agri benchmark

2014
Horticulture Report

understanding agriculture worldwide

1.1 Horticulture Report 2014 – Foreword from the editor

As a result of intense work during the past nearly three years we are happy to present the first *agri benchmark* Horticulture report.

What is *agri benchmark* Horticulture? It is an international network of researchers, advisors and selected agribusiness partners. The objective of the network is to analyse production systems of specialty crops. Costs of production are compared, benchmarked and reasons for differences are identified. As an active network we have annual meetings and regularly visit farmers as well as other stakeholders along the value chain in order to understand production systems.

So far the main focus of the network is to collect price and quantity data on production systems to allow economic analyses and comparisons. This establishes the basis to assess the international competitiveness of selected production regions. As not only the primary sector influences the competitiveness but also the functioning of the whole value chain, the latter will come into our focus in future, too. Additionally, analyses of environmental issues of production might become an area of interest, which we hope to be able to address with our data in the future.

In 2011, the *agri benchmark* Horticulture network activities started due to the establishment of cooperation between the Thünen Institute of Farm Economics, Braunschweig, Germany, and the agribusiness partner Bayer CropScience. Underpinned by an EU-COM project assessing the costs of compliance in the fields of food safety and environmental protection at farm level, we started to analyse the production of apples and wine grapes in Germany, France, Italy, Spain, Bulgaria, Australia, Chile, and South Africa. Most of the EU project partners are still on board.

In the first section of this report, you will find details on the *agri benchmark* Network, its partners (Chapter 1.3), and its concept and methods (Chapter 1.4).

In the second section we present our results: Chapters 2.1 and 2.2 show key figures on global apple and wine grape production, trade and the results of analysing our typical farm data for the years 2010 until 2012.

In section three we provide detailed background information on our crops and countries in the network: Chapter 3.1 presents a comparison of apple production structures and international trade in Germany and Italy. Then, in Chapters 3.2 and 3.3, we are happy to present the contributions from Jan Lombard, BFAP network, portraying the apple and wine grape industries in South Africa. We just recently started to include tomatoes as the first vegetable crop into our network: A first overview of tomatoes in Germany, Italy, Tunisia and Morocco is therefore given in Chapter 3.4. Secondary data in regard to structures of German carrot farms is analysed in Chapter 3.5.

One of the highlights for all partners is the annual network conference. In 2013 we started with the first *agri benchmark* Horticulture conference in Germany. In 2014, we will hold our conference in Italy and are looking forward to interesting discussions with our partners on apple, tomato and wine grape production and fantastic field trips.

Besides this printed report you can find updated information on the *agri benchmark* Horticulture and the other *agri benchmark* Networks on our website http://www.agribenchmark.org.

Finally, I do not want to miss thanking all network partners for their efforts to provide us with the typical farm data. In addition, I want to thank the authors Jan Lombard and Aïcha Mechri for their article contributions to this report. Much appreciation goes to my Thünen colleagues Hildegard Garming and Kathrin Strohm who enable the network to grow through their continuous commitment.

Walter Dirksmeyer

Coordinator
agri benchmark Horticulture

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1.3 Partners

Participants of the *agri benchmark* Horticulture Conference 2013

Horticulture Report editors

Walter Dirksmeyer, Hildegard Garming, Kathrin Strohm

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agri benchmark – understanding agriculture worldwide

agri benchmark is a global, non-profit network of agricultural economists, advisors, producers and specialists in key sectors of agricultural value chains. We use internationally standardised methods to analyse farms, production systems and their profitability. Our farm-level knowledge is combined with analysis of international commodity markets and value chains. In this way we are able to provide scientifically consistent and soundly based answers on strategic issues to decision-makers in policy, agriculture and agribusiness.

