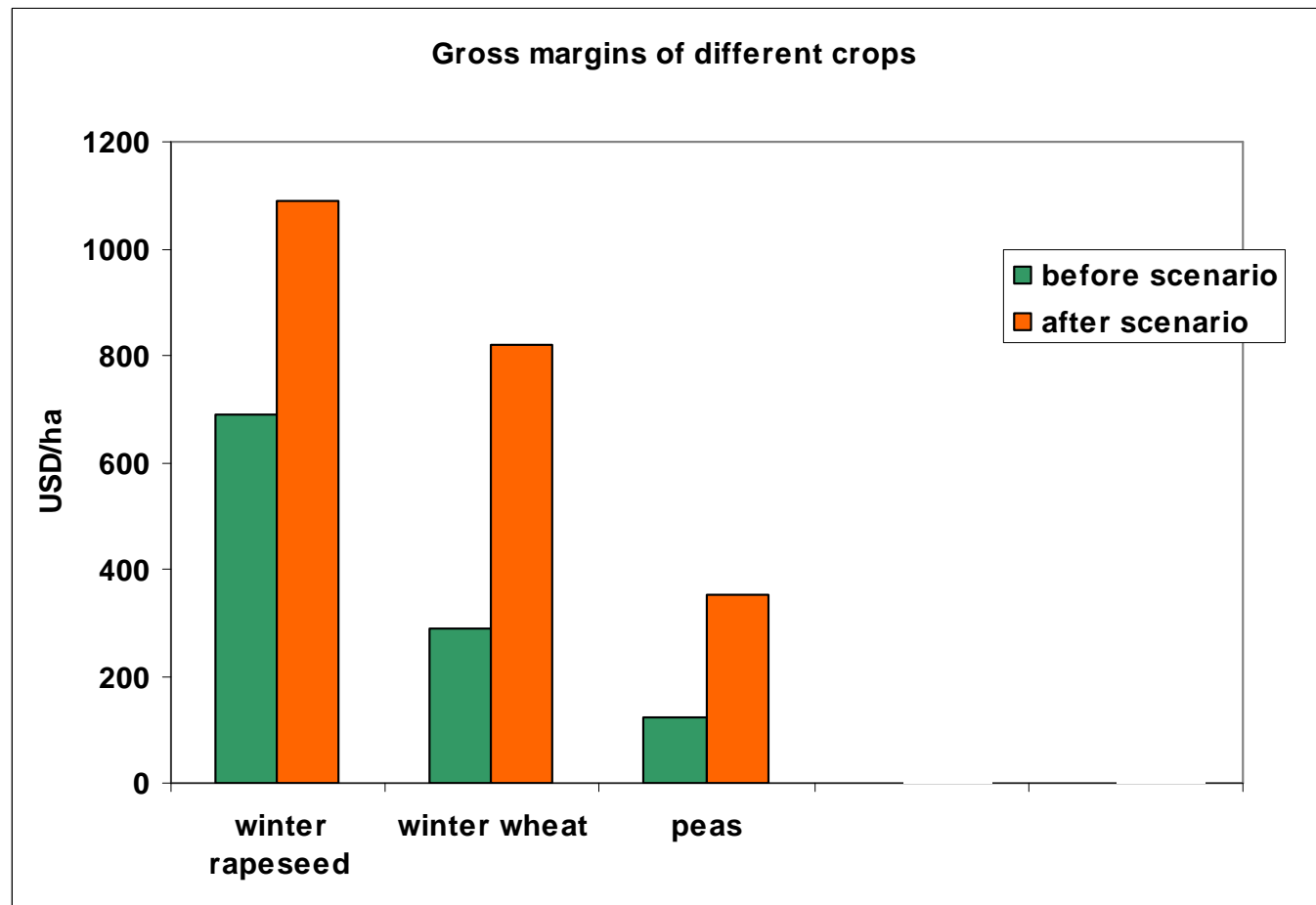
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Changes in rotations?



Source: own calculations, based on LFL Bavaria 2009

Changes in rotations?

