Profitability of Wine Grape Production – An International Farm Level Analysis

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Background – Thünen Institute

- Thünen Institute for Rural Areas, Forestry and Fisheries
  - is one of four research facilities of the German Ministry of Agriculture
  - has 14 specialized institutes
  - thereof 4 with economic focus
  - is located in Braunschweig, Germany
- Main duty: give scientifically based and independent advice to German Government
- Working Group of Economics in Horticulture and Specialty Crops
- Comparing the economics of agricultural production systems

agri benchmark …Horticulture Network since 2011

Why benchmarking?

- Benchmarking aims at systematically and continuously comparing the performance of similar economic activities, e. g. the production of wine grapes or apples, and to identify reasons for differences in economic performance
- In agriculture and related activities production systems need to be analyzed economically to identify
  - differences to best performers
  - reasons for these differences and
  - options for improvements

agri benchmark Horticulture: network & approach

- Production system analysis based on **typical farm approach**
- **Harmonized** selection of regions, farming systems, data collection and processing across countries
- **Comparability of results**
- Detailed production systems with **price and quantity data**
- **Feedback** with advisors and producers
- Comparisons by crops or varieties
- Analysis of developments over time: **yearly updates** of database
- Establish a **sustainable cooperation** between farm economists and farmers in the participating countries

A typical wine grape farm …

- is a virtual model based on existing wine grape farms in a specific region,
- represents a major share of wine grapes produced in that specific region,
- runs the regionally prevailing production system for wine grape production,
- reflects the prevailing combination of wine grape varieties, age structure of the vineyards, land and capital resources, type of labour organisation in the specific region and for the wine grape quality in focus
- provides a full set of economic and physical data.

To achieve this, a standard operating procedure (SOP, download from website possible) was developed to define typical farms.

Comparing Wine Grape Production – Results

Machine Pruning, Languedoc, FR

Grape delivery to cooperative, Rheinhessen, DE

Manual pruning, Languedoc, FR

Harvest, Rheinhessen, DE

Framework of the analysis

- Economic analysis up to the point of grape harvest
  - ideally considers all single operations
  - processing into wine is not considered
- Results (EUR/ha or EUR/t) calculated as farm averages across
  - all varieties, variety specific analysis is possible
  - all age phases from establishment to full bearing
- Targeted quality: grapes for **quality still bulk wine**, not premium qualities (3 farms in sample target higher qualities or regional brands, 1 farm produces Prosecco)
- Year 2011 = grape harvest in 2011