1.3 Partners

	Germany		Matthias Görgens	ESTEBURG	Esteburg – Fruit-Growing Centre Jork, Jork
			Svea Sievers	DLG	German Agricultural Society, Frankfurt
	Italy		Valeria Altamura	CRPV	Centro Ricerche Produzioni Vegetali (CRPV), Cesena
			Giorgio de Ros	FONDAZIONE EDMUND MACH	Fondazione Edmund Mach, San Michele all'Adige
	Morocco		Mohamed Boughlala		Centre Régional de la Recherche Agronomique (INRA), Settat
	South Africa		Jan P. Lombard	BFAP	BFAP – Bureau for Food and Agricultural Policy, Stellenbosch
			Mariette Kotze	HORTGRO	HORTGRO – Supporting the horticultural industry, Paarl
			Pieter van Niekerk	VinPro	VinPro, Paarl
	Spain		Alicia Langreo		Saborá, Estrategias Agroalimentarias, Madrid
	Switzer-land		Esther Bravin		Agroscope Changins-Wädensvil ACW, Wädenswil
	Tunisia		Aïcha Mechri	INAT	Institut National Agronomique de Tunisie (INAT), Tunis
			Ezzeddine Ben Mustapha Hichem Ben Lamine	APAD	Associacion Pour l'Agriculture Durable (APAD), Tunis

and Italy. 2011 was a rather difficult year of low average prices, and only the typical farm DE-183-S achieved full cost recovery. The situation improved in 2012, when yields were stable in Germany, but prices increased. For Italy, the price also increased; however, 2012 yields were lower, leading to a higher average cost, which was not fully compensated by the price change.

The Swiss typical farm seems to fall out of the range, both with respect to costs as well as revenues. This is clearly related to market regulation as well as national legislation on labour use and wages. Please refer to Annex A.1 for the further explanation of terms used in the figures and text.

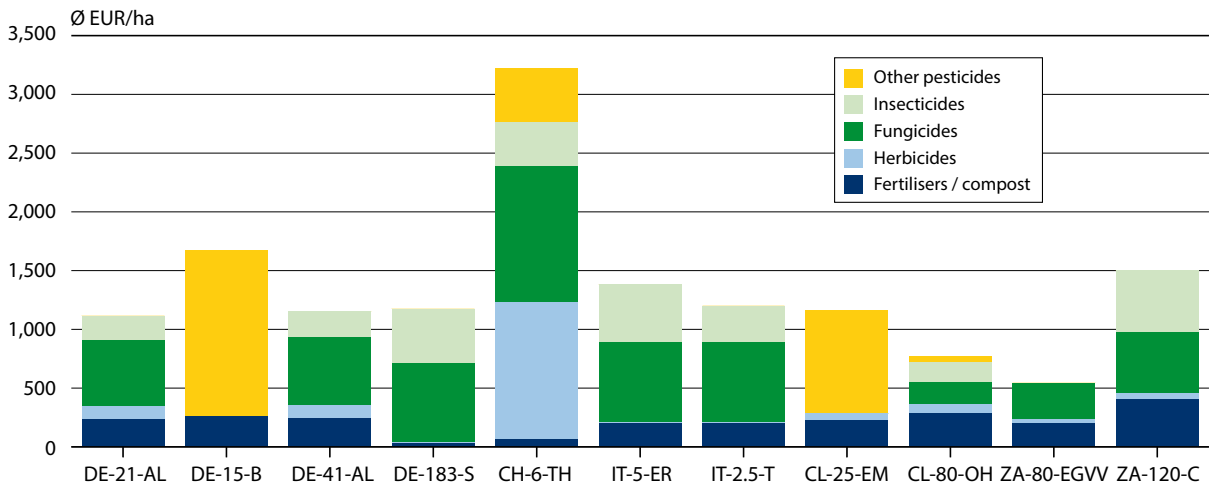
Inputs, operating and opportunity costs

The costs for inputs such as pesticides, herbicides and fertilisers are on approximately a similar level in the different countries (Figure 2.1.9), except Switzerland, where input prices are rather high. Fertiliser costs tend to be low with around 200 EUR/ha for most typical farms.

The major operating costs are the costs for hired and family labour. A clear difference can be observed between the smaller farms in Germany, Italy and Switzerland, where family labour engages not only in administration but in all crop management operations, and the larger farms, where the share of family labour is very low (Figure 2.1.10). In Chile, and also in the German farm in Saxony (DE-183-S), farms are managed by hired administrators, relying on permanent and seasonal hired labour for crop management. In the typical farms in South Africa, family labour concentrates on administration and farm management, hence most of the labour costs are for permanent and seasonal hired labour. Machinery costs are much higher in Europe, where wages are high and mechanisation is used to substitute labour. An exception is the Saxony farm, where investment in machinery has been low and most of the machines are being used for much longer than standard utilisation periods. Particularly for the smaller Italian farms, machinery usage is below optimum capacity, hence costs are rather high. External services from specialised contractor work are mainly used in South Africa and Chile, for a number of tasks including pollination, soil preparation and planting, installation of the irrigation or even pruning and manual thinning.

