Understanding global agriculture through *agri benchmark*

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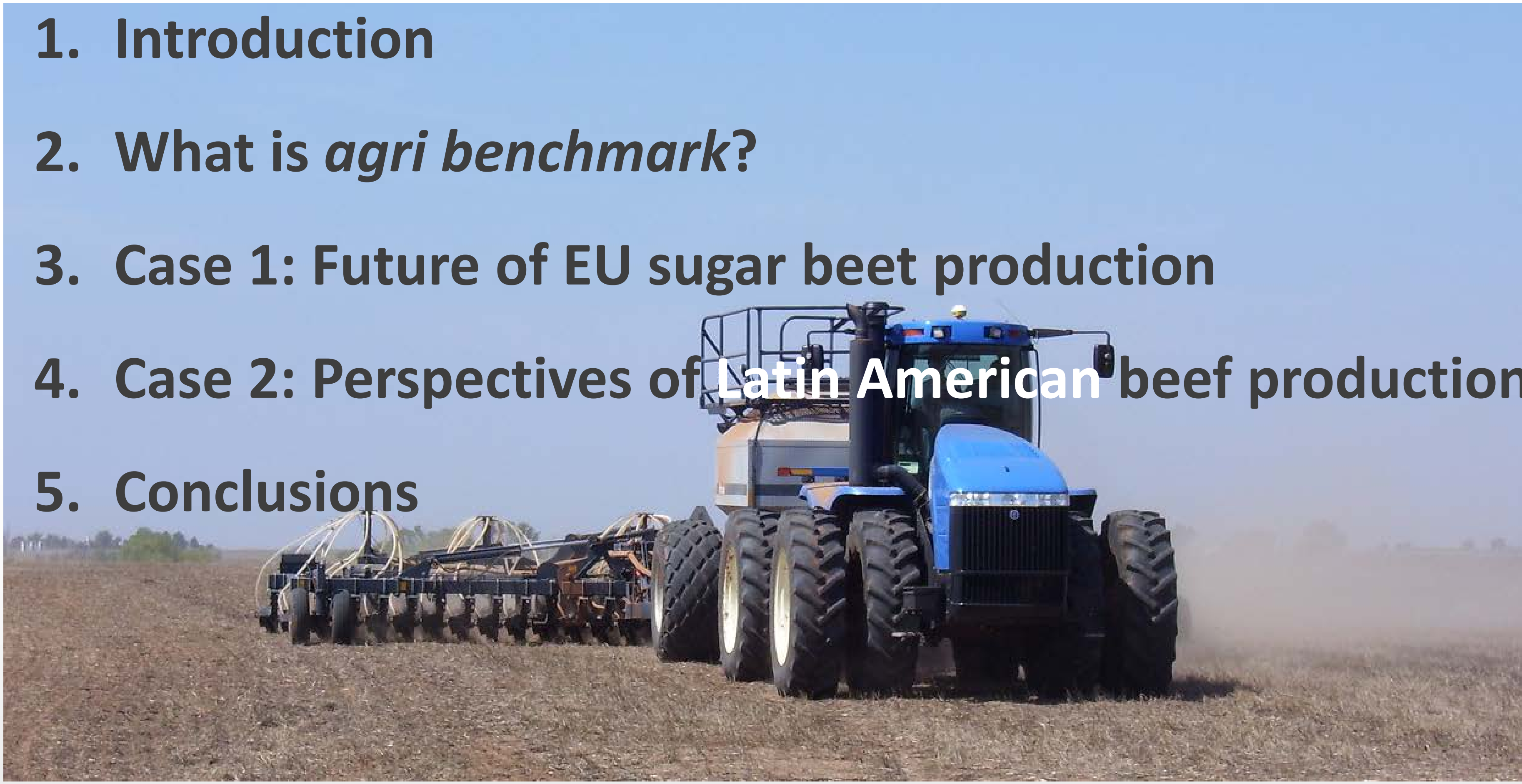
Agenda



