

**[Documentation]****Corporate power in the food system****Facts and figures on market concentration in the agri-food sector****Table of contents**

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**Synthesis**

Market share figures of more than 250 corporations from more than 50 countries

Market share of largest corporations and of four largest corporations (according to product market)

<b>Market share of largest corporation</b>	<b>Total Number</b>	<b>Market share of four largest corporations</b>	<b>Total Number</b>
> 20%	23	> 20%	0
> 30%	16	> 30%	2
> 40%	13	> 40%	3
> 50%	7	> 50%	7
> 60%	5	> 60%	8
> 70%	5	> 70%	5
> 80%	7	> 80%	12
> 90%	1	> 90%	16
100%	0	100%	1
<b>Total</b>	<b>77</b>	<b>Total</b>	<b>54</b>

Basis: Compiled figures in this document

## Lack of transparency

Publicly available data on the extent of concentration in the agricultural sector are available primarily at the international level, thanks to research by IPES-Food and the ETC Group. The information situation is considerably worse for the product markets relevant under competition law, which are used to assess a dominant position of a corporation. This is true for industrialized countries, but is even more so for countries of the Global South, as an OECD study on market concentration in the seed sector shows.<sup>1</sup> Due to the lack of market transparency, the extent of market concentration or the market power of individual corporations may be underestimated and may make it more difficult to have the very much needed public debate. Political measures could be taken too late. In the following, publicly available data are presented drawn from companies, research institutions, competition authorities, universities, trade promotion agencies, NGO reports and media.

## Seeds

In December 2018, i.e. after the Bayer/Monsanto merger, the OECD published a study on market concentration in the seed sector. According to the study, the global market for commercial seed has grown from US\$ 13.8 billion to US\$ 51.8 billion in the period 2001-2014. In 2018 it amounted to US\$ 59.7 billion.<sup>2</sup> After the mega-mergers of recent years, four corporations control more than 60 % of the commercial seed market.<sup>3</sup> Previously, Monsanto had a 26% share of the global market and Dupont had 21%.<sup>4</sup> Nevertheless, according to the FAO, farming seed systems in the Global South provide 80% of the seed for food production.<sup>5</sup> Small-scale producers in countries of the Global South are dependent on exchanging, trading and reusing seed from their farms. This has been repeatedly proven by studies. Licensed commercial seeds or patents increasingly restrict this important access to seed.

As OECD figures show, market concentration is high or very high in several countries in the Global North and Global South, particularly for corn and soybeans, but also for wheat and barley (table 1,2,3). The table shows the market concentration of the four largest companies ("Concentration Ratio", CR4). It should be noted that the figures were only available for a small number of countries: 32 countries for corn, seven for soybeans and 15 for wheat and barley. The countries cover 65%, 86% and 23% of the market respectively. The OECD does not list figures for rice seed. Beyond South Africa, the OECD does not have any data for African countries. Data for China and India are also missing.

Table 1: Market concentration in the corn seed market (2016, sales)

Country	CR4	Country	CR4
Denmark	98%	Indonesia	95%
Greece	97%	Mexco	81%
Italy	93%	Philippines	72%
Bulgaria	91%	South Africa	99%
Spain	89%	Russia	67%
Germany	66%	Thailand	94%
France	77%	Argentina	73%
US	82%	Brazil	97%

Source: OECD (2018)

Table 2: Market concentration in the soy seed market (2016, sales)

Country	CR4	Country	CR4
Argentina	89%	Uruguay	91%
Brazil	82%	South Africa	96%
Paraguay	96%	US	69%

Source: OECD (2018)

Table 3: Market concentration in the wheat and barley seed market (2016, sales)

Country	CR4	Country	CR4
Denmark	83%	Germany	44%
Bulgaria	71%	Mexico	98%
Romania	60%	Ukraine	53%
Hungary	58%	Russia	38%

Source: OECD (2018)

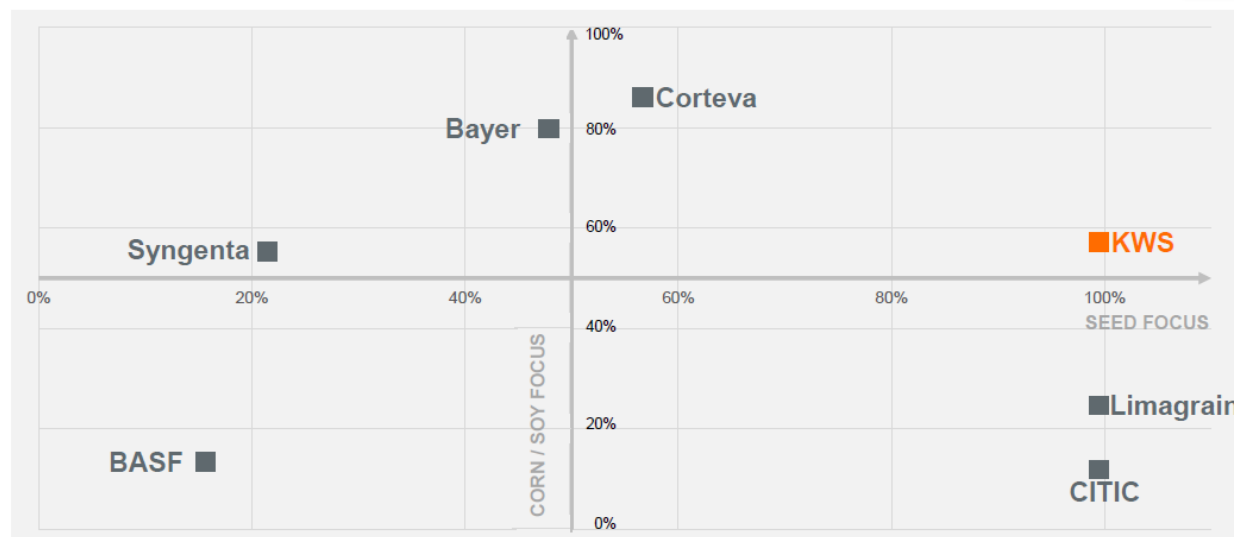
The leading seed companies generate most of their sales with corn and soybean seed. Corteva achieves 85 % and Bayer 75 %. A large proportion of corn and soybeans are used for animal feed. In 2018, animal feed accounted for 57 % of global corn consumption (606 million tons).<sup>6</sup> It is astonishing that wheat is not listed among the top-selling seed varieties, even though it is the most widely cultivated seed variety worldwide.<sup>7</sup> Bayer sells wheat seed in the United States but not in the EU.<sup>8</sup> It is probably less lucrative. Hybrid wheat is not yet marketable and there is no genetically modified wheat.<sup>9</sup> After the price explosion for wheat, Monsanto bought Westbred, a US company specializing in wheat, in 2009, which now belongs to Bayer.<sup>10</sup> Bayer had to sell the hybrid wheat programme to BASF as part of the merger.

Table 4: Seed portfolio of the four largest corporations

Product	Bayer	Corteva	Syngenta	BASF
Corn	50%	65%	55%	-----
Soy	25%	20%		20%
Vegetables	10%	-----	20%	35%
Other	15%	15%	25%	45%

Source: Corteva Agriscience (2019)<sup>11</sup>

Graph 1: Focus on corn and soybean in individual seed companies



Data Source: Phillips McDougall, December 2018 and Agbiolinvestor, October 2018 (% corn & soy sales of total seed sales; % seed sales of total ag sales)

6 KWS' Annual Press and Analysts' Conference 2018/2019

October 23, 2019

KWS (2019): Annual Press and Analysts' Conference 2018/2019. October 2019.

There are no publicly available global market share data for the **rice seed** market. Bayer-Monsanto claims to be one of the leading global supplier of hybrid rice seed.<sup>12</sup> According to the Indian Competition Commission of India ('CCI'), Bayer and Mahyco/Monsanto had a combined market share of 45-50 % in India before the merger (table 5). In Vietnam, Vinaseed and Southern Seed are among the most important companies, with market shares of 25% and 10% respectively. In the Philippines, SL Agritech Corporation is the market leader in hybrid rice, according to its own data, with a market share of 80% in 2018, and in China, the three largest rice seed companies had a market share of 38.7% in 2016. These include Long Ping High-Tech, which together with Syngenta is one of the top 10 seed companies in China.

