



US Grain Production – how does it compare from a Global Perspective?

Ag Summit
Chicago, December 8th 2014

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Major contribution from Savannah Gleim

Global Partners :



Agenda

1. *agri benchmark* Cash Crop – What's that?
2. Economic Drivers in Global Wheat Production
3. Competitiveness of a Typical US Iowa Farm on Global
Corn and Soybean Markets
4. Overall Conclusions

The *agri benchmark* Project – Let's grow together!

We help our partners to grow...

- ⇒ **Growers & their unions to take more profitably decisions**
- ⇒ **Intern'l organizations (e.g. FAO) to define goals and monitor projects**
- ⇒ **Agribusinesses to adjust products and strategies**

We are...

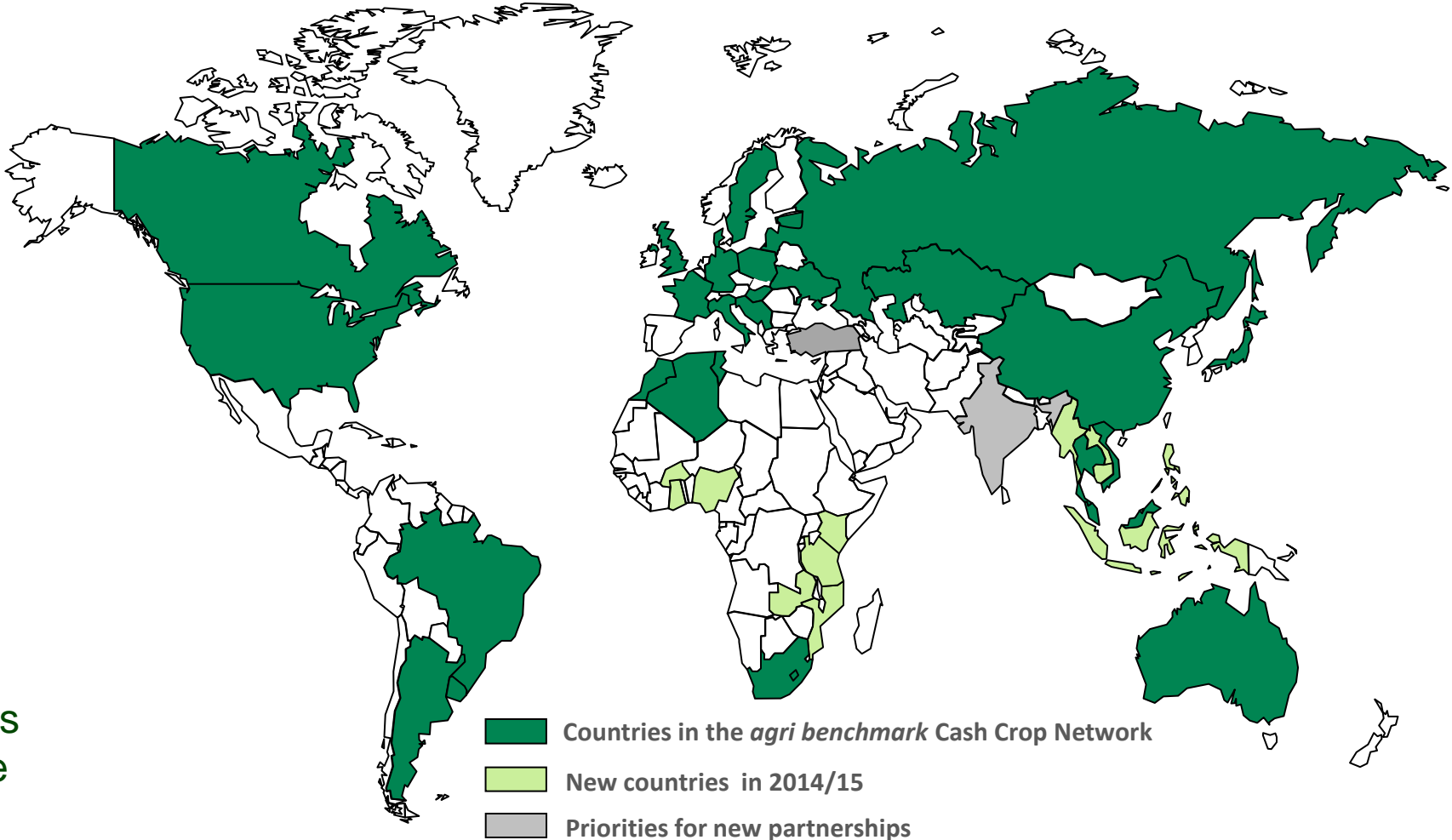
- ⇒ **a global network of ag economists, farmers and advisors**
- ⇒ **independent, non-political and non-profit**

We deliver...

- ⇒ **deep understanding of production systems and their drivers**
- ⇒ **data on strengths and weaknesses of production systems and sites**
- ⇒ **information on global trends in production**

32 Countries in *agri benchmark* Cash Crop Network

- Crops:
- Corn
 - Soybeans
 - Wheat
 - Rice
 - Rapeseed
 - Rye
 - Barley
 - Sunflower
 - Sorghum
 - Cotton
 - Peas
 - Beans
 - Palm oil
 - Sugar beets
 - Sugar cane



Current U.S. partners in *agri benchmark*

Iowa, Kelvin Leibold



Indiana, Michael Langemeier



Kansas, Mykel Taylor



North Dakota, Andy Swenson



We are interested to expand our network in the USA

Our data base: “typical farms”

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 annually being updated to track changes**

Data is derived by our international partners in a cooperation with growers and advisors.

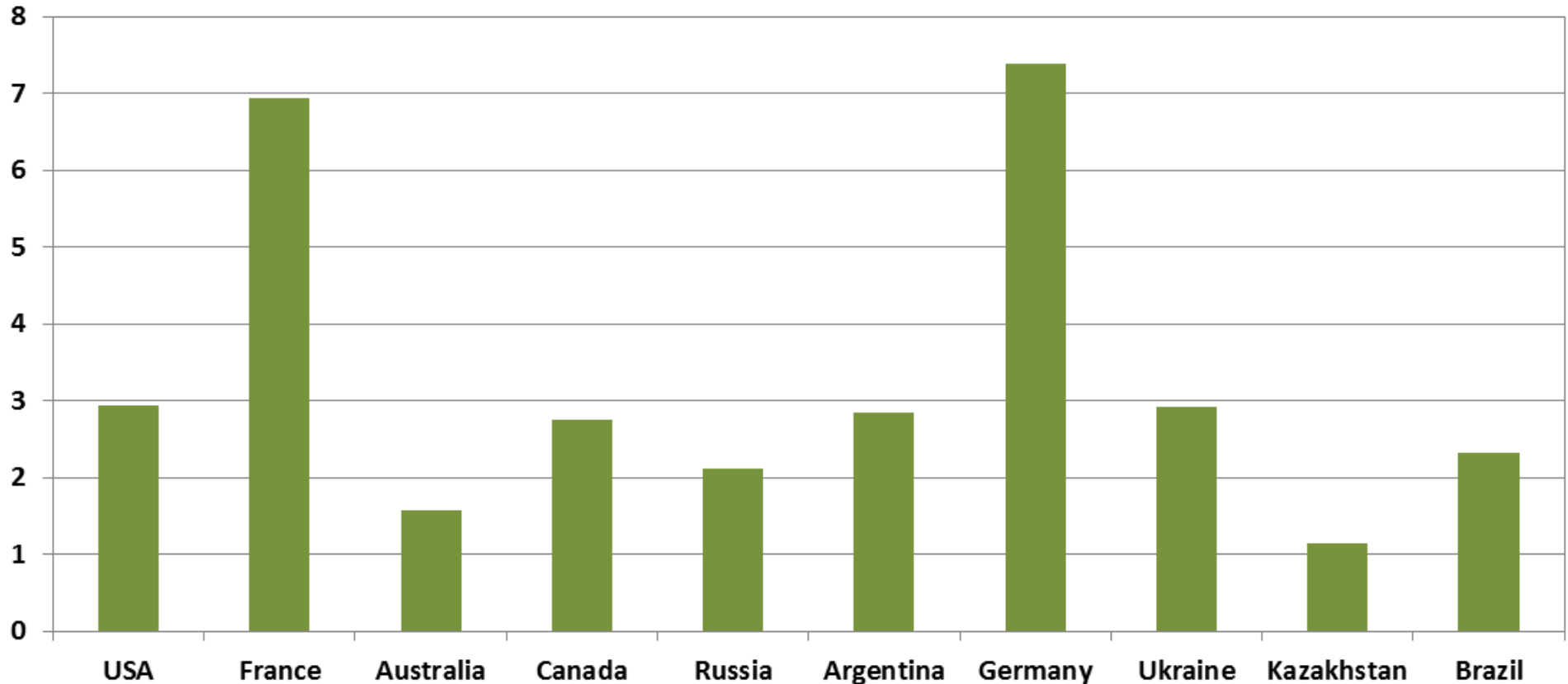
What matters in International Competitiveness in Ag Commodities?

- 1. Cost of production at farm Level**
- 2. Domestic transport & logistics cost**
- 3. Overseas transport cost – distance to import destination**
- 4. Exchange rates**

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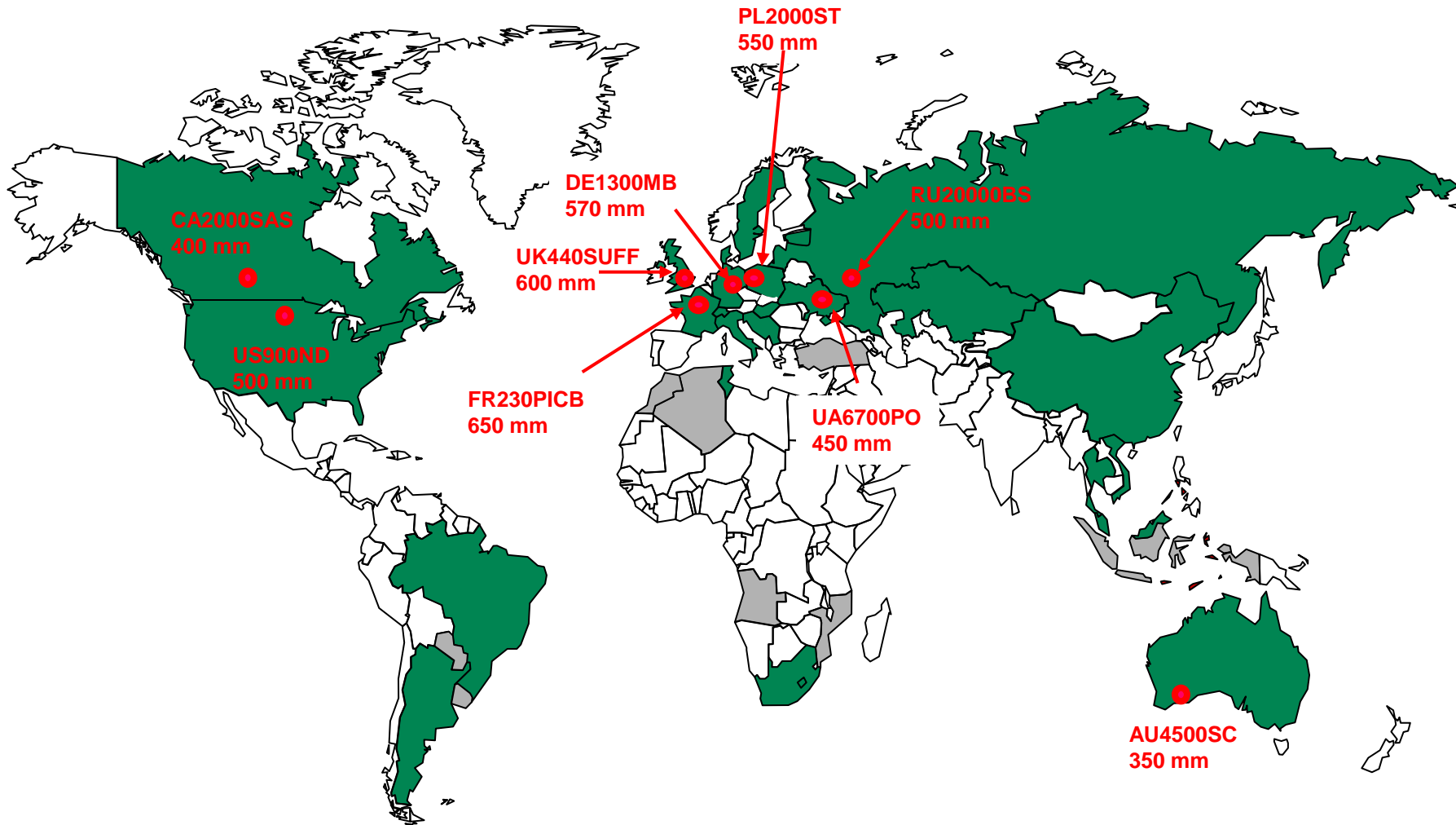
Global Wheat Yields (t/ha; Ø 2006 - 2012)