1. Introduction
2. What is *agri benchmark*?
3. Case 1: Future of EU sugar beet production
4. Case 2: Perspectives of Latin American beef production
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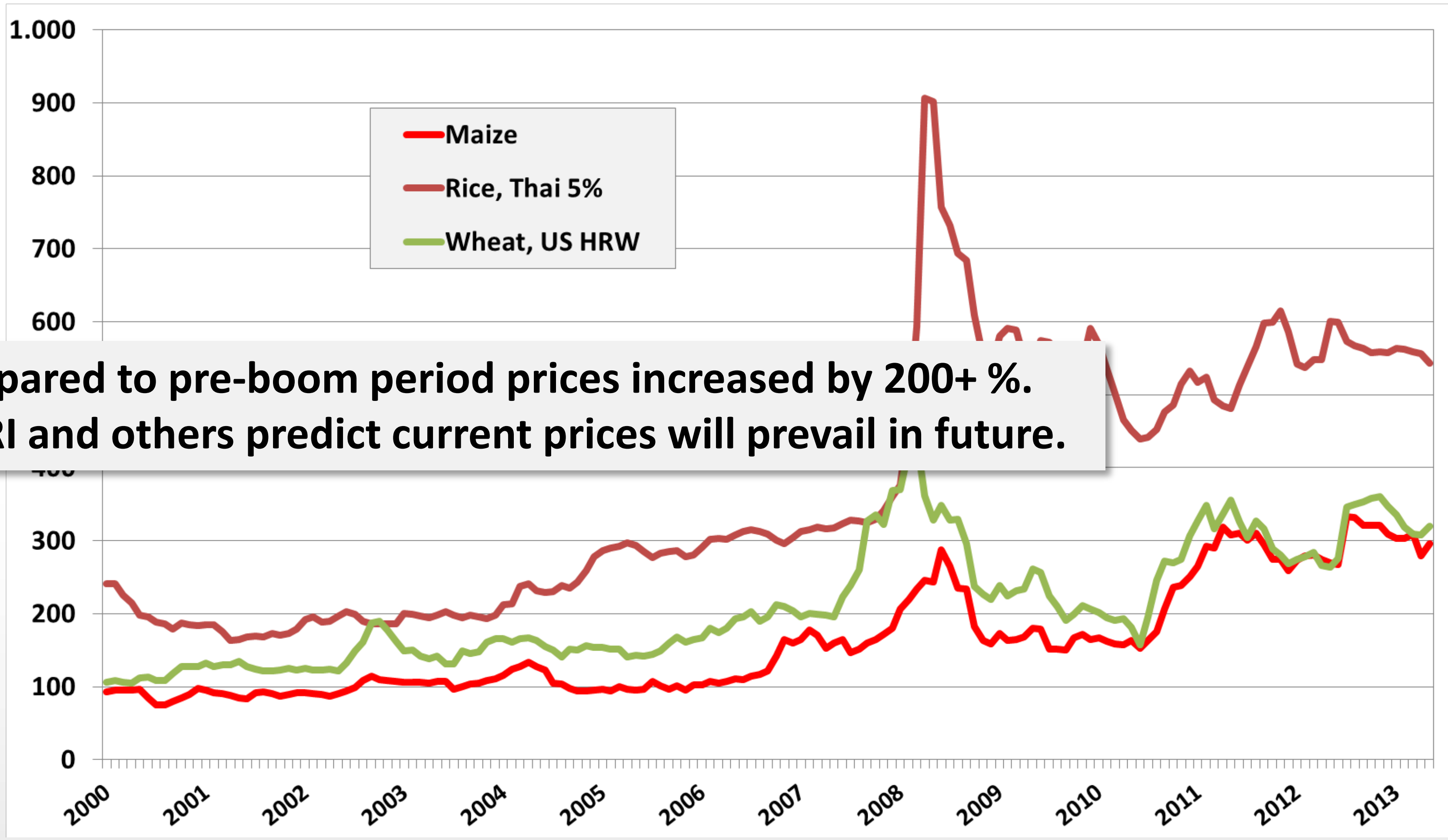
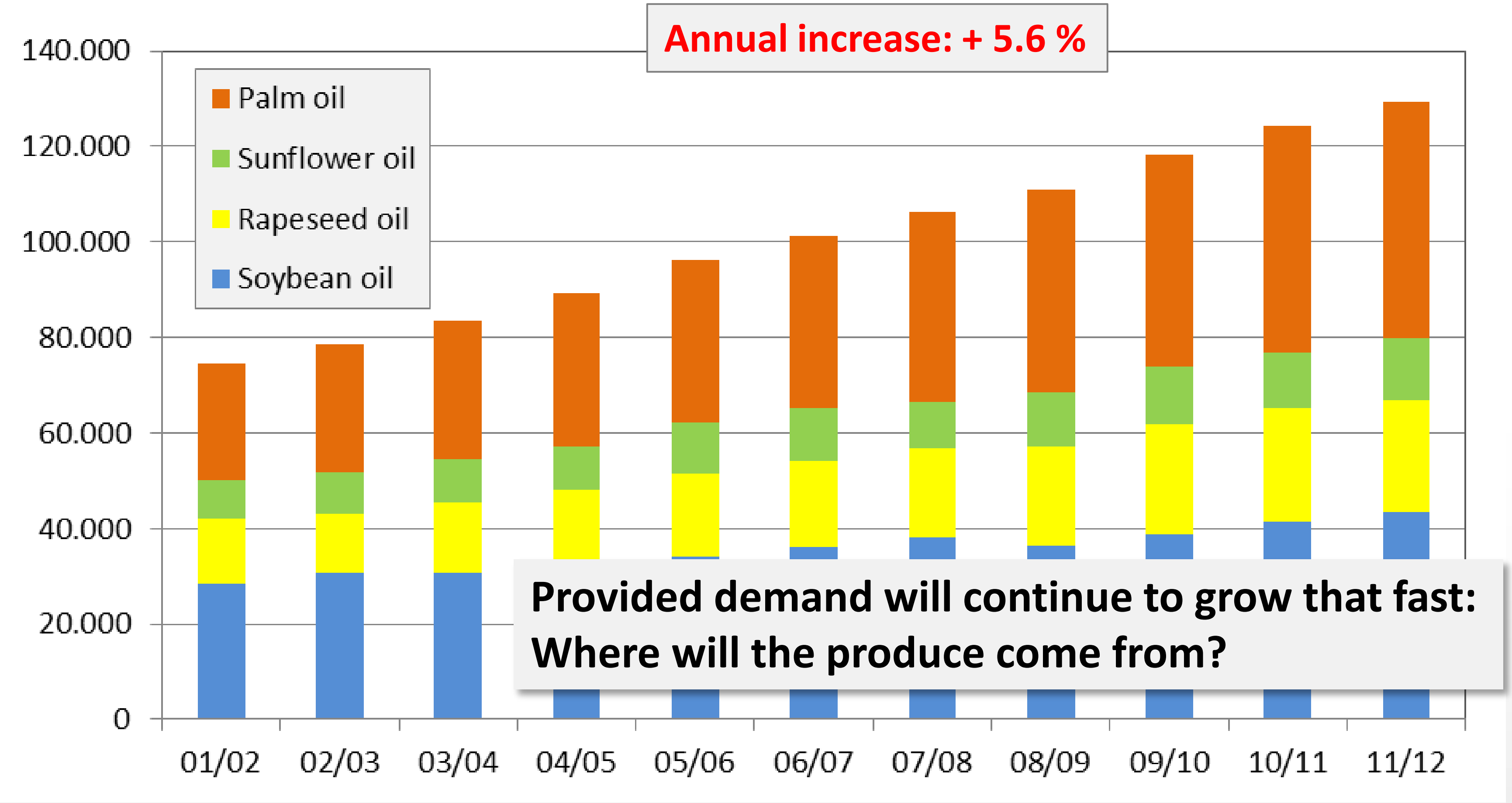
Commodity prices on the rise? (USD/t)



Compared to pre-boom period prices increased by 200+ %.
FAPRI and others predict current prices will prevail in future.

Source: World Bank, pink sheets (2013), own calculations

Sky rocketing vegetable oil consumption (in 1,000 t)



Source: FAPRI (2012), own compilation

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Challenges for agricultural economists (and farmers, policy makers & investors)

1. Are we going to see high commodity prices „for ever“?
2. What regions in the world will produce additional commodities and how?
3. Note: many new players (e.g. RU,UA, CN & Africa) with extremly weak or even non-existent official economic data.

Data requirements for solid projections

1. Physical and economic production functions per site & crop - currently and potentially produced in future.

2. Quantified rotational effects between crops.
   ⇨ nutrient carry over
   ⇨ impact on soil quality
   ⇨ infection cycles from pest and deseases
   ⇨ changes labor and machinery use (winter vs. summer crops)

3. Risk (and other) preferences of producers.

Theoretically doable based on massive field trials and grower serveys.