Overview: 12 typical wine grape farms in 6 countries

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

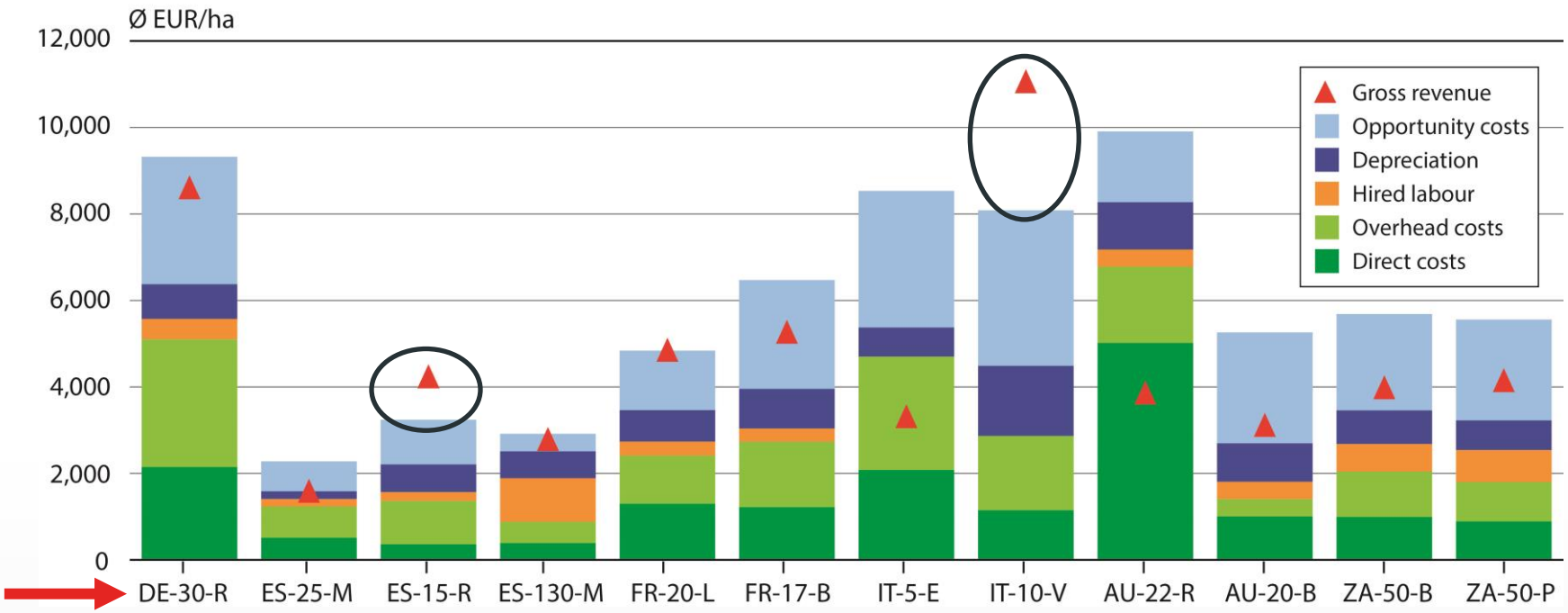
Yield range of important wine varieties, 2011

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

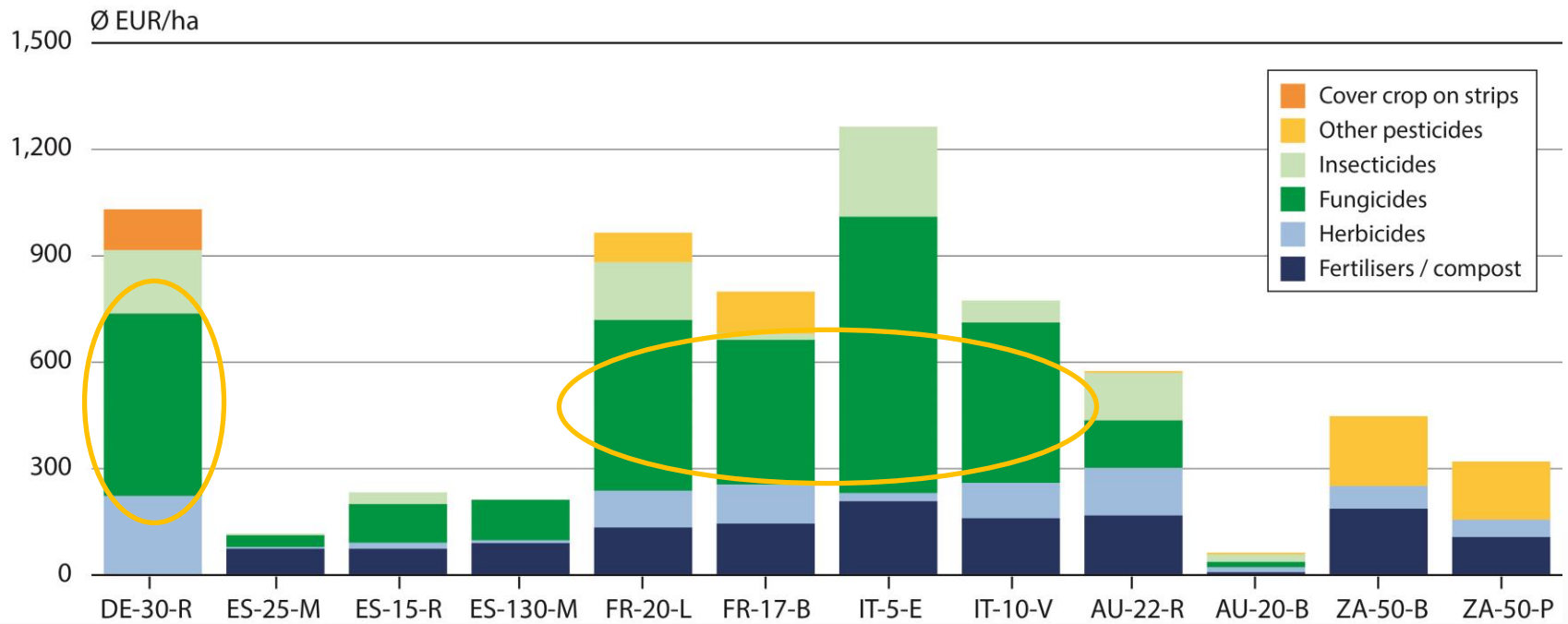
AU & ZA: clear yield differences between 2 regions in same country → different production systems, quality philosophies and target markets