Table 5: Market shares in hybrid rice seed in India (before the merger)

Corporation	Market share
Bayer	40-45%
DuPont	15-20%
Metahelix	5-10%
Syngenta	5-10%
<b>CR4</b>	65-85%

Source: CCI (2018)

Table 6: Market share in corn seed market in EU

Corporation	Market share
Corteva (DowDuPont)	24%
KWS	18%
Bayer-Monsanto	16%
Vilmorin & Cie	13%
<b>CR4</b>	71%

Source: KWS (2018)

Table 7: Market concentration in the seed market in Indonesia (2017)

Hybrid corn	Market share	Fruit & vegetables	Market share
BISI	49.5%	East West	41%
Pioneer (heute Corteva)	17%	BISI	33%
Syngenta	7%	Prima Seed	4%
Monsanto	5%	Tani Murni	4%
<b>CR4</b>	78.5%	<b>CR4</b>	82%

Source: BISI (2018)

Long Ping High-Tech manages the Brazilian corn seed business (LP Sementes), which Citic Agri Fund bought from DowDuPont in 2017. It now has an 18.5 % share of the Brazilian corn seed market.<sup>13</sup> An increase to 30 % is planned.<sup>14</sup> Corteva Agriscience, the new agricultural division of DowDuPont, has a market share of 21 % for corn seed and 16 % for sunflower seed in the Ukraine, according to the Kleffmann Group.<sup>15</sup>

In Mozambique, SEMOC and DowDuPont (now Corteva) produce more than 90% of the corn seed.<sup>16</sup> In the EU, Corteva has the largest market share in corn seed with 24%, followed by KWS and Bayer (table 7). KWS has a market share of 5-6% in Argentina<sup>17</sup> and 7% in Brazil on the commercial corn seed market.<sup>18</sup> Asociados Don Mario has a 40% market share in Argentina for **wheat seed**.<sup>19</sup> Biotrigro dominates the market for wheat seed in Brazil with a 69 % share in 2017, while OR Sementes has a 4.5% market share.<sup>20</sup> Vilmorien & Cie has a 12% market share in Europe for wheat seed, with market shares exceeding 20% in some countries.<sup>21</sup>

Table 8: Estimated market shares in Zambia

Corporation	Market share
Seed Co	38%
Syngenta/ MRI-China	31%
DowDuPont/Pannar	15%
Zamseed	9%
<b>CR4</b>	93%

Source: USAID, AfricaLead (2016)

In **Eastern and Southern Africa**, multinational companies such as DowDuPont, Bayer-Monsanto and Syngenta are already leading the commercial seed market. In South Africa, according to the "Access to Seed Foundation", DowDuPont and (Bayer-)Monsanto have a market share of more than 85% in the top five crops. In Ethiopia, DowDuPont has a market share of 30%. In Tanzania, two seed companies control 54% of the market: Pannar Seed (South Africa) and SeedCo (Kenya).<sup>22</sup> Pannar Seed was acquired by DowDuPont in 2012 and Limagrain (now Vilmorin & Cie) acquired a minority stake from SeedCo in 2014 (2017: 30.2%). According to its own

information, SeedCo has a market share of up to 81% in Zimbabwe<sup>23</sup> and up to 15% in Kenya<sup>24</sup>. In Zambia, the four largest companies control 93% of the commercial seed market. In Kenya, a semi-state seed company has a quasi-monopoly in corn seed with a market share of 80%.<sup>25</sup> It has subsidiaries in Uganda (Simlaw Seeds), Kenya (Simlaw Seeds) and Tanzania (Kibo Seeds Company).<sup>26</sup>

Table 9: Market shares of the four largest companies in Kenya

<b>Corn</b>	<b>Market share</b>	<b>Sorghum</b>	<b>Market share</b>	<b>Cow pea</b>	<b>Market share</b>	<b>Beans</b>	<b>Market share</b>
Top 1	80%	Top 1	31%	Top 1	48%	Top 1	49%
Top 2	5%	Top 2	28%	Top 2	22%	Top 2	22%
Top 3	4%	Top 3	12%	Top 3	16%	Top 3	17%
Top 4	3%	Top 4	10%	Top 4	14%	Top 4	7%
<b>CR4</b>	92%	<b>CR4</b>	81%	<b>CR4</b>	100%	<b>CR4</b>	95%

Source: TASA (2015)<sup>27</sup>

Multinational corporations are also showing increased interest in seed markets in **West and Central Africa**. They have branches in countries such as Nigeria, Senegal, Ghana and Burkina Faso. However, their market shares are still relatively small.<sup>28</sup> New research highlights the role of informal seed traders in African countries, who are the backbone of smallholder seed security and need to be engaged, not ignored, in development and relief efforts.<sup>29</sup>

Table 10: Combined market shares of Bayer and Monsanto in vegetable seeds before the merger

<b>Vegetable</b>	<b>Country</b>	<b>Market share</b>	<b>Comment</b>
Carrot (sliced & peeled)	Germany	60-70%	Market highly concentrated, > 4x larger than company Nr. 2.
Carrot (sliced & peeled)	Netherlands	90-100%	Market highly concentrated, > 15x larger than next competitor
Cucumber (Beith Alpha Parth, Greenhouse)	Germany	80-90%	Market highly concentrated, no significant competitor existing
Leeks (Hybrid, Autumn)	Germany	90-100%	Market highly concentrated, no significant competitor existing
Leeks (Hybrid, Autumn)	Netherlands	80-90%	Market highly concentrated, > 12x larger than company Nr.2
Iceberg Lettuce (open field)	Germany	30-40%	Concentrated, Leading, one competitor with comparable size
Iceberg Lettuce (open field)	Austria	70-80%	Highly concentrated, > 7x larger than company Nr. 2
Onions (red, „long day“)	Germany	90-100%	Highly concentrated, no competitor

Source: EU-Commission: M.8084 BAYER / MONSANTO, 21.3.2018<sup>30</sup>

Table 11: Market shares of the four largest companies in vegetable seeds in India

<b>Cabbage</b>	<b>Market share</b>	<b>Cucumber</b>	<b>Market share</b>	<b>Pumpkin (bitter)</b>	<b>Market share</b>
Monsanto/Mahyco	40-45%	Monsanto/Mahyco	15-20%	East West Seed	30-35%
Bayer	5-10%	Bayer	10-15%	Bayer	30-35%
		East West Seeds	10-15%	VNR	10-15%
<b>CR3</b>	65-70%	Rasi Seeds	5-10%	Monsanto/Mahyco	5-10%
<b>CR4</b>	70-75%	<b>CR4</b>	40-60%	<b>CR4</b>	80-85%*
<b>Okra</b>	<b>Market share</b>	<b>Watermelon</b>	<b>Market share</b>	<b>Tomato</b>	<b>Market share</b>
Bayer	30-35%	Syngenta	30-35%	Syngenta	20-25%
Monsanto/Mahyco	5-10%	Bayer	15-20%	Bayer	15-20%
JK Seeds	5-10%	Namdhari	15-20%	Monsanto	10-15%
Syngenta	0-5%	Monsanto/Mahyco	5-10%	Namdhari	5-10%
<b>CR4</b>	40-60%	<b>CR4</b>	65-70%*	<b>CR4</b>	60-65%*

Remark: The figures market with \* are mentioned by the CCI. They deviate from the sum.

Source: CCI (2018)

For the **European Union**, there are only a few current data available in the seed sector. In sugar beet, the four largest groups have a market share of 86% and in corn 71% (table 7).<sup>31</sup> In the course of the Bayer-Monsanto merger proceedings, the European Commission analyzed the market shares of the four largest companies. In individual markets the market shares of the two groups are very high (table 10). Vilmorin & Cie, Syngenta, Bayer and BASF are the largest suppliers of commercial vegetable seeds. Bayer has divested its own vegetable seeds business, including research and development, to BASF in order to comply with the EU Commission's requirements. Now Bayer-Monsanto and BASF control the vegetable markets described above. According to the OECD, four companies control 59% of the seed potato market in Germany.<sup>32</sup>

Bayer-Monsanto also had high market shares in **vegetable seeds** in India, so that Bayer had to divest its business to BASF in India as well, as a result of the merger with Monsanto.<sup>33</sup> In cabbage, pumpkin (bitter) and watermelon, the Indian Competition Commission (CCI) describes the seed market as "highly concentrated" and in okra, tomato, onion and pepperoni as "concentrated". In the latter, Bayer-Monsanto had a market share of 40-45%. Syngenta is the market leader in individual vegetable seed markets such as sweet peppers (60-65%), radish (20-25%) and carrots (25-30%) as well as watermelon and tomato (Table 9). In Mexico, too, the market concentration is very high for vegetable crops such as carrots, tomatoes, onions and lettuce.<sup>34</sup>

As the above figures show, market concentration, and thus dependence on a few corporations in several countries, has already reached worrying levels. In many cases, the corporations with market power are also market leaders in countries of the Global South. The negative effects for agricultural producers increase with increasing market concentration. In its report, the OECD concludes that seed price increases will be higher if the combined market shares are higher in the case of mergers. Similarly, the highest price increases are expected when the original market share is smaller. These findings can be taken as a rule of thumb.