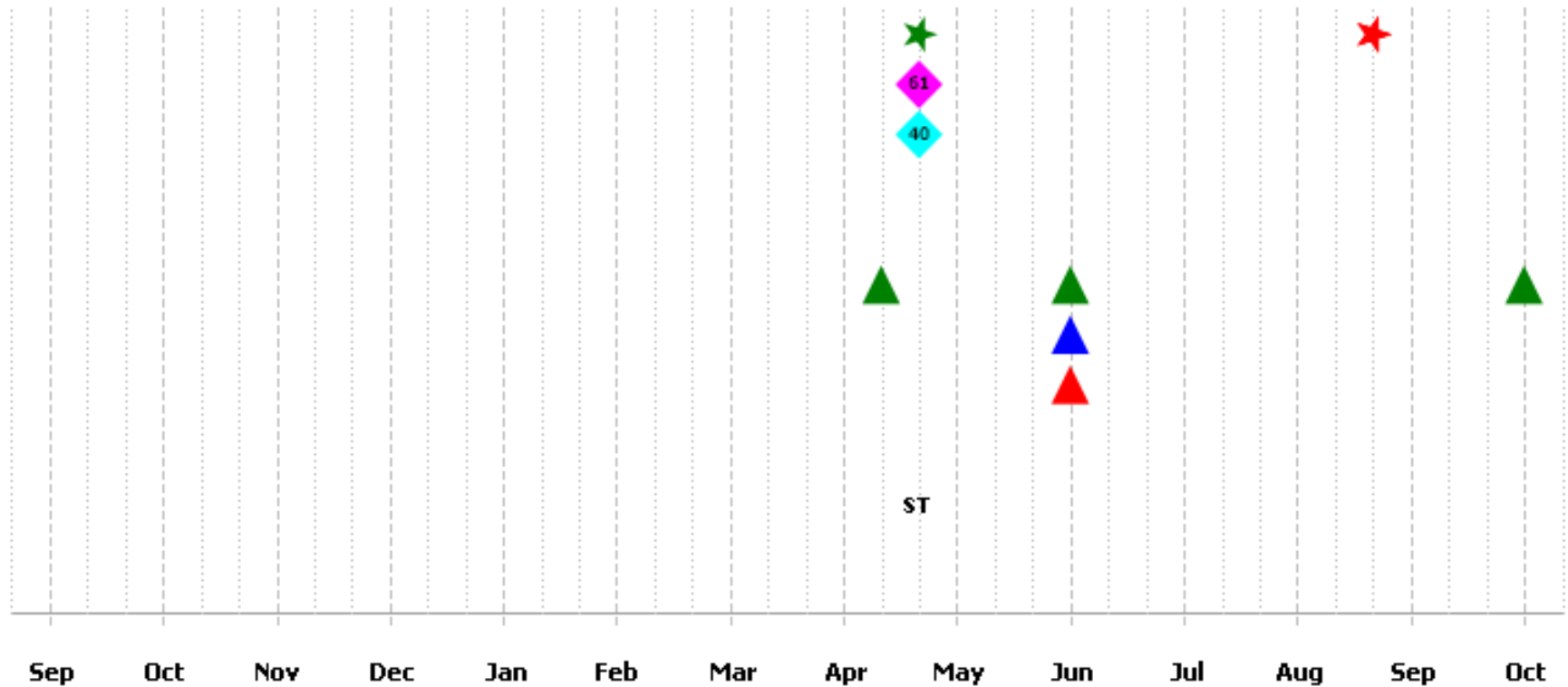
Source: FAO, own calculations

- ⇒ Ranked according to importance in global wheat trade.
- ⇒ Conclusion: Low yielding countries dominate global markets.

Locations *agri benchmark* Farms

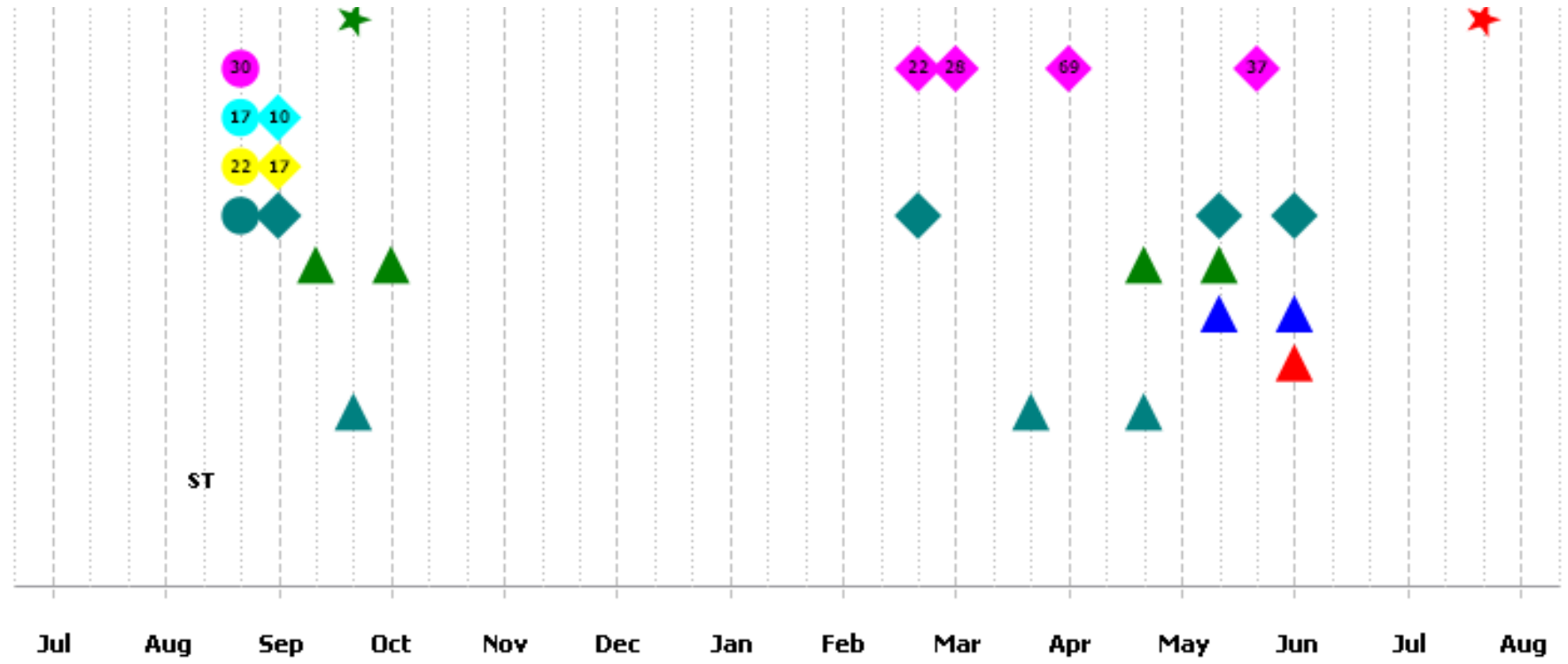


Spring Wheat Production System Canadian Farm



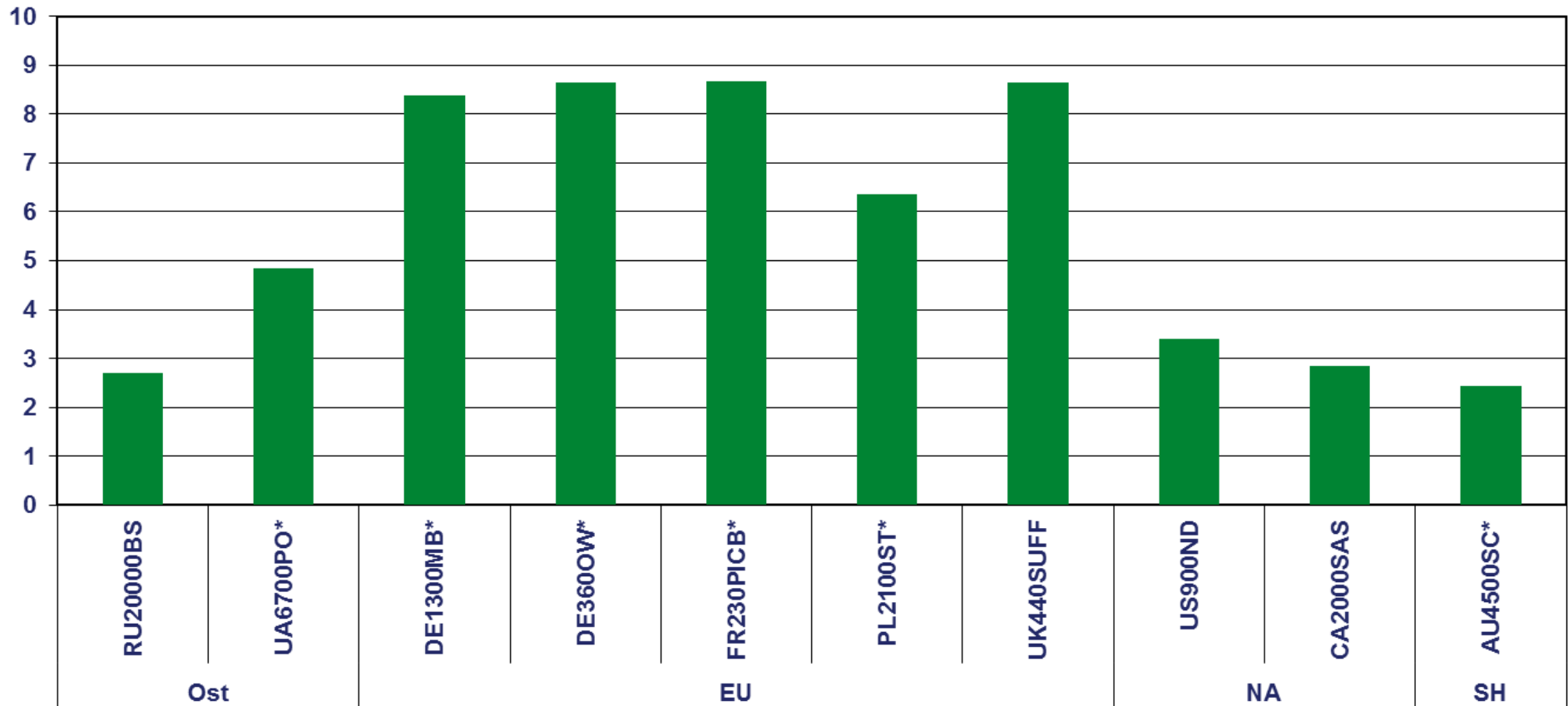
- | | | | | |
|-----------|-----------------------------|--------------------|------------------------|--------------------|
| ★ Seeding | ◆ Nitrogen (min/org) | ▲ Herbicides | I Irrigation | TrP Transplanting |
| ★ Harvest | ◆ Phosphorus (min/org) | ▲ Fungicides | L Lime Spreading | ST Stubble tillage |
| | ◆ Potash (min/org) | ▲ Insecticides | oT Other Tillage | P Plowing |
| | ◆ Other Nutrients (min/org) | ▲ Other Pesticides | SP Seedbed preparation | Sw Swathing |