But: It‘s a „man-to-the-moon-project“

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What is *agri benchmark*?

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agri benchmark farms - established systematically

A typical farm…

- ⇨ represents the origin of a major share of the national output in a given crop
- ⇨ is defined by a certain production system and a combination (if any) of enterprises
- ⇨ has certain structural features re. ownership of land as well as labor organization (family vs. hired)
- ⇨ is regularly being re-assessed to track changes

Data is jointly gathered from partners, regional advisors and growers. Basis: Standard operating procedure (SOP).

Branches in the *agri benchmark* Network

Cash Crop

- Cereals
- Oilseeds
- Sugar
- Other

Beef and Sheep

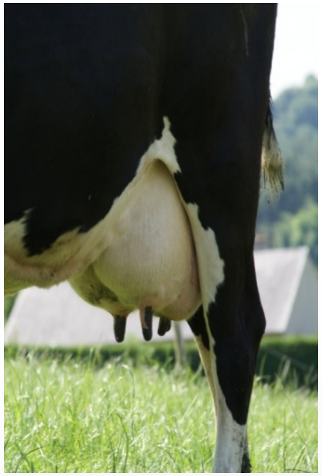
- Cow-calf
- Finishing
- Ewes
- Finishing

Pig and Poultry

Under construction

- Sows
- Finishing

Dairy (EDF)



Under construction

Horticulture

Under construction

- Apple
- Grapes

Organic

Under construction

Wheat
Potatoes
Milk
Cow-calf
Coffee
Bananas

agri benchmark – partners with high reputation (I)

Europe

	UK	Lantmännen	Sweden	KAPOSVÁRI EGYETEM	Hungary
CRPV soc. coop. CENTRO RICERCHE PRODUZIONI VEGETALI	Italy	NOVUS ORSUS	Ukraine	ÚZEI	Czech Republic
ARVALIS Institut du végétal	France		Romania		Poland
PATRIOTISK SELSKAB	Denmark	CERES AGRIGROWTH INVESTMENT FUND	Bulgaria	IKAR Institute for Agricultural Market Studies	Russia

North America

University of Saskatchewan; Agriculture and Food	Canada	IOWA STATE UNIVERSITY University Extension	USA / Iowa	PURDUE UNIVERSITY	USA / Indiana
NORTH DAKOTA STATE UNIVERSITY FARGO, ND		KANSAS STATE UNIVERSITY DEPARTMENT OF AGRICULTURAL ECONOMICS www.AgManager.info	USA / Kansas		

agri benchmark – partners with high reputation (II)

South America

Brazil

Argentina / Uruguay

Asia

China

Malaysia

Vietnam

Kazakhstan

Thailand

Japan

Africa

Tunisia

South Africa

Algeria

Transoceania

Australia

Principles of the network

1. "Put your country in and get the world back".
2. Partners remain owner of the data.
3. Annual conference to exchange ideas, validate data and explore new countries.
4. *agri benchmark* Center cooperates with companies and institutions to generate funds to run the network.
5. We are non-political.

Major clients & cooperations

GLOBAL AGENDA OF ACTION
IN SUPPORT OF SUSTAINABLE LIVESTOCK SECTOR DEVELOPMENT

JOHN DEERE

FAO FIAT PANIS
Food and Agriculture Organization
of the United Nations

BAYER

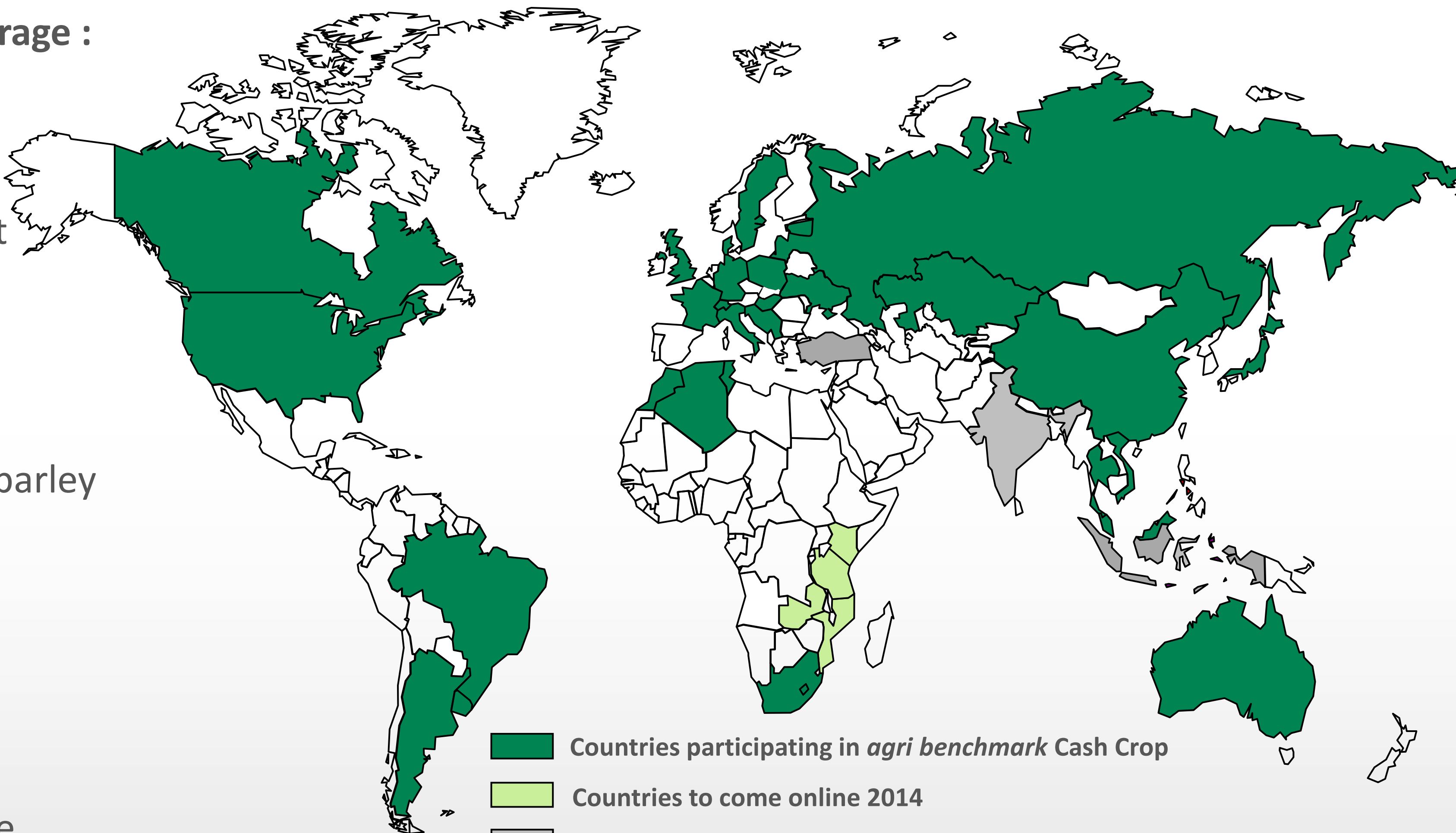
European
Commission

mla
MEAT & LIVESTOCK AUSTRALIA

Present in all major countries and crops

Crop coverage :