Total costs and revenues, 2011



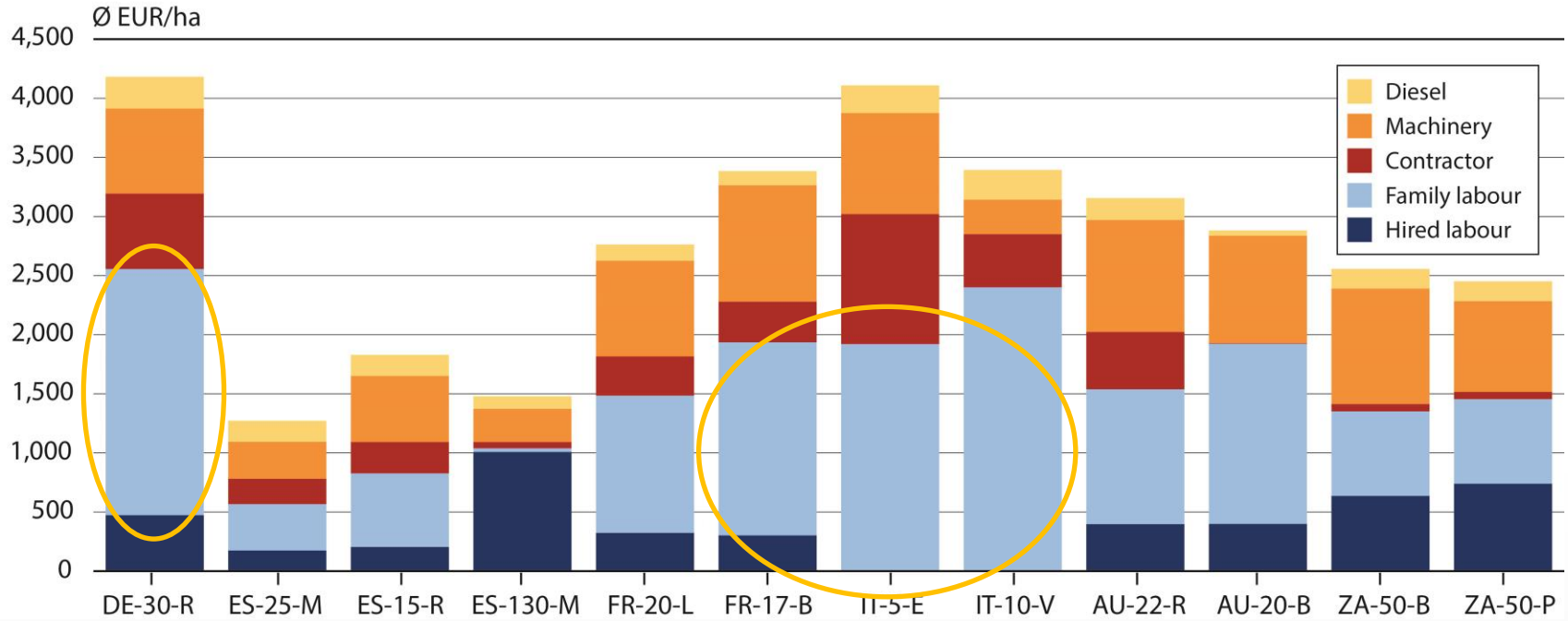
- Differences in level of production costs
- ES-15-R, IT-10-V: profitable since total costs covered
- In most cases opportunity costs are only partially covered
- AU-22-R: Revenue completely spent on irrigation water. Due to severe drought strict regulations in 2011 increase costs for water enormously

