

'Index-based costs of agricultural production in Austria' (INCAP)

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Focus and contents of presentation

■ Focus:

Work package 2 of the ADAPT-CATMILK project

Cost analysis and development of data set:

'Index-based costs of agricultural production' (INCAP)

■ Contents:

- Recap: Scope and structure of INCAP
- What has and what has not been achieved so far?
- Difficulties encountered
- Validation
- Dissemination
- The way forward

Recap: Scope and structure of INCAP

Activity

Each activity has at least 3 dimensions.

Cost items

Attributes

Time

Area

←
Dimensions

Seeds/prop. material
Fertiliser
Plant protection
Machinery
Cleaning
Drying
Storage
Insurance

Attribute types:
Field size
Slope
Farming system
Tillage system
Labour type
Climate type
Plant prot. intens.

Past/Present
Future

Austria
Provinces
Communities

←
Examples
for differentiation in the plant prod. data set's (INCAP.p) dimensions

Capture heterogenous production conditions

Capture heterogenous production conditions

Capture development over time

Allow spatially-explicit analyses

←
Purpose

What has and what has not been achieved so far?

Task	Data set	Plant production activities (INCAP.p)	Livestock production activities (INCAP.I)
Review of sources		Yes	Yes
Development		Yes (Advanced)	No
Validation		Yes (First validation)	No
Dissemination		Yes (Description of scope and structure, examples)	Yes (Announcement)

Difficulties encountered

Difficulties encountered (1)

- Few suitable (published) sources available
- Data issues:
 - missing data (e.g. no reliable producer prices for organic crops, no Austria-specific data)
 - data quality (e.g. methodical changes such as change in time series)
- High level of aggregation in most sources
 - e.g. regarding production conditions, management variants, areas
- Differing approaches/breakdown of costs
 - e.g. variable machinery costs in the Internet Gross Margins (= principal source used for INCAP)
- Technical issues

Difficulties encountered (2): The example of variable machinery costs

Variable machinery costs according to Internet GM combine:

- share of investment
- repairs
- fuel
- hired labour

Source: Internet Gross Margins

(<http://www.awi.bmlfuw.gv.at/idb/default.html>)

Variable Maschinenkosten / Maschinenring / LU (inkl. MwSt.) konventionell €/ha 328.9

Berechnungsgrundlage: Dieselpreis 1.3 €/l (inkl. 20.0 % MwSt.), Schlaggröße 2.0 ha (siehe "Grundlegende Angaben") Ertrag: 53.0 dt/ha