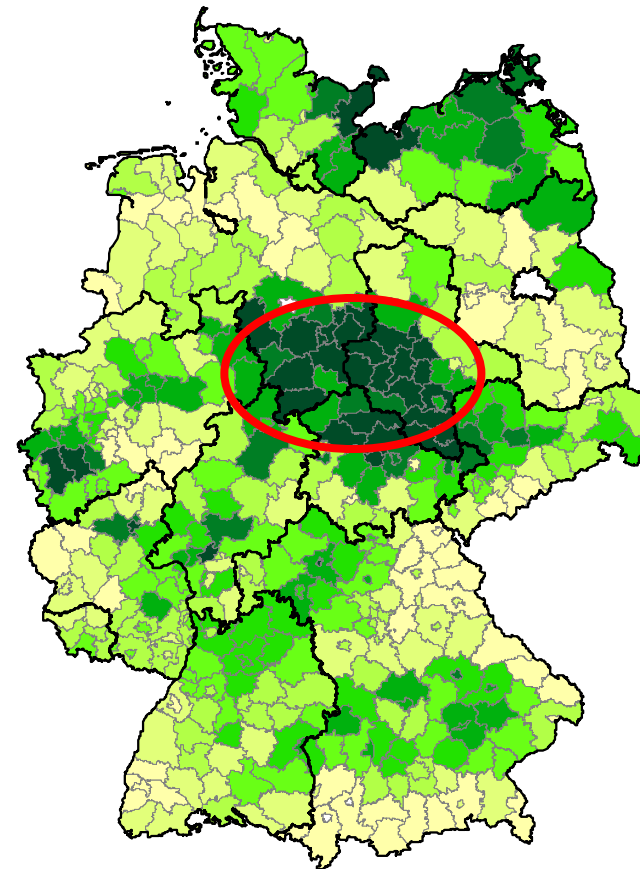


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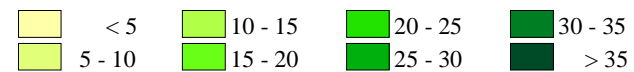
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Location of the farm



Share of wheat acreage in total arable land (in %)



Production system

Location: “Central German Dryland”

- ⇒ Moderate-continental climate
- ⇒ Avg. temperature: 9.2°C
- ⇒ Precipitation: 470mm
- ⇒ Very good soils

Farm profile

- ⇒ 2000 ha
- ⇒ Specialized cash crop farm
- ⇒ Intensive production system
- ⇒ Top farm → already highly optimized
→ low cost of production
→ clearly discern scenario effects
- ⇒ Rotation: winter rapeseed (4.5 t/ha)
winter wheat (9.7 t/ha)
winter wheat (8.8 t/ha)



Production system

Tillage system: Intensive min-till

- ⇒ Usually 2 cultivation passes between crops
- ⇒ Up to 25 cm deep



Production system

Tillage system: Intensive “min-till”

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Plant protection and nutrition

- Rapeseed:**
- ⇒ 240 kg N in 3 doses
 - ⇒ Organic fertilization
 - ⇒ 4 pesticide applications

- Wheat:**
- ⇒ 165 kg N in 3 doses
 - ⇒ 5 pesticide applications



Adaptation strategies

Selling wheat straw

- ⇒ Makes use of the new high value
- ⇒ 13 t/ha of straw per rotation
- ⇒ More fertilization required (nutrient export)
- ⇒ Humus balance?