## Pesticides

In 2018, the global market for pesticides recorded sales of approximately US\$ 57.56 billion.<sup>35</sup> After the three mega-mergers, the four largest pesticide companies have a market share of about 80%. The analysis by the Indian pesticide company includes a calculation of market shares based on sales in 2016 after a notional completion of the mergers at that time. Current market share data, which take into account the three mega mergers, are currently not available. What is certain is that the market concentration in the pesticide market is higher than in the commercial seed market.

Table 12: Global market shares in pesticides (2016)

Corporation	Mergers have been taken into account (2016)	Corporation	2016
ChemChina/Syngenta	26%	Syngenta	20%
Bayer/Monsanto	26%	Bayer	20%
Corteva (DowDuPont)	16%	BASF	13%
BASF	13%	Dow	10%
		Monsanto	8%
		Dupont	6%
<b>CR4</b>	81%	<b>CR4</b>	71%

Source: UPL (2018): 2016 Industry Sales<sup>36</sup>

Table 13: Pesticide portfolio of the four largest corporations

Product	Bayer	Corteva	Syngenta	BASF
Herbicide	50%	50%	40%	45%
Insekticide	15%	25%	30%	10%
Fungicide	25%	20%	20%	40%
Other	10%	5%	10%	5%

Source: Corteva Agriscience (2019)<sup>37</sup>

The pesticides business mainly comprises the sales of herbicides, insecticides and fungicides. The four largest pesticide corporations generate the majority of their sales with herbicides. In the case of Bayer and Corteva this share is as high as 50%. Herbicides comprise selective and non-selective herbicides. The former kill the weeds, the latter also kill the plants. The well-known non-selective herbicides include glyphosate, glyphosate and paraquat. In the global herbicides business, the top five companies had a market share of more than 74% in 2016.<sup>38</sup>

Public Eye and Uearthed have analyzed the importance of highly hazardous pesticides (HHP) to the largest corporations. The result: The five largest agrochemical companies are the leaders in the global HHP business. Public Eye and Uearthed thus refute the claims of the lobby organization CropLife, which plays down the role of its members in the sale of highly hazardous pesticides.<sup>39</sup> Phillips McDougall's data set includes pesticide sales of USD 13.4 billion from these five companies. Pesticides classified as "highly hazardous" account for \$4.8 billion, or 35% of this total (almost half of the top-selling products). At the top of the inglorious list are Bayer and Syngenta. It should be noted that these are extremely conservative estimates, as the available data cover only 40% of the world market. The most important markets for this were developing and emerging countries with weaker regulations and higher risks for the population.<sup>40</sup>

Table 14: Share of highly hazardous pesticides (HHP) of the top selling pesticides

<b>Bayer</b>	<b>Corteva</b>	<b>Syngenta</b>	<b>BASF</b>	<b>FMC</b>
36.7%	32.0%	39.2%	24.9%	51.5%

Source: Public Eye and Uearthed (2019)<sup>41</sup>

In 2019, Bayer Crop Science generated almost 70% of its overall sales in North and South America, 44% of which were in North America and 25% in South America. The Europe/Middle East/Africa region now accounts for only 21% and the Asia-Pacific region for 9%.<sup>42</sup> Bayer-Monsanto sees considerable potential in the expansion of its pesticides business in North and South America. According to the company's own figures, "only" 50% of its pesticides are sold in these regions, while its Footprint in seeds there is 90% (approximately 161 million hectares).<sup>43</sup> In Europe exactly the opposite. In Argentina, Bayer and Monsanto have combined market shares in selective herbicides of 46.3% for soybeans, 32.1% for barley, 14.7% for corn and 13.2% for wheat (table 16). Bayer also has a market share of 35% in insecticides used on corn in Argentina.

Table 15: Market shares in pesticides in Argentina

<b>Corporation</b>	<b>Market share</b>
Bayer/Monsanto	18.4%
ChemChina	17.1%
DowDupont (Corteva)	11.9%
<b>CR3</b>	47.3%

Source: IPEN (2019)

Table 16: Market shares in selective herbicides in Argentina structured according to crops

<b>Corporation</b>	<b>Soy</b>	<b>Corn</b>	<b>Wheat</b>	<b>Barley</b>
Bayer	36.8%	5.0%	12.4%	31.6%
Dow	16.2%	8.0%	14.2%	6.4%
Monsanto	9.5%	9.6%	0.7%	0.4%
Nufarm	5.0%	8.2%	5.9%	3.3%
Syngenta	7.9%	28.4%	17.0%	37.4%
Adama (ChemChina)	3.8%	3.7%	0.1%	0.1%
DuPont	3.4%	0.4%	5.2%	0.0%
Nidera (Cofco)	1.2%	3.3%	9.8%	4.9%
Atanor	0.0%	20.4%	23.1%	10.3%
<b>CR4</b>	70.4%	66.6%	66.7%	85.7%

Source: República Argentina (2/2019)<sup>44</sup>

Table 17: Market shares in non-selective herbicides in Argentina

Corporation	2013/14	2014/15	2015/16
Monsanto (Nr.1)	35.3%	35.9%	36.6%
Dow (Nr. 2)	15.9%	15.1%	15.2%
Syngenta (Nr.3)	13.8%	14.1%	9.0%
Atanor (Nr. 4)	8.8%	11.6%	7.9%
DuPont (Nr. 8)	2.2%	1.4%	2.1%
Nidera (Nr. 9)	2.8%	2.9%	2.1%
FMC (Nr. 10)	0.6%	0.7%	2.0%
BASF (Nr. 11)	1.4%	1.6%	1.9%
Bayer (Nr.12)	0.7%	0.4%	1.7%
<b>CR4</b>	<b>73.8%</b>	<b>76.7%</b>	<b>68.7%</b>

Source: República Argentina (2/2019)

Table 18: Import shares in non-selective herbicides in Costa Rica (2016)

Corporation	Market share
Rimac	29.5%
Inquisa	12.0%
Syngenta	10.5%
Monsanto	7.4%
Bioquim	7.3%
Bayer	6.4%
<b>CR4</b>	<b>59.4%</b>

Source: COMISIÓN PARA PROMOVER LA COMPETENCIA (2018)

According to the Indian Competition Commission, Monsanto had a market share in non-selective herbicides of 25-30% and Bayer less than 5% before the merger. The market share of the three largest suppliers, Monsanto, Excel (Sumitomo Chemical) and Syngenta, amounted to more than 50% in this area.<sup>45</sup> In Costa Rica the import share of the four largest companies is 59.4% (table 18).<sup>46</sup> According to the Chinese Ministry of Commerce, DowDuPont would control 40% of the herbicides business in China after the merger.<sup>47</sup>

In Brazil, Syngenta, Bayer, BASF, Corteva and FMC have a combined market share of 80%. 72% of these sales are based on sales of highly hazardous pesticides (HHP).<sup>48</sup> According to the European Commission, the five largest pesticide groups in the EU had a combined market share of 70-80% before the Bayer/Monsanto merger (160).<sup>49</sup> The import share of pesticides in the Philippines is 10.56% for Syngenta and 9.29% for Bayer (table 20).<sup>50</sup> In India UPL, Bayer-Monsanto and Syngenta are among the leading pesticide companies (table 21). UPL estimates its own market share at 4% worldwide.