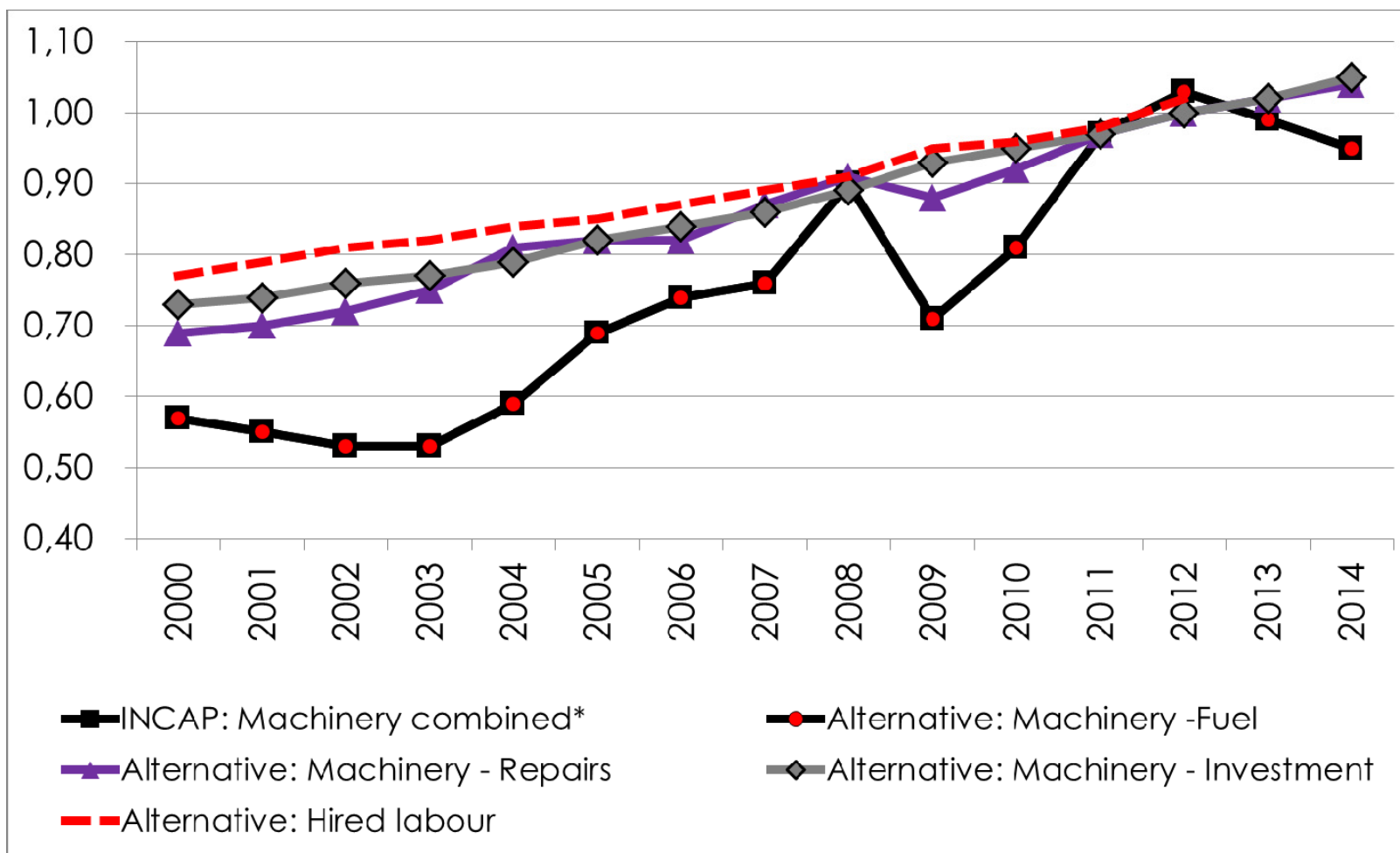
Arbeitsgang	Eigenmechanisierung inkl. Traktor (inkl. 20.0 % MwSt.)		Maschinenring / Lohnunt. (inkl. MwSt.)			Gesamtkosten in €/ha (inkl. MwSt.)
	Anzahl Durchgänge	Kosten in €/ha je Durchgang	Anzahl Durchgänge	Kosten in €/ha je Durchgang (inkl. MwSt.)	MwSt-Satz %	
Grundbodenbearbeitung (Pflug)	1.0	62.17		116.9	12.0	62.17
Mineraldünger streuen (Grunddüngung) ¹⁾	1.0	4.0		18.2	12.0	4.0
Drillen (Kreiselegge+Sämaschine)	1.0	42.64		86.9	12.0	42.64
konservierende Bodenbearbeitung bei Anbau - Feuchtgebiet		56.05		94.5	12.0	
Konservierende Bodenbearbeitung bei Anbau Trockengebiet		38.85		73.1	12.0	
Walzen Saatbett/Ansaat	1.0	14.83		19.1	12.0	14.83
Striegeln		10.48		28.1	12.0	
Pflanzenschutz, 200 l/ha	2.0	6.04		27.3	12.0	12.08
Kopfdüngung	2.0	2.5		14.6	12.0	5.0
Mähdrusch Getreide		76.35	1.0	120.0	12.0	120.0
Stroh pressen		30.89		66.0	12.0	
Stroh auf-/abladen, transport		13.62		37.0	12.0	
Transport Stroh je weitere 10 km		9.15		26.2	12.0	
Getreidetransport	1.0	6.87		24.8	12.0	6.87
Getreidetransport weitere 10 km		22.97		32.2	12.0	
Bodenbearbeitung (Grubber tief)	1.0	33.4		58.9	12.0	33.4
Bodenbearbeitung (Grubber flach)	1.0	27.89		47.7	12.0	27.89
					12.0	
					12.0	
					12.0	
Gesamt		208.88		120.0		328.9

Quellen: BLT, ÖKL, Maschinenring, eigene Berechnungen

¹⁾ Beim Einsatz von organischen Düngern ist die Anzahl dieses Arbeitsganges entsprechend zu reduzieren (Vorgabewerte beziehen sich auf mineralische Düngemittel).