Low wages in the Southern Hemisphere countries as compared to the European countries are a main driver of labour use (Figure 2.1.11), and related to labour productivity. Nevertheless, partners expect a significant increase of labour costs in both South Africa and Chile in the near future, hence efforts to increase labour productivity will be necessary. In Germany and Italy,

2.1.9 Input costs, 2012 (CL: 2011)



2.2 Wine grape results

Riverlands farm is negative. A negative accounting profit is shown also by the Italian farm in Emilia-Romagna which means parts of depreciation and overhead costs are not covered. As many farms are not in a position to cover their opportunity costs, the economic profit is often close to zero or even negative.

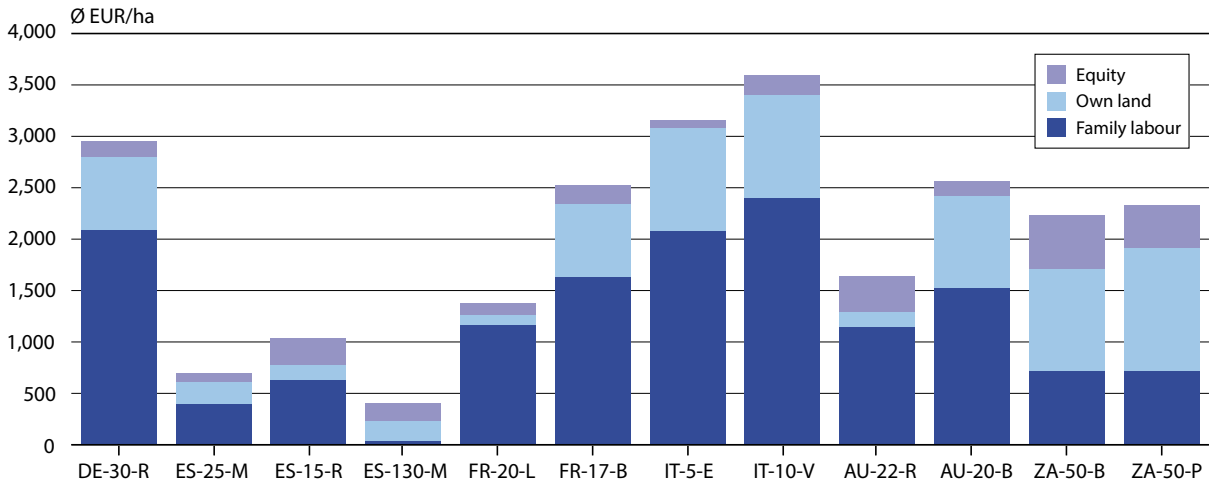
For a number of farms, such as in Italy and South Africa, we have managed to obtain updated results. The small time series for the years 2010 till 2012 (Figure 2.2.12) makes differences between the years, in particular regarding gross revenue, evident.

Wine grape yields vary largely across the typical farms and between varieties. White wine grape yields tend to be slightly higher than yields of red vine varieties (Figure 2.2.13). As the focus of the analysis is on the production of wine grapes and not on the processed wine, figures are shown in t/ha.