Table 19: Market shares in pesticides in Indonesia (2017)

Corporation	Market share
Syngenta	20.0%
Bayer	16.0%
BISI	9.5%
Nufarm	9.0%
Dupont	8.0%
BASF	7.0%
<b>CR4</b>	<b>54.5%</b>

Source: BISI (2018)

Table 20: Import shares in the Philippines (January-October 2019)

Corporation	Market share
Syngenta	10.56%
Bayer	9.29%
FMC	3.68%
UPL	2.79%
BASF	2.13%
Dow Agrosociences	1.64%
<b>CR4</b>	<b>26.32%</b>

Source: Agropages (2019)



Table 21: Market shares in pesticides in India

<b>Corporation</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
UPL	18.2%	19.2%	20.2%	20.9%
Bayer CropScience	11.6%	13.1%	12.3%	13.7%
Syngenta India	9.6%	9.1%	9.8%	10.4%
Rallis India	9.2%	8.9%	7.8%	7.0%
Insecticide India	5.6%	6.6%	6.2%	6.6%
PI	5.6%	5.5%	6.1%	6.5%
Dhanuka Agritech	5.9%	6.3%	6.0%	6.4%
BASF	9.4%	8.9%	6.9%	4.8%
<b>CR4</b>	<b>48.6%</b>	<b>50.3%</b>	<b>50.1%</b>	<b>52%</b>

Source: Religare (2017)<sup>51</sup>

BASF has a 15.5% share of the Ukrainian pesticide market, which it plans to expand to 17.5% in 2018.<sup>52</sup> Corteva Agriscience's market share there is 7%. In Russia, one international corporation alone accounted for half of all pesticide sales in 2015 and dominated the market for herbicides and fungicides.<sup>53</sup> In Vietnam, Viet Thang, Nicotex and the Loc Troi Group are the main importers in 2017 in terms of volume, with market shares of 4.3%, 3.4% and 2.7% respectively. Syngenta is by far the largest importer of fungicides.<sup>54</sup> In Argentina, Bayer's market share in 2016 for insecticides used on corn is 35%. Monsanto has a 53% market share in insecticide-treated corn.

According to the Indian pesticide corporation UPL, only 18% of active ingredients worldwide are protected by patents.<sup>55</sup> Significantly, Liam Condon at Capital Markets Day 2018 had evasively answered a corresponding question from JPMorgan by saying that he would not have any exact statistics on patents for pesticides.<sup>56</sup> The development costs are very high, amounting to USD 286 million for a new pesticide compared to USD 136 million for a new GMO (Genetically Modified Organism) seed variety.<sup>57</sup>

Table 22: Market shares of agricultural traders in pesticide sales in Germany

<b>Trader</b>	<b>Seeds</b>	<b>Pesticides</b>	<b>Market share</b>
Beiselen GmbH	yes	yes	20-30%
BSL Kiel	yes	yes	10-20%
Agravis Raiffeisen GmbH	yes	yes	10-20%
BayWa	yes	yes	10-20%
RWZ Köln	yes	yes	5-10%
Agro Holdorf	yes	yes	0-5%
		<b>Total</b>	<b>70-80%</b>

Source: EU-Commission: M.8084 BAYER / MONSANTO, 21.3.2018

## Fertilizers

It is expected that the global market for fertilizers will amount to US\$ 155.8 billion. The overall market concentration at global level is lower than for seeds and pesticides. The largest groups include Nutrien, Yara, Mosaic, OCP and EuroChem.<sup>58</sup> The most recent figures are from 2014, when the four largest corporations controlled 21% of the global fertilizer market.<sup>59</sup> If one looks at individual fertilizers - nitrogen (N), phosphate (P), potash (K) - the picture is different.

Table 23: Approximate market shares of the corporation Nutrien (production capacity, 2017)

<b>Fertilizer</b>	<b>North America</b>	<b>World Market</b>
Potash	63%	23%
Phosphate	25%	4%
Ammonia	22%	3%

Source: Nutrien (2019)

Market concentration is highest in the world potash market. Here the four largest groups dominate the world potash market with a market share of 72% (table 24).<sup>60</sup> In the period 2015-2018, the global market share of the three largest groups in potash has increased from 48%<sup>61</sup> to 63%. The largest global market share in potash is held by the Nutrien Group, which was created in 2018 from the merger of Agrium and Potash Corporation. According to the group's data, this was approximately 23% globally in 2017.<sup>62</sup> In 2015, the world market share of the three largest groups was 24% for phosphate and 15% for nitrogen in 2013.<sup>63</sup> Although the global market for nitrogen is less concentrated, there has been significant restructuring in the EU and the US over the past decade.<sup>64</sup> Publicly available data are not available here in each case. Yara says it is the world's largest supplier of NPK complex fertilizers. Its market share in the global trade in ammonia is 20%.<sup>65</sup>

Table 24: World market shares in potash

Corporation	Market share (2018)	Market share (2017)
Canpotex (marketing company of Nutrien and Mosaic)	30%	28%
BPC (Belaruskali)	18%	17%
Uralkali	15%	16%
K+S	9%	8%
ICL (DSW, CPL, Iberpotash)	7%	8%
	<b>CR3</b>	63%
	<b>CR4</b>	72%
		61%
		69%

Source: K+S (March and September 2019)

Nutrien has a total market share of 20% in the USA and is currently pursuing the goal of increasing this to 30%.<sup>66</sup> The Borealis Group has a market share of 7% in fertilizers in the EU.<sup>67</sup> The Russian group PhosAgro dominates the market for NPK complex fertilizers in Russia with a market share of 70%. In monoammonium phosphate (MAP) and diammonium phosphate (DAP), which have a high content of phosphate and nitrogen, PhosAgro has a market share of 79% in Russia, 12% in the EU and 8% in Latin America.<sup>68</sup> In Brazil, Mosaic and Yara dominate the fertilizer market with a market share of 46%. In 2017, the four largest groups had a market share of 73% there.<sup>69</sup> In Chile, five companies dominate the import of fertilizers with a market share of 60%, with Mosaic Chile in fifth place.<sup>70</sup>

Table 25: Import shares in Peru

Corporation	Market share
Molinos & Cia	30%
Yara Péru	15%
Gavilon Péru	9%
Orica Mining Services Péru	8%
	<b>CR4</b>
	62%

Source: ICEX (2019)

Table 26: Import shares in Chile

Corporation	Market share
Agrogestión Vitra	19.1%
Anagra	18.97%
CNA Chile Spa	17.3%
Soquimich Comercial	9.03%
	<b>CR4</b>
	64.4%

Source: ICEX (2018)

In Péru the import share of the four largest companies is 62%.<sup>71</sup> In Chile, three companies will dominate the import of fertilizers in 2017 with a market share of 55%. Yara has an import share of 1.15%.<sup>72</sup> In China, the fertiliser market is dominated by many companies, with multinationals having a market share of 8%.<sup>73</sup> In Vietnam, Vinachem and PVN dominate the fertilizer market in 2017 with a market share of 44%. Vinachem has a share of more than 40% in the NPK market and more than 50% for phosphates. PVN is the market leader in fertiliser urea with a volume share of up to 62%.<sup>74</sup> In Germany, SKW Stickstoffwerke Piesteritz, which belongs to the Czech company AGROFERT, is the largest producer of ammonia and urea according to its own information.<sup>75</sup>

In sub-Saharan Africa OCP has a market share of 30% in fertilizers, of which phosphates account for more than two thirds. After OPC comes Yara with a market share of more than 10% in the region, which is not focussing on phosphates, but on fertilizer urea and ammonia.<sup>76</sup> In West Africa, the Malian

company Toguna Agroindustries, which cooperates with OCP, is the largest producer of NPK fertilizers with a market share of 60% in Mali, according to its own information.

Table 27: Market shares in Brazil

Corporation	Market share
Yara	25%
Mosaic	20%
Fertipar	15%
Heringer	13%
<b>CR4</b>	73%

Source: Agrolink (2017)

Table 28: Market shares in South Africa

Corporation	Market share
Omnia	45%
Kynoch	15%
Profert Holdings	15%
<b>CR3</b>	75%

Source: CompCom (2019)

In East Africa, the Saudi phosphate producer Ma'aden is one of the strongest competitors, while in South Africa PhosAgro is an important player.<sup>77</sup> In April 2019, Ma'aden acquired the Meridian Group based in Mauritius, which imports fertilizers from international companies and distributes them via the ports of Mozambique in East Africa.<sup>78</sup> In South Africa, the fertilizer market is highly concentrated: According to the South African Competition Commission, three companies control 75% of the market. Foskor is the only producer of phosphates and phosphoric acid, while Sasol is the largest producer of chemicals for fertilizers, but is no longer allowed to sell end products.<sup>79</sup> In 2008, the market share of the largest companies was 86%.<sup>80</sup>

## Agricultural machinery

In 2018, the international market for agricultural machinery amounts to more than 170 billion US\$, 31% of which will be for tractors. The global market for seed drills and fertilizer spreaders is estimated to grow to US\$15 billion by 2024.<sup>81</sup> The three largest corporations control almost half of the world market for agricultural machinery (table 29). In China, the domestic manufacturer Lovol has a 40% of the agricultural machinery market.<sup>82</sup>