Corn
Soybeans
Wheat
Sugar beet
Rice
Rapeseed
Oats
Rye
(Malting) barley
Sunflower
Sorghum
Cotton
Peas
Beans
Palm oil
Sugar Cane



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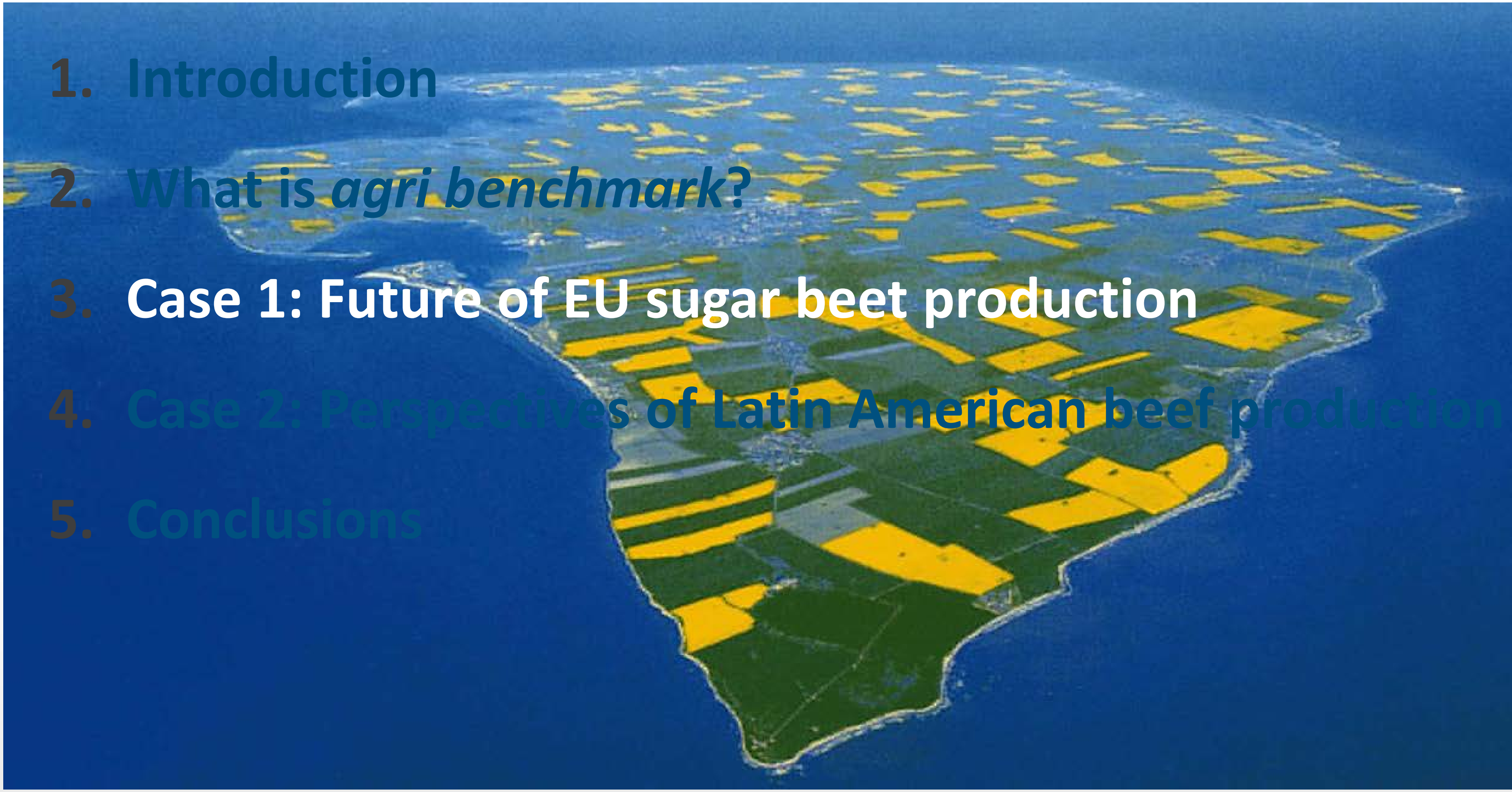

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What are the case studies good for?

1. **Illustrate the complexity of producers options and restrictions.**

2. **Demonstrate *agri benchmark*'s ability to handle this complexity and to generate meanigful results.**

3. **Illustrate lack of practical alternatives to *agri benchmark* – at least in crop production.**

What drives EU sugar beet farm economics?

