# *agri benchmark* Horticulture Network – Methodology

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**Brisbane**
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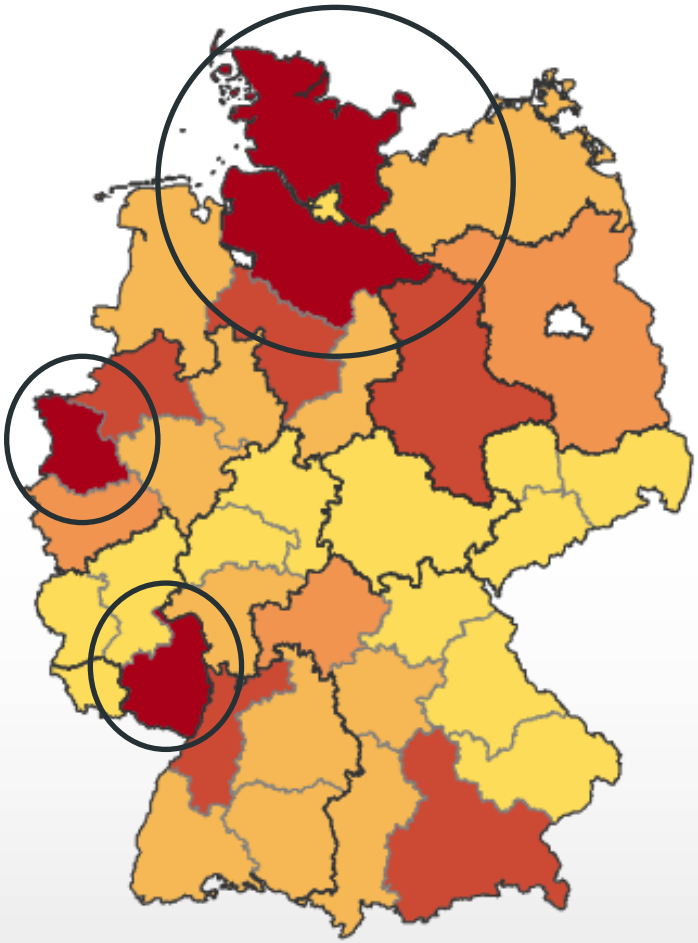
# Steps to establish a typical farm

1. Analysis of national and regional statistics
   a) to identify relevant production regions within a certain country
      → Example of carrots in Germany

# Hot spots of carrot production in Germany, 2012



Regional share of carrots in total, %

- ≤ 0.5
- > 0.5 - ≤ 2.0
- > 2.0 - ≤ 4.0
- > 4.0 - ≤ 8.0
- > 8.0
- no data

Source: Statistisches Bundesamt, 2013

# Steps to establish a typical farm (continued)

1. Analysis of national and regional statistics

   a) to identify relevant production regions within a certain country

   b) to identify typical farm size structures within the relevant production regions (+ Expert knowledge!)

      → Example of carrots in Germany

# Average carrot production per farm in selected German districts

| | District | ha carrots | % of total German carrot acreage | No. farms producing carrots | Ø ha carrots per 'carrot farm' | Ø dt carrots per ha |
|---|---|---|---|---|---|---|
| 1) | Rhein-Pfalz-Kreis | 1,283 | 12.6% | 35 | 36.7 | 566 |
| 2) | Dithmarschen | 904 | 8.9% | 64 | 14.1 | 671 |
| 3) | Lüneburg | 498 | 4.9% | 34 | 14.7 | 560 |
| 4) | Viersen | 491 | 4.8% | 18 | 27.3 | 597** |
| 5) | Rhein-Neckar-Kreis | 446 | 4.4% | 34 | 13.1 | 531 |
| 6) | Borken | 360 | 3.5% | 17 | 21.1 | 597** |
| 7) | Germersheim | 296 | 2.9% | 27 | 10.9 | 509 |
| 8) | Kleve | 280 | 2.8% | 30 | 9.3 | 597** |
| 9) | Rhein-Kreis Neuss | 250 | 2.5% | 18 | 13.9 | 597** |
| 10) | Recklinghausen | 249 | 2.5% | 5 | 49.8 | 597** |
| 11) | Rhein-Erft-Kreis | 234 | 2.3% | 12 | 19.5 | 597** |
| 12) | Würzburg | 233 | 2.3% | 43* | 6.9* | 716* |
| 13) | Diepholz | 220 | 2.2% | 25 | 8.8 | 628 |
| 14) | Uelzen | 202 | 2.0% | 13 | 15.6 | 715 |
| | **Total or average** | **5,946** | **58.6%** | **375** | **15.9** | |

