



agri benchmark Horticulture Network – Objectives, Methodology, Exemplary Results

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Outline

- **Introduction of *agri benchmark* Horticulture**
 - Objectives
 - Approach
 - Benefits
- **Exemplary results for typical wine grape + apple farms**
- **Further Information: Website**

agri benchmark Horticulture: How we got started

- Scientific interest in the economics of production systems of specialty crops
- Successful *agri benchmark* networks exist since years:
 - Cash Crops since 2004, head: Dr. Yelto Zimmer
 - Beef/Sheep since 2001, head: Dr. Claus Deblitz
 - Dairy since 1994 / 1997 (European Dairy Farmers), head: Dr. Birthe Lassen
 - Horticulture since 2011, head: Dr. Walter Dirksmeyer
 - Organic since 2013 (in establishment), head: Dr. Jörn Sanders
 - Pig and Poultry since 2012 (in establishment), head: Simon Küest
- EU project to start with apple and wine grape production (2012 – 2014)
- Cooperation with Bayer CropScience since end of 2011

Main Focus

- Specialty crops, e. g. wine grapes, fruits, vegetables



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Approach of *agri benchmark* Horticulture

- Establish a **sustainable cooperation** between farm economists and farmers in the participating countries
- Analysis based on **typical farm approach** (farm models representing production systems, production costs, competitiveness, future development)
- **Harmonized** selection of regions, farming systems, data collection and processing across countries (standard operating procedure)
- **Feedback** with advisors and producers
- Detailed production systems with **price and quantity data**
- Comparisons by crops, not by diversified farms
- **Comparability of results**
- Analysis of developments over time: **yearly updates** of database and **annual report** on results (1st report in summer 2014)

A typical farm

- is a virtual model based of existing farms in a specific region,
- represents a major share of output for the product considered in that specific region,
- runs the regionally prevailing production system for the product considered,
- reflects the prevailing combination of enterprises, land and capital resources, type of labour organisation in specific region, and
- provides a full set of economic and physical data.

To achieve this, a standard operating procedure (SOP, download see website) to define typical farms was developed and should be used by all partners involved.

Typical farm vs. average and individual farm data

Characteristics	Individual farm data	Average farm data (surveys)	Typical farm data
Representativeness	—	+	+ / —
Consistency of data sets	+	—	+
Quantity structure	+	—	+
Data availability	+	+ / —	+
Up to date data	+	—	+
Feasibility of data collection	+	—	+
Data confidentiality	—	+	+
Cost of data collection	+ / —	+ / —	+
+ = strength of the sample method; — = weakness of the sample method			

Benefits of the network

- International **partnerships** and exchange of expertise
- Result **databases** for all products
- Results are based:
 - on a **harmonized** methodology
 - on a **comparable** database
- Comparing “own” production region with main competitors
- **Models** and **tools**
- Sector and production systems **analyses**
- World **map tools** and **presentations** with key global findings
- Annual **conferences** and **reports**



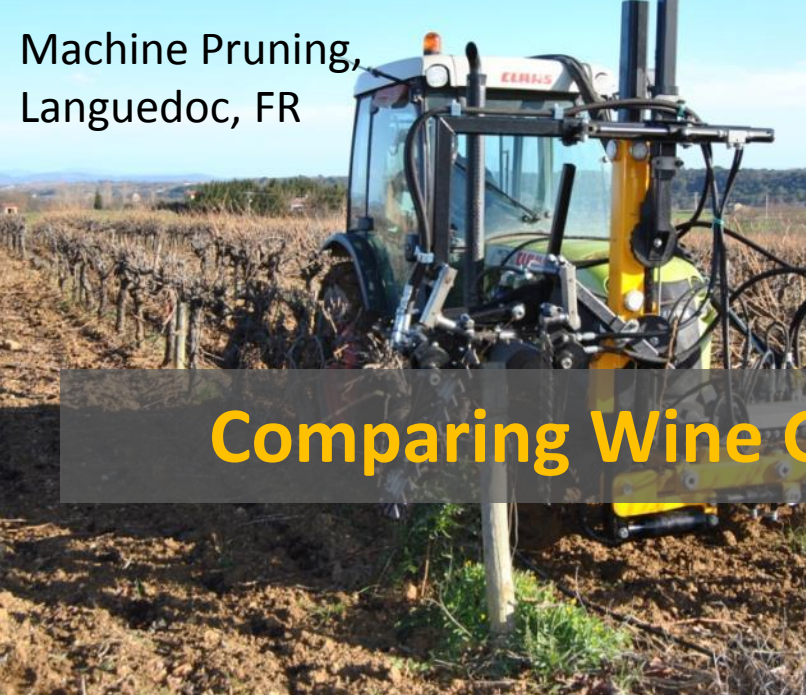
Funding of the network *agri benchmark* Horticulture

- **Institutional funds** (Thünen Institute)
- **Agribusiness**
 - DLG
 - Bayer CropScience
 - *Plus new partners to be recruited in the future*
- **Scientific partners cover own expenses**
 - Data collection
 - Travelling
- **Projects**

Envisaged development of the *agri benchmark* Horticulture network

- Additional countries for crops in focus
- More crops
 - Tomatoes, onion, carrots, cabbage, asparagus
 - Cherries, pears, berries
- Extending the analyses
 - Accounting for the whole value chain
 - Environmental issues & sustainability
 - Fertilization, irrigation, pesticide use
 - CO₂ and water balance
 - ...