1. What is the relevant alternative crop to beets?

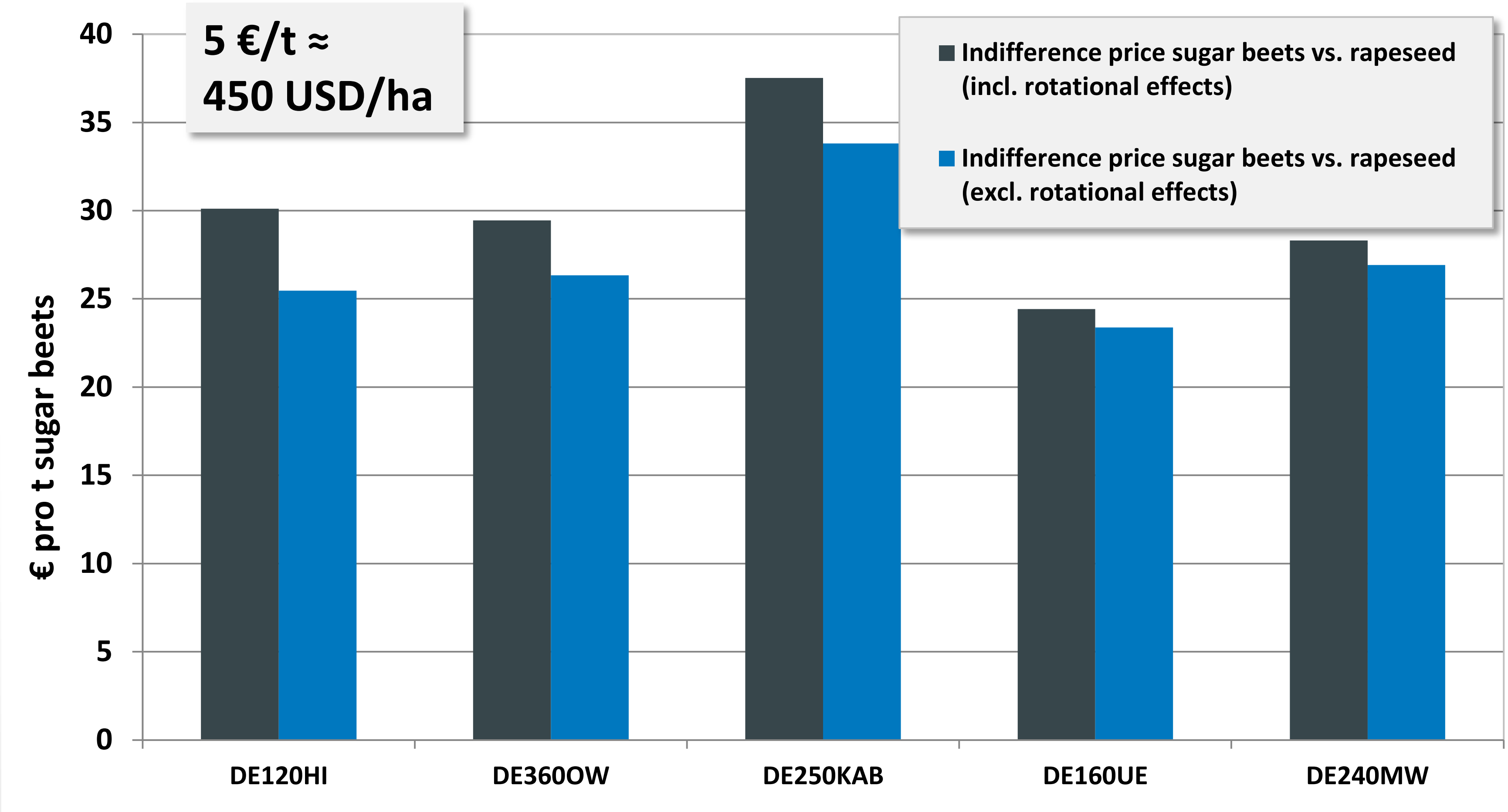
2. Impact of alternative crop compared to beets on subsequent crop ?
   ⇨ yield effects due to soil quality, date of seeding.
   ⇨ changes in tillage operations

3. Alternative crops move to better soils when no beets are grown (≈ + 0.5 rapeseed t/ha).

4. In case alternative crop is winter crop: additional labor and machinery cost from moving from spring crop to winter crop.

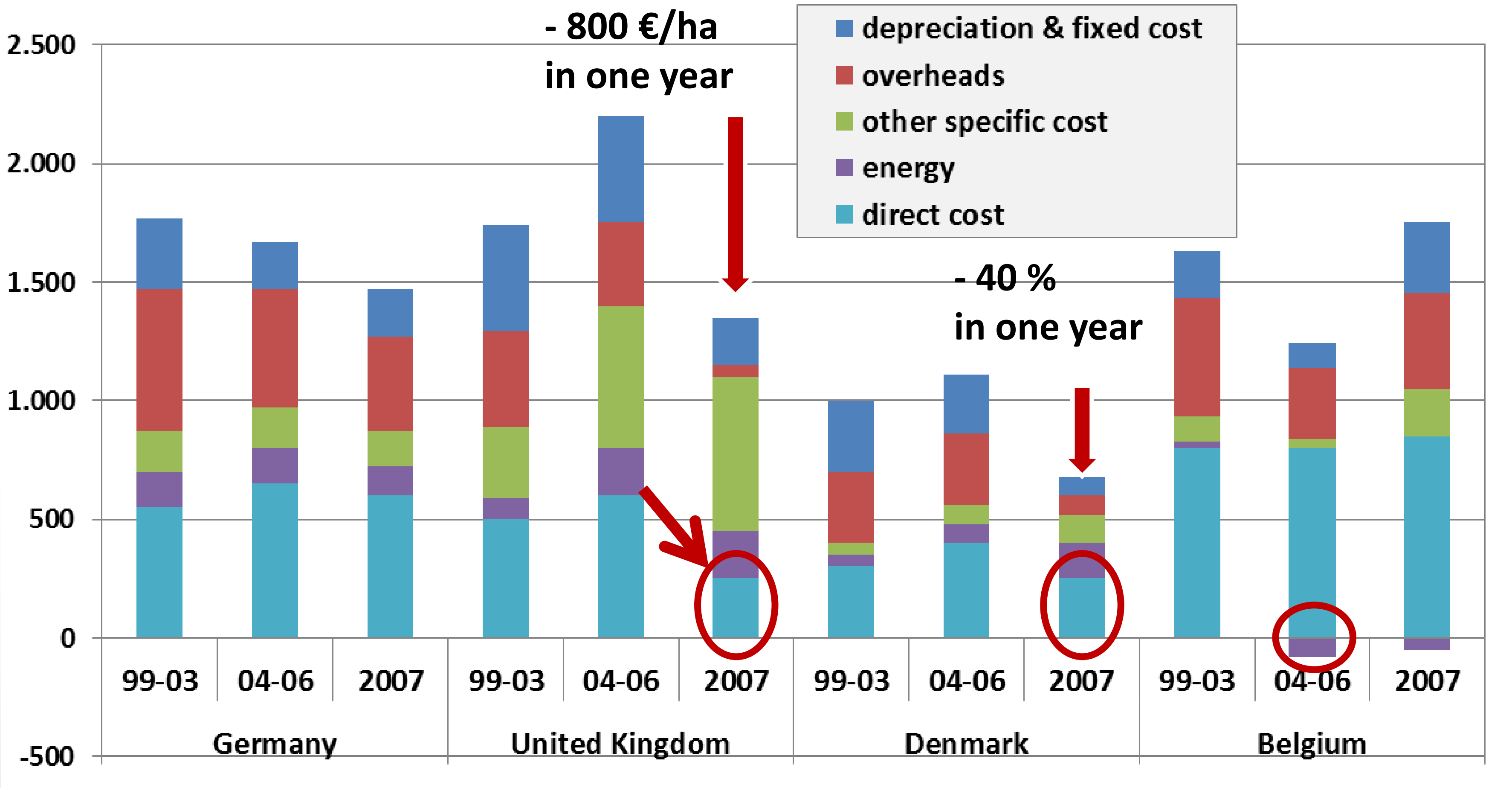
Focus groups with scientists, growers and advidors develope answers these questions.