Table 29: World market shares in agricultural machinery

Corporation	Sales	Market shares
John Deere	more than 37 bn. US\$	21.7%
CNH Industrial	just 30 bn. US\$	17.6%
Kubota	just 17 bn. US\$	10.0%
AGCO	just 10 bn. US\$	5.9%
Claas	just 4 bn. US\$	2.3%
<b>CR4</b>		53.6%

Source: agrarheute (2019)<sup>83</sup> and IndustryARC (2019)<sup>84</sup>

Table 30: Market shares in tractors in India and Bangladesh

Corporation/India	2018	Corporation/Bangladesh	4-11/2018
Mahindra & Mahindra (M&M mit PTL)	40.2%	Sonalika	31%
TAFE (mit Eicher Motors)	18.4%	TAFE	19%
Escorts Ltd.	11.8%	Eicher	13%
Sonalika	12.2%	M&M	ca.12%
Andere (Johne Deere, New Holland etc.)	17.5%	Swaraj	ca.7%
<b>CR4</b>	82.6%	<b>CR4</b>	75%

Source: EconomicTimes.com (2019)<sup>85</sup> and Samimulhasan.com (2018)<sup>86</sup>

It is estimated that 2.16 million new tractors will be sold in 2018, more than half of them in India and China alone.<sup>87</sup> In India, the four largest tractor manufacturers have a market share of 82.6% and in

Bangladesh 75%. In Peru, the four largest tractor suppliers account for 63% of the market, including AGCO with 32.8% and John Deere with 18.7%.<sup>88</sup>

Table 31: Import shares in Peru (tractors)

Corporation	Market share
AGCO (Brasilien)	32.8%
John Deere (Mexiko)	18.7%
Kubota	7.8%
SDF (Italien)	3.7%
CNH Industrial	3.7%
<b>CR4</b>	63%

Source: ICEX (2019)

Table 32: Market shares in Spain (tractors)

Corporation	Market share
John Deere	25.3%
CNH Industrial	25.9%
AGCO	12.4%
SDF	8.0%
Kubota	6.1%
<b>CR4</b>	71.6%

Source: ICEX (2019)

Table 33: Market shares in tractors in Germany and in France in 2018

Corporation	Tractor brands	Market share (DE)	Market share (F)
AGCO	Fendt, Valtra, MF, Challenger	27.6%	28.9%
John Deere	John Deere	24.8%	18.5%
CNH Industrial	Case IH / Steyr; New Holland	16.3%	26.8%
Claas	Claas	7.7%	11.1%
	<b>CR4</b>	76.4%	85.3%

Source: Schlepper-Bundesliga (2019)<sup>89</sup> and Agriland (2019)<sup>90</sup>

In Germany, the market share of the top 4 companies in 2018 is 76.4%, in France 85.3% and in Spain 71.6%.<sup>91</sup> In Portugal John Deere has a market share of 11%.<sup>92</sup> For the European market, only publicly available data is available for the year 2015. At that time CNH Industrial had a market share of 24%, followed by AGCO with 21% and John Deere with 19%.<sup>93</sup> In 2017 Same Deutz-Fahr (SDF) had a market share of 11.5% in Europe.<sup>94</sup> TürkTraktor, a joint venture with CNH Industrial, had a market share of 49.3% in Turkey in 2017.<sup>95</sup>

Table 34: Market shares in combine harvesters and seed drills in France (2017)

Corporation Combine harvester	Market share	Corporation Seed drills	Market shares
Claas	37.5%	Horsch	29.9%
CNH Industrial	31.5%	Sky Agriculture	22.5%
John Deere	22.8%	Amazone	10.7%
AGCO	4.0%	Pöttinger	7.7%
<b>CR4</b>	95.8%	<b>CR4</b>	70.8%

Source: Axema (2018)<sup>96</sup>

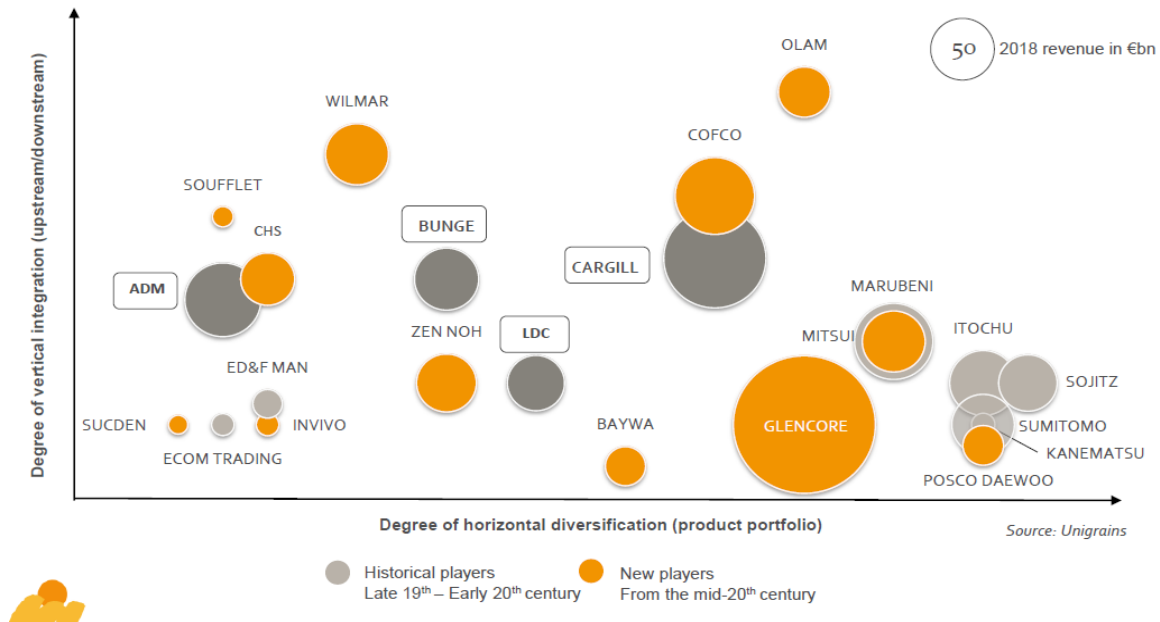
For combine harvesters and seed drills there is little public information on market shares. In France, the top 4 combine harvester manufacturers are identical to the four largest tractor manufacturers, while the market for seed drills is dominated by Horsch, Sky Agriculture, Amazone and Pöttinger. In Perú, the four largest companies supply 45% of harvesting machinery in 2017, including the German company Stihl with 24.2%. CNH Industrial has an 8% share, Kubota 5.8%, John Deere 2.8% and AGCO 1.9%.<sup>97</sup> In China, the five largest companies control 69.9% of the combine harvester market.<sup>98</sup>

In 2017, AGCO acquired Precision Planting from Climate Corporation.<sup>99</sup> Originally, John Deere wanted to buy the company. John Deere's market share of high-speed precision planting systems in the USA at that time was 44%, followed by Precision Planting 42%, Kinz 12% and Horsch 2%.<sup>100</sup>

## Agricultural traders

Four companies control mainly the import and export of agriculture raw materials: Archer Daniels Midland (ADM), Bunge, Cargill, Louis Dreyfus (“ABCD”). The ABCD group was said to be optimally informed about harvests, prices, currency fluctuations, meteorological data and political developments in all parts of the world. Their world market share is about 70%.

Graph 2: Who are the international traders?



Source: Unigrains (2019): International grain trading: The ABCDs: what's next?