Machine Pruning,
Languedoc, FR



Grape delivery to
cooperative,
Rheinhessen, DE



Comparing Wine Grape Production – Results

Harvest,
Rheinhessen, DE



Manual pruning,
Languedoc, FR



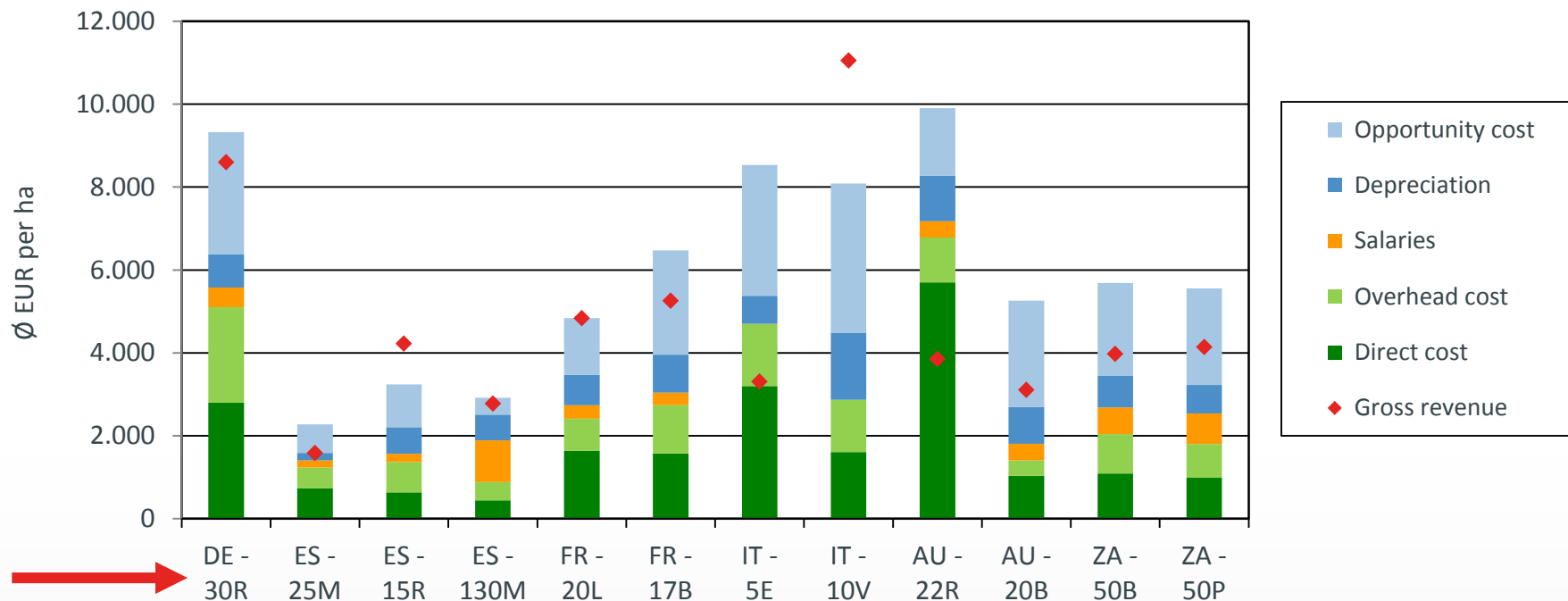
Overview: 12 typical wine grape farms in 6 countries

	Country	Region	ha	Production 2011, t	3 most important varieties
EU	Germany	Rheinhessen	30	349	Müller Thurgau, Riesling, Dornfelder
	Italy	Emilia Romagna	5	38	Sangiovese
		Veneto	10	151	Prosecco, Pinot Grigio, Cabernet S.
	France	Languedoc	20	184	Shiraz, Merlot, Carignan
		Bordeaux	17	123	Merlot, Cabernet S. + F.
	Spain	La Mancha	25	173	Tempranillo, Airen
		La Mancha	130	1,316	Tempranillo, Shiraz, Merlot
		Rioja	15	98	Tempranillo
Non - EU	Australia	SA – Riverlands	22	415	Chardonnay, Shiraz, Cabernet S.
		SA – Barossa	20	103.5	Chardonnay, Shiraz, Cabernet S.
	South Africa	Breedekloof	50	923	Chenin Blanc, Colombard, Shiraz
		Paarl	50	558	Chenin Blanc, Cabernet S., Shiraz

Framework of the analysis

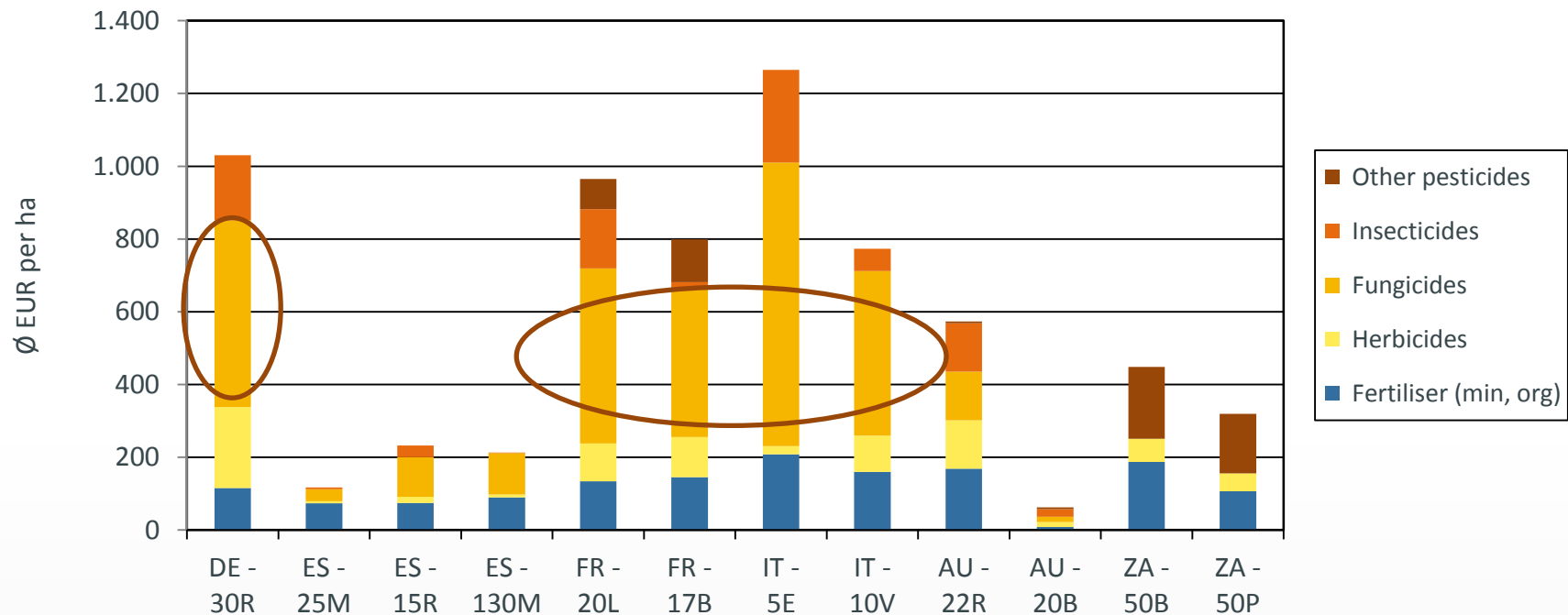
- Results calculated as farm average across:
 - all varieties
 - all age phases (under establishment, full bearing)
- Economic analysis up to the point of grape harvest
- Further processing into wine is not considered
- Targeted quality: grapes for quality bulk still wine, not premium qualities (2 farms in sample target higher qualities, 1 farm produces Prosecco)
- Year 2011 = grape harvest in 2011