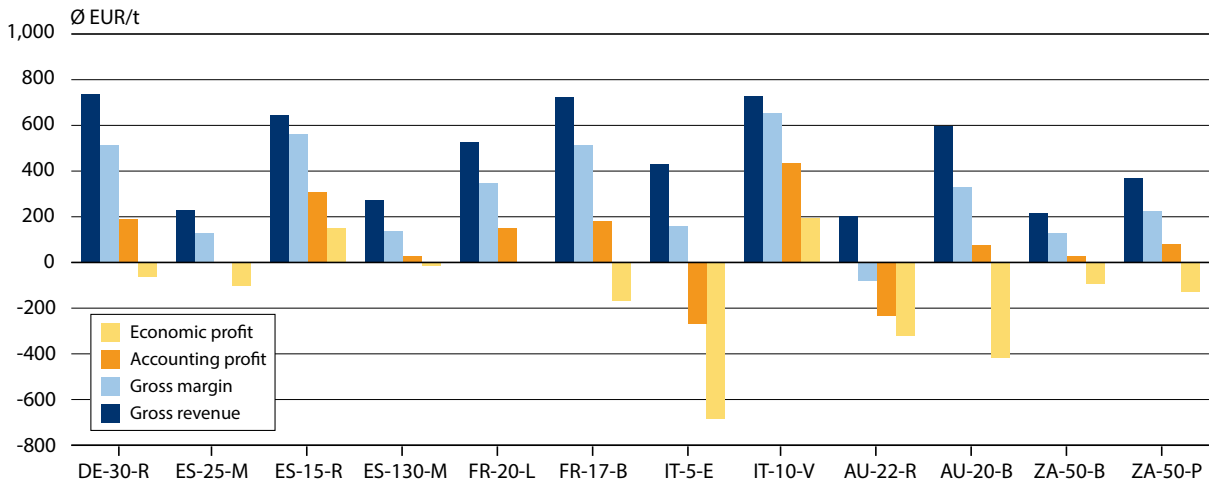
In 2011, the yields of the white vine varieties range between 4.5 t/ha (Airen, ES-25-M) and 25 t/ha for Chenin Blanc in South Africa. The yields of the six red vine varieties analysed are closer together and range between 5 and 20 t/ha.

The specification of typical production systems for different varieties allows direct comparison between producing regions. 'Cabernet Sauvignon' is a popular internationally traded variety