Trading shifted to regions in which the ABCD do not have a well-rooted footprint. They have an average market share in Russian wheat exports of 11% only, whereas Russia's RIF has been the leader since 2015/16. Glencore has an average market share of 10% over the last five campaigns, and Olam and Cofco do have a cumulative market share of 5%.<sup>101</sup> In the past years the Chinese corn dealer COFCO, a state-owned enterprise, replaced ABCD as a main speculative purchaser of Brazilian corn and Soybeans.<sup>102</sup> It has become the second biggest grain exporter from Argentina, behind Cargill. If COFCO International sticks to its commercial ambitions, it cannot achieve this through internal growth and will have to return to the acquisitions market.<sup>103</sup> So mergers and acquisitions in grain trading may be upcoming.<sup>104</sup>

In Zambia and Kenya the share of smallholder-produced maize sold to large-scale traders has increased from virtually nil 10 years ago to 12 per cent and 37 per cent (2014), respectively.<sup>105</sup> In Tanzania, 34% of maize sales by volume were sold to large-scale traders. Zambia has the largest share of multinational participation, with seven of the 24 firms (29 percent) of multinational origin. In Kenya, only Cargill and the Tanzanian Export Trading Group are involved in grain trading. In Tanzania ETG is the only multinational firm.<sup>106</sup> Case studies show that farmers have opportunities to sell their grain, although reliability is an issue. Across Kenya, Malawi, Zambia, and Mozambique, 82% of villages considered market accessible had 10 or more traders visit the village, while 72% of villages deemed isolated had 10 or more traders visit.<sup>107</sup>

In South Africa there are three major commercial grain silo owners, namely Afgri, NWK and Senwes, who own 73% of the available storage capacity within the national grain storage market. Other important players are VKB and Suidwes.<sup>108</sup>

Table 35: Portfolio of big agricultural traders

Platform	Olam	ADM	Bunge	Cargill	Dreyfus	Glencore	COFCO	Wilmar	No. of Major Competitors
Edible Nuts	✓	✓							1
Spices & Vegetable Ingredients	✓								None
Coffee	✓				✓		✓		2
Cocoa	✓			✓					2
Dairy	✓								None
Rice	✓	✓			✓				2
Grains	✓	✓	✓	✓	✓	✓	✓	✓	7
Sugar/Sweeteners	✓		✓	✓	✓	✓	✓	✓	6
Edible Oils	✓			✓	✓			✓	3
Packaged Foods	✓							✓	1
Cotton	✓			✓	✓	✓	✓		4
Wood Products	✓								None
Rubber	✓							✓	1
Fertiliser	✓								None
CFS	✓	✓		✓	✓				3
GSEZ	✓								None
Presence in products (#)	16	4	2	6	7	3	4	5	

Source: Olam (2018): Investor presentation.<sup>109</sup>

- **Palm oil:** Five corporations account for approximately 90 percent of the global trade in palm oil. Based on 2015-estimates, Wilmar has a market share of around 43 percent. The 2nd biggest trader with 18 percent is Musim Mas, followed by Golden-Agri Resources with 14 percent.<sup>110</sup> In Indonesia Wilmar and Sinar Mas produce over 50 per cent of palm oil.<sup>111</sup>
- **Sugar:** In volume terms the “big three” list today comprise Alvean - 50/50 joint venture created by Cargill and Copersucar with a 26 percent<sup>112</sup> share of global raw sugar trade, COFCO and Wilmar (including RAW), with EDF Man, Sucden and Dreyfus following closely behind. Bunge was a former leading global sugar trader with a market share of 8%–10% sold its sugar trading business to Wilmar International.<sup>113</sup> Olam sold its sugar business in 2020 to Asia’s biggest sugar and bio-energy producer Mitr Phol.<sup>114</sup>
- **Cocoa:** Barry Callebaut is the global number one player in chocolate and cocoa processing approximately 20% of the world crop.<sup>115</sup>
- **Soy:** Cargill is the dominant soy trader with a market share of 69.8% in the municipality of Cláudia (Brazil), where deforestation rates have nearly quadrupled since 2016.<sup>116</sup> Glencore Agriculture’s deforestation risk is very high in the municipalities of Santa Carmem and Lagoa da Confusão, where Glencore has a market share of 100% and 75% respectively.<sup>117</sup>

## Milling industry

The global grain mill products market size was valued at USD 623.4 billion in 2018. Based on the product, wheat held the largest share of 41.3%. Companies such as Ardent Mills, Archer Daniels, and Conagra specialize in grain milling of products such as rice, wheat, and barley.<sup>118</sup>

The milling sector in Indonesia remains heavily concentrated with mills controlled by the Salim Group. Of these mills, by far the biggest is Bogasari, which alone has more than 50 per cent market share.<sup>119</sup> In China the largest flour milling companies in the country are Wudeli Flour Mills, Wilmar and Cofco. In India almost two third of the flour is produced in small stone mills or chakki. The roughly 700 organised larger stone mills produce another 10 to 15 percent of the flour. In Chile five companies control 44% of the milling market, whereas 30 small mills (40% of the total)

Table 36: US flour milling market shares (2015)

Corporation	Market share
Ardent Mills	31.4%
ADM	18.9%
Grain Craft	10.9%
General Mills	5.2%
Bay State Milling	5.0%
<b>CR4</b>	<b>66,4%</b>

Source: Rabobank (2017)

contribute 10% of the national milling.<sup>120</sup> Canimolt, a Mexican trade group represents 80 percent of Mexican milling companies.<sup>121</sup> Gruma produces 70% of Mexican maize flour and Minsa (Bunge) 23%.<sup>122</sup> In the USA the sector is dominated by Ardent Mills and ADM Milling, which together own about half of the US wheat milling capacity.<sup>123</sup> Lebanon plants, harvests and mills wheat locally. Crown Flour Mills is estimated to have around a 24% market share, Bakalian 18% and Modern Mills around 13%.<sup>124</sup> In Cambodia almost 70% of the wheat flour consumption is met by Asia Flour Mills and Men Sarun in Phnom Penh.<sup>125</sup> The European Durum Wheat Milling industry is mainly located in the Mediterranean area and Germany.<sup>126</sup>

Flour Mills of Nigeria is Nigeria's largest flour miller and the world's second-largest flour miller.<sup>127</sup> It controls 55% of the flour market and 51% of the pasta market in Nigeria.<sup>128</sup> In just seven years, **Olam** became the second-largest flour producer in Nigeria and is roughly the third-largest flour miller in Africa, behind the American Seaboard Corporation and Flour Mills Nigeria, with capacities equivalent to those of the Tanzanian Bakhresa but ahead of the South Africa's Tiger Brands. In 2016 Olam bought Amber Foods, the milling business of Nigeria's BUA Group and in 2019 the Nigerian flour and pasta manufacturer Dangote Flour Mills (16%). After Olam began flour milling operations in Douala/Cameroon, the price of a 50kg bag of flour dropped from 16,100 CFA francs (\$27.6) in 2015 to 13,300 CFA francs in 2016. Olam has tried to drive competitors out of business in nearly every market where it has gotten into the flour business. Cameroonian companies Société Moulins d'Afrique SCMC and SCTC have since shut down.<sup>129</sup>

Said Salim Bakhresa & Co Ltd (SSB) is the flag-ship Company of the Bakhresa Group with the largest wheat milling and storage capacity in East Africa. SSB enjoys more than 60% market share in Tanzania and exports wheat products to DRC, Burundi, Rwanda, Middle East, and Far East. BGM Mozambique has a very strong presence in North Mozambique with more than 95% market share.<sup>130</sup> In Malawi Bakhresa Grain Milling (BGM) is the market leader in flour milling with a market share of 80% in Malawi.<sup>131</sup> In Rwanda BGM reached the majority of the market share.<sup>132</sup> The company operates also in Uganda, Kenya and Zambia.

The top producing sugar-mill in the Philippines is Victorias Milling Company with a 15 percent market share. The four-firm concentration ratio is only 41 percent, less than half of industry output. On the other hand, the top ten firms account for 74 percent of the market, which appears to be a cause for concern. The concern turns more serious when we consider the top-firm market share by mill district. For the three smallest mill clusters, there is only one mill district, hence the lone sugar mill accounts for 100 percent of production.<sup>133</sup>

## Dairy sector

The global dairy market reached a value of US\$ 718.9 Billion in 2019.<sup>134</sup> The global top 20 dairy companies had a market share of 29,5% thereof. In 2019 there were 115 merger and acquisitions, just outpacing the prior year's 112. The majority took place in Europe (64), followed by North America (39) and Asia (25). Lactalis extended its dairy empire by 41 acquisitions since 2013. Dairy Farmers of America acquired Dean Foods in early 2020 (DFA).<sup>135</sup> Before Dean Foods filed on November 12, 2019, for bankruptcy protection and ceased to operate in May 2020 it controlled roughly 30 percent of the market for dairy products. DFA handled 30 percent of the national raw milk supply with a far higher share in many regions.<sup>136</sup> The approval of the acquisition required some divestments by DFA.<sup>137</sup> China's largest dairy company Yili acquired the New Zealand-based Westland cooperative. In September 2020 the dairy giant FrieslandCampina WAMCO acquired the dairy business of Nutricima, which was founded in Nigeria in 2005.<sup>138</sup> The intensive or commercial dairy system in Nigeria contributes about 5 percent to total milk production in the country.<sup>139</sup>

