

AGRICULTURAL SYSTEM CONCENTRATION DATA

Data was collected in July 2024 and represents U.S. market shares unless otherwise noted.

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1. Seed and Agrichemical

Seed (Global) CR4: 51%

- Bayer: 23%
- Corteva: 17%
- ChemChina: 7%
- BASF: 4%

Agrichemical (Global) CR4: 62%

- ChemChina: 24.6%
- Bayer: 16%
- BASF: 11.3%
- Corteva: 10.4%

Soybean Seed CR4: 70%

- Corteva: 37.7%
- Bayer: 28.2%

- Syngenta: 9.2%
- AgReliant: 3%

Corn Seed CR4: 80%

- Corteva: 38.3%
- Bayer: 33.3%
- AgReliant: 6.8%
- Syngenta: 5%

Cotton Seed CR4: 90%

- Bayer: 38.4%
- Americot: 27.2%
- Corteva: 17.5%
- BASF: 10.5%

Agrichemical CR10: 85-90%

- Corteva, Bayer, BASF, ADAMA, Albaugh, Arysta, UPI, FMC, Syngenta, Valent (not in order)

Seed Genetics for Corn, Soybeans, and Cotton CR2: 90%

- Bayer and BASF control 90% of trait acres for corn, soybeans, and cotton.

Historical Context:

- CR4 of the global seed market was 21% in 1994.
- In the 1960s, there were more than 70 significant pesticide manufacturers in the U.S.

2. Fertilizer

Nitrogen Dominant Firms: CF Industries, Nutrien, Koch Industries, and Yara

- CF captured an estimated 80% of ammonia, 56% of urea, and 52% of UAN fertilizer sales made to American farmers.
- CF's output amounted to approximately 56% of domestic ammonia and 39% of domestic urea production (excluding its plants in Canada and Trinidad).

Nitrogen Fertilizer CR4 (North America): 77%

- North American nitrogen capacity:
 - CF Industries: 39% of total nitrogen capacity
 - 37% ammonia and 42% urea
 - Nutrien: 22% of total nitrogen capacity
 - 21% ammonia and 25% urea
 - Koch Industries: 11% total nitrogen capacity
 - 10% ammonia and 13% urea
 - Yara: 6% total nitrogen capacity
 - 6% ammonia and 7% urea

Phosphate Dominant Firms: Mosaic and Nutrien

- Mosaic produces over 64% of phosphate rock mined in the U.S.
- Mosaic produces 80% of phosphate fertilizers manufactured in North America.
- Mosaic has been estimated to control over 90% of phosphate-fertilizer sales to U.S. farmers.
- J.R. Simplot and Itafos are the only other two phosphate fertilizer producers in North America.

Phosphate Fertilizer CR2 (North America): 90%

- North American phosphate capacity:
 - Mosaic and Nutrien represent over 90% of North American phosphate capacity.

Potash Dominant Firms: Nutrien and Mosaic

- Nutrien produces between 55% and 60% of the potash mined in North America annually.
- Nutrien controls an estimated 40% of potassium-fertilizer sales in North America.
- Mosaic produces 35% of North America's potash output.
- Mosaic controls 35% of the continent's potassium fertilizer sales.
- The third (but smaller) rival is Intrepid Potash.
- The fourth (smaller) rival is K+S.
- No one else produces potassium fertilizer in North America.

Fertilizer Distribution and Retail CR7: 70%

- Seven agricultural retailers control 70% of crop input sales/services (fertilizer and agrichemical): Nutrien Ag Solutions, Growmark, Helena Agri-Enterprises, CHS, The J.R. Simplot Co., Wilbur-Ellis, GreenPoint AG.
- Nutrien captures 20% of agricultural retail sales in the U.S. with a "significant majority" of the fertilizer sold generated from Nutrien's own production.

- J.R. Simplot has 6% of national sales and also mines phosphate rock and manufactures its own phosphate fertilizer.
- CHS — the largest nitrogen fertilizer wholesaler in the U.S. — has an 11% ownership interest in CF's domestic nitrogen plants.