2.2.10 Opportunity costs, 2011

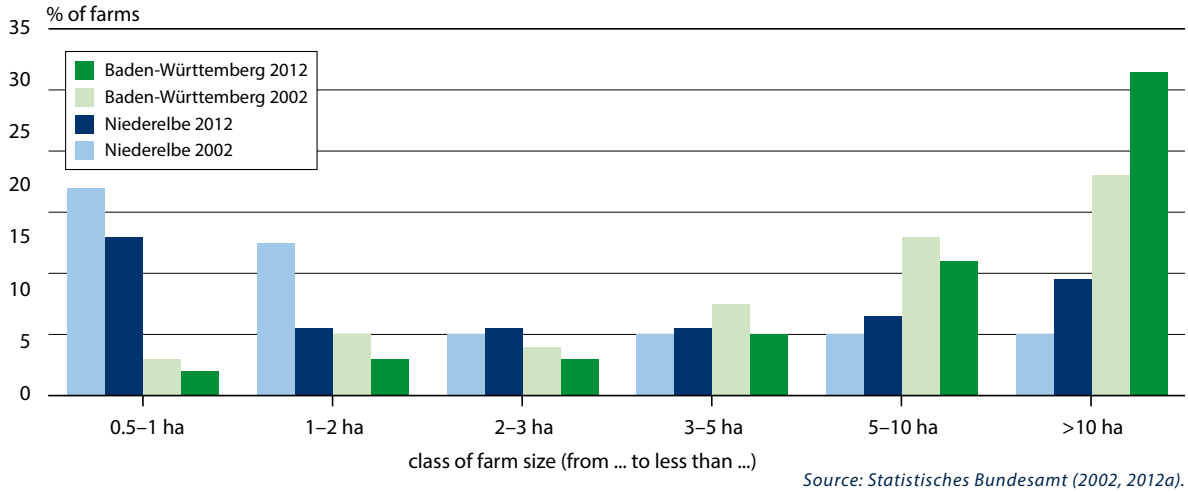


2.2.11 Profitability indicators per tonne, 2011



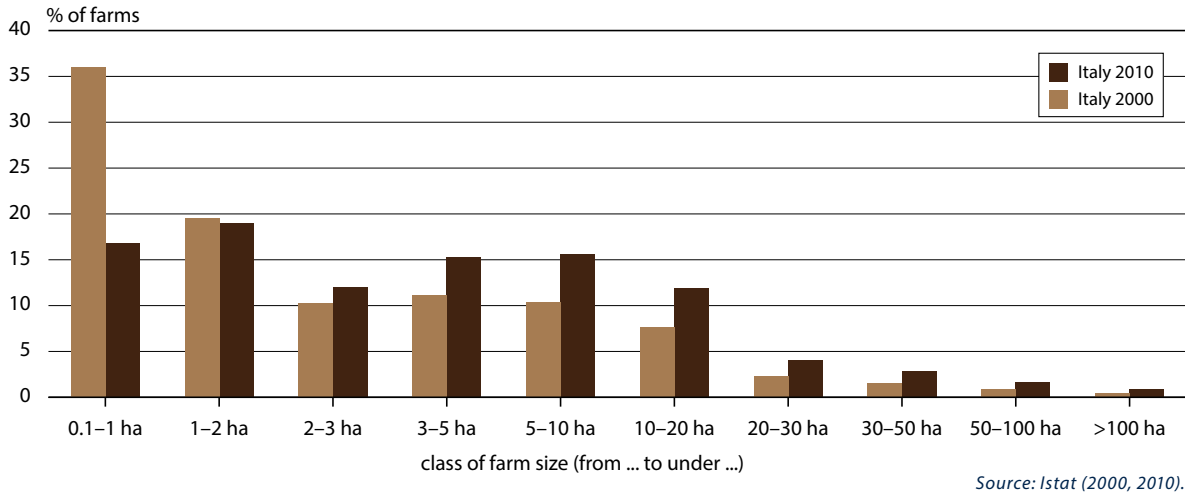
3.1.4 Size of apple farms in Baden-Württemberg and Niederelbe, 2002 and 2012

(Share of apple acreage in different size classes)



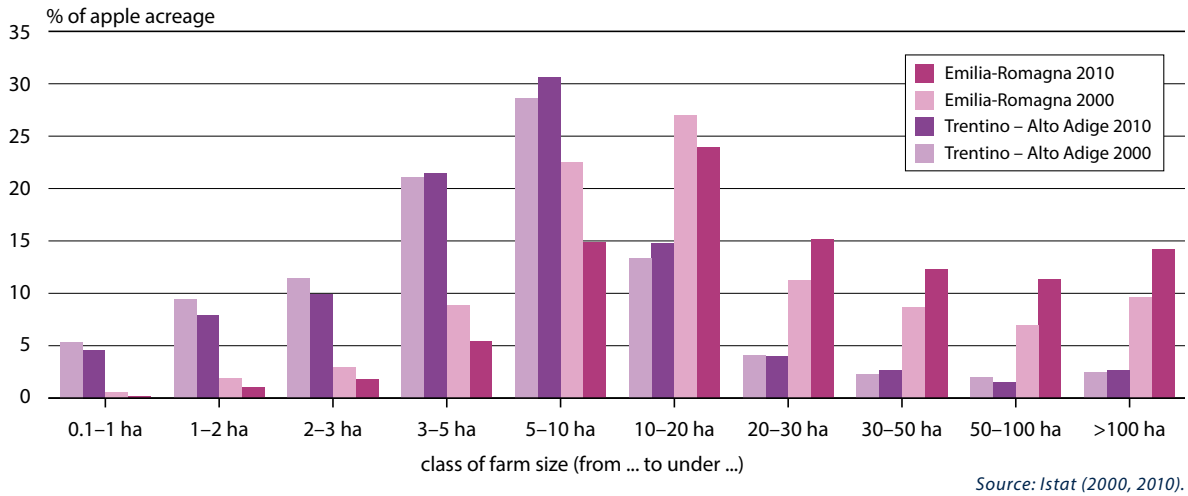
Source: Statistisches Bundesamt (2002, 2012a).

3.1.5 Farms by class of farm size in Italy, 2000 and 2010 (Share of class of farm size in %)



Source: Istat (2000, 2010).

3.1.6 Apple acreage by class of farm size in Trentino-Alto Adige and Emilia-Romagna, 2000 and 2010 (Share of acreage of class of farm size %)



Source: Istat (2000, 2010).


4


Palesa
FAIRTRADE
Partner

3.4 Tomatoes: Overview of production in our network countries

Global perspective

On a global scale, tomatoes are the most important vegetable crop with more than 160 million tonnes produced in 2012, or about 15 % of total vegetable production. Global tomato production has increased by nearly 40 % since 2002. FAO statistics show that the increase has been distributed evenly across producing countries: no major shifts have occurred in the top-10 producing countries, and their share of total tomato production has remained stable with about 75 %.