Costs for fertiliser and pesticides, 2011



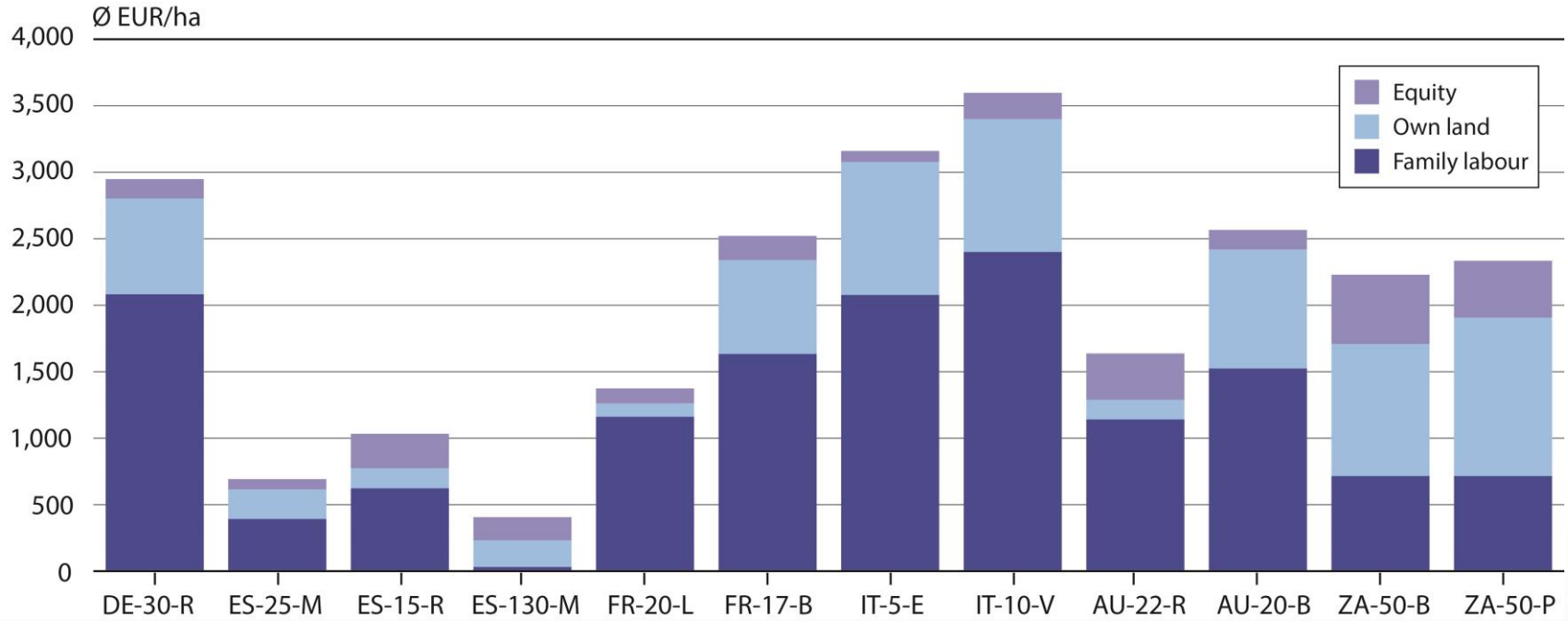
- Lowest expenditures for agrochemicals in ES, AU-20-B (low input - low output regimes)
- Fungicides most important in Europe
- Other pesticides (FR, ZA): Sum of herbicides, fungicides and insecticides since different pesticides could not be distinguished