Cost and revenues, EUR/ha (2011)



- Differences in level of production costs
- ES15R, IT10V: profit since total costs covered
- Otherwise, opportunity costs only partially covered
- AU22R: Revenue completely spent on irrigation water. Due to severe draught strict regulations in 2011 increase costs for water enormously

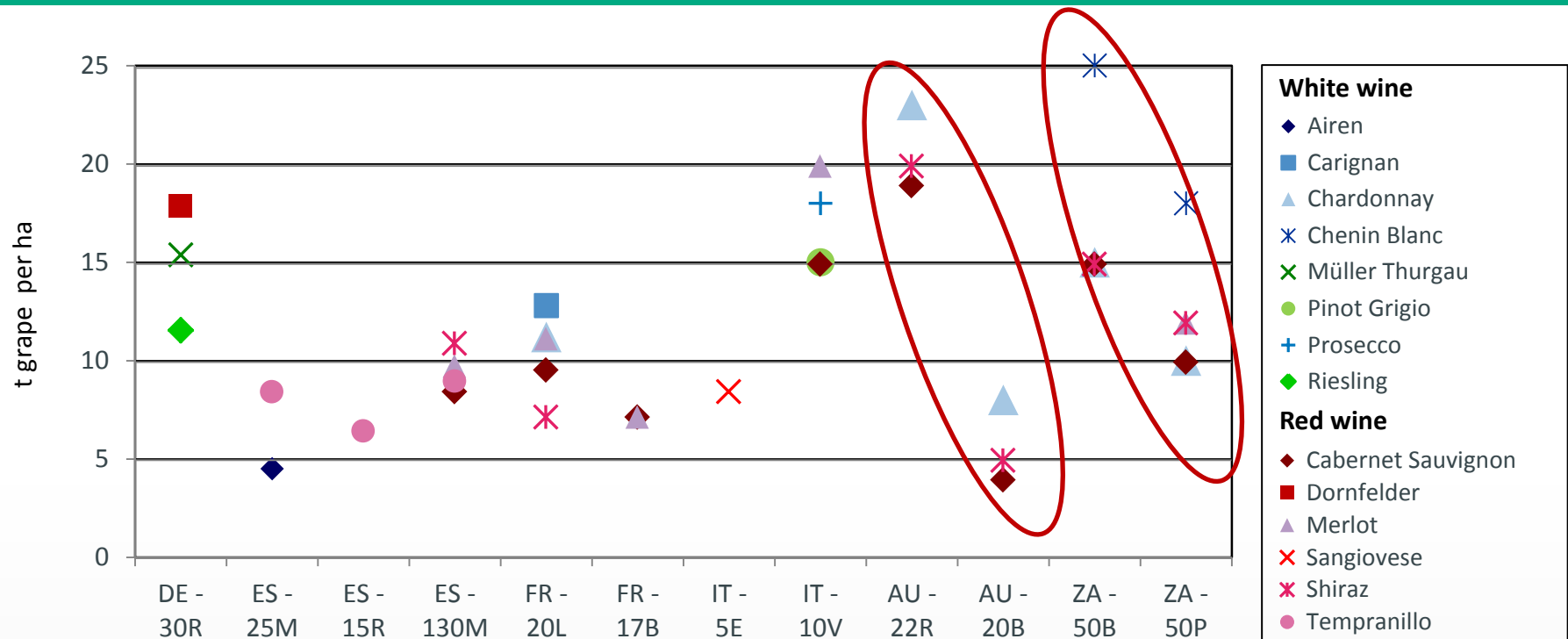
Cost for fertiliser and pesticides, EUR/ha (2011)



- Lowest expenditures for agrochemicals in ES, AU-20B (low input-low output regimes)
- Fungicides important in Europe

Yield range of important wine varieties, t/ha (2011)