Indifference prices sugar beets - with and w/o rotational effects (€/t)



Source: Albrecht (2013)

FADN based sugar beet cost estimates (€/ha)



- 50 %
in one year

Source: Gocht et al (2012)

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Findings and conclusions re. EU sugar beets

1. Considering rotational effects dramatically alters the farm economics of sugar beets.
2. Strong regional spread in indifference prices
   ⇨ Much room for regional re-allocation of beet production.
3. Sugar beets much less competitive than expected „on paper“.
4. FADN based cost estimates yields questionable results.

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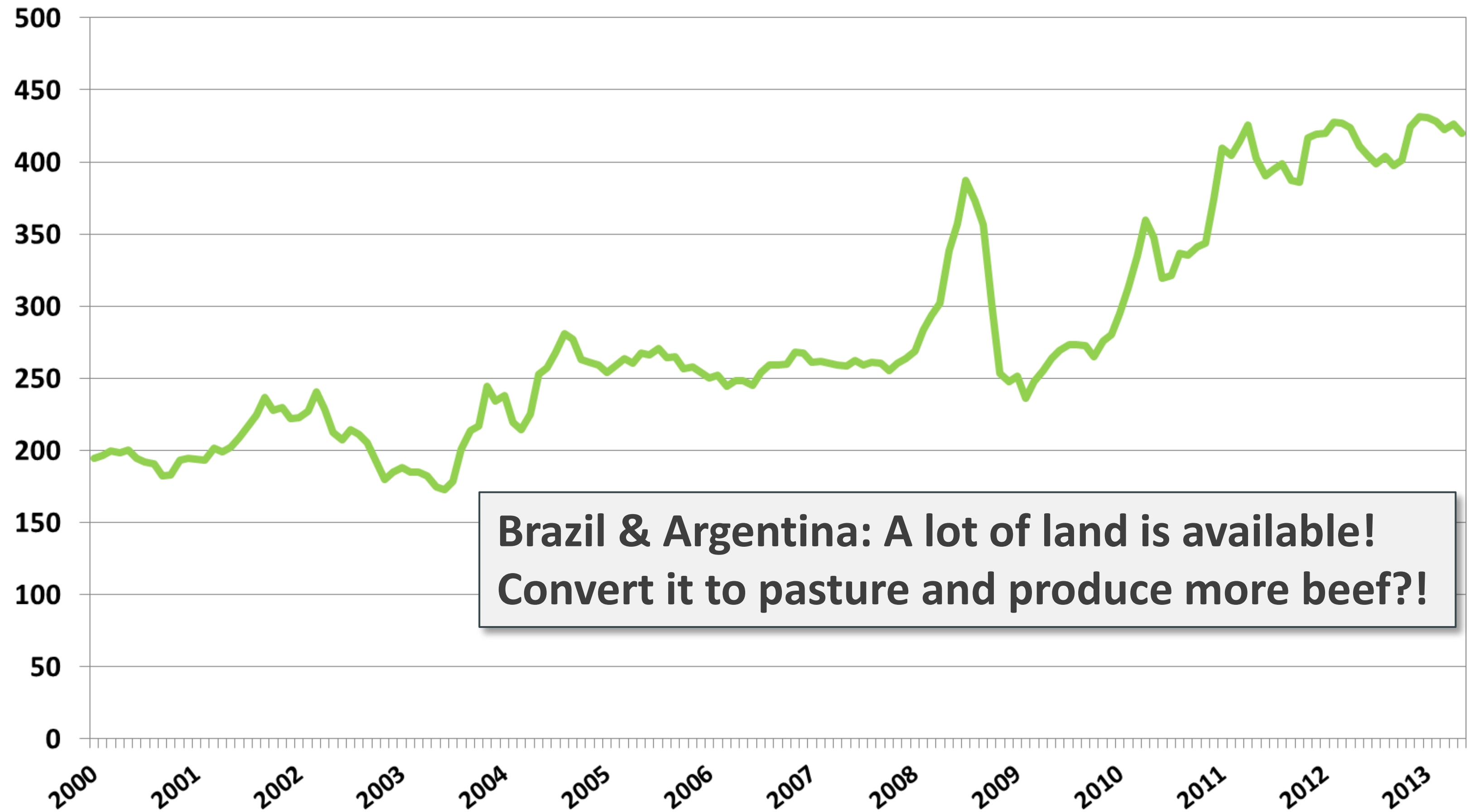
Strong increase in world market beef prices (US cent/kg) – strong incentive to boost output!