Operating costs, 2011



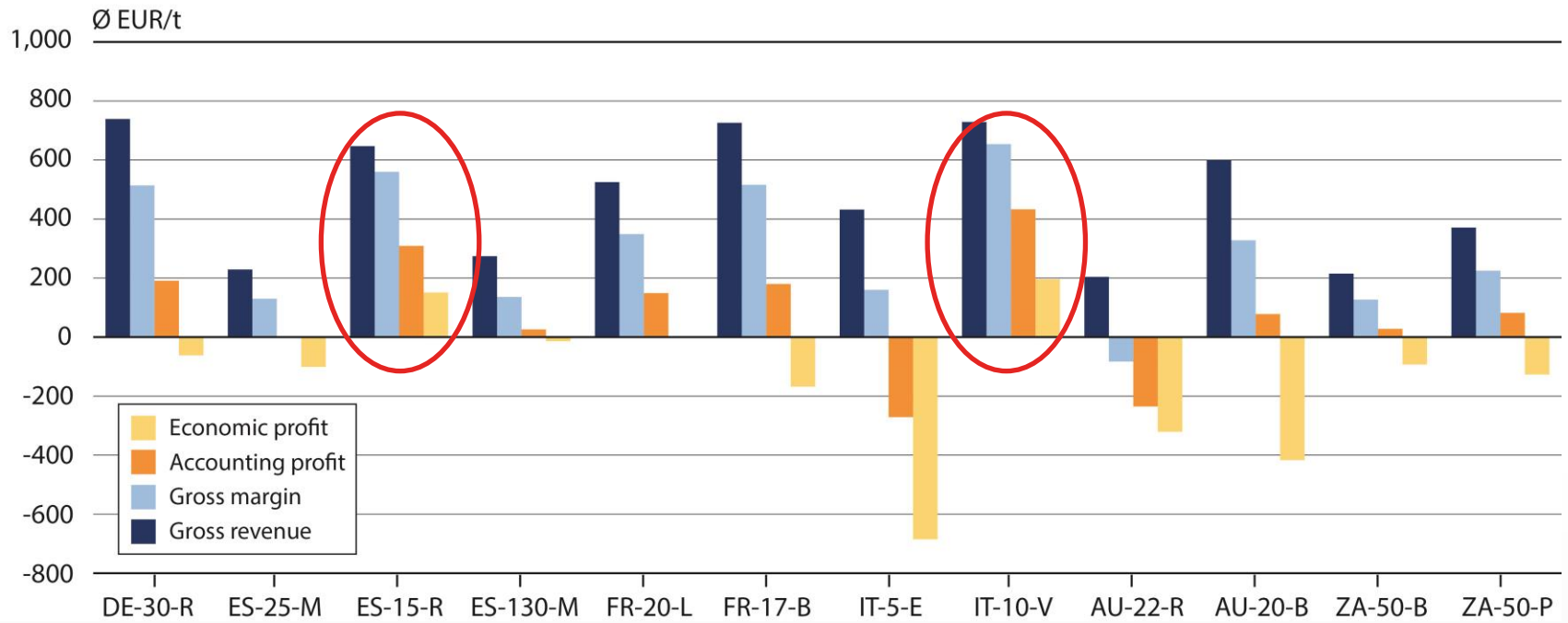
- Labour costs major cost factor
- DE + IT: highest costs for family labour
  → numerous hours + high opportunity costs (16-18.5 EUR/h)
- Contactor costs: almost on every farm (mainly for machine harvest)
- ES-130-M: lowest machinery cost (economies of scale for 130 ha)