Difficulties encountered (3): The example of variable machinery costs

Indices for different cost items (Baseline = average 2011-2013)



← Note the different development of cost components

* **INCAP: Machinery combined:** This index is currently used for all components considered in the variable machinery costs: share of investment, repairs, fuel, hired labour

Validation

Validation (1): Aspects and approach

- **Aspects to be validated:**
 - Activities considered
 - Cost items considered and numeric level of costs
 - Attributes considered and numeric level of costs
 - Cost development over time
 - Consider differentiation by area?

- **Approach:**
 - Observed data
 - Farm records
 - Functions
 - Planning data
 - Expert opinion
 - Other?

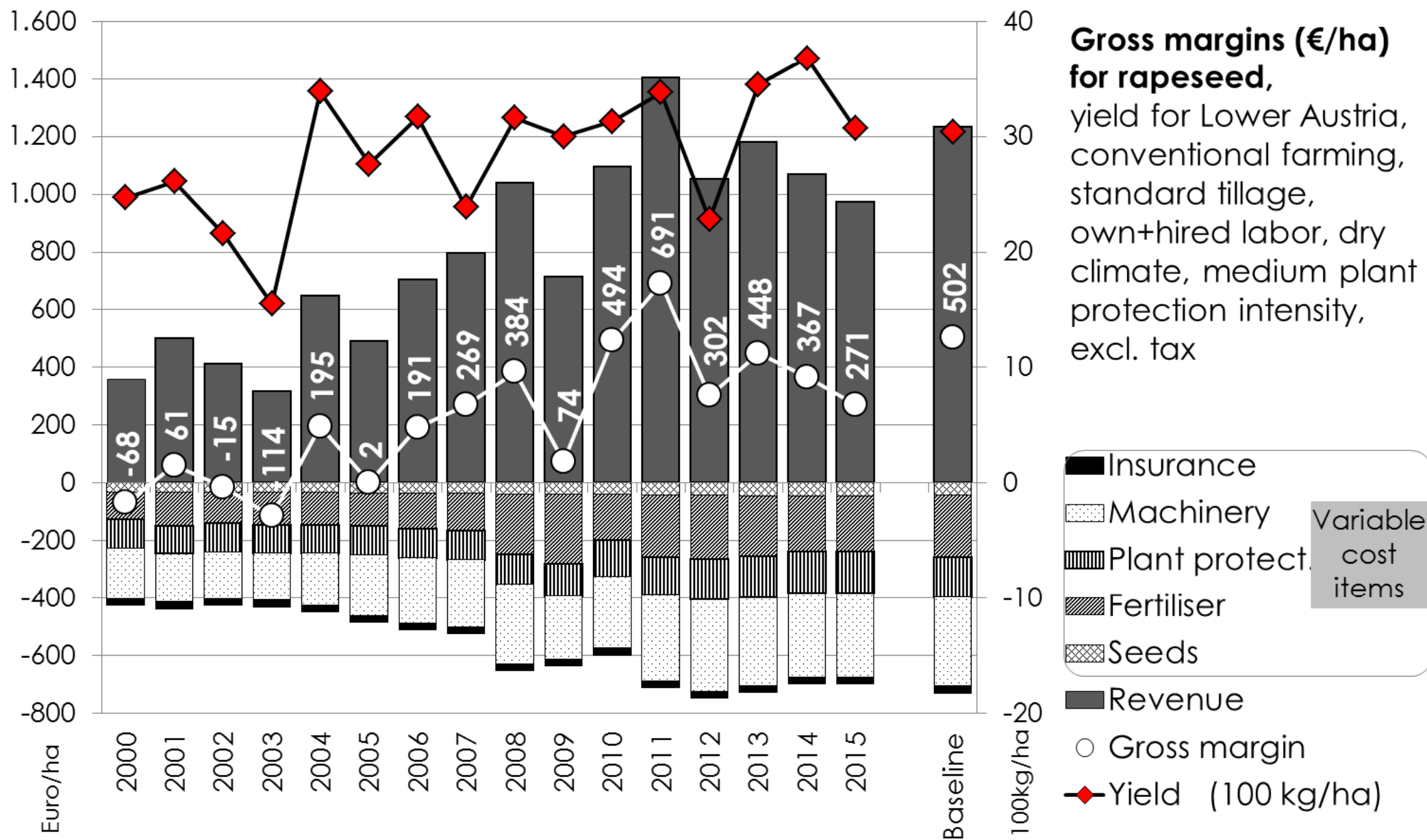
Validation (2): Sources available

- Sets of gross margin calculations:
 - Standard Gross Margins ('Standard-Deckungsbeiträge'; BMLFUW, 2008 / [Link](#))
 - Internet Gross Margins Austria ('Internet-Deckungsbeiträge'; AWI, current / [Link](#))
 - Time Series Gross Margins ('Zeitreihen-Deckungsbeiträge'; AWI, current / [Link](#))
 - Gross margins based on Economic Accounts of Agriculture (EAA) ('Aktivitätsdifferenzierte Landwirtschaftliche Gesamtrechnung' (LGR); Strauss, Sinabell and Kniepert, 2012 / [Link](#); Sinabell, Kniepert and Strauss, 2011 / [Link](#))
 - Internet Gross Margins Bavaria ('LfL-Deckungsbeiträge'; LfL Bayern, current / [Link](#))
- Sector-specific calculations:
 - as developed in LK working groups ('Betriebszweigauswertung'; LK, 2014 / [Link](#), *restricted use*)
 - as developed by consultants in extension services (LK, unpublished / [Link](#))
 - Dairy Report (International Farm Comparison Network IFCN, 2014 / [Link](#))
- Farm Accountancy Data Network (FADN) results:
 - for Austria ('Buchführungsergebnisse'; LBG Austria, 2014 / tables: [Link](#); report: [Link](#))
 - for Italy (INEA, 2013 / [Link](#))
 - for Ireland ('National Farm Survey', Teagasc, 2013 / [Link](#))
- etc.