Arla is the largest dairy company in Europe. The Arla group processes more than 90 percent of the Danish and two thirds of the Swedish milk pool.<sup>140</sup> In Germany the four largest dairy companies control more than 50% of the market with DMK alone having a market share of more than 26%.<sup>141</sup> For France there are only figures for the organic milk market. The top three dairy – Biolait, Sodiaal and Lactalis – collected 61,7% of organic milk in 2018. Three years before the market share of the top three companies (Biolait, Lactalis, Eurial) had been 57,4%.<sup>142</sup> Fonterra's raw milk market share in New Zealand's 2017-2018 season was 81 per cent, followed by Open Country Dairy with 7.5%, while listed Synlait Milk and the cooperative Westland were next, each posting a share of 3.4 per cent.<sup>143</sup> Typically in India there are no national players except for Amul, Nestle and Mother Dairy to an extent. Lactalis is on the verge of becoming a national player which can compete with the likes of Amul and Nestle.<sup>144</sup> In South Korea the four largest dairy companies have a combined market share of 51.8%.<sup>145</sup> With 35% to

39% market share in Canada, Saputo has few opportunities for acquisitions in Canada.<sup>146</sup> Saputo believes there will be more opportunity for acquisitions in the wake of the Covid-19 outbreak.<sup>147</sup>

**Latin America:** In Chile milk supply to cooperative Colun has risen steeply since 2015 and is now has 27.4%, while the market share of Prolesur (Fonterra) has been steadily falling. Fonterra, Nestle and Watts lead the milk price, they are criticized for driving the price down. Fonterra is setting its milk price at the lower export price level, although it sells to the local consumer market.<sup>148</sup> In Ecuador the four largest dairy companies controlled 88% of the market (2015).<sup>149</sup> The Peruvian dairy market is highly concentrated with the Gloria group having a market share of 77% in 2019.<sup>150</sup> Pil Andina, which belongs to the Gloria group controls 80% of the Bolivian dairy market.<sup>151</sup> In Costa Rica the cooperative Dos Pinos controls 60% of the dairy market.<sup>152</sup> In Brasil the largest 10 dairy companies do have a combined market share of 39.4% with Lactalis (7.6%) and Nestlé (7%) taking the lead.<sup>153</sup> Grupo Nutresa accounts for 4.8 percent of the dairy processing sector market in Colombia and Parmalat accounts for 4.4 percent.<sup>154</sup>

Table 37: Dairy market shares in Chile

Corporation	Market share
Colun	27.4%
Prolesur (Fonterra)	19.5%
Nestlé	18.3%
Watts	13.9%
<b>CR4</b>	79.1%

Source: www.edairynews.com

Table 38: Dairy market shares in South Korea

Corporation	Market share
Seoul Dairy Cooperative	22.0%
Namyang Dairy Products	13.0%
Yakult Korea	9.2%
Maeil Dairy Industry	7.6%
<b>CR4</b>	51.8%

Source: ICEX (2020)

**Africa:** Juhayna's Egyptian market share of plain milk stands at 57% and its share of flavored milk at 50%.<sup>155</sup> Parmalat (now Lactalis South Africa) is the leading producer of cheese products in South Africa, with a 29% market share of sales in 2017. Dairybell came in second, with a 15% market share. Clover holds the greatest market share when looking at fresh milk products, responsible for 30% of industry sales in 2017.<sup>156</sup> In Kenya the state-owned dairy New KCC controls 35% of the raw milk market, coming closer to Brookside which has a 40%. Brookside Dairies is a Kenyatta's family enterprise which achieved this through a string of acquisitions executed since Kenyatta became finance minister and subsequently president.<sup>157</sup> Githunguri Dairy Farmers Co-operative is the third biggest dairy with a 10 percent market share.<sup>158</sup> Inyange has a market share exceeding 75% of processed milk and dairy products in Rwanda. The second largest dairy processor is Nyanza Milk Industries with a 5% market share. About 20% of all milk reaches the formal processing industry.<sup>159</sup>

## Meat sector

Global meat production in 2018 totaled 340 million tons; 302 million of that came from beef, pork and chicken.<sup>160</sup> The global meat sector was valued at US\$945.7 billion in 2018.<sup>161</sup> In the US the four largest companies in the sector account for 52% of the total market. Two companies, Tyson and Smithfield, leaders in pork and poultry processing, took over the beef and turkey processing facilities. JBS USA Holdings is the third largest beef and pork processor on the market.<sup>162</sup> Maple Leaf is one of the largest meat processors in Canada with a market share of 12%. The four largest companies account for 33.6% of the market.<sup>163</sup> In Germany the five large companies together accounted for 77% of the nearly 22 billion industry turnover in the meat and meat products industry in 2017.<sup>164</sup> The PHW group is the largest poultry slaughterer with a market share of over 40%. The top four poultry slaughter companies have a combined market share of around 80%.<sup>165</sup> In pork slaughtering the respective market share is 64%.<sup>166</sup>

**Beef:** The beef market in Brazil is dominated by JBS, Minerva and Marfrig. While most Brazilian beef is consumed domestically, the proportion of beef destined for export markets has increased from 18 percent in 2015 to 23 percent in 2019. Minerva accounts for 17% of all beef exports from Brazil.<sup>167</sup> JBS Foods controls 56% of the meat industry in Matto Grosso.<sup>168</sup> Marfrig has a 10% share of Argentina's meat exports. China represents 70% of its shipments abroad which, in turn, equals to 80-



85% of its production.<sup>169</sup> In Colombia Grupo Nutresa accounts for 16.8 percent of the beef processing sector market share, followed by Minerva Foods with 3.5 percent.<sup>170</sup>

Table 39: Pork Slaughter market shares in Germany

Corporation	Market share
Tönnies	30.3%
Westfleisch	14.0%
Vion	13.8%
Danish Crown	6.0%
<b>CR4</b>	64,1%

Source: agrarheute (2020)

Table 40: Canadian meat market shares

Corporation	Market share
Maple Leaf Foods	12%
Olymel Societe en Commanandite	9.1%
JBS Food Canada	6.6%
Cargill	5.9%
<b>CR4</b>	33.6%

Source: Meat with European Quality (2018b)

Table 42: Beef market shares in Brazil

Corporation	Market share
JBS	11.5-19%
Marfrig	4.5-7.5%
Minerva	4-7%
<b>CR4</b>	20-33.5%

Source: Chain Reaction Research (2020)

Table 41: US meat market shares

Corporation	Market share
JBS USA Holdings	18.8%
Tyson Foods	15.6%
Cargill	10.8%
Smithfield Foods	6.8%
<b>CR4</b>	52%

Source: Meat with European Quality (2018a)