Besides China, India and the USA, the countries around the Mediterranean Sea are major tomato producers, with Turkey, Egypt, Spain and Italy among the top-10 (Figure 3.4.1), and Portugal, Greece, Tunisia and Morocco in the top-20.

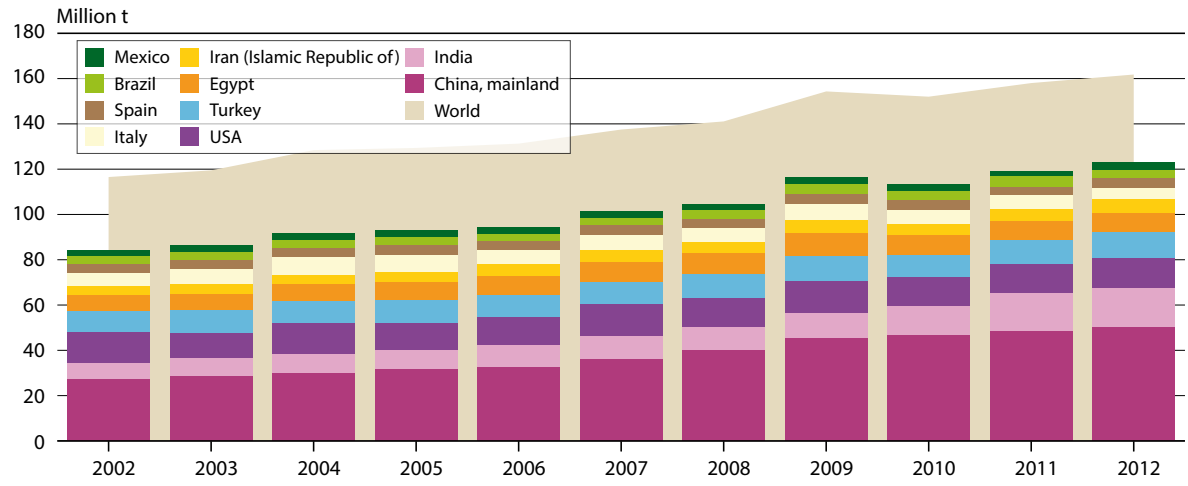
Besides the top-10 countries, tomatoes are produced and consumed in nearly all countries of the world (Figure 3.4.2). Tomato production systems can be grouped in two main categories: tomatoes for processing or industrial tomatoes, and tomatoes for fresh markets. While tomatoes for processing are usually grown in open fields, the tomato for fresh markets are mostly cultivated in greenhouses or protected cultivation, although in favourable climates production on open fields is possible. Global trade statistics differentiate between fresh tomatoes, preserved tomatoes which include paste and any preserved tomatoes in preparation without vinegar, and tomato sauce, i.e., ketchup or other spicy tomato sauces with vinegar.

The three largest exporters of fresh tomatoes are Mexico, the Netherlands and Spain. Intensive greenhouse production systems in the Netherlands and export oriented horticultural value chains are among the driving factors. The USA, though ranking third in global tomato production, is at the same time the largest importer of fresh tomatoes, before the Russian Federation and Germany. A large proportion of US tomato production goes into processing, where the country ranks third in exports, or into sauces and ketchup, where USA is the world largest exporter. Italy is the largest exporter of processed tomatoes with 1.8 million tonnes, equivalent to about 35 % of Italian tomato production in 2012 (Figure 3.4.3).

Tomato production in Germany

Imports of fresh tomatoes to Germany exceed national production by a factor of nearly ten. In Germany, tomatoes are only produced in greenhouses and are a small share of total vegetable production in Germany. Nevertheless, the crop has gained importance in Germany and production has increased by more than 50 % over the past 10 to 15 years, reaching 80,000 t in 2011. The most recent figure indicates that in 2013 about 70,000 t of tomatoes were harvested in Germany (Figure 3.4.4). Trends in

3.4.1 World tomato production and top-10 producing countries, 2002-2012



Source: FAOSTAT (2014).

3.5 Carrots: Global overview and production structures in Germany

In Baden-Württemberg (BW) for instance it almost doubled from 450 to 860 ha, whereas in Brandenburg (BB) it reduced considerably from 945 in 2004 to only 260 ha in 2012.