Not the average but size of specialised producers, producers that will be in the market also in few years and produce a major share of crop in the region… often larger than average size

# Steps to establish a typical farm (continued)

1. Analysis of national and regional statistics
2. By use of expert knowledge identify prevailing production system(s) in the region
   a) Production of carrots + other crops ?
   b) Organisation of labour (own, hired, seasonal), machinery, contractors
   c) Irrigation yes or no
   d) Spraying, fertilisation strategy
   e) Specific yield of year X (not average yields)
   f) Perennial crops (apple, wine grapes): age structure of the plantation, mix of varieties
   g) Financial structure: own capital or loans
   h) Land: own or rented
   i) Marketing: part of cooperative, sale on spot market; own storage
   j) etc.

# Steps to establish a typical farm (continued)

1. Analysis of national and regional statistics
2. By use of expert knowledge identify prevailing production system(s) in the region
3. Establishment of a first blueprint of a typical farm: *agri benchmark* partner (+ local expert) and Thünen researcher
4. Expert group discussion with farmers and advisors of the relevant region: adaptation and validation of typical farm
5. Economic analyses of typical farm: Thünen researcher
6. Plausibility check of results by *agri benchmark* partner
7. Further adaptation and validation of typical farm if necessary (intensive communication between Thünen researcher and ab partner….)

# Summary: 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) was developed to define typical farms.**

# Main Focus

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

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# Possible results

- **Cost of production: per farm, per ha, per ton**
  - fix and variable costs
  - by cost item or operation
  - on farm and crop level
  - one specific year or time series, …
- **Returns and gross margins: per farm, per ha, per ton**
  - on farm, crop, variety or product level
  - one specific year or time series, …
- **Productivities (land, labour)**
- **Profitability**
- **Resource use (e. g. fertilizer, pesticides, water, …)**
- **…**