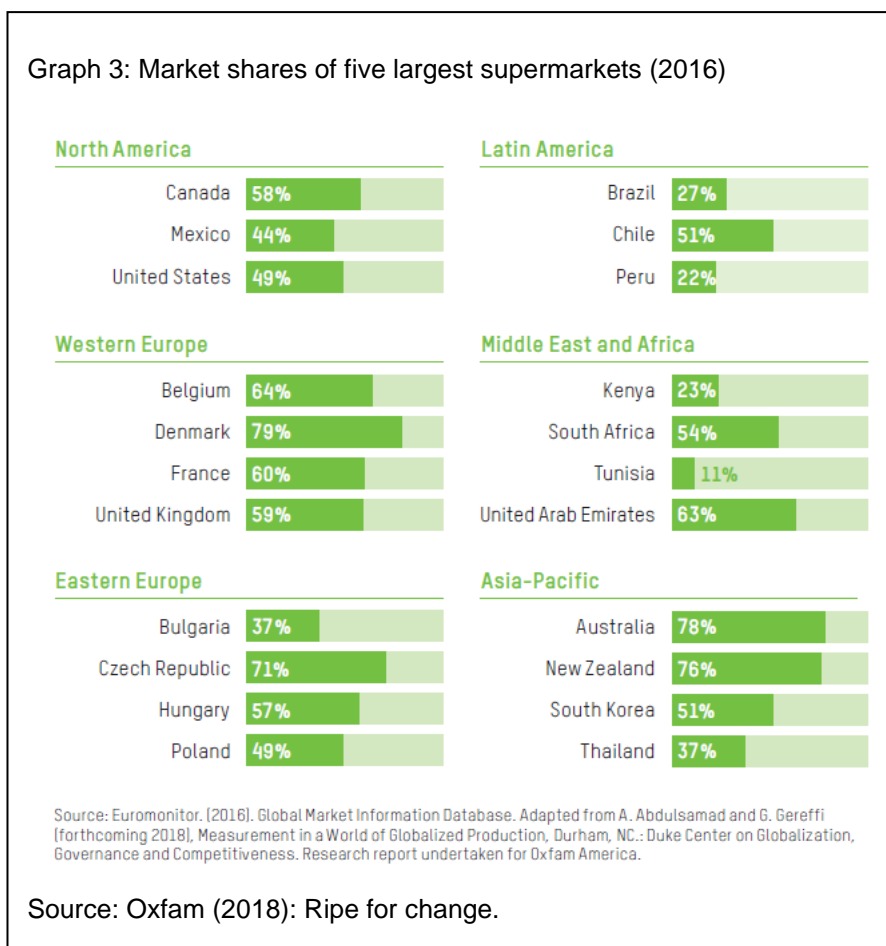
**Poultry:** CP owns and invests in almost all sectors of the food chain; from production to processing and distribution. CP controls 40 percent of the poultry industry in Thailand.<sup>171</sup> Thailand's poultry export production is dominated by five companies which are responsible for 70-75% of the total export production: CP, Betagro, Saha Farm, GFPT and Cargill.<sup>172</sup> In Bangladesh Kazi is the market leader in the broiler GP segment, holding 34% (49,000 birds) of the total broiler GP flock within its two operating facilities, followed by CP, Nourish and Paragon. According to interviews with industry experts, there are at current no independent processors in Bangladesh. Those slaughterhouses active are all part of integrators.<sup>173</sup> The Tanzanian company Organia targets to have a 16% share of Tanzania's poultry market with the production of 16 million chicks per year by 2021.<sup>174</sup> Major poultry processors are among others Zambeef (Zamchick), Verino (co-owned by Hybrid poultry and Verino Agro-industry), and Crest chicken. The large processing firms only account for 3.42% of the processed output in Zambia.<sup>175</sup> There are two highly integrated Philippine companies: San Miguel Food and Beverage (SMFB) and Bounty Fresh Group.<sup>176</sup> In New Zealand Tegel Foods holds a 50 percent market share for broiler chicken and a 90 percent market share for turkey.<sup>177</sup>

## Food retail

In the agri-food sector market concentration has reached new extremes at all stages of the food supply chain, and food retail is no exception. In most developed countries, and increasingly in developing countries too, just a handful of supermarket giants dominate food sales. After establishing dominance in high-income countries, the supermarket concept has grown exponentially in middle-income countries –starting in Latin America before spreading to Southeast Asia and parts of North and sub-Saharan Africa.

In the UK, four supermarkets control 67% of the grocery market share, while in the Netherlands just five control approximately 77%.<sup>178</sup> In Germany the four largest supermarkets control 85% of the food retail market.<sup>179</sup> As of 2019, ICA Sveridge AB (Ahold group) had, based on sales, a market share of about 52 percent in Sweden. Coop Sveridge AB (KF) ranks second with 18.8% market share in 2019

followed by Axfood AB with 18.5%, Bergendalhs group with 5.3% and Lidl with 5.1%.<sup>180</sup> In 2017, the hypermarkets Walmart, Kroger, Albertsons, Ahold Delhaize and Publix represented the five largest food retailers in the US, with a 46.4% market share.<sup>181</sup> In 43 metropolitan areas and 160 smaller markets, Walmart captures 50 percent or more of grocery sales. In 38 of these regions, Walmart's share of the grocery market is 70 percent or more.<sup>182</sup> In Turkey BIM is the largest supermarket with a market share of 7.5%, followed by A101 (4.4%), Migros (4.1%) and Sok (3.4%).<sup>183</sup> In Serbia Ahold Delhaize has a market share of more than 31% in 2018 and Agrokor dd a market share of almost 26%.<sup>184</sup>



**Latin America:** Carrefour Brasil, the largest retailer in Brazil, held a 14 percent market share, with 2018 gross sales of USD 15.4 billion.<sup>185</sup> Groupe Casino, through its subsidiary Grupo Éxito, is the most important food retailer in Colombia, making up 71 percent of the market. Chilean Cencosud accounts for 5 percent of the market share.<sup>186</sup> In Chile the largest supermarkets are Walmart Chile with a market share of 42%, Cencosud (28.1%), SMU (21.4%) and Falabella (4%).<sup>187</sup>

**Asia:** In the Philippines the market share of hypermarkets, supermarkets and convenience stores which accounts for roughly 30% of retail food sales is increasing rapidly.<sup>188</sup> In India first formal retail chains (Reliance Retail, ABRL (More), Heritage, Big Bazaar, Easy Day, Nilgiris, Star Bazaar, Safal etc.) disrupted traditional markets. Today, the formal retail segment handles up to 15 per cent of the total market share in metro cities like Bengaluru, with similar trends expected to reach in other cities in the region.<sup>189</sup>

**Africa:** In terms of store numbers, South Africa's food retail market is dominated by four large supermarket chains: Shoprite Holdings (31% share), Pick n Pay (30%), Spar (21%) and Woolworths (9%). South African supermarkets are particularly strong in Southern Africa but they are also expanding in East, Central, and West Africa. Shoprite, Pick n Pay and Spar have 78% of the outlets in Zambia, 57% in Zimbabwe and only 27% in Botswana (where local chain Choppies has 42% of the outlets).<sup>190</sup>

## Annex: Assessment of market power and information situation

The starting point for the assessment of market power is usually the market share (including market share gaps, distribution of market shares and market share development). The calculation of market shares is mainly based on available sales data of companies. If the companies generate the majority of their sales in one region, the significance of global market shares for other regions is less significant. The availability of country-specific sales data also influences the calculation of global market shares.

The OECD has based its calculation of market shares on the total seed market, even though the calculation of seed breeding by farms is subject to great uncertainty. According to the OECD, detailed market share information is only available for corn, soy, wheat and barley, rape seed and sunflower. For individual countries, data were also available for potatoes, sugar beet and cotton. The OECD report on market concentration in the seed sector is currently the most comprehensive report, but at the same time it reveals considerable gaps, especially in countries of the Global South. Through my own research, some additional market share data in these countries could be obtained. Based on the available data, the OECD report implicitly defines the relevant market as the national seed market for a specific crop. For other sectors - pesticides, fertilisers, agricultural machinery - there are no publicly available reports like the OECD report on seeds. There are therefore considerable gaps existing.

The market share of the four largest companies is usually used to calculate market concentration ("Concentration Ratio", CR4). It is an important indicator for policy makers to assess the excessive market power of individual companies. The CR4 does not capture how market shares are distributed among the four companies. Additional market share information on the two largest or three largest companies would provide an even more comprehensive picture. Economists estimate that in a market with a CR4 of less than 40%, competition works. A market with a CR4 of 40-60% is considered "moderately concentrated" and with a CR4 of more than 60% "highly concentrated".<sup>191</sup> Monopolies are incomprehensibly often no longer seen as a problem in discussions on competition law. US courts usually assume that a market share of 70-80% is sufficient to establish a monopoly.<sup>192</sup> In the USA, however, there is a proposal by Elisabeth Warren and David Ciciline to reduce this market share to 45% (USA, Antimonopoly and Competition Restoration Act).

Which market concentration is regarded as problematic is subject to economic and socio-political considerations, which have changed considerably with the spread of neo-liberal economic policy.<sup>193</sup> The Hirschman-Herfindahl Index (HHI) is frequently used in competition law considerations, in the USA since 1982. Before that, the CR4 was decisive there. The HHI is calculated as the sum of the squared market shares of all companies. If a monopoly exists, the HHI is 10,000. In a market with 100 companies and a market share of one % each, the HHI would be 100. In a market with five companies, each with a market share of 20 %, the HHI is 2,000. The U.S. Federal Competition Commission describes a market as "concentrated" if the HHI is greater than 2,500 and as "not concentrated" if the HHI is less than 1,500. Previously, a market with an HHI of less than 1,000 was considered "not concentrated" and a market with an HHI of more than 1,000 was considered "concentrated" and more than 1,800 was considered "highly concentrated". HHI values of 1,000 and 1,800 correspond approximately to CR4 values of 50% and 70% respectively.<sup>194</sup> In EU merger control, HHIs of 1000 to 2000 are considered unproblematic.<sup>195</sup>

## End notes

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