Tonnes of grapes per ha, only full bearing vineyards

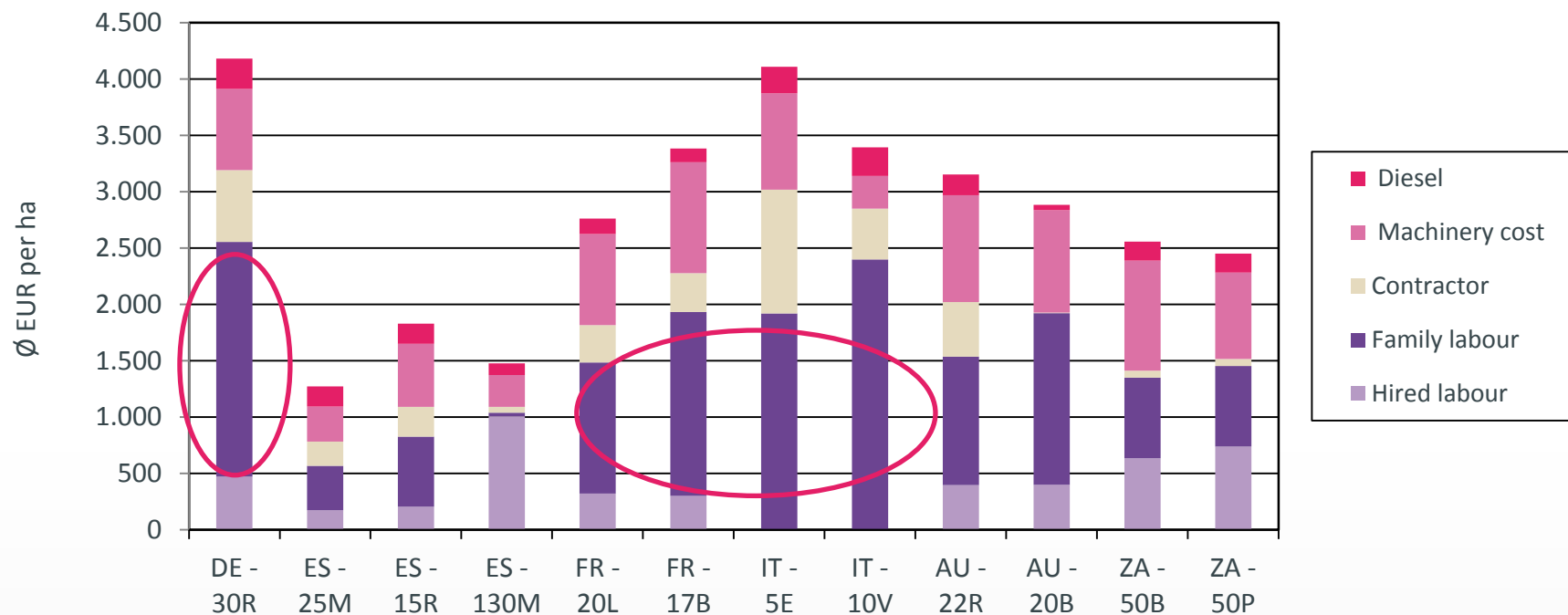


White wine: 4,5 to 25 t/ha depending on variety, highest yields in Australia & South Africa (irrigated)

Red wine: 4 to 20 t/ha depending on variety, high yields in AU, DE, IT and ZA

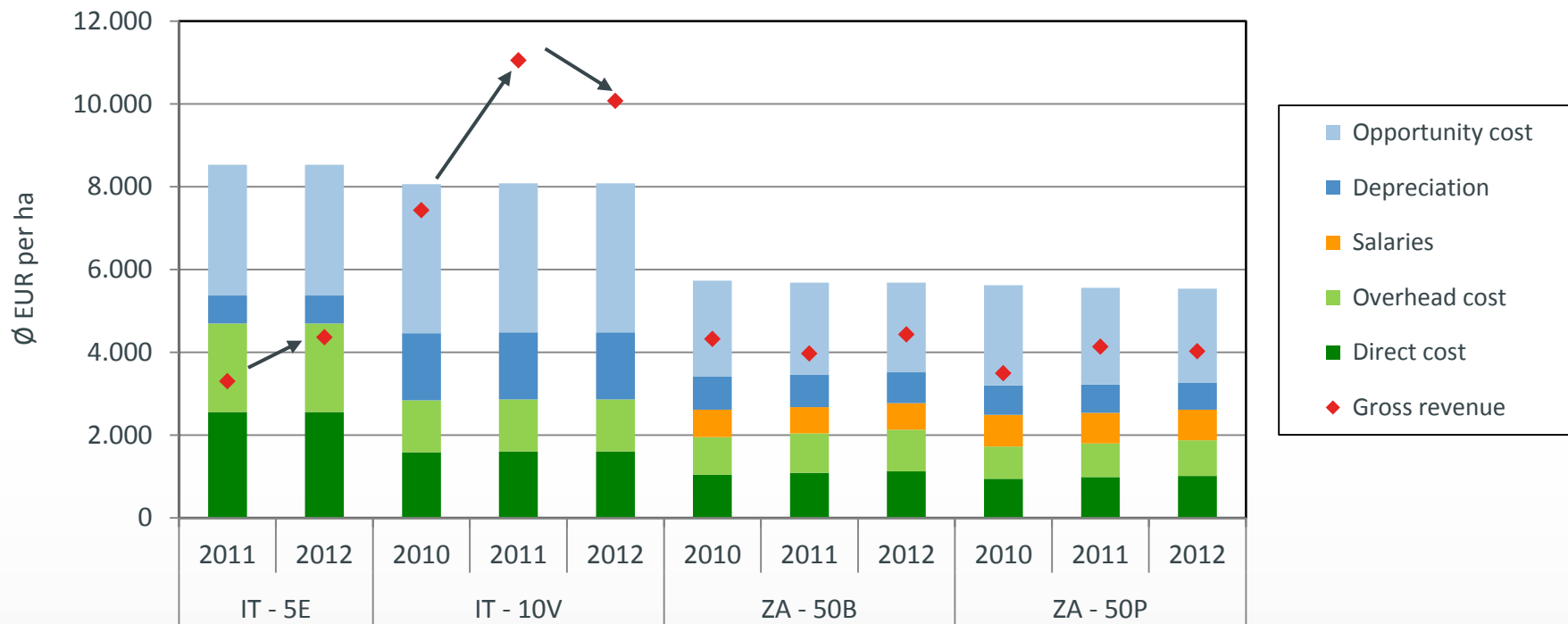
AU & ZA: big yield differences between 2 regions (different production systems, philosophies and target markets)

Operating costs, EUR/ha (2011)



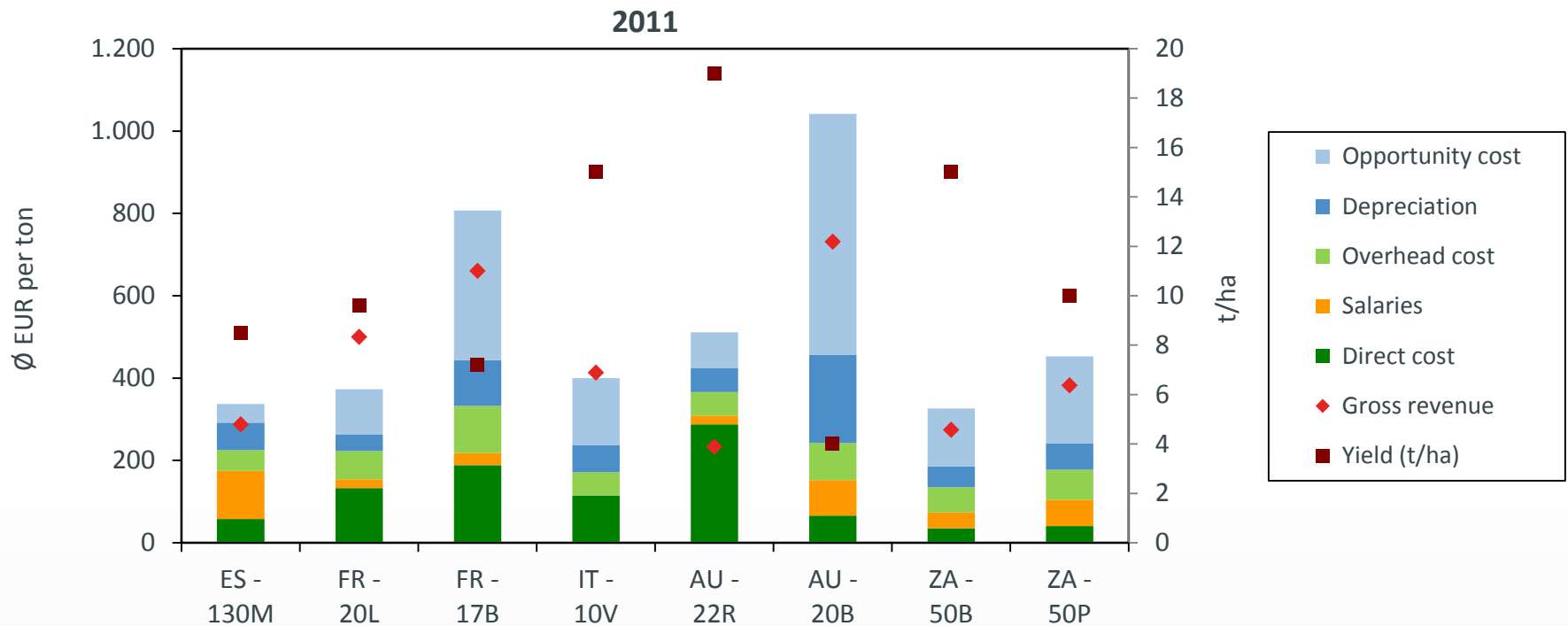
- Labour costs major cost factor
- DE + IT: highest costs for family labour → many hours + high wages (16-18,5 EUR/h)
- Contractor costs: almost on every farm (mainly for machine harvest)
- ES130M: lowest machinery cost (economies of scale for 130ha)