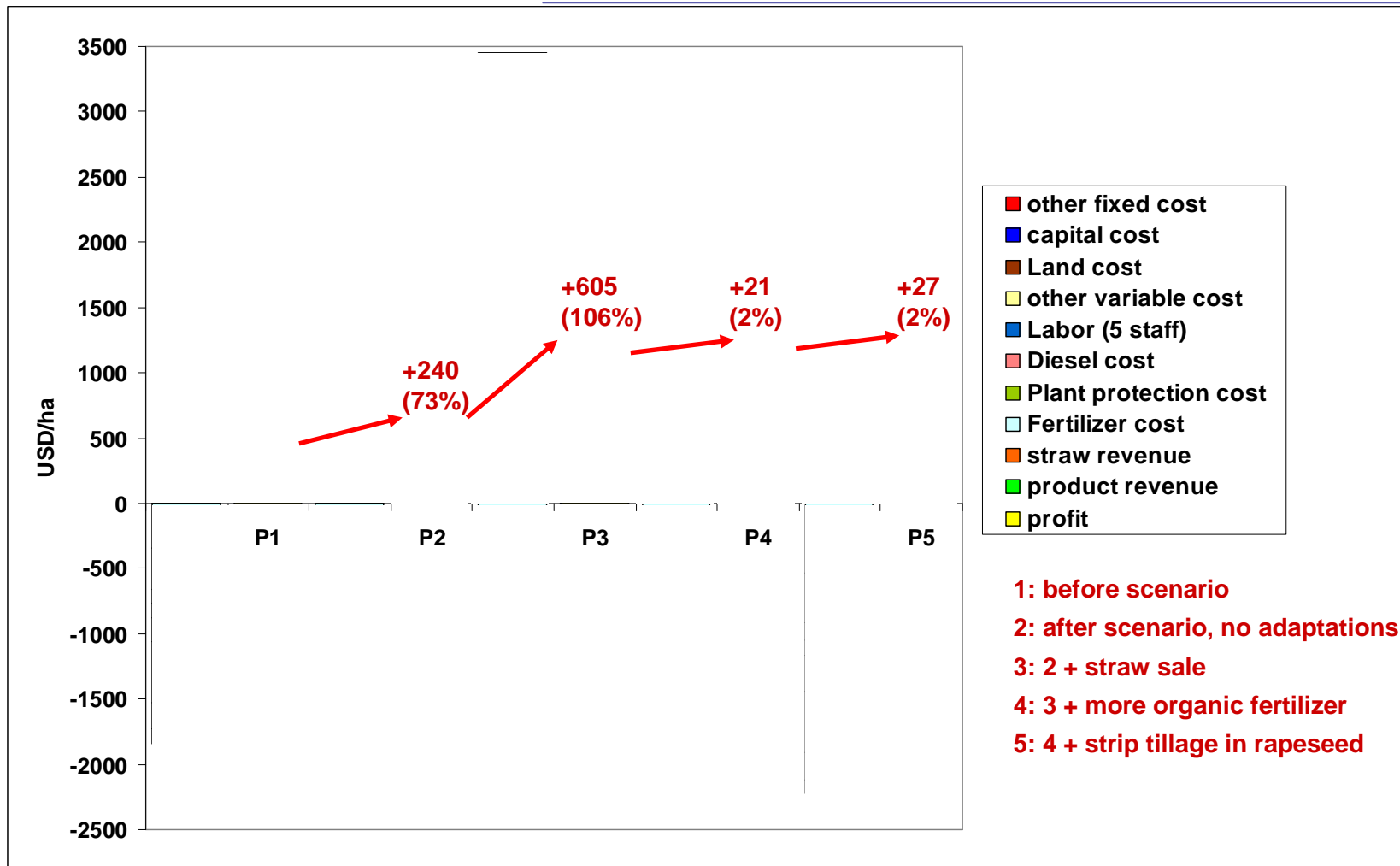
Mineral fertilizer substitution

- ⇒ Additional use of dry chicken dung
- ⇒ 2.5 t/ha per rotation

Strip tillage in rapeseed

- ⇒ Fuel and fertilizer savings
- ⇒ Slightly higher capital cost

Monetary results



Source: own calculations

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Conclusions

Farm income effect of scenario?

- ⇒ Farm profits increase substantially
- ⇒ Incentive to intensify
(but: German production already highly intensive)

Rotation changes?

- ⇒ Gross margin relations do not change
- ⇒ Sugar beets very competitive in certain regions
- ⇒ Legumes as cover crops

Other adaptation?

- ⇒ Sale of by-products for energetic use
- ⇒ Other technological adaptations?
 - Smaller profit effect
 - Happen already, accelerated by scenario

Thank you for your interest



Simon Walther

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