Historical Context:

- 1980: 56 firms produced nitrogen fertilizer, 25 companies mined phosphate rock, and 14 extracted potash, with no single firm controlling an outsized share
- 1990: less than 30 firms produced nitrogen fertilizer, 15 phosphate rock, and 8 potash firms

3. Agricultural Equipment

All Agricultural Machinery in U.S. CR4: 60.8%

- Deere & Co. - 37.07%
- CNH - 13.98%
- AGCO - 7.35%
- MTD Products - 2.4%

Large Tractors in U.S. CR3: 95%

- Deere & Co. - 53%
- CNH - 35%
- AGCO - 7%

Combines in U.S. CR3: 97%

- Deere & Co - 60%
- CNH - 30%
- AGCO - 7%

Deere & Co. is the most dominant agricultural equipment firm in the U.S.

- Sells as much machinery as its eight next largest competitors combined
- Controls 37.07% of agricultural machinery sales in the U.S. but is even more dominant in the submarkets for large tractors and combines
 - Controls 53% of large tractor sales in the U.S.
 - Controls 60% of combine sales in the U.S.

HHI — the Herfindahl-Hirschman Index — is another measure of concentration. It is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. It can range from 0-10,000, with lower values indicating more competitive markets. A market with an HHI of 2,500 or greater is considered highly concentrated.

- **HHI for North American large tractor market: 4,100+**
- **HHI for North American combine market: 4,600+**

4. Grain and Oilseed

Four entrenched dominants of global trade in agricultural commodities are known as the “ABCDs”: Archer Daniels Midland (ADM), Bunge, Cargill, and Louis Dreyfus.

- It is estimated that the ABCDs account for 70% of global food trade.
- ABCDs are not just merchants — they are “value chain managers,” involved in all phases from origination to final destination, including processing, marketing, financial instruments, risk management, and distribution.
- Either directly or indirectly, each operates a global network of crop elevators, port facilities, fleets of railcars, barges, ocean vessels, mills, and plants.
- They also have expanded into farm credit, insurance, speculative agricultural derivatives trading, and third-party investment management.

U.S. Port Elevators CR4: 60%

- Dominant firms: ABCDs
- ABCD’s control 32 out of 54 elevators.
- In two of the country’s three most important port regions (the ones that handle almost all exports of U.S. grains and oilseeds), the ABCDs are even more dominant.
 - The Center Gulf region at the mouth of the Mississippi River handles approximately two-thirds of America’s corn and soybean exports and one-fifth of its wheat exports annually.
 - ABCDs control 80% of total port elevator capacity.
 - The Pacific Northwest handles more than half of U.S. wheat exports and around one-quarter of U.S. corn and soybean exports annually.
 - ABCDs control nearly 70% of port elevator capacity.
 - Texas Gulf is the final significant region for grain exports and handles around 20% of the country’s wheat exports, but only minimal quantities of corn and soybean.
 - Port elevator capacity is split about half and half between ABCD and non-ABCD merchandisers:

- ABCD: 56%
 - Non-ABCD: 44%
- Across all three port regions, Cargill and ADM are particularly dominant.
 - ADM controls 33% of port elevator capacity in the Center Gulf region.
 - Cargill controls 31% of port elevator capacity in the Pacific Northwest and 35% in the Texas Gulf.

Domestic Grain Storage Capacity CR7: 41%

- Dominant Firms: ABCDs, CHS, Viterro, and CBG/Zen-Noh
- This includes storage at country, rail, river, and port elevators.

U.S. River Elevators CR4: 45%+*

- Dominant firms: ABCDs
- Seven firms (ABCDs, CHS, Viterro, and CGB) control 85% of river elevators.
- *ABCDs' elevators are typically larger than the industry average so the ABCDs percentage of total river- and subterminal-elevator storage capacity is likely higher.