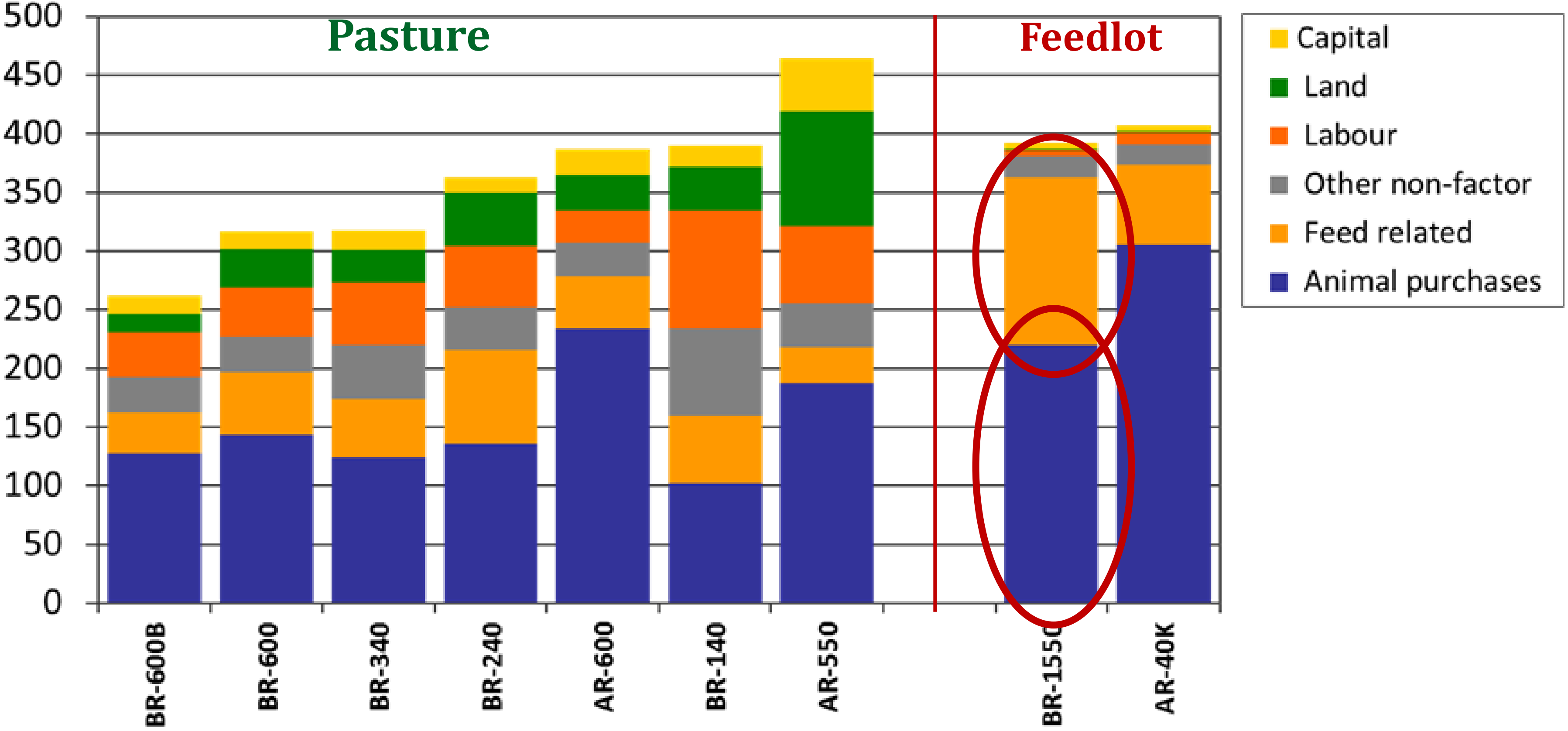
Source: World Bank, pink sheets (2013), own calculations

Productivity gain: Moving form pasture to feedlot

	Pasture	Feedlot	Mix	Mix vs. Pasture
Weight at start (kg LW)	190	414	190	
Weight at end (kg LW)	495	577	577	
Finishing period (days)	730	100	**636**	**- 13 %**
Daily weight gain (g/day)	418	1630	**609**	**+ 45 %**
Dressing %	53%	57%	**57%**	**+ 8%**
Carcass weight (kg)	262	329	**329**	**+ 25 %**

CoP beef for *agri benchmark* farms in Argentina and Brazil (2011, USD per 100 kg carcass weight)

In a feedlot system feed and animal purchase are the key drivers!



Source: DEBLTIZ ET AL. (2012)

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Findings & conclusions: future beef in Latin America

1. Change of production function is a viable option.
2. Disclosure through in-depth farm level analysis in cooperation with producers and advisors.
3. Projections based on historical data will be misleading.
4. Feedlots generate a "new" output – higher prices.
   ⇨ Just looking at cost is totally misleading.
5. Strong increases in productivity.
   ⇨ not necessarily long term increase in CoP (and beef prices).
6. But: Future beef prices will depend on global grain prices.

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Conclusions

1. *agri benchmark* approach leads to a significant improvement in understanding dynamics of ag production at reasonable cost.

2. Key strength of *agri benchmark*:
   ⇨ production systems based
   ⇨ global network of production economists
   ⇨ integrated with growers and advisors
   ⇨ globally harmonized data base

3. Global projections can not be made by *agri benchmark* alone, cooperation with market modeling is highly advisable.

Thank you for your interest in *agri benchmark*.

We are interested in additional partnerships.

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- Head of ***agri benchmark*** Cash Crop team -

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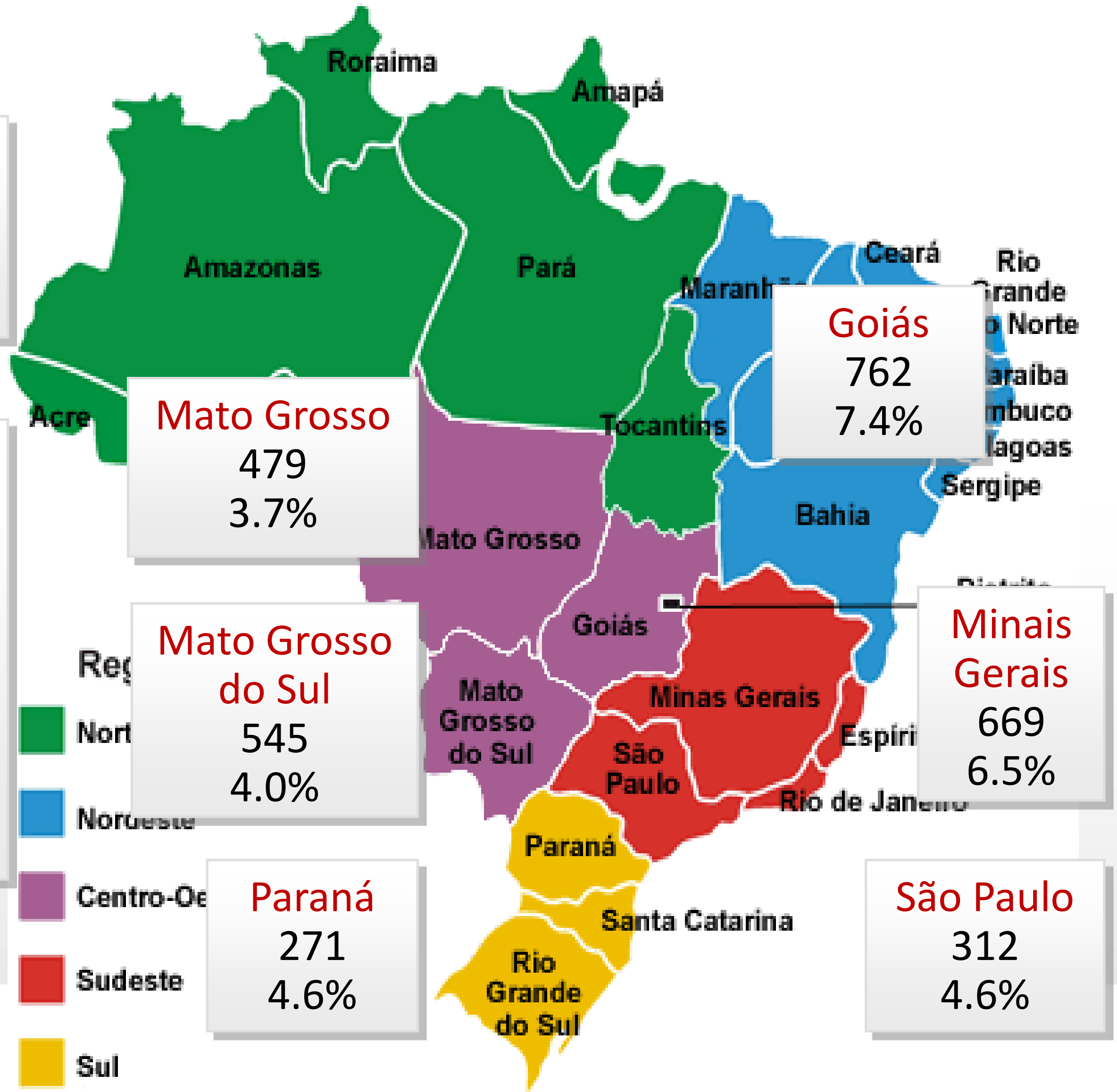
Move to feedlots is a reality!