Winter Wheat Production System German Farm



- ★ Seeding
- ★ Harvest
- ◆ Nitrogen (min/org)
- ◆ Phosphorus (min/org)
- ◆ Potash (min/org)
- ◆ Other Nutrients (min/org)
- ▲ Herbicides
- ▲ Fungicides
- ▲ Insecticides
- ▲ Other Pesticides
- I Irrigation
- L Lime Spreading
- oT Other Tillage
- SP Seedbed preparation
- TrP Transplanting
- ST Stubble tillage
- P Plowing
- Sw Swathing

Wheat Yields *agri benchmark* Farms (t/ha; Ø 2008 - 2012)

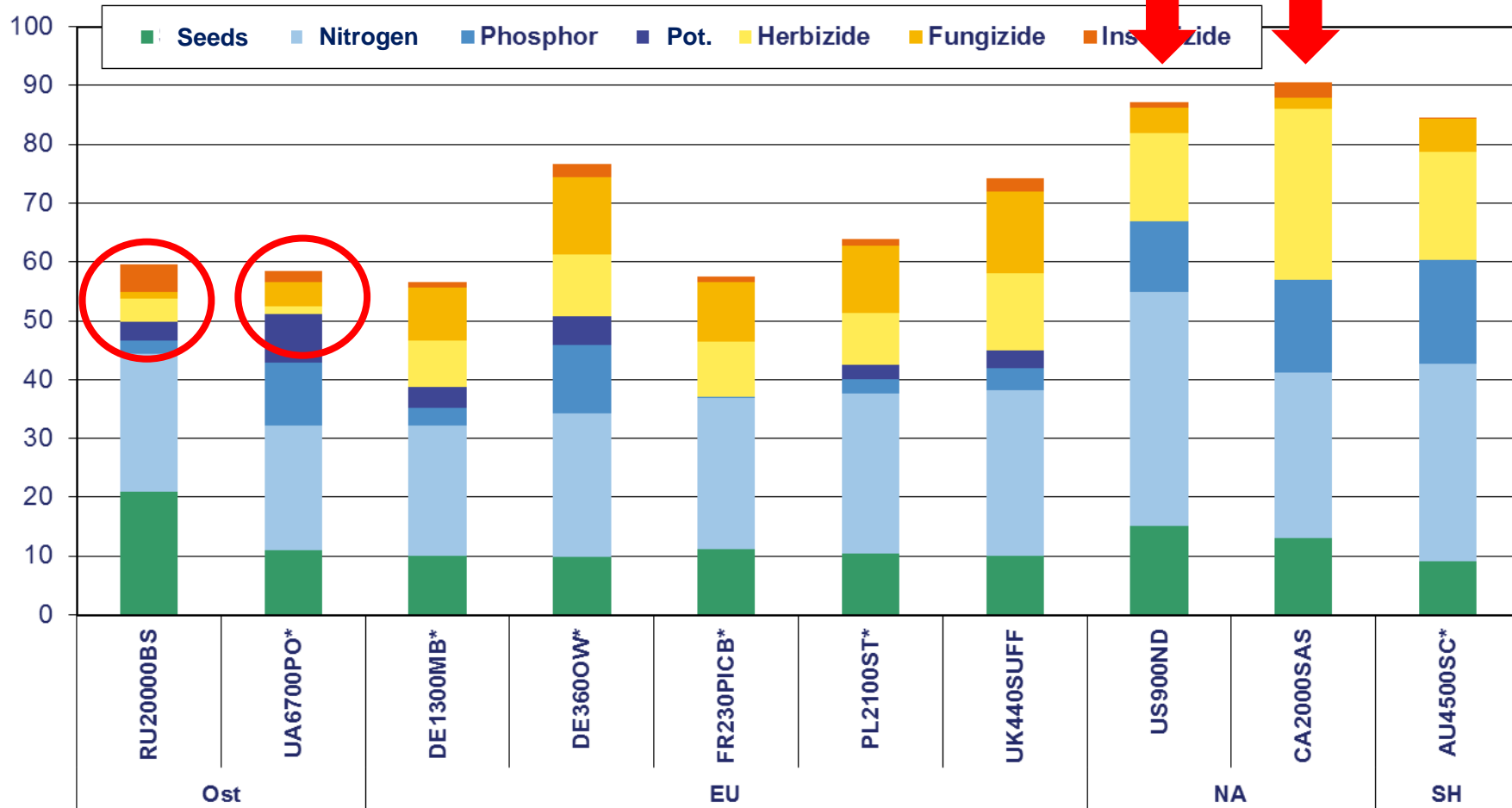


⇒ Wheat yields for RU farm on a similar level as in US/CA

⇒ EU farms realize the highest yields

⇒ Yields tend to be higher than national average – typical farms are located in “hot spots”

Direct Cost per Tonne of Wheat (\$/t; Ø 2008 - 2012)



⇒ RU/UA farms relatively competitive – in particular in plant protection

⇒ US/CA and AU exhibit relatively high direct cost

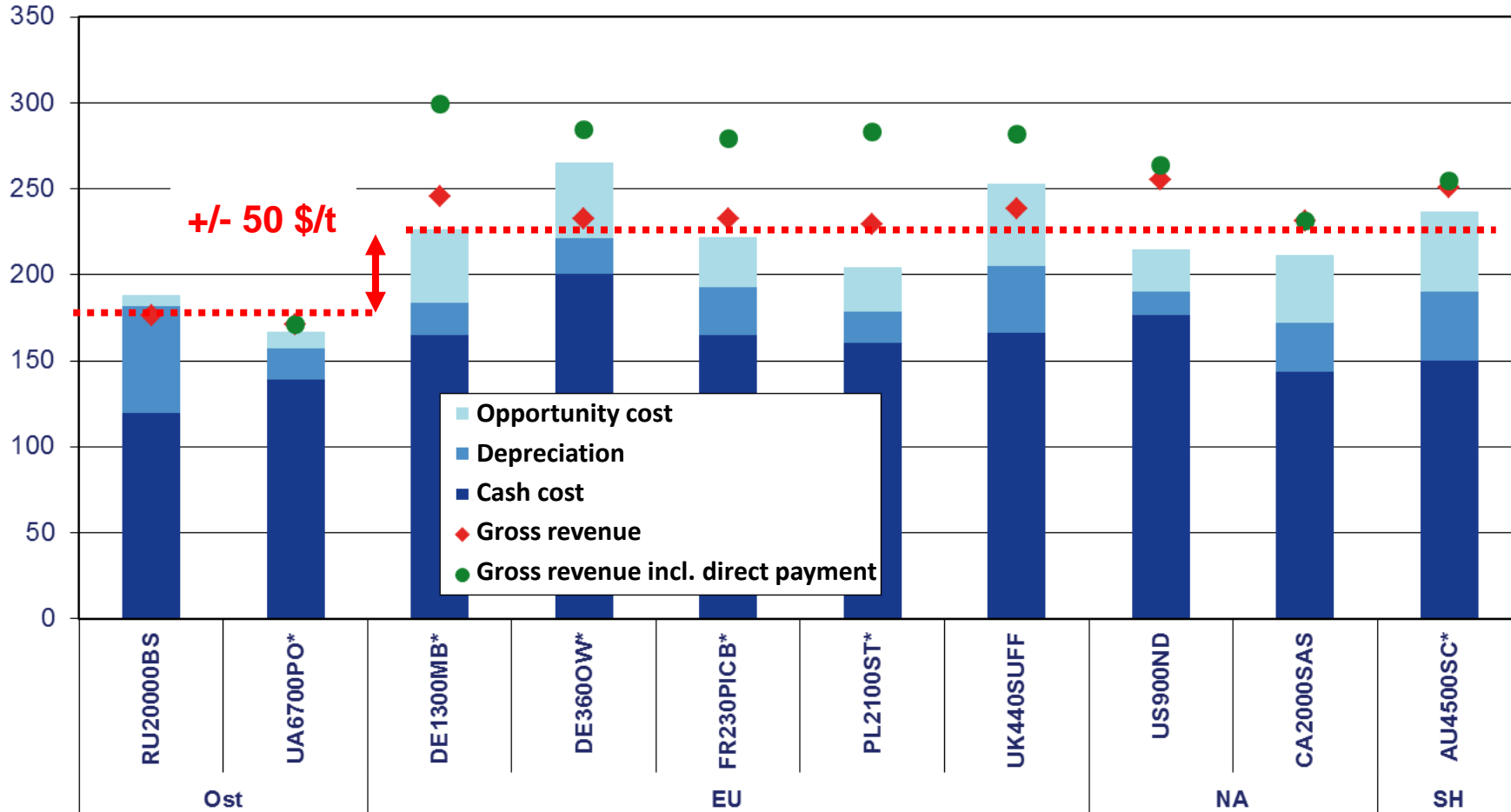
Operating Cost per Tonne of Wheat (\$/t; Ø 2008 - 2012)



⇒ Operating cost is the strength of farms in US and CA

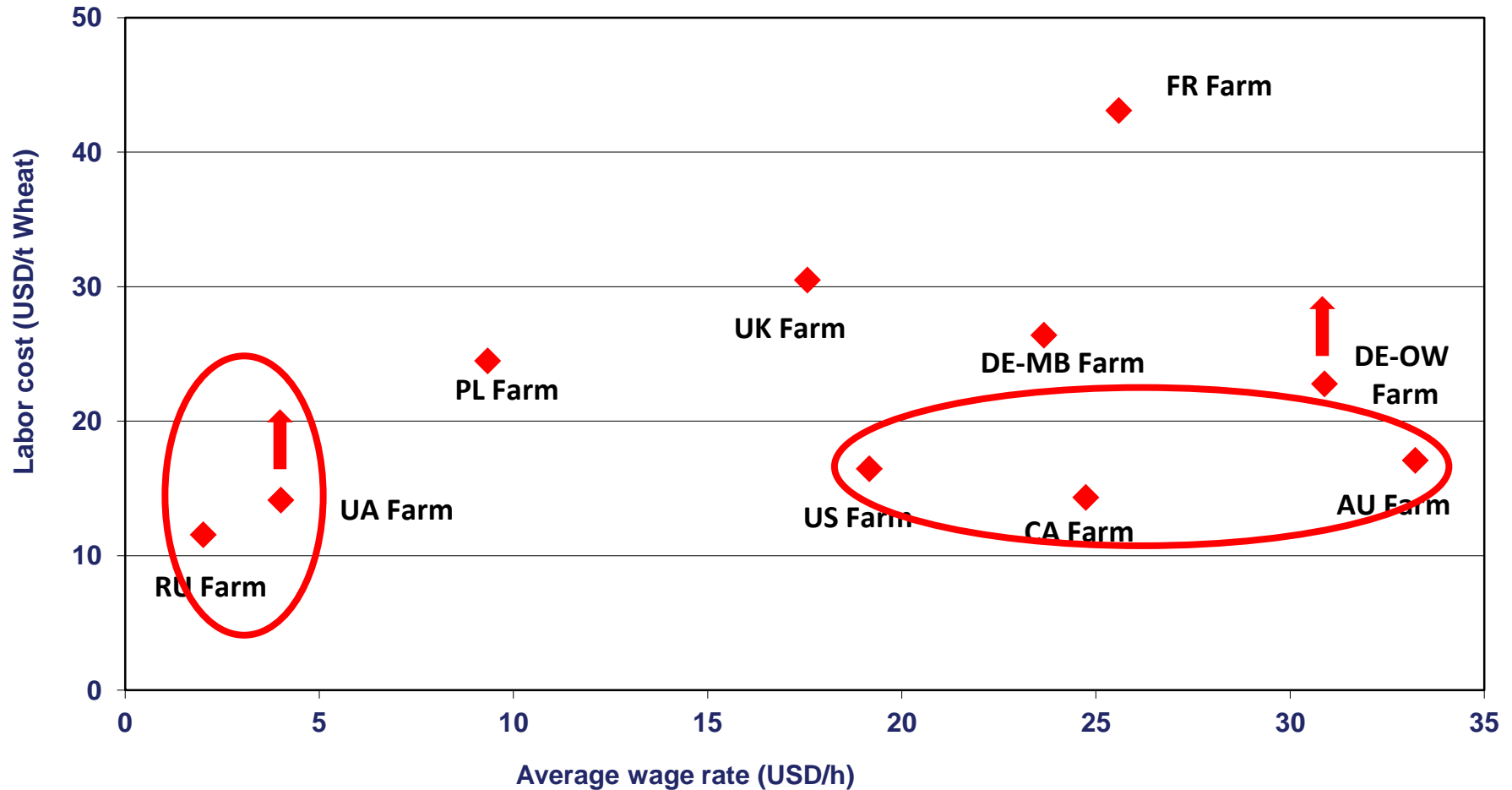
⇒ RU/UA despite low wage rates farms in RU and UA are not leading edge.