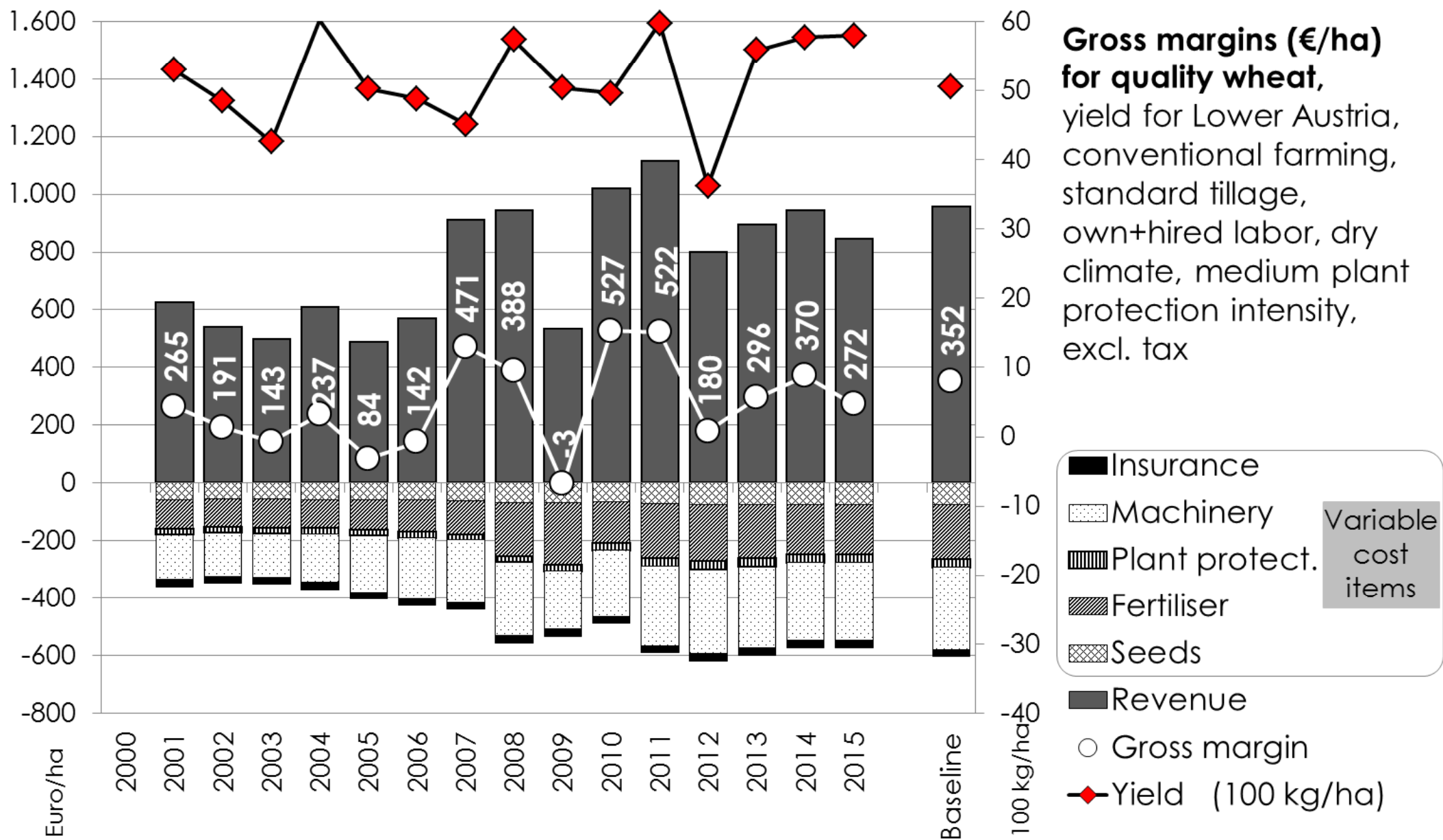
Validation (3): Further sources?

- Farm Business Survey (UK, NI, Wales) (<http://www.farmbusinesssurvey.co.uk/benchmarking/>)
- Farm Accounts Survey (Scotland)
- Nix: Farm Management Pocketbook (<http://www.thepocketbook.biz/>)
- Arfini