Cost and revenues, EUR/ha (2010-2012)



- Costs on similar level → depends on detail of the data update
- Differences in revenues visible: effect of production volume and market price

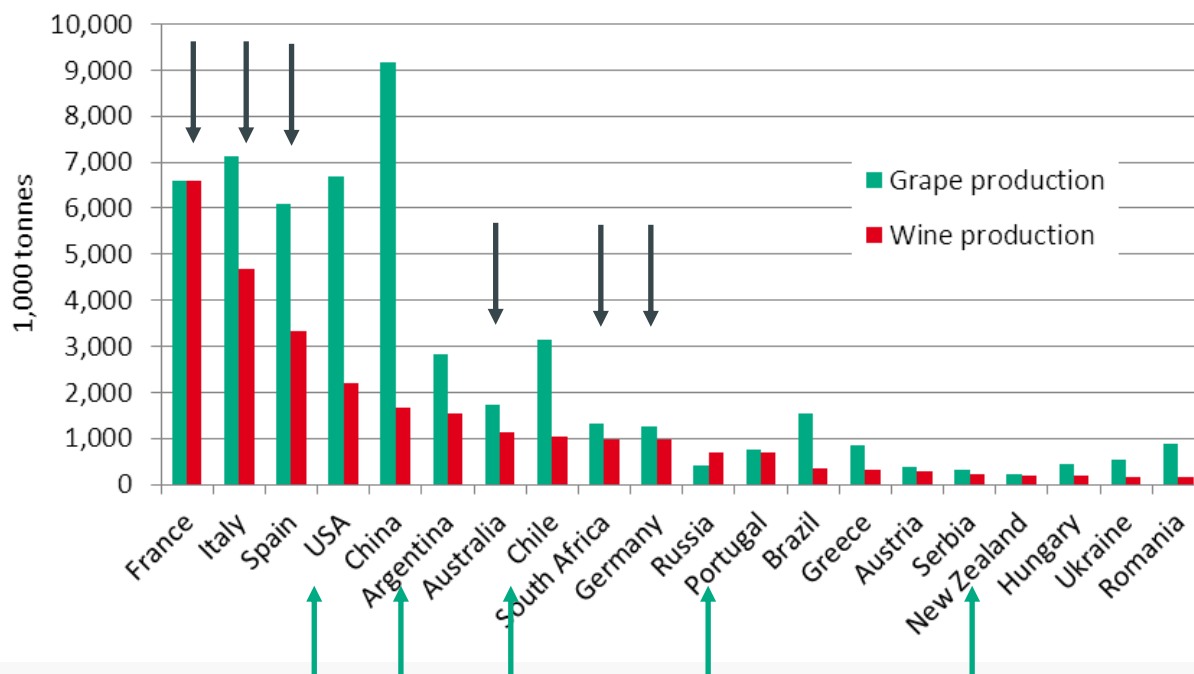
Profitability of Cabernet Sauvignon, EUR/t (2011)



- Only full-bearing vines considered
- Yields 4 – 19 t/ha (big yield differences in AU)
- Market revenue: 230 – 730 EUR/t, highest revenue in AU Barossa valley + Bordeaux
- Highest costs per tonne: AU20B and FR17B
- Highest calculated profit: FR20L and IT10V

Wine: Expansion to new countries

Grape and wine production 2011 - 20 top wine countries



6 countries already in the network

France, Italy, Spain, Australia, South Africa, Germany

Source: FAOSTAT 2013

Focus for future expansion

USA, Argentina, Chile, Portugal, New Zealand, ...