Total Cost & Gross Revenue Wheat (\$/t; Ø 2008 - 2012)



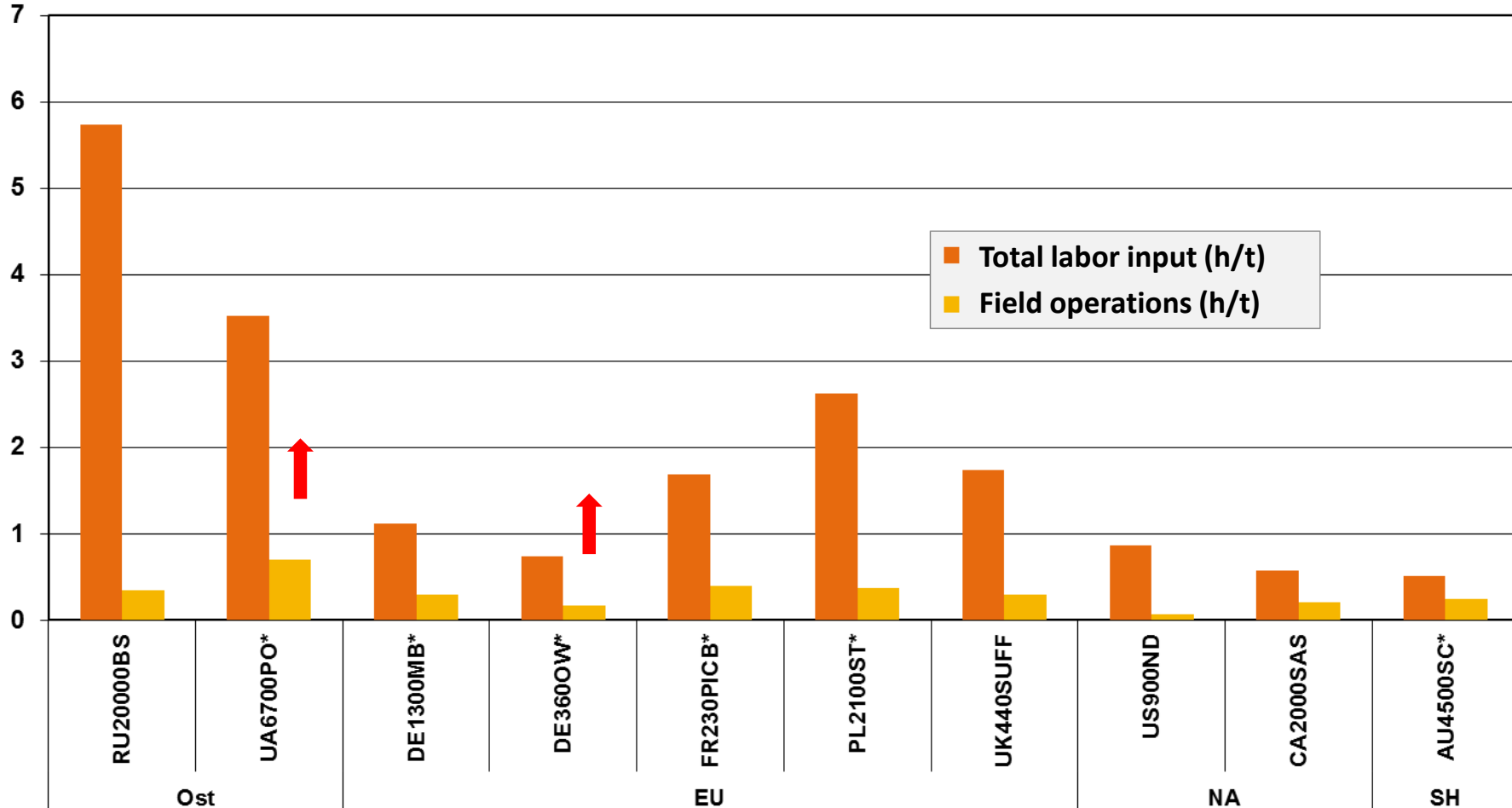
- ⇒ RU/UA have a cost advantage of about 50 \$/t
- ⇒ But: Output prices are at least 50 \$/t lower
- ⇒ EU direct payments increase gross revenues by app. 50 \$/t

Labor Cost (\$/t) and Wage Rates (\$/h)



- ⇒ Farms in RU/UA despite low wage rates no clear advantage in labor cost per tonne
- ⇒ Farms with the highest wages rates tend to be competitive in labor cost

Fieldwork & total Labor Input (h/t Wheat)



- ⇒ **The strength of US,CA & AU farms: low lead time in operations and overall labor input**
- ⇒ **The weakness of RU/UA farms: total labor input**

Conclusions regarding Cost of Wheat Production

1. **Strength of US farms – as well as CA and AU: high labor productivity.**
2. **Only 15 % of total cost is labor cost for US farm – increasing wages not a major threat.**
3. **Direct cost tend to be higher for low yielding sites such as ND.**
4. **Despite low wage rates, labor cost per tonne is not the major cost advantage for RU & UA farms– low physical labor productivity.**
5. **Plant protection is much cheaper for East European producers compared to their Western peers.**
6. **The increase of labor productivity will become the challenge for farms in RU and UA (assuming that wage rates will go up).**

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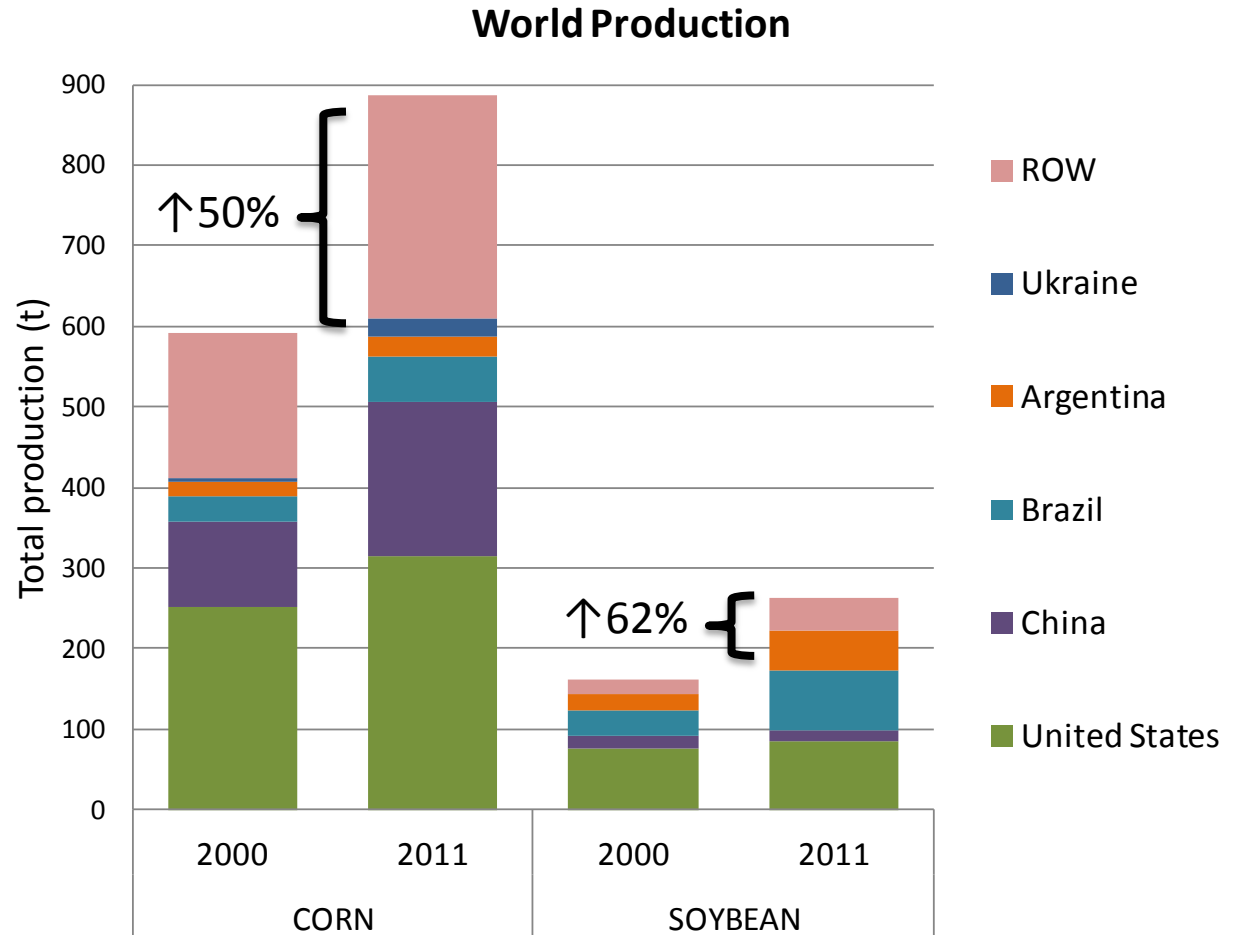
Global Corn & Soybean Markets

Corn

- US production ↑ 25%
- China's production ↑ 82%
- 4th largest exporter ,
Ukraine, produced 3% of
the worlds corn