# Comparing Wine Grape Production – Results

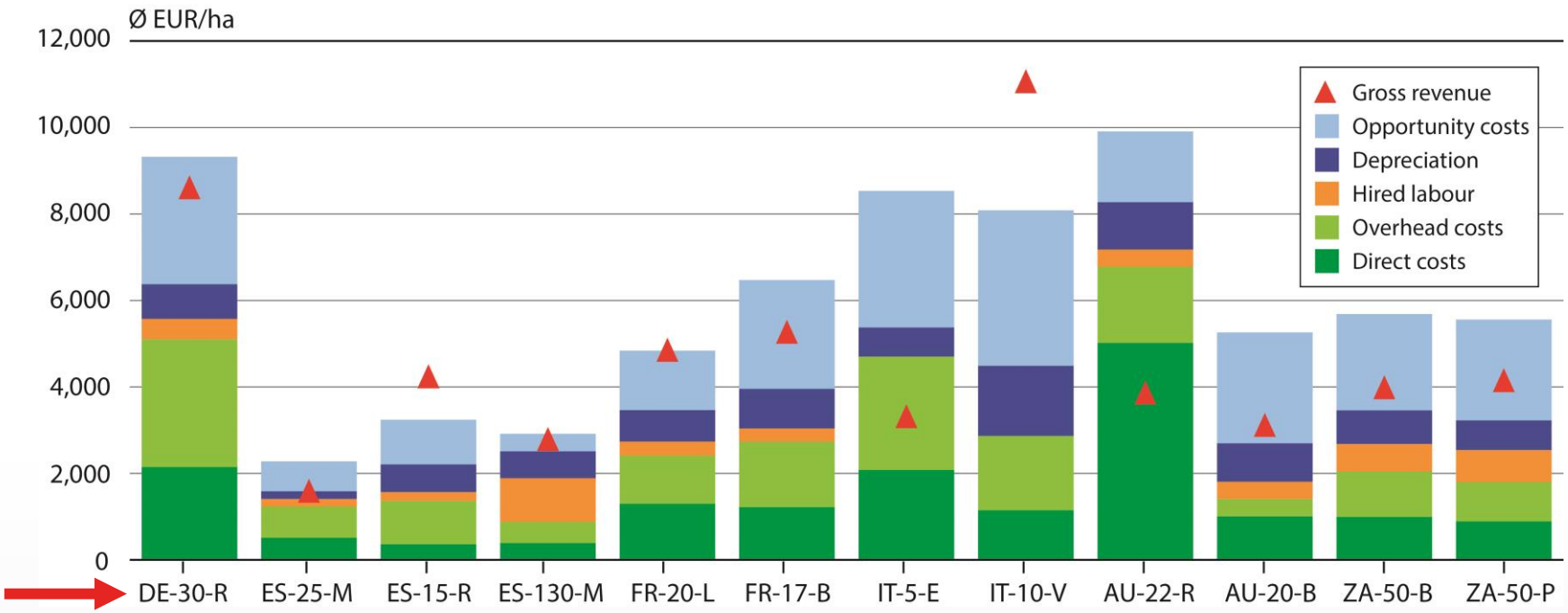
Machine Pruning, Languedoc, FR

Grape delivery to cooperative, Rheinhessen, DE

Harvest, Rheinhessen, DE

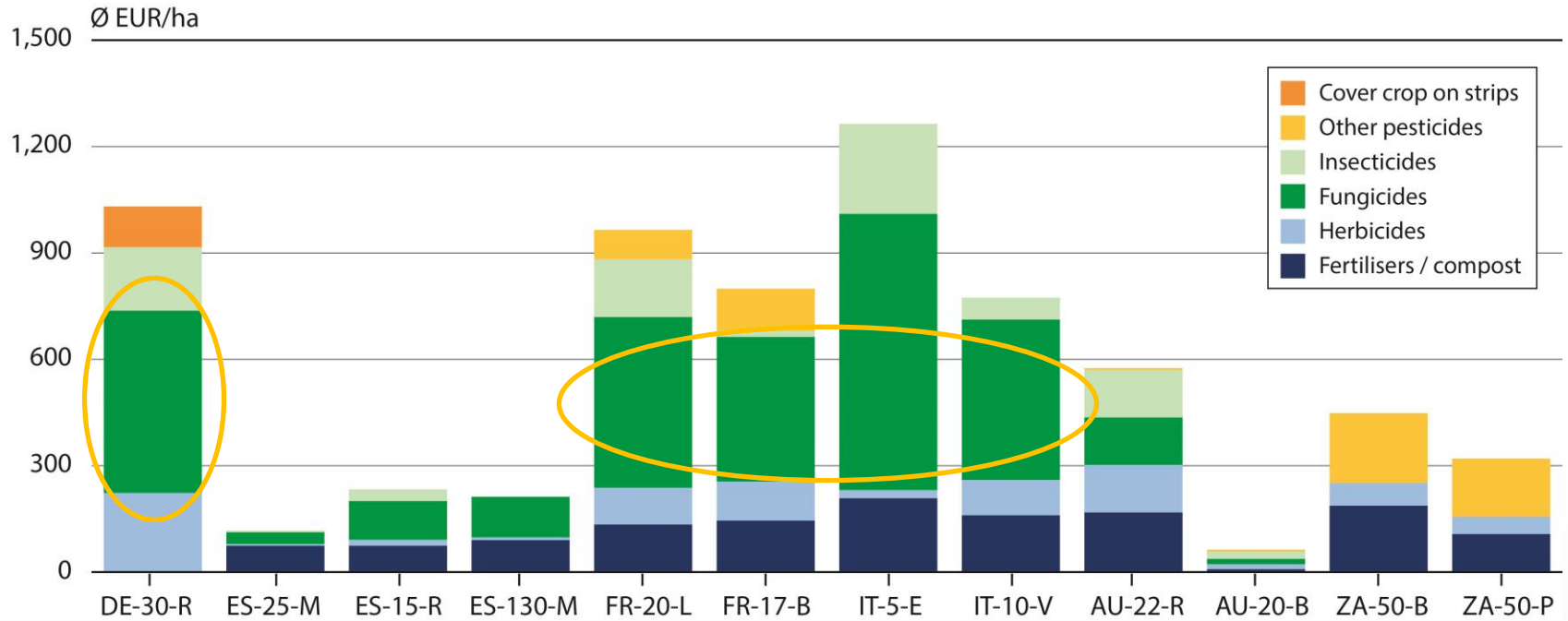
Manual pruning, Languedoc, FR

# Total costs and revenues in wine grapes, 2011



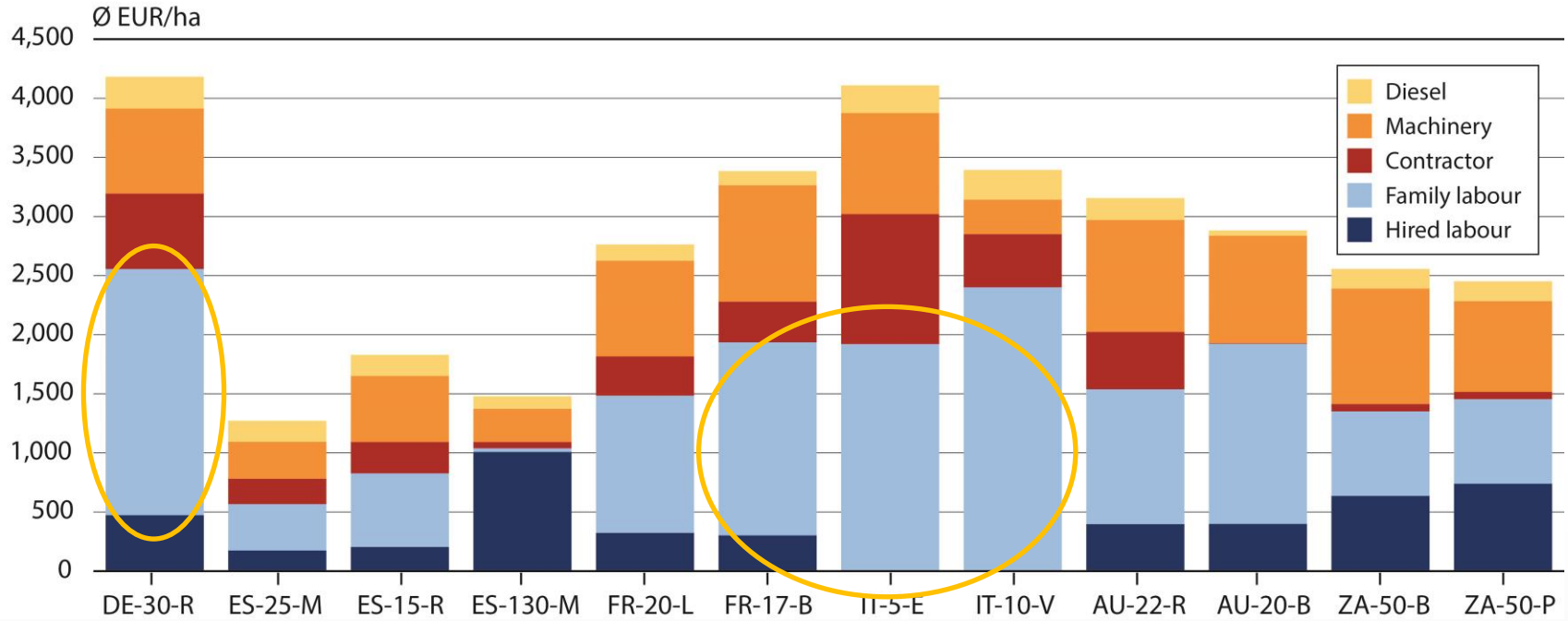

- Differences in level of production costs
- ES-15-R, IT-10-V: profitable since total costs covered
- In most cases opportunity costs are only partially covered
- AU-22-R: Revenue completely spent on irrigation water. Due to severe draught strict regulations in 2011 increase costs for water enormously

# 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)