New orchard, Altes Land, DE

© Hildegard Garming

Comparing Apple Production – Results



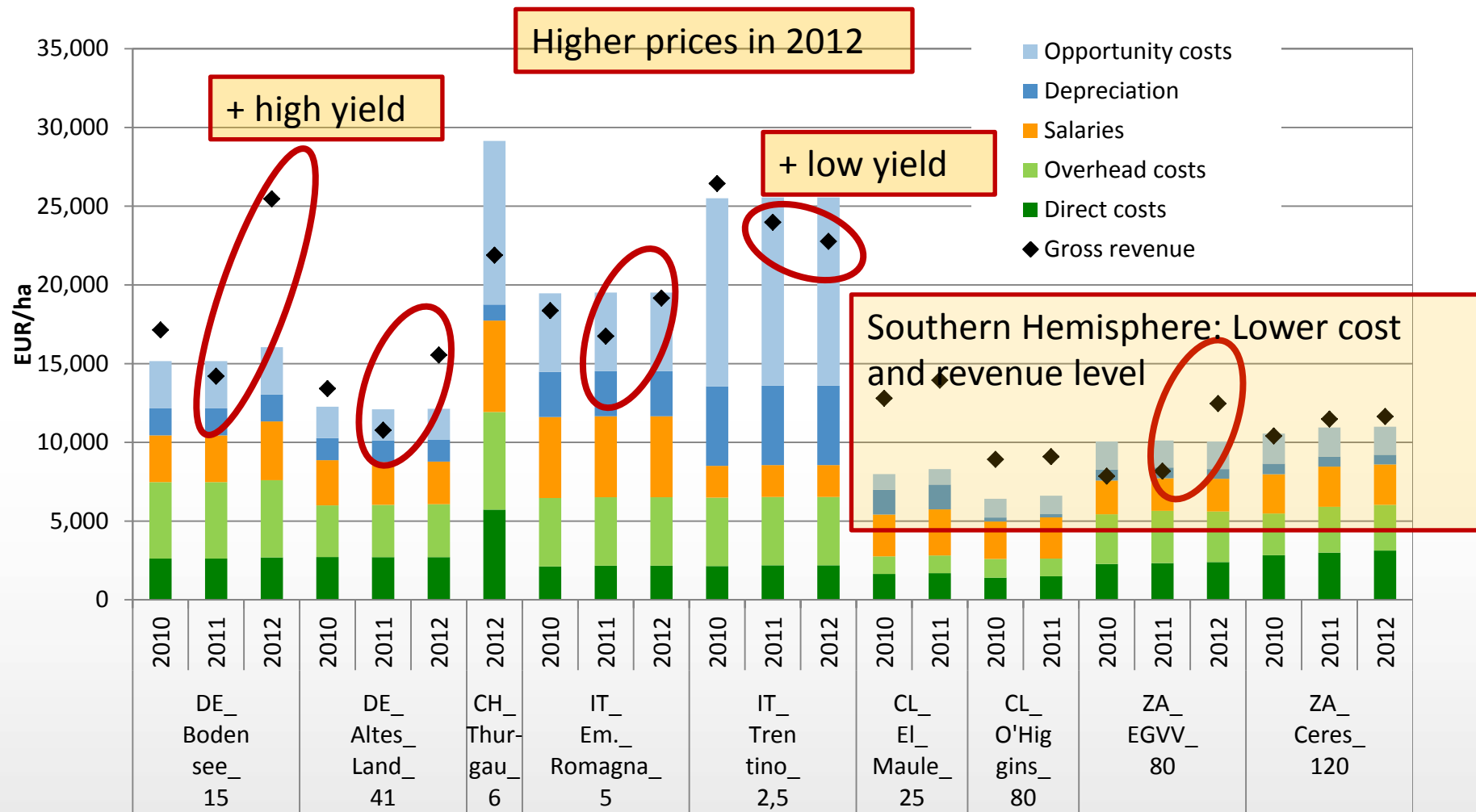
New orchard, South Africa

© Martin Klockgether

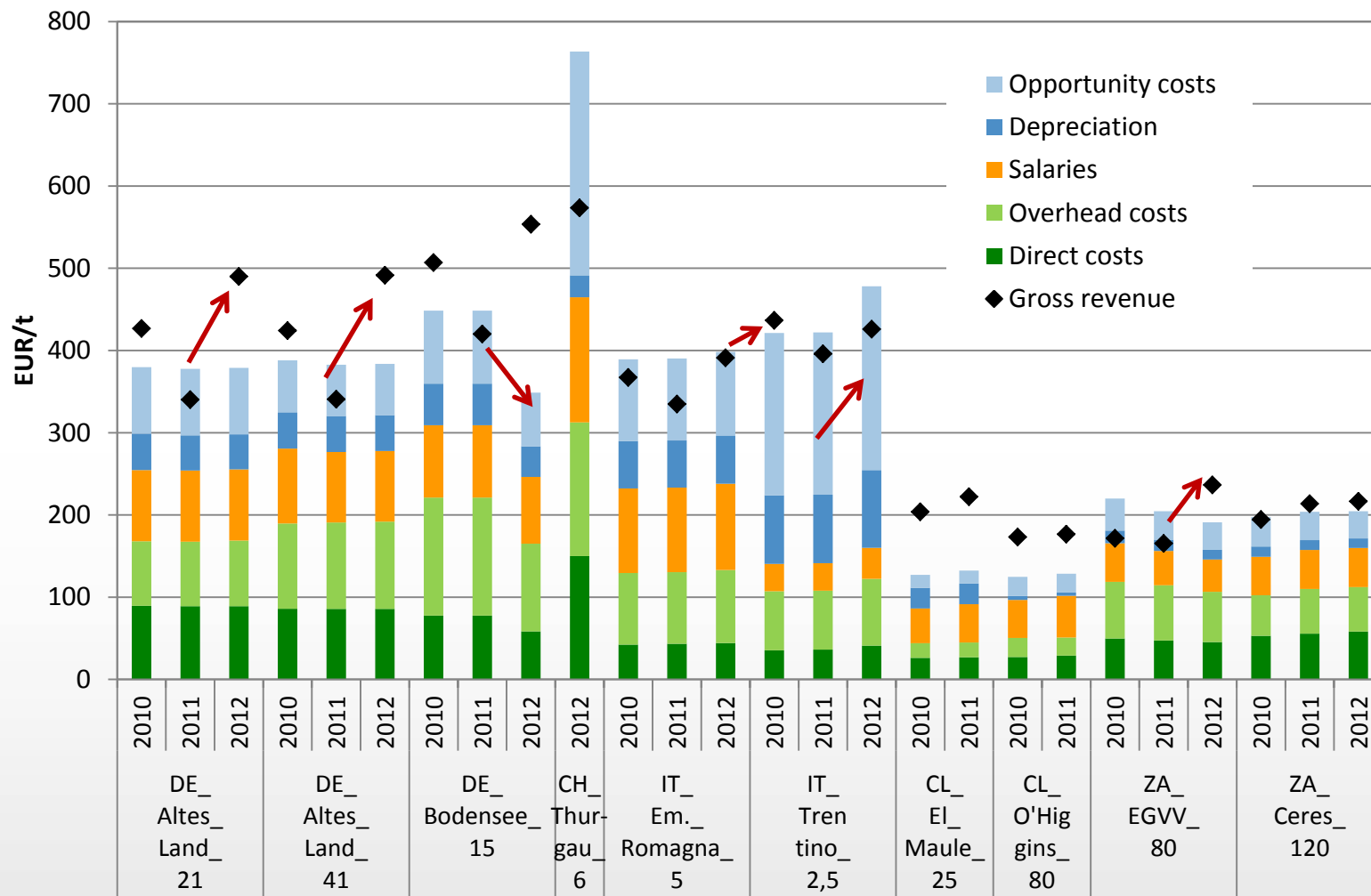
Overview: 10 typical apple farms

	Country	Region	ha	total yield 2011, t	3 top varieties
Europe	Germany	Altes Land	21	642	Elstar, Jonagold, Braeburn
		Altes Land	41	1,298	Elstar, Jonagold, Braeburn
		Bodensee	15	507	Jonagold, Elstar, Gala
	Italy	Emilia Romagna	5	250	Fuji, Pink Lady, Modi, Gala,