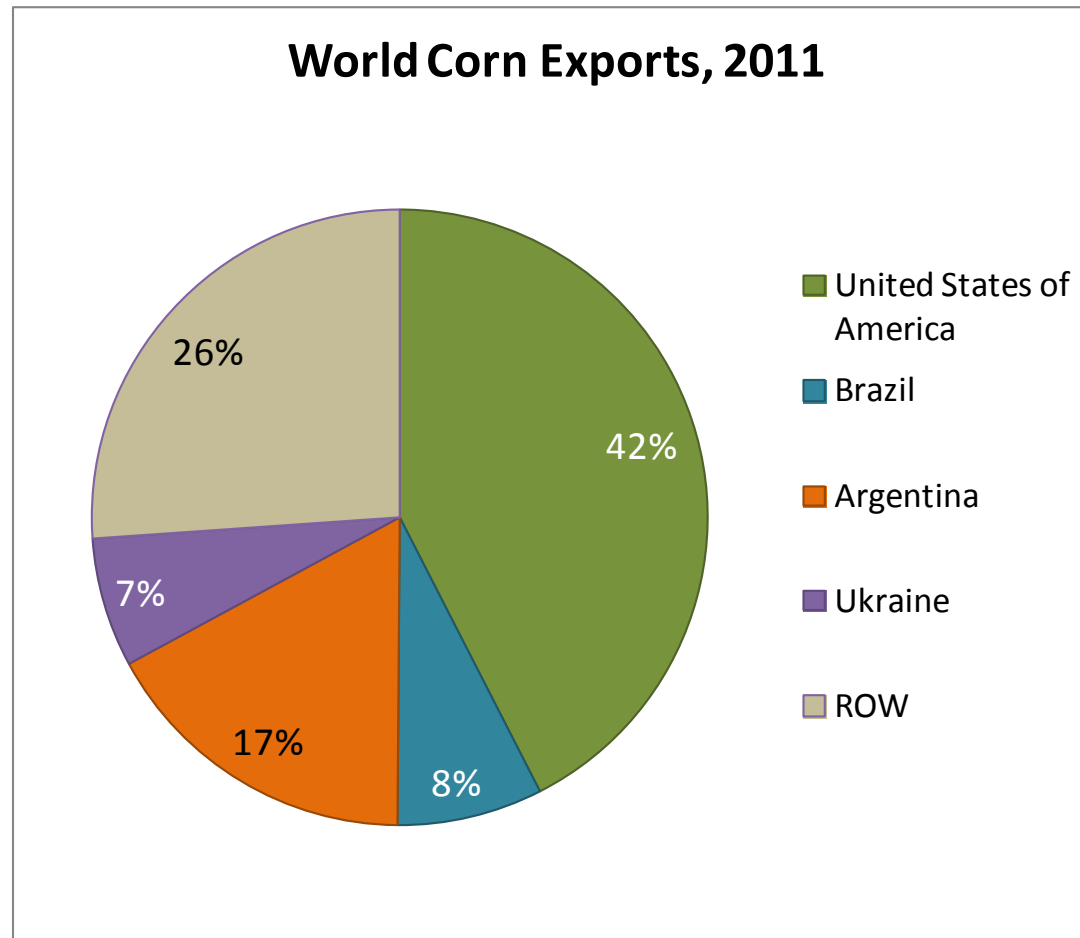
Soybean

- US almost flat
- Brazil ↑ 129%
- Argentina ↑ 143%



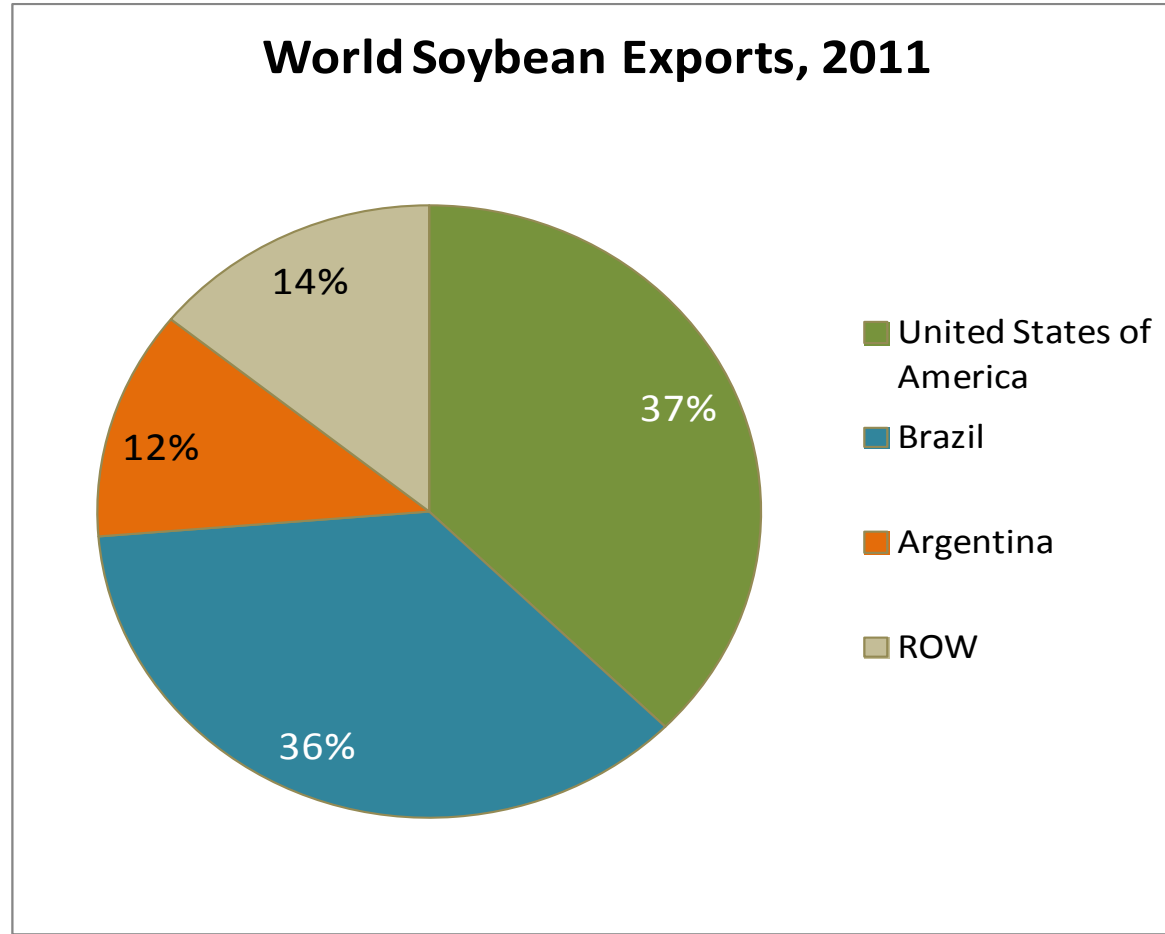
Source: FAO STAT, 2014

12% of corn production was exported – app. 118 mio t



Source: FAO STAT, 2014

35% of soybean output was exported – app. 91 mill. t



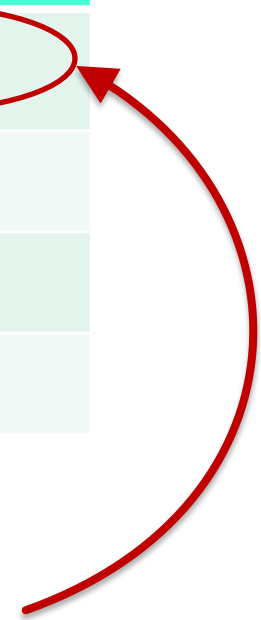
Source: FAO STAT, 2014

Typical Farms – Farm Gate Prices, 2011

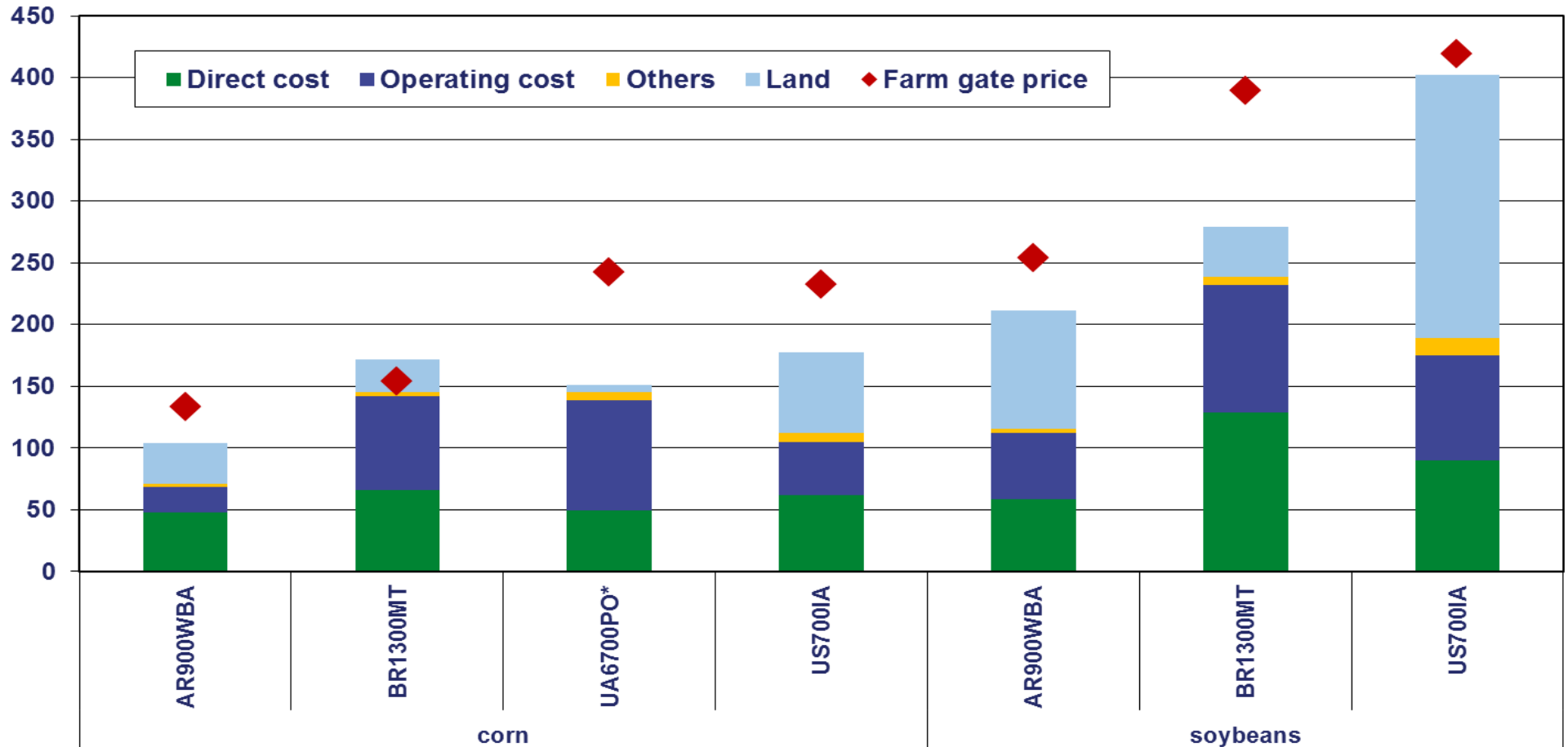
'Typical' Farm Prices (USD/t)	Corn	Soybeans
AR900WBA (Argentina, Buenos Aires Region)	\$133	\$254
BR1300MT (Brazil, Mato Grosso)	\$154	\$390
US700IA (USA, Iowa)	\$232	\$437
UA6700PO (Ukraine, Poltava)	\$243	

Source: agri benchmark

Add 20 % export tax on corn and 35% on soybeans



Key Cost Elements and Farm Gate Prices (2011; USD/t)