Validation (4): INCAP results

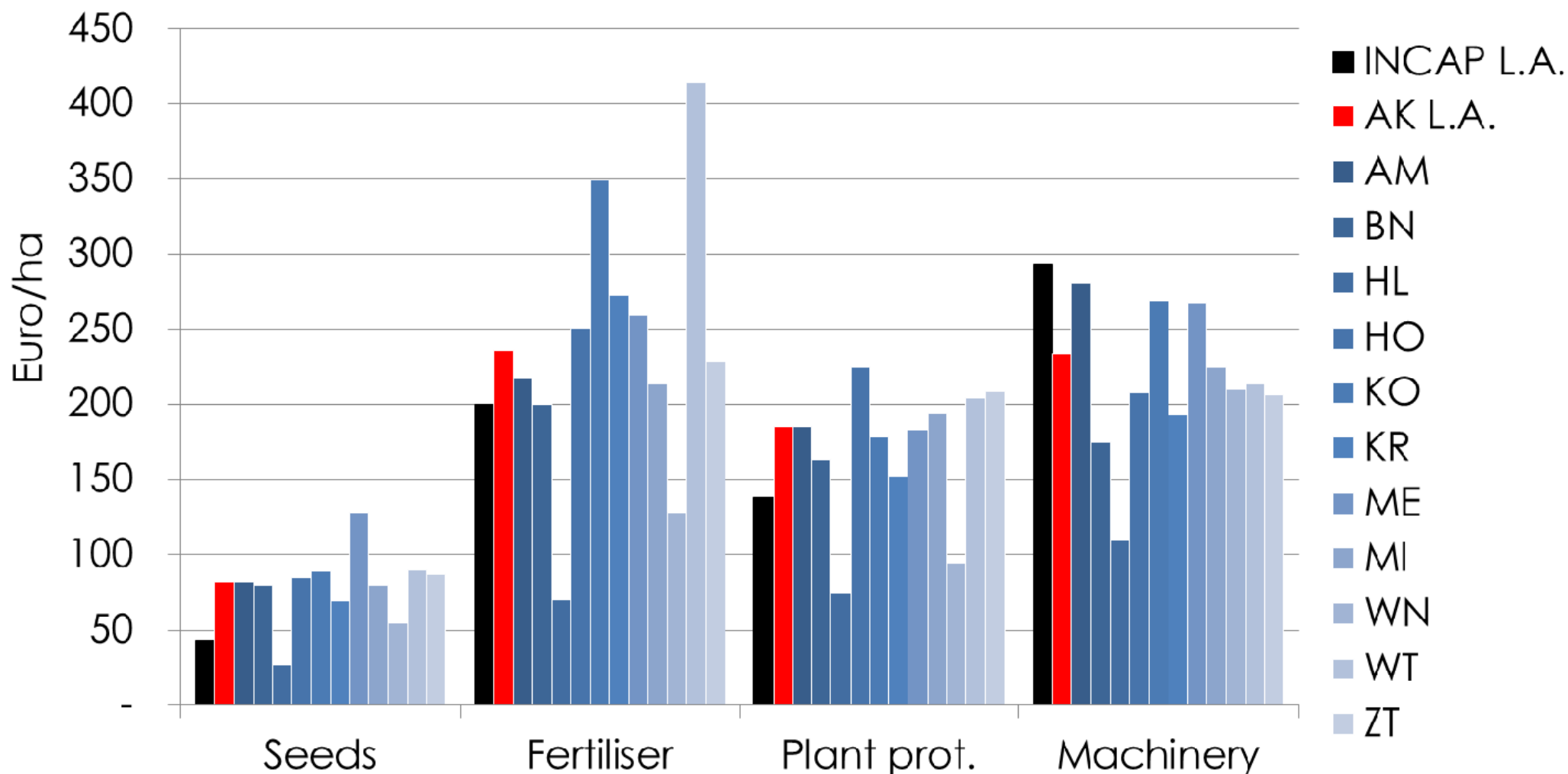


Validation (5): INCAP results