		Trentino	2.5	151.4	Red/Golden Delicious, Gala, Renetta
	Switzerland	Thurgau (from 2012)	6	229	Golden Delicious, Gala, Jonagold
Outside EU	Chile	El Maule	25	1,570	Gala, Fuji, Granny Smith
		O' Higgins	80	4,173	Granny Smith, Gala, Pink Lady
	South Africa	EGVV	80	3,980	Golden Delicious, Granny Smith, Gala
		Ceres	120	6,866	Red & Golden Delicious, Pink Lady

Costs and revenues, EUR/ha (2010-2012)



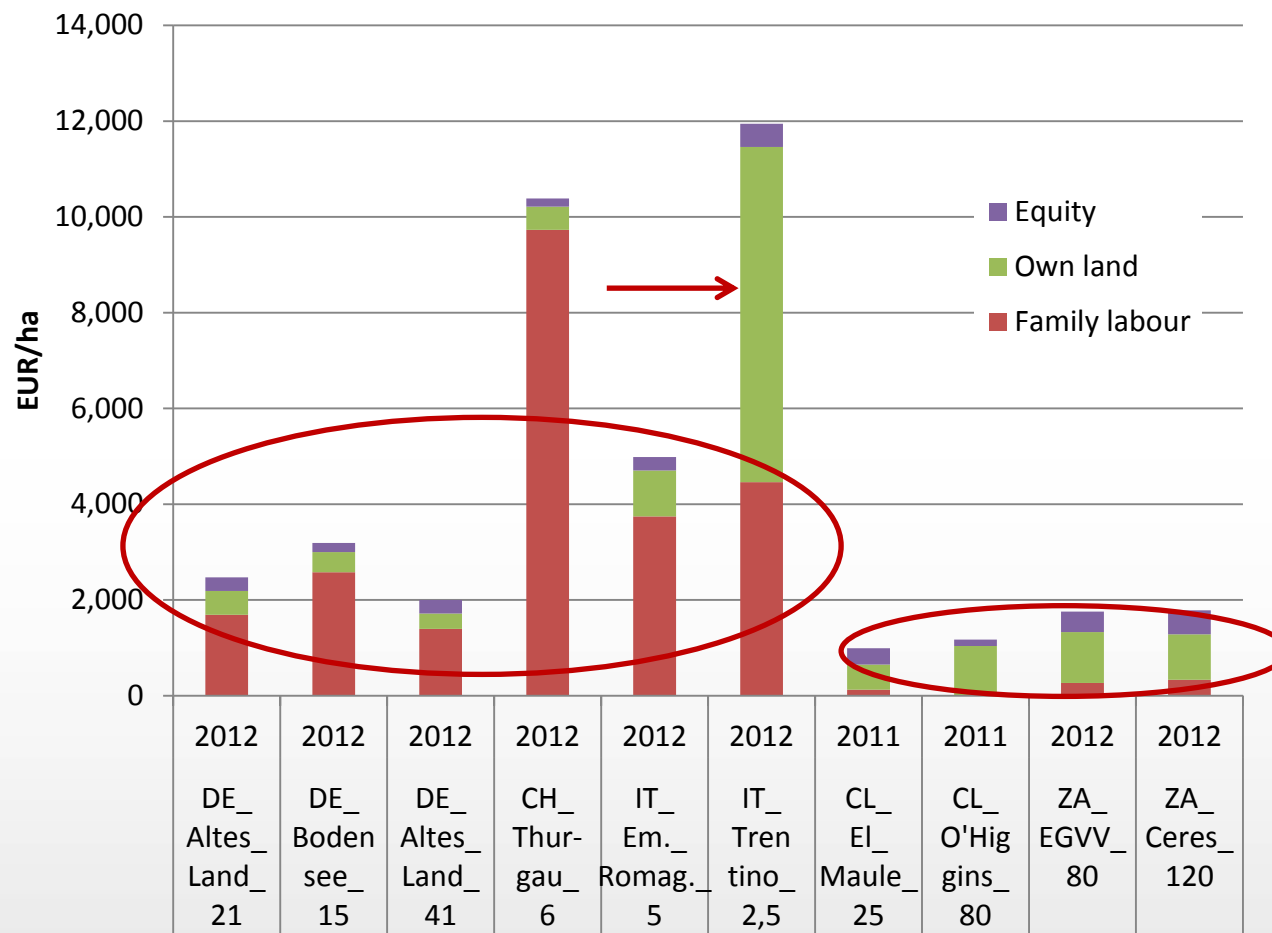
Costs and revenues, EUR/t (2010-2012)



2012:
higher
prices

Average
costs:
yield
effect

Opportunity costs, EUR/ha (2012)