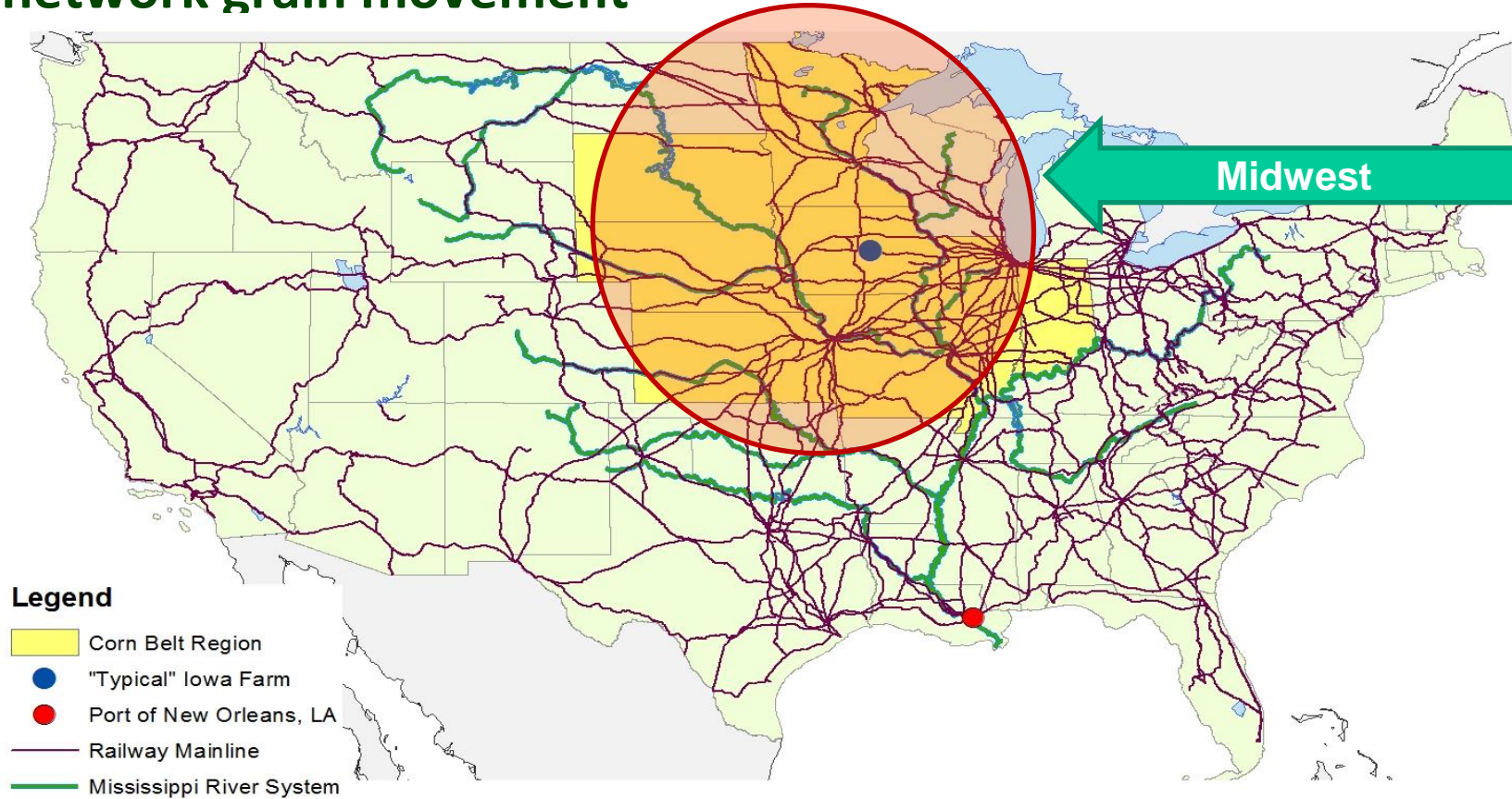
Source: agri benchmark

- ⇒ In direct and operating cost just the AR farm can compete with US farm.
- ⇒ Land cost are a major buffer for the AR and the US farm – not for the UA farm – even with much lower prices farms will be able to profitable to produce.

United States of America: Domestic Transportation

- **Intermodal network grain movement**

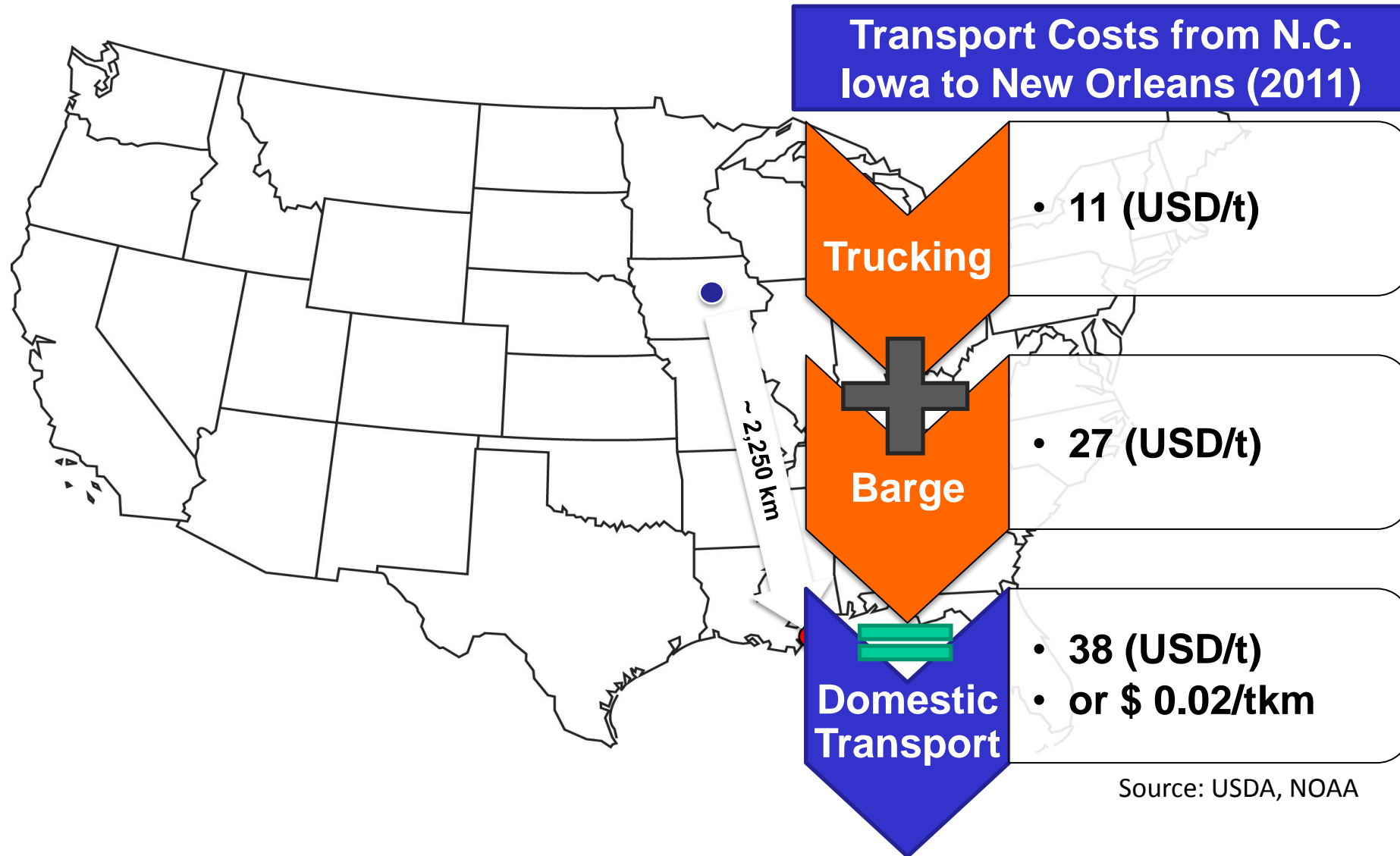
- 47 % barge
- 44 % rail
- 8 % truck



Source: USDA

U.S. Domestic Transport Cost

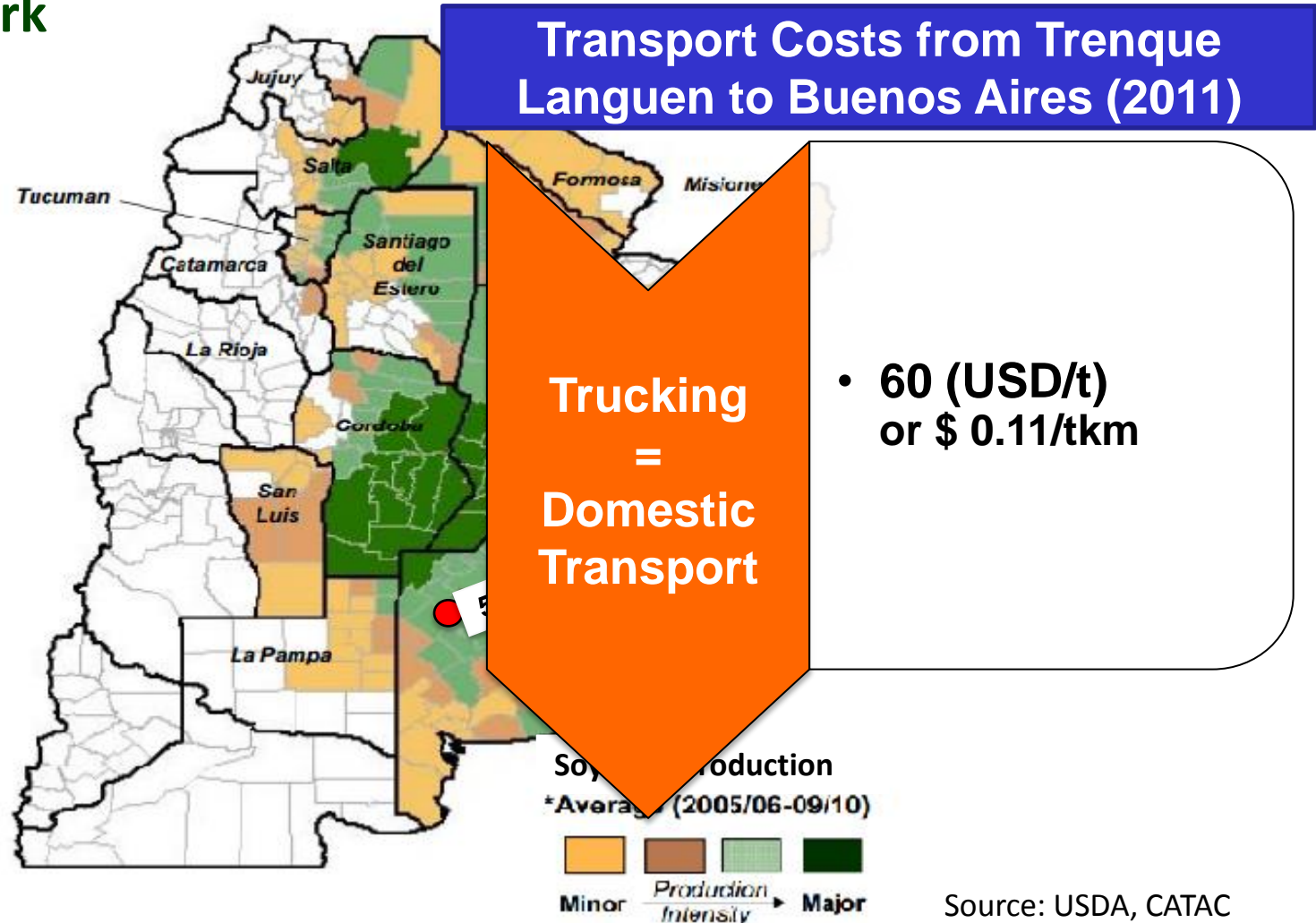
- Typical Farm: North Central Iowa
- Port of New Orleans, LA