Opportunity costs, 2011



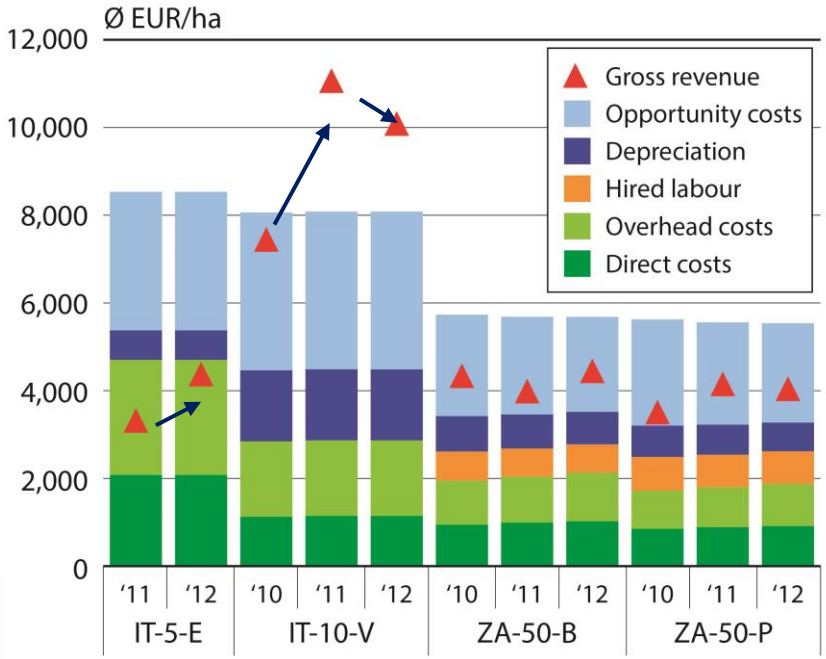
- Family labour → what could the farmer earn on a neighbouring farm or in industry?
- IT: opportunity cost for family labour high since no hired labour used
- Land costs: high in DE, IT, AU Barossa, ZA (competition with other uses)

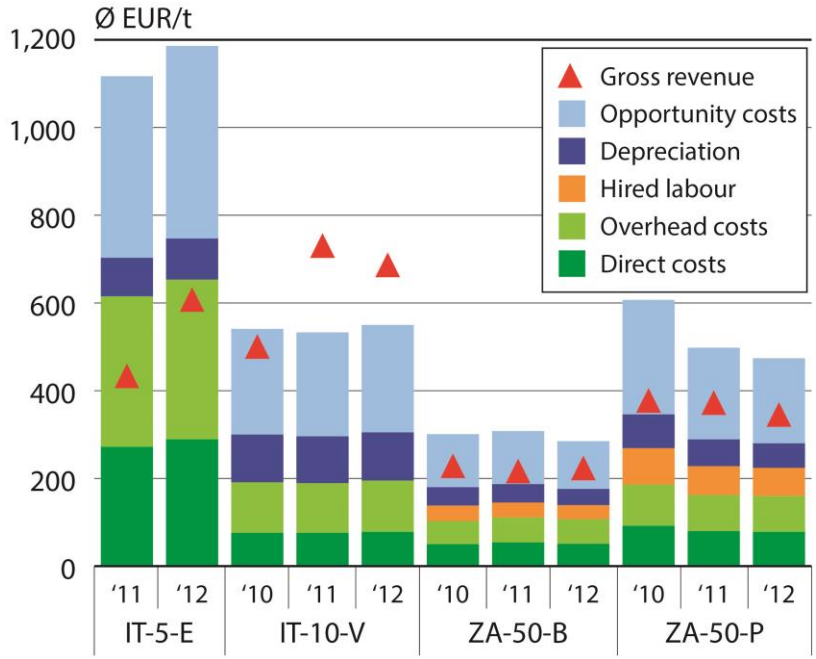
Profitability indicators, 2011



- Gross margin = Gross revenue – direct costs – hired labour
- Accounting profit = Gross margin – overhead costs – depreciation
- Economic profit = Accounting profit – opportunity costs