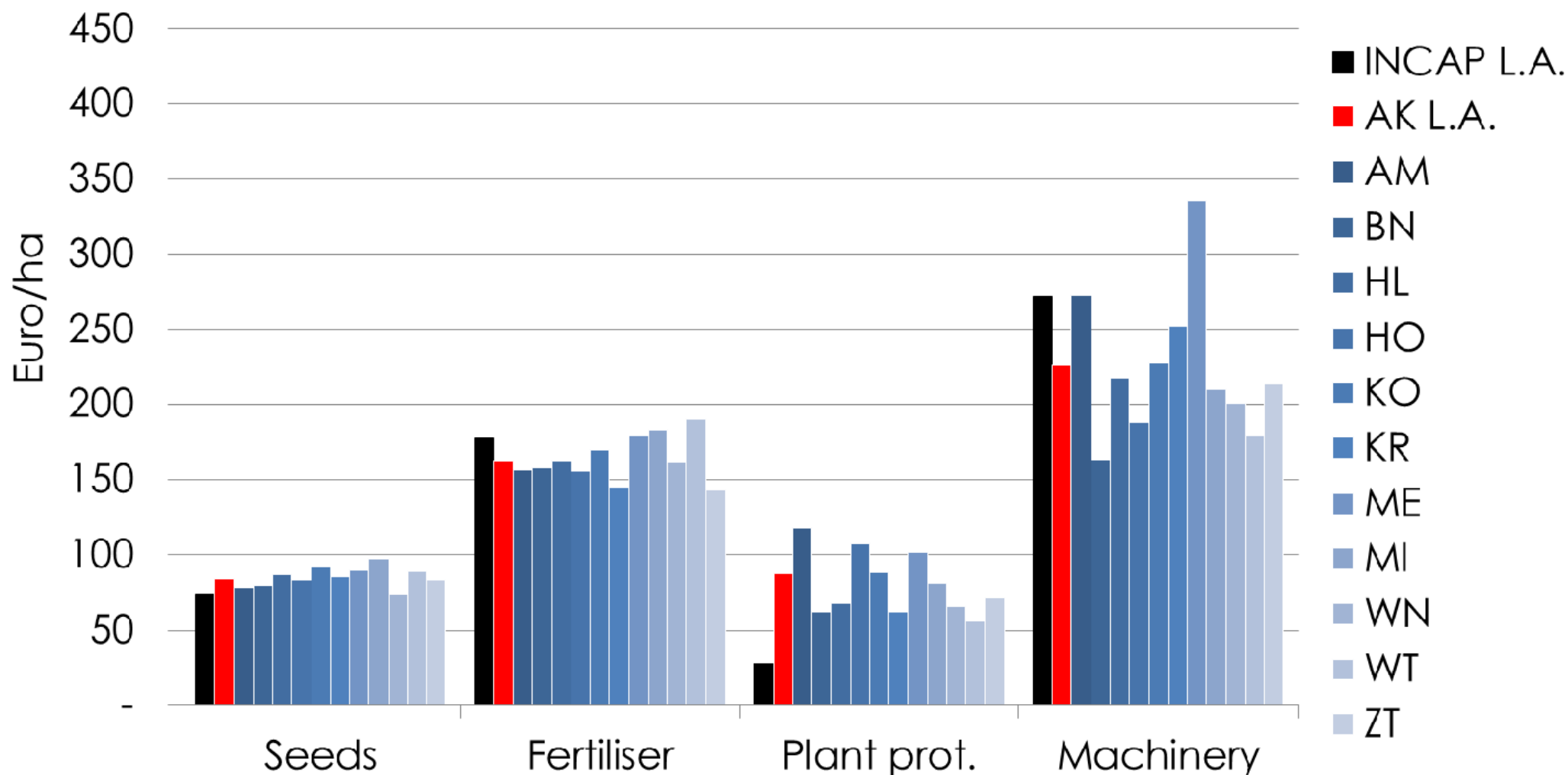
Validation (6): INCAP and working groups results