Argentine Domestic Transport Cost

- Typical Farm: Trenque Lauquen, Buenos Aires
- Port of Buenos Aires

- Intermodal network grain movement
 - 84 % truck
 - 15 % rail



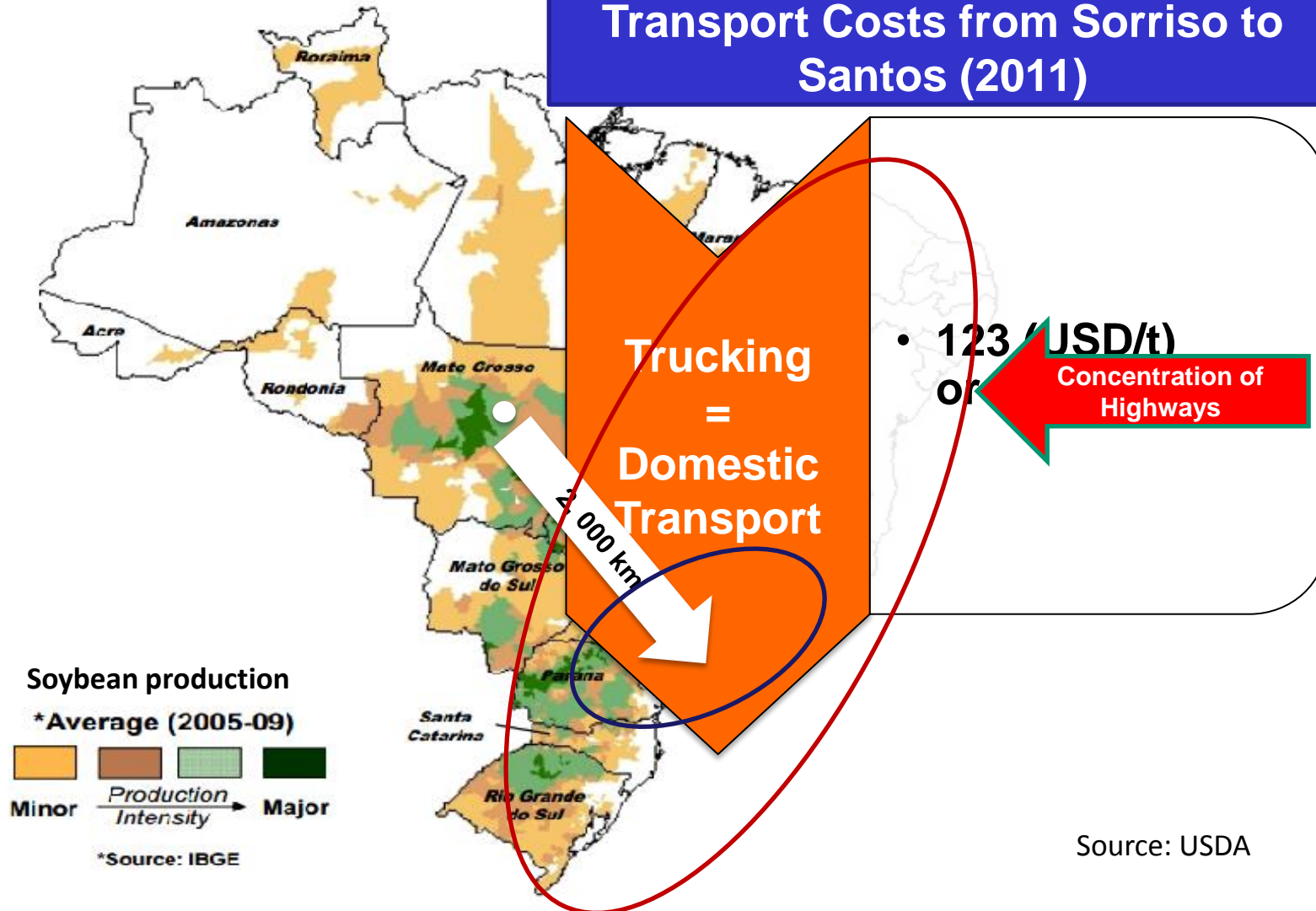
Brazilian domestic transport cost

- 60% truck
- 33% rail

● Typical Farm: Sorriso, Mato Grosso

● Port Santos, San Paulo

Transport Costs from Sorriso to Santos (2011)

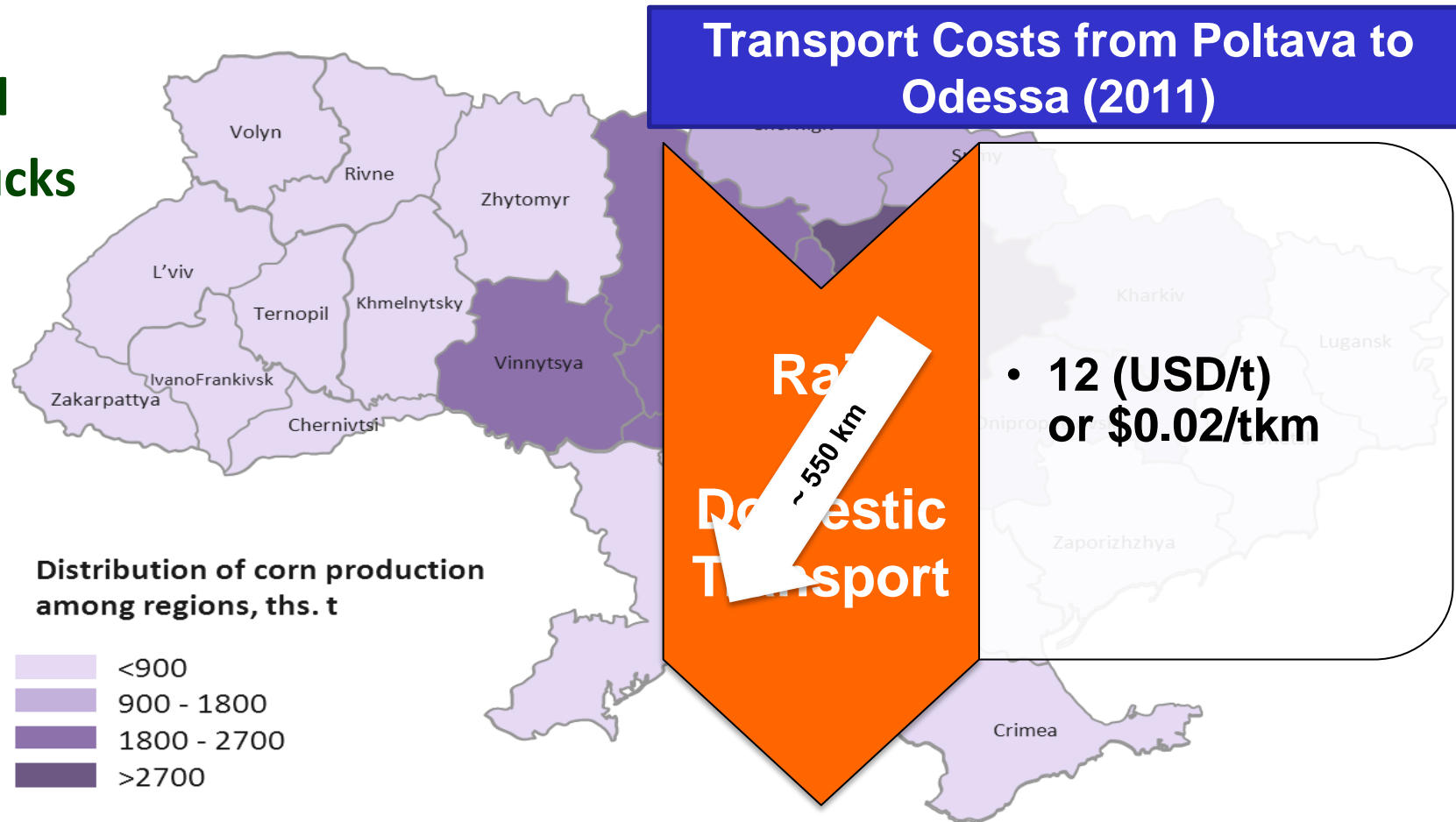


Source: USDA

Ukrainian domestic transport cost

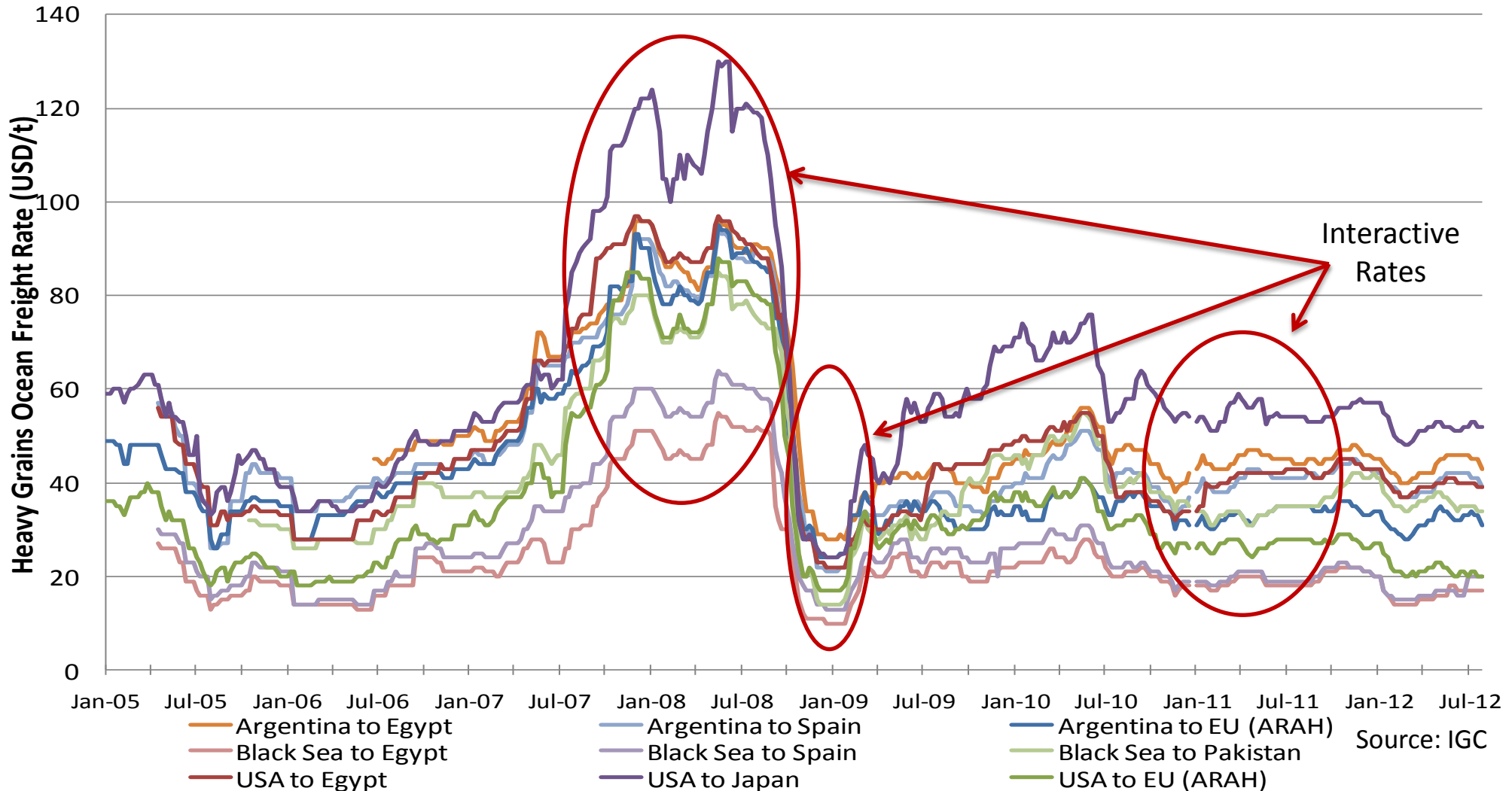
- Typical Farm: Poltava region
- Port of Odessa,