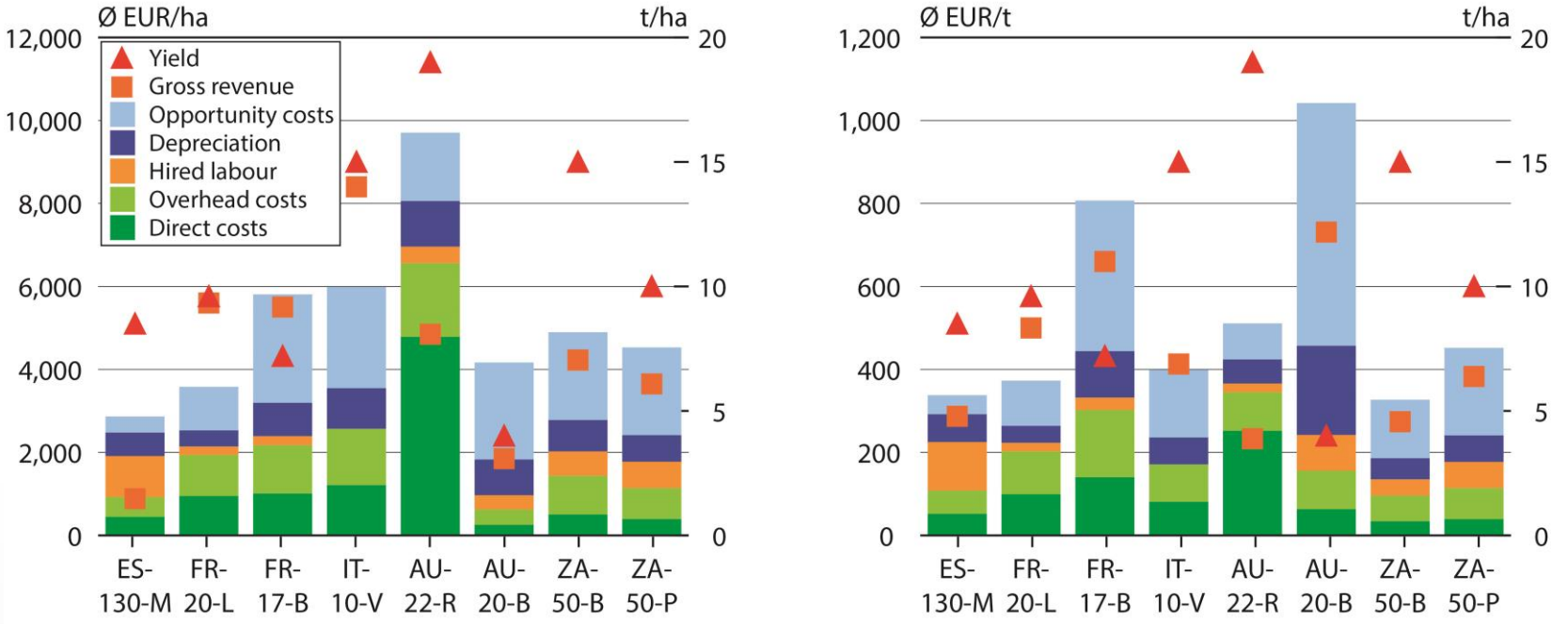
Total costs and revenues over time, 2010 - 2012





- Costs on similar level → lack of detailedness of the data update
- Differences in revenues over time are visible → effect of both production volume and market price