U.S. Subterminal Rail Elevators CR4: 22%+

- Dominant firms: ABCDs

U.S. Export Trade

- Calculated market shares are not publicly available, however, available information suggests that ABCDs' dominance in grain handling capacity translates into substantial market power.
 - ADM reportedly exported a little under 1 billion bushels of grains and oilseeds from its Center Gulf and Texas Gulf port elevators in 2014. That is equivalent to roughly 36% of the total volume of corn, wheat, and soybeans exported from those regions in 2014.
 - Cargill reportedly handles about one-third of grain exported from PNW regional annually.
 - Cargill shipped more than 400 million bushels of grains and oilseeds in the 2022-2023 crop year through its TEMCO port elevators in Washington and Oregon.
 - At the Texas Gulf, Cargill's TEMCO elevator reportedly exports over 140 million bushels each year, which is 56-70% of the total volume exported out of that port annually.
- Grain merchandisers to which farmers (and independent country elevator operators) can potentially sell their grains and oilseeds are limited.

- Other than the ABCDs, there are only 64 merchandisers in the country.
- Of those, only 37 own or control sub-terminal elevators.
- Only 11 own or control any river elevators.
- Only 11 firms own or control working port elevators in the three major exporting regions of the country.

End-user Industries:

Dominated by ABCDs, with ADM, Cargill, and Bunge controlling a substantial majority of the country's corn milling, oilseed crushing, and wheat milling capacity. Ethanol and animal feed industries are somewhat less concentrated.

- Domestic Wet Corn Milling
 - Consolidated into six firms: ADM, Cargill, Ingredion (formerly Corn Products International), the Grain Processing Corporation (GPC), Roquette, and Tate & Lyle
 - In 2017, CR4 for the industry's total sales was 89%.
- Domestic Soybean Crushing Capacity CR4: 80%
 - Bunge: 26%
 - ADM: 21%
 - Cargill: 21%
 - Ag Processing: 12%
- Domestic Wheat Milling Capacity CR4: 63%
 - Ardent Mills (a joint venture between Cargill, CHS, and ConAgra): 31%
 - ADM: 16%
 - Grain Craft: 10%
 - Bay State: 6%
- Domestic Ethanol Manufacturing Capacity CR4: 45%
 - POET: 17.5%
 - Valero Energy: 10.6%
 - ADM: 10.5%
 - Green Plains: 6.2%
 - While this industry is somewhat less concentrated, it is currently under a period of intense consolidation.
- Domestic Animal Feed Capacity CR5: 30%
 - Cargill: 9%

- ADM: 1.4%
- Similar to ethanol manufacturing, this industry is in a period of intense consolidation and will likely be far more concentrated soon.

5. Livestock

Beef CR4: 80-85%

- Tyson Foods: 20-25%
- JBS USA: 20-25%
- Cargill: 15-20%
- National Beef: 14%
- Outside of the Big Four, only 16 companies procure and slaughter a substantial amount of cattle.
 - As of 2021, the 10 largest meatpackers control 91% of national cattle slaughter and 20 firms controlled 98% of fed-cattle slaughtered in the U.S.
 - Local markets where cattle are actually sold are even more concentrated with only one or two buyers in many local geographic markets. Few sellers have the option of selling fed cattle to more than three or four packers.

Pork CR4: 67%

- WH Group: 25%
- JBS: 19%
- Tyson: 16%
- Hormel: 6%

Dairy

- Dairy farms have grown increasingly consolidated with a small percentage of large operations producing the majority of the milk supply.
 - 2.5% of dairies (the 834 dairy operations with more than 2,500 cows) produce nearly 45% of American raw milk annually.
 - Dairy Farmers of America (DFA) aggregates and markets around 30% of the country's raw milk from over 14,000 dairies.
 - The eight largest milk cooperatives together account for more than 54% of annual milk production.
- **Domestic Milk Processors CR4: 39-41%**
 - DFA: 15%