However, it has to be noted that in the course of time there was a statistical break. In 2004 and 2008 farms with at least 0.30 ha vegetables were captured through this statistic. In 2012, a farm had to be larger and cultivate at least 0.50 ha. Thus, smaller farms are no longer represented in this survey.

Between 2004 and 2012 the number of farms in Germany producing carrots reduced by 40 %. The largest reductions occurred in Bavaria (BY) and Baden-Württemberg. However, this is most likely due to the statistical changes mentioned above. The reductions in the other federal states are probably due to structural changes in the way vegetables and in particular carrots are produced (Figure 3.5.7).

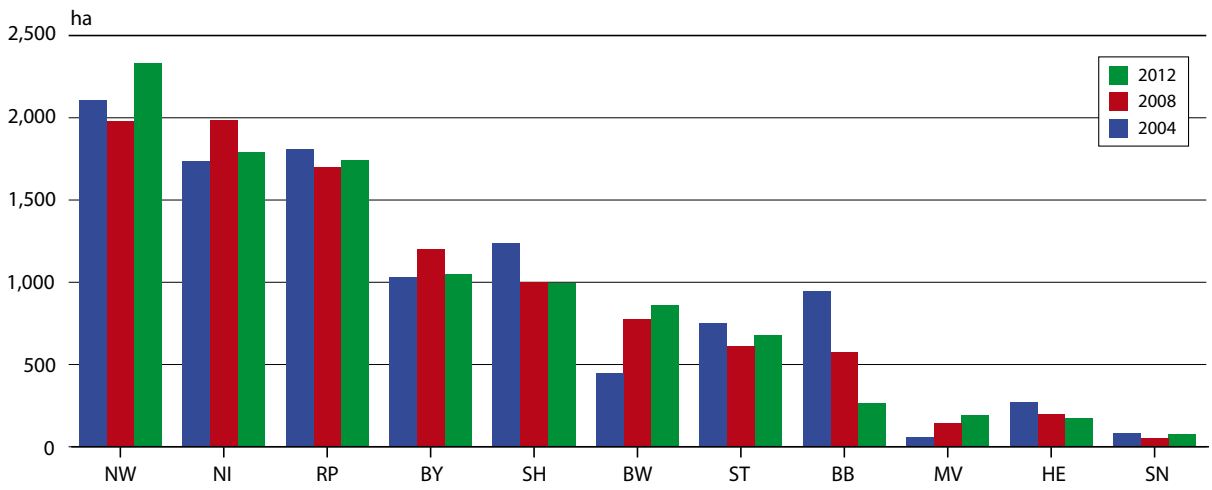
The map is based on 2012 data and shows carrot production at the level of administrative regions or, where not available, federal states (Figure 3.5.8). It indicates that even within the federal states carrot production is highly concentrated in geographical clusters. In Rhineland-Palatinate, for instance, carrots are produced only in one small district in the East, close to the Rhine. In some cases, the concentrations can be explained by specific market infrastructure such as the canning or freezing industry (North Rhine-Westphalia), or specialized buyers for fresh carrots.

Going down even one level further, one can identify 14 hot-spot districts with a large carrot production of between 200 and nearly 1,300 ha each (Figure 3.5.9). These 14 important districts together represent almost 60 % of Germany's total carrot production. In three districts (Lüneburg, Rhein-Neckar-Kreis and Recklinghausen) carrot is a very dominant vegetable as it comprises more than 34 % of the overall vegetable acreage in these particular districts. On average, farms producing carrots cultivate 15.9 ha of this crop. However, there are four districts where carrot producers farm even between 20 and 50 ha on average (Borken, Viersen, Rhein-Pfalz-Kreis and Recklinghausen). Three districts (Viersen, Rhein-Neckar-Kreis and Recklinghausen) give a clear indication that carrot producing farms tend to be larger than farms that produce vegetables in general.

In 2012, yields were between 509 and 716 dt carrots per hectare while three districts obtain a yield of more than 670 dt/ha. However, this detailed data is not available for all districts; in some districts the yield in the larger administrative unit or the federal state had to be used as proxy. Overall, in Germany the average yield is 584 dt/ha.

Kathrin Strohm

3.5.6 Carrot acreage in the most important German federal states 2004, 2008 and 2012



Source: Statistisches Bundesamt Fachserie 3 Reihe 3.1.3, (2013, 2009 and 2005).

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