**Variable costs of rapeseed production,
Lower Austria, avg. 2010-2014 - PRELIMINARY RESULTS**

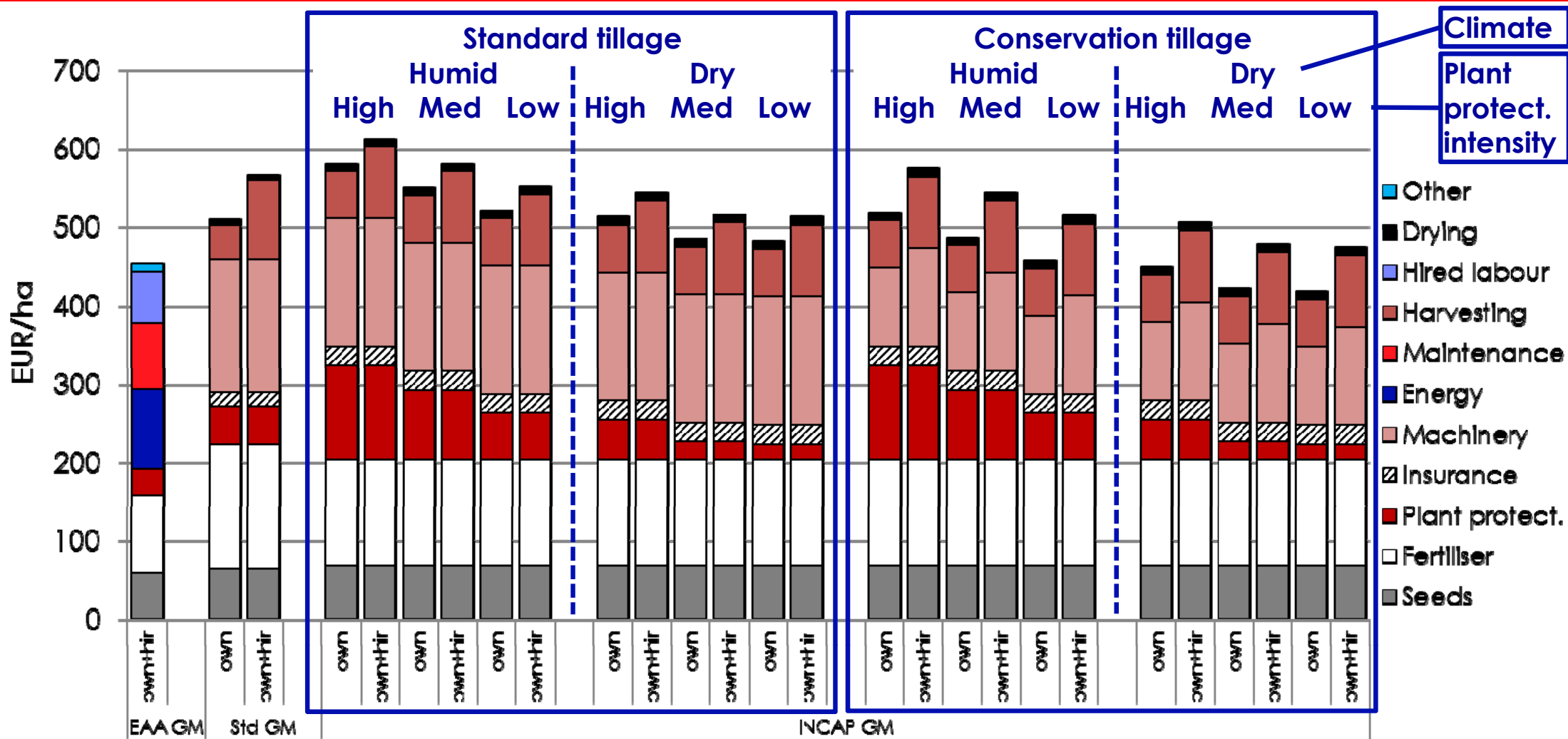


Validation (7): INCAP and working groups results

**Variable costs of quality wheat production,
Lower Austria, avg. 2010-2014 - PRELIMINARY RESULTS**



Validation (8): INCAP and EAA-GM, Standard GM, 2007



EAA GM = Gross margins based on the Economic Accounts of Agriculture; **Std GM** = Standard Gross Margins;

INCAP GM = Gross margins taken from the Index-based Costs of Agricultural Production data set

own+hir = own + hired labour combined; **own** = own labour only

Insurance = insurance against natural hazards (INCAP: value is average 2011-2013, to be replaced by value for 2007.);

Plant protect. = plant protection products

Source: Own chart

Dissemination

Dissemination (1): Focus on purpose and development of INCAP

- Joint CULS-ÖGA conference 2015, Prague, CZ
(Abstract published in conference proceedings; theatre presentation)
*Heinschink, K., Sinabell, F. and C. Tribl:
'Decomposition of production costs of crops, forage and livestock in Austria'*
- ÖGA yearbook 2015 (Paper accepted)
*Heinschink, K., Sinabell, F. and C. Tribl:
'Differentiation of variable costs in the Austrian agricultural production'*
- AES conference 2016, Coventry, UK (Paper and theatre presentation)
*Heinschink, K., Sinabell, F. and C. Tribl:
'Index-based costs of agricultural production' (INCAP) –
a new risk analysis tool for Austria'*
- Providing brief a description for stakeholders

Dissemination (2): Focus on INCAP results

Targeted outlets:

- **ÖGA conference 2016**
- **ÖGA yearbook 2016**
- **Ländlicher Raum** (Serial publication of the Austrian Ministry of Agriculture)
- **Computers in Agriculture**
- **Farm Management**
- **(Farm Business Survey)**
- **Agricultural Economics**
- **Agricultural Systems**

Possible focus:

- **Applications using INCAP.p**
- **Applications using INCAP.I**
- **Climate change and risk**
- **(Changes in agricultural policy)**
- **Machinery costs originating from INCAP compared with observed data**

The way forward

Keep it as simple as possible and as accurate as necessary.

- **Reconsider what should be included and what can be removed.**
- **Reconsider trade-off between publicly accessible data and accuracy.**
- **Low maintenance regarding structure and data required for updates.**
- **Deliver INCAP in a spreadsheet file or a relational database?**