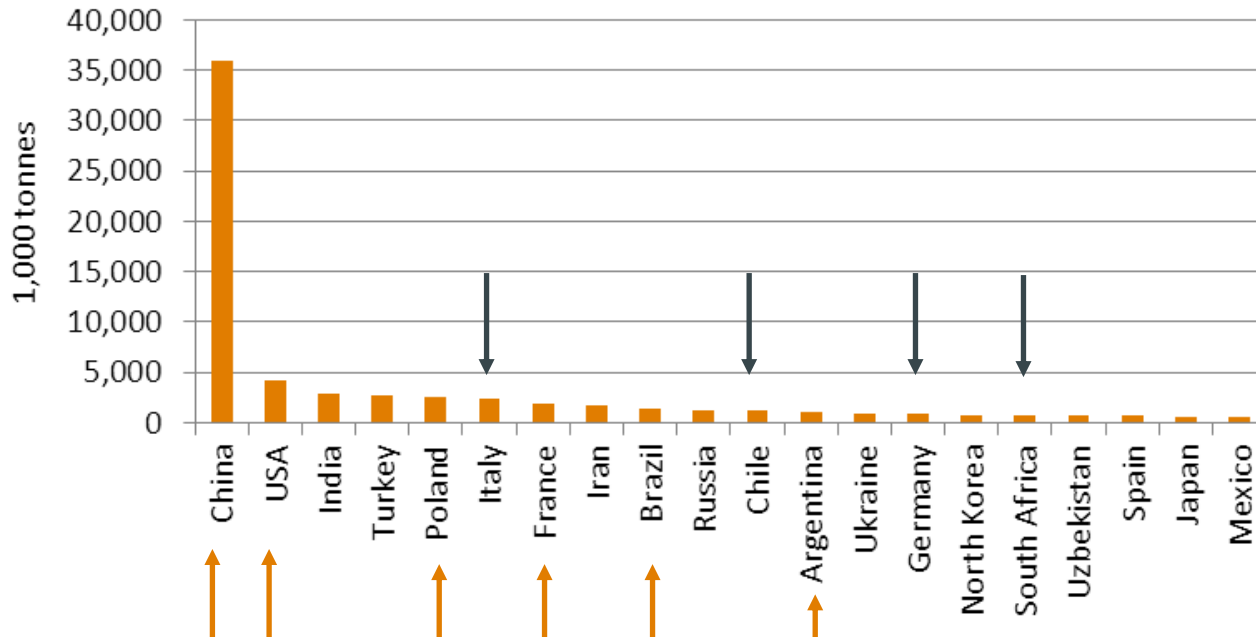


Family labor is important in Europe

Land costs high: Italy (South Tyrol), Chile, South Africa

Apple: Expansion to new countries

Apple production in 2011 - 20 top countries



5 countries already in the network
Italy, Chile, Germany, South Africa, Switzerland

Source: FAOSTAT 2013

Focus for future expansion

China, USA, Poland, France, Brazil, Argentina, Netherlands, New Zealand, ...

Tomato – the first vegetable crop to be included

- Contacts established in four countries
- Data collection has started already or will start soon
- Differentiation between fresh tomatoes and tomatoes for processing

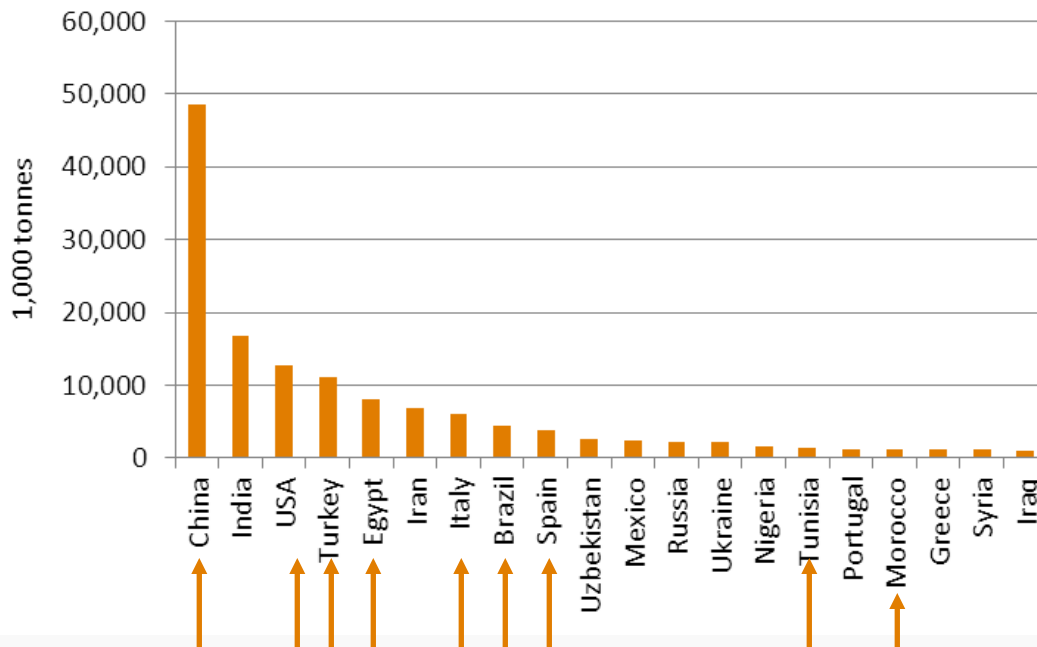
	fresh	processing
Germany	x	
Italy		x
Morocco	x	
Tunisia		x



© European Commission

Tomato - important countries globally

Tomato production in 2011 - 20 top countries



Source: FAOSTAT 2013

Focus for network establishment

Germany, Netherlands, China, USA, Turkey, Italy, Brazil, Spain, Tunisia, Morocco, Egypt, ...

Conclusion & Outlook

- Analysis enables a **detailed insight** into cost and revenue structures of apple and wine grape producers as well as different production systems and intensities (pesticide use, irrigation, ...)
- Yearly fluctuations have an impact \Rightarrow **time series analysis** useful; more years make more interesting results
- Get **more crops and countries/production regions** on board:
 - \rightarrow **Wine Grapes:** *Italy, USA, Argentina, Chile, Portugal, New Zealand, ...*
 - \rightarrow **Apples:** *China, USA, Poland, France, Brazil, Argentina, Netherlands, New Zealand, ...*
 - \rightarrow **Tomatoes:** *Germany, Italy, Spain, Netherlands, Maghreb, Turkey, China, USA, ...*

Further information:

<http://www.agribenchmark.org>



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Here you can find information on our projects ... →



Sector, Country and Farm Information
We work on apple, wine grape and to-be tomato ... →



agri benchmark Horticulture Network
Decision-makers from science, industry, policy ... →

Conferences and Events

The first common workshop of Horticulture partners in Germany will take place from 23. - 28.09. 2013 ... →

Team

Meet the Horticulture Team at the Thünen Institute in Braunschweig ... →



THÜNEN



Country presentations and factsheets on typical farms available.

→ Room for info on your country, typical farms, link to your institution and/or publication

Interested in a cooperation?

More information at


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www.agribenchmark.org



Thanks to the *agri
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Germany

France

Italy

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Chile

Australia

South Africa