Argentina
An estimated 40% of beef is feedlot finished (Ostrowski, 2011)

Cattle in feedlots – Brazil

	'000 head	%
Steers	3,039	5.1%
Other cattle	426	1.4%
Total	3,465	3.8%

Source: CEPEA, ASSOCON and IBGE



Mato Grosso
479
3.7%

Goiás
762
7.4%

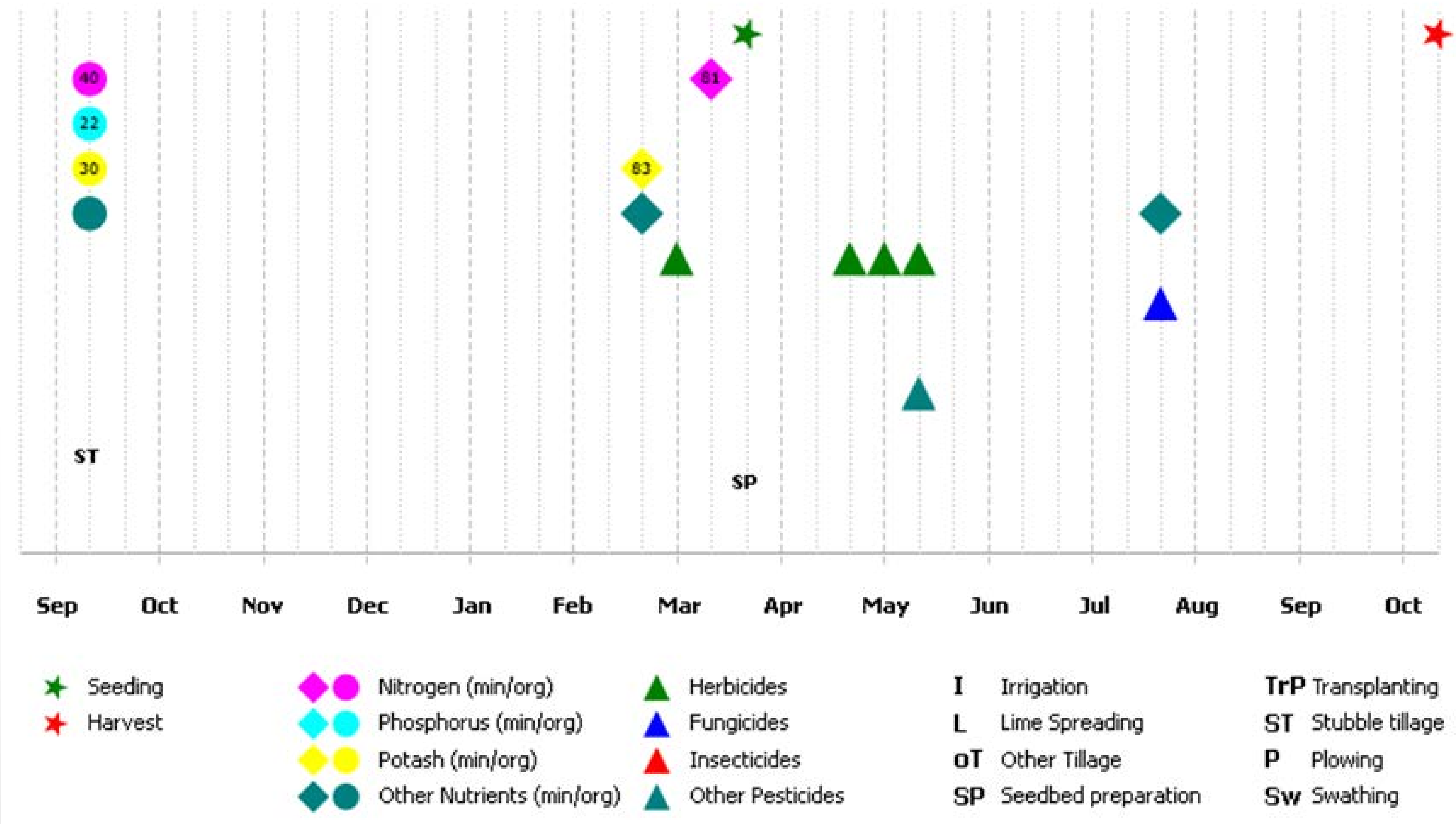
Mato Grosso do Sul
545
4.0%

Minais Gerais
669
6.5%

Paraná
271
4.6%

São Paulo
312
4.6%

Data on cropping systems –
Example: Sugar beet on German farm DE1300MB



Difference between indifference prices sugar beets - with and w/o rotational effects (in %)