- Land O'Lakes: 10-12%
- Saputo Inc.: 7%
- Nestle: 7%
- **Fluid Milk Sales CR3: 83%**
 - DFA: 39.1%
 - Land O'Lakes: 35.2%
 - California Dairies: 8.8%

Poultry CR4: 60%

- Tyson Foods: 25%
- Pilgrim's Pride: 20%
- Sanderson Farms: 8%
- Perdue Farms: 7%
- The remainder of the market is controlled primarily by 16 other poultry integrators.
 - U.S. Poultry Processing CR10: 77%
 - U.S. Poultry Processing CR20: 94%
 - Concentration is more severe at the local level, with half of poultry growers reporting having a choice of only one or two integrators to work with in their locality, and almost none having more than four.
 - 95% of broiler poultry production occurs under contracts for integrators.

Egg CR5: 36-40%

- Cal-Maine Foods: 20%
- Other dominant firms: Rose Acre Farms, Versova Holdings, Hillandale Farms, and Daybreak Foods
 - CR10: 53%
 - CR20: 73%
 - Concentration is more severe at the local level.
 - The four largest egg producers in California control 68% of California's egg production.
 - Egg production capacity is concentrated in the Midwest, the South, and California.
 - As of 2016, over 55% of egg-laying hens were located in the Midwest.
 - Iowa: 17.3%
 - Ohio: 10.1%
 - Indiana: 10.1%
 - Pennsylvania: 8.4%

- Outside of the Midwest, Texas produced over 5%, and Georgia and California each produce 3-4%.

6. Fruit and Vegetable

Processed Food and Drinks CR4s:

- Juice: 47%
- Table Sauce: 53%
- Bottled/Canned Green Beans: 56%
- Canned Tomatoes: 58%
- Canned Potatoes/Sweet Potatoes: 59%
- Prepared Salad: 68%
- Wine: 69%
- Prepared Soup: 70%
- Almond Milk: 81%
- Dips: 90.7%

Berries:

- Driscoll's is dominant in berries.
 - In 2017, Driscoll's controlled approximately $\frac{1}{3}$ of the U.S. berry market and 60% of the organic strawberry market.
 - In 2011, Driscoll's estimated to supply 90% of raspberry sales in conventional markets.

Fresh-Cut Salad CR4: 54%

- Dominant firms: Cultrale-Safra, Itochu, Taylor Fresh Foods, and Bonduelle
- Cultrale-Safra: 21% of sales

Carrots CR2: 60%

- 60% of carrots are produced by just two companies: Bolthouse and Grimmway

7. Retail Grocery

Retail Grocery CR4: 69%

- Walmart: 34.8%
- Kroger: 13.9%
- Costco: 12.2%
- Albertsons: 8.1%
- Note: Kroger and Albertsons have moved to merge, but this merger is currently being challenged by the FTC. The merger of the second and fourth-largest grocery chains would significantly increase market concentration.

8. Foodservice Distribution

- Broadline Distribution CR10: 60-70%
 - The top five firms control over 50%
 - Sysco alone controls over 30%
 - Only the three largest broadliners — Sysco, U.S. Foods, and PFG — have the distribution network and resources to serve customers nationwide.

9. Farm Credit

- **Farm Credit System**
 - The six largest multi-state Farm Credit System lending associations hold more than half the total assets of all 65 associations.
- **Commercial Banking CR4: 41%**
 - Megabanks account for 64% of industry assets and the largest four banks control 41%
 - **Historical Context**
 - 7 out of 10 community banks have disappeared since the 1980s and the decline is accelerating
 - In 1984, there were ~ 14,400 community banks and they controlled ~40% of industry's assets. Today, there are about 4,500 community banks and their market share is ~12%

10. Crop Insurance

- Only 16 national, regional, and single-state authorized insurance providers (AIPs) underwrite FCIC-subsidized policies.
- As of 2011, the largest five controlled about $\frac{2}{3}$ of business.

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