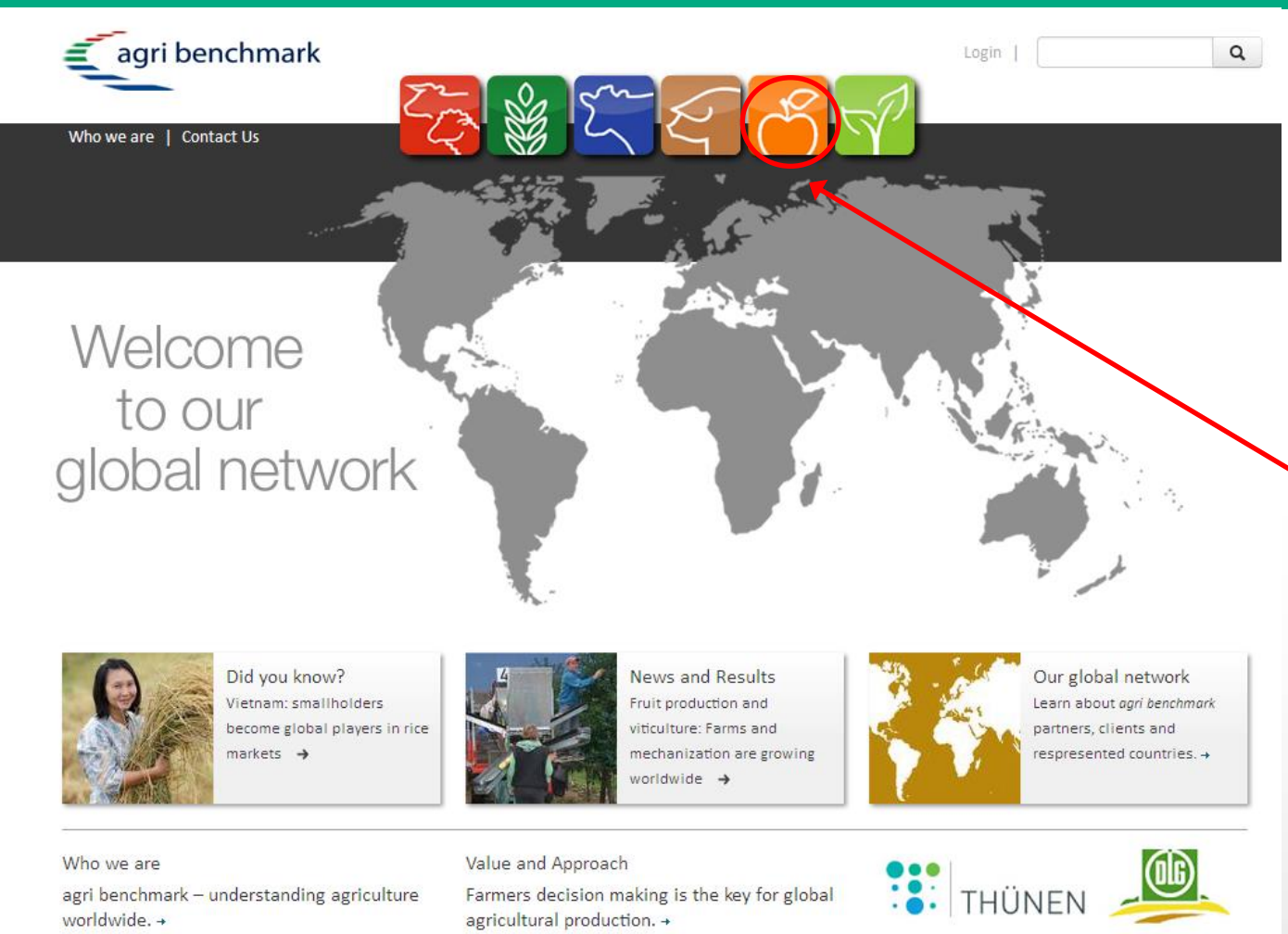
Profitability of Cabernet Sauvignon, 2011



- Only full-bearing vines considered
- Yields 4 – 19 t/ha → enormous yield difference in AU
- Market revenue: 230 – 730 EUR/t → highest revenue in AU Barossa valley + Bordeaux
- Highest costs per tonne: AU-20-B and FR-17-B
- Highest calculated profit: FR-20-L and IT-10-V

Further information

http://www.agribenchmark.org



Horticulture section:
General info on sector, countries, farms

Conclusion & Outlook

- Analysis enables a **detailed insight** into cost and revenue structures of wine grape producers and into different production systems and intensities (factor use, targeted yield level)
- Annual fluctuations have an impact ⇒ **time series analysis** provide more insights; more years produce more relevant results
- Our aim: expanding the network to more countries and production regions: *South Italy, USA, Argentina, Chile, Portugal, New Zealand, China …*
- First report published in August 2014 → few copies available here

2nd *agri benchmark* Horticulture conference to take place in Northern Italy: 22.-26. Sep. 2014
Topics: economics of wine grape, apple and tomato production

Thanks a lot for your attention !!!

Interested in a cooperation?

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www.agribenchmark.org

Thünen Institute of Farm Economics

Thanks to the *agri benchmark* partners in

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