- 70 % rail
- 27 % trucks

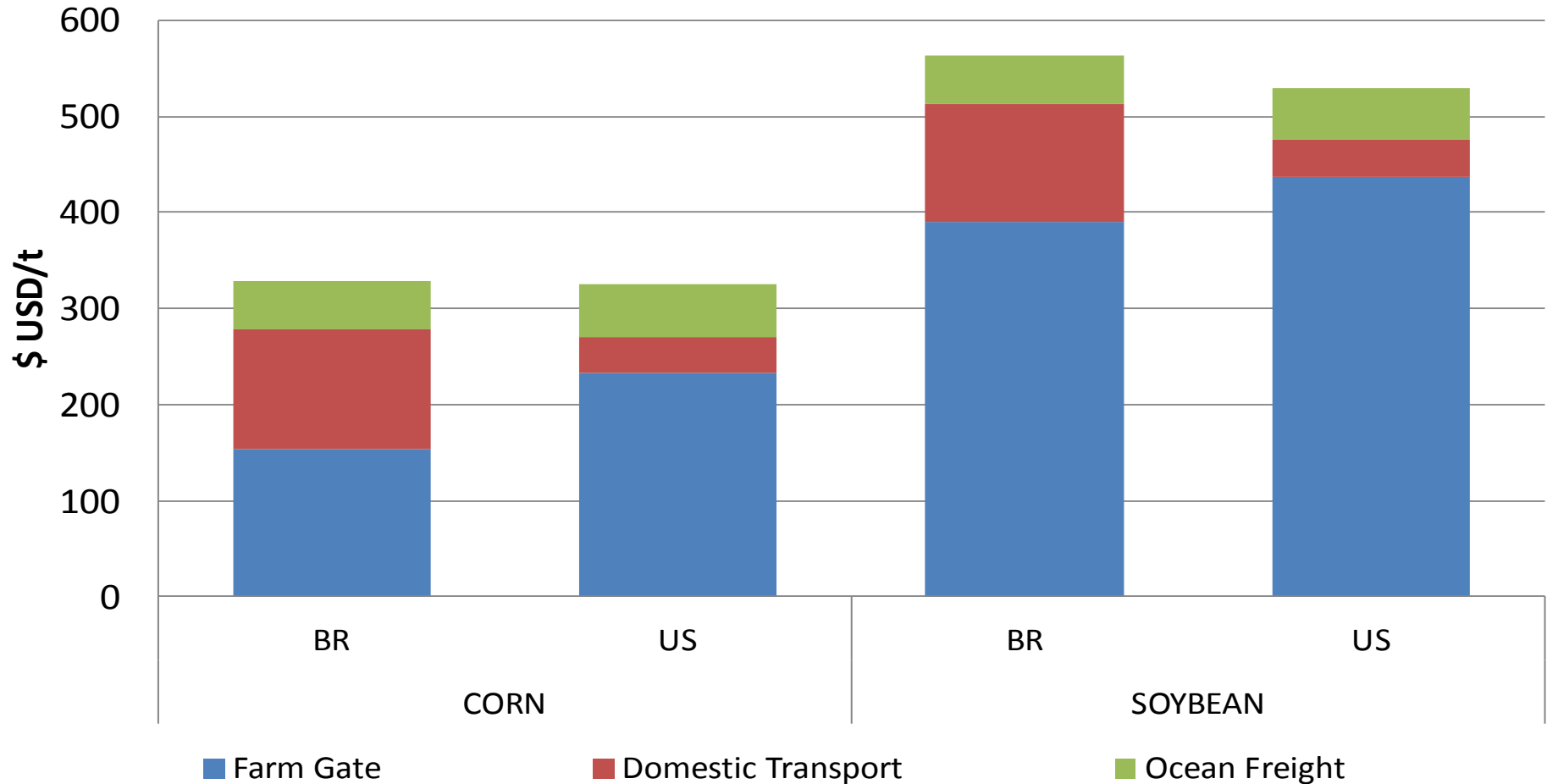


Source: Centre for Transport Strategies

Evolution Overseas Freight Rates

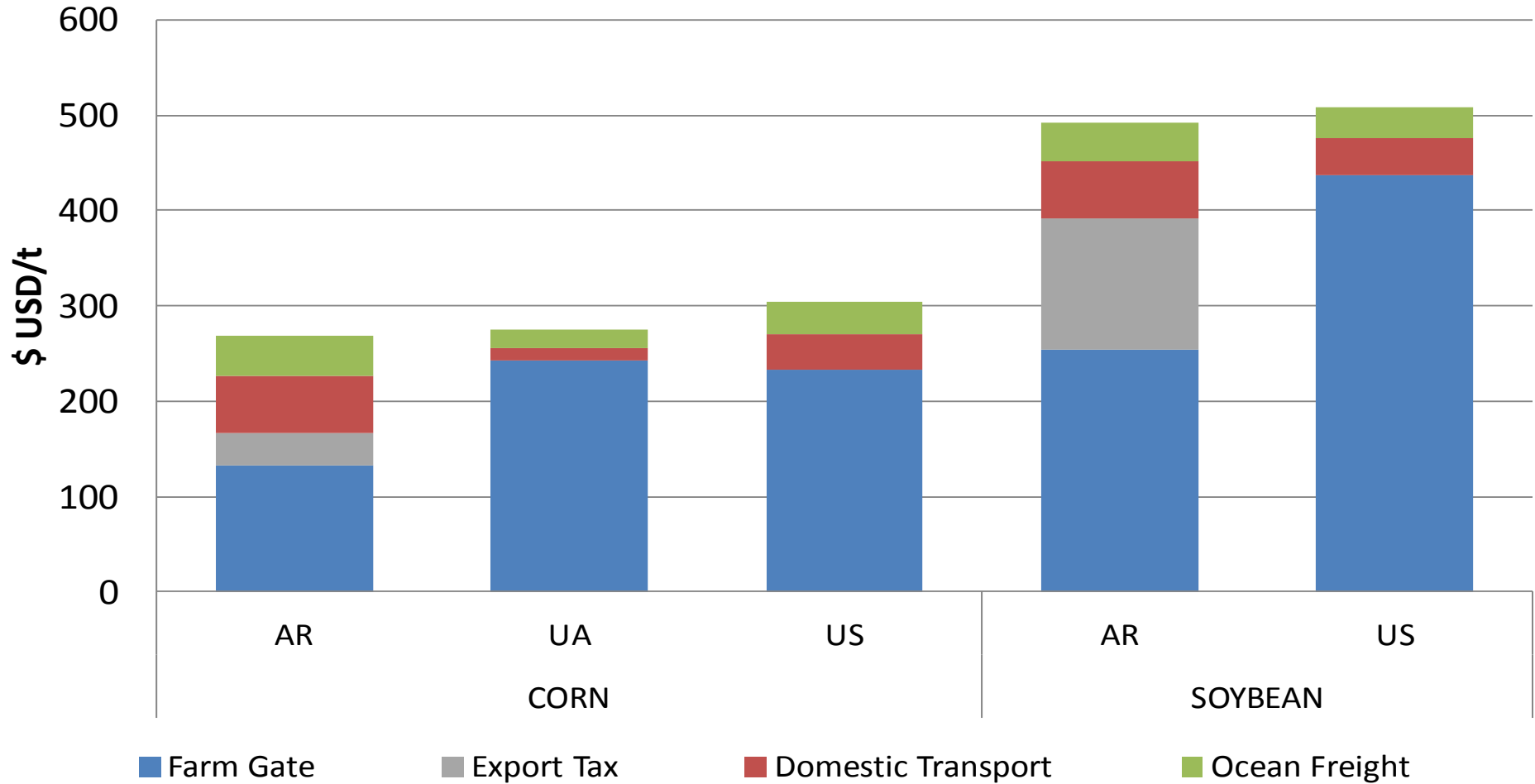


Typical Farm Quotes – Destination China



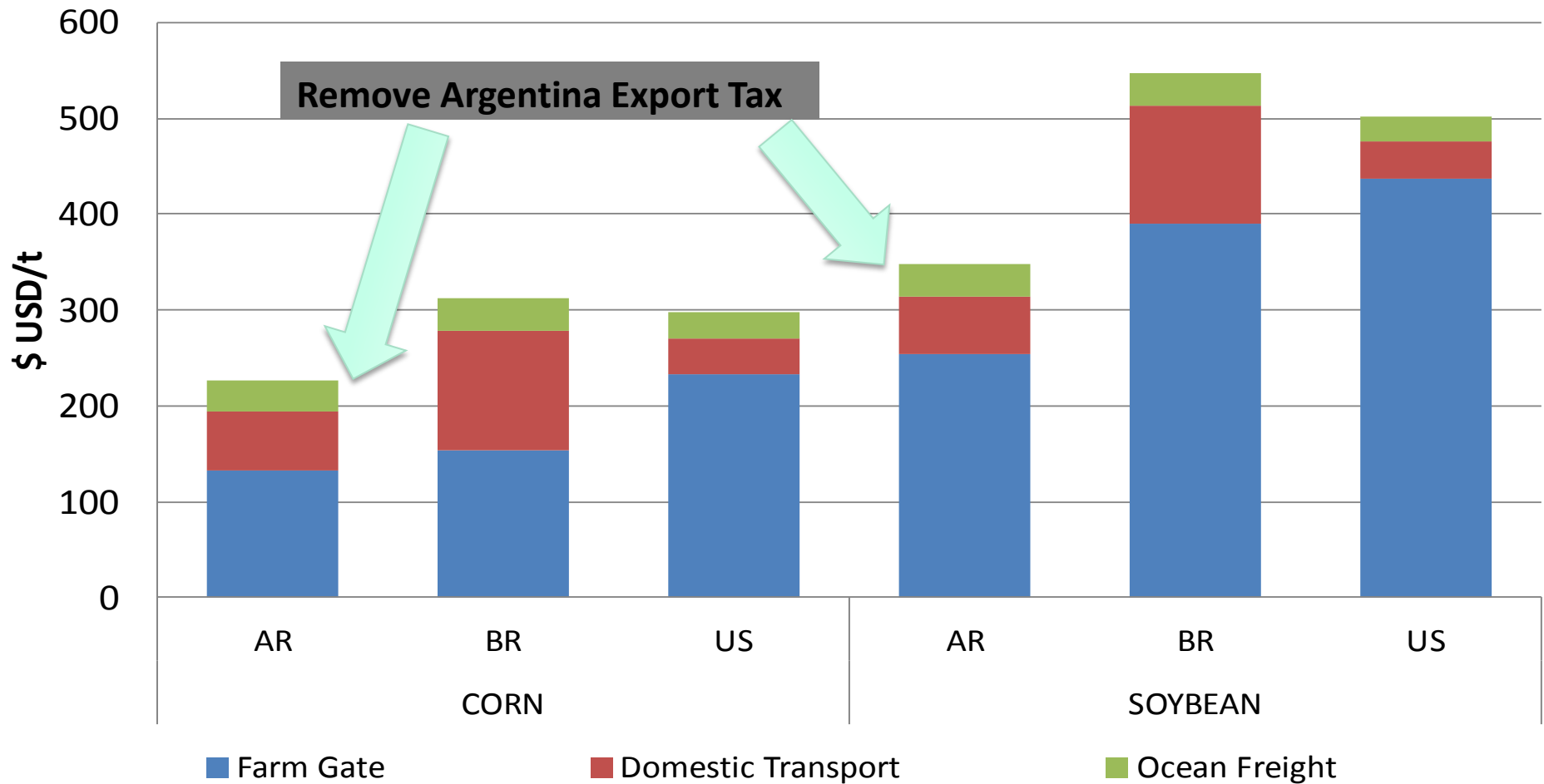
Source: agri benchmark, USDA, & IGC

Typical Farm Quotes – Destination Spain



Source: agri benchmark, USDA, & IGC

Typical Farm Quotes – Destination Hamburg



Summary & Conclusions re. Trade (1)

1. What really matters is the quality of infrastructure – not pure distance.
2. Its efficient domestic transport system puts the US in a very competitive position – esp. relative to AR and BR.
3. For destinations such as Hamburg, Spain or Egypt the Ukraine has a competitive edge over the US, BR and AR.
4. Producers in BR and the US have to „hope“ for the current Argentine government policies to remain.
⇒ Export taxes are a potential game changer

Summary & Conclusions re. Trade (2)

5. **Provided Russian corn and soybean production will speed up, a similar picture as for the Ukraine can be assumed.**
6. **Ocean freight rates move in tandem – fluctuation unlikely to alter competitive position of producers.**
7. **Further research on Black Sea shipping to China needed.**

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Overall Conclusions

1. **US commodity production is very competitive – both because of low CoP as well as low transport & logistic cost.**
2. **Low and decreasing energy cost in the US not yet reflected in figures – additional advantage at least vis a vis EU, UA, AR.**
3. **Key advantage of US growers: high buffer through high and responsive (!) land leases.**
4. **Watch out for UA and RU (in the mid to long-term) in corn and soybeans.**

Know how is our business

Thanks a lot for your interest



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