Farm Action

BIG FERTILIZER:
MEASURING THE IMPACTS OF FOOD AND FARM SYSTEM CONCENTRATION

A Special Report by Farm Action

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Author: Sarah Carden
Contributor: Joe Maxwell
Editors: Dee Laninga and Angela Huffman

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Introduction

The food system is currently embroiled in a period of unprecedented consolidation and concentration, both globally and nationally.[1] Economists agree that market abuses are likely to occur when the concentration ratio of the top four firms (CR4) exceeds 40%.[2] In the U.S., CR4 ratios surge far beyond this percentage — in some cases doubling it — in such diverse sectors as soybean processing, beef processing, pork processing, poultry processing, cold cereal, soft drinks, beer, salty snacks, bread, ice cream, fresh cut salad, wine, retail grocery, and convenience stores.[3]

Concentration at this level is more than a series of abstract figures, but rather a precarious condition that has real-world consequences for people across the country. A concentrated food system controlled by only a few corporations presents enormous food security risks, as demonstrated by the shutdowns of the meatpacking plants during COVID-19 outbreaks. Concentrated markets not only drive up the cost of food for the American consumer,[4,5] but also increase the burden of the taxpayer-funded subsidies that enable a system in which a producer can no longer earn a living without federal support. And when consolidated corporate monopolies set up shop in rural communities — where most of the nation's food is produced — they extract excessive levels of wealth and natural resources for the benefit of their executives and shareholders.

The corporate domination of rural communities triggers an avalanche of harm to these communities. As independent farmers and local businesses are pushed out, populations and corresponding tax revenues plummet. Schools lose funding and hospitals are forced to shut their doors. Loss of opportunity and critical care infrastructure inevitably leads to higher poverty and food insecurity rates.[6] It is a self-perpetuating cycle of destruction that is tearing through rural America.

When we see the concentration of industries at the levels we do in our food system, the understanding and application of supply and demand modeling fails to explain the market

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[1] Mary Hendrickson, Phillip Howard, Emily Miller, and Douglas Constance. 2020. "The Food System: Concentration and Its Impacts." Special Report to Family Farm Action Alliance. Available at https://farmaction.us/concentrationreport/

[2] Chessler, David and Associates. 1996. "Determining When Competition Is 'Workable': A Handbook for State Commissions Making Assessments Required by the Telecommunications Act of 1996." The National Regulatory Research Institute at the Ohio State University. Available at https://ipu.msu.edu/wp-content/uploads/2016/12/Chessler-Workable-Competition-96-19-July-96-1.pdf

[3] Mary Hendrickson, Phillip Howard, Emily Miller, and Douglas Constance. 2020. "The Food System: Concentration and Its Impacts." Special Report to Family Farm Action Alliance. Available at https://farmaction.us/concentrationreport/

[4] Chidmi, Benaissa, Rigoberto Lopez, and Ronald W. Cotterill. 2005. "Retail oligopoly power, dairy compact, and Boston milk prices." Available at https://onlinelibrary.wiley.com/doi/10.1002/agr.20058

[5] Phillip Howard and Mary Hendrickson. 2021. "Corporate concentration in the US food system makes food more expensive and less accessible for many Americans." Available at https://theconversation.com/amp/corporate-concentration-in-the-us-food-system-makes-food-more-expensive-and-less-accessible-for-many-americans-151193

[6] Miller, Emily M. 2021. "The Truth About Industrial Agriculture: A Fragile System Propped up by Myths and Hidden Costs. Available at https://farmaction.us/truthreport/

dynamics of concentrated corporate power. What we see are these corporations extracting wealth up and down the supply chain, from farmer to eater.

Fertilizer: An Object Lesson in Corporate Consolidation

The fertilizer industry is an easily-quantifiable example of how corporate consolidation extracts wealth from rural communities. Fertilizer prices skyrocketed in 2021. We note that while cost of production has increased and supply-chain disruptions have been rampant, fertilizer corporations are raising their prices far beyond the necessary thresholds, enabling them to report record-breaking profits. For example, Nutrien, one of the largest fertilizer manufacturers, reported in their very own third quarter report a 51% increase in cost of goods for nitrogen production over the three month period preceding September 30th, but their gross manufacturing margin went up 680% over this same period[7]. Market-power abuse is the only reasonable explanation for their sky-high manufacturing margins.

The fertilizer industry has experienced some of the highest rates of consolidation over the past 25 years. Between 1980 and the mid-2000s, low commodity prices and high input expenses led to a drop in demand. During this time period, we saw the number of fertilizer firms decline from 46 to 13. As the price of natural gas (from which nitrogen-based fertilizers are derived) dropped and demand increased, this pattern of consolidation continued. This resulted in fewer firms owning and operating an increasing number of production facilities.[8] Today, just two companies supply the entirety of North America with potash, a potassium-based fertilizer: Nutrien Limited and the Mosaic Company.[9] In 2019, four corporations represented 75% of the production and sale of nitrogen-based fertilizer in the US: CF industries, Nutrien, Koch, and Yara-USA.[10]

Skyrocketing Input Prices Lead to Slashed Farm Income

In 2021, and particularly in the last quarter of the calendar year, the price of all major nutrients used in crop production — Nitrogen, Phosphorus, and Potassium (NPK) — skyrocketed at record-breaking rates and levels. Compared to September 2020 prices, the main nitrogen-based

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[7] Nutrien. 2021. “Nutrien Delivers Record Third Quarter Results and Raises Full-Year Guidance.” Available at https://www.nutrien.com/investors/news-releases/2021-nutrien-delivers-record-third-quarter-results-and-raises-full-year

[8] Bekkerman, A., G.W. Brester, and D. Ripplinger. 2020. "The History, Consolidation, and Future of the U.S. Nitrogen Fertilizer Production Industry." Choices. Quarter 2. Available at https://www.choicesmagazine.org/choices-magazine/submitted-articles/the-history-consolidation-and-future-of-the-us-nitrogen-fertilizer-production-industry

[9] ETC Group. 2019. “Plate Tech Tonics: Mapping Corporate Power in Big Food.” Available at https://www.etcgroup.org/content/plate-tech-tonics

[10] Bekkerman, A., G.W. Brester, and D. Ripplinger. 2020. "The History, Consolidation, and Future of the U.S. Nitrogen Fertilizer Production Industry." Choices. Quarter 2. Available at https://www.choicesmagazine.org/choices-magazine/submitted-articles/the-history-consolidation-and-future-of-the-us-nitrogen-fertilizer-production-industry

fertilizers, anhydrous ammonia, urea, or liquid nitrogen, have increased 210%, 155%, and 159% respectively. Phosphorus-based fertilizers, Diammonium phosphate (DAP) and Monoammonium phosphate (MAP), have increased 100% and 125%, respectively. Potash, the main source of potassium, has risen over 134%.[11] In October of 2021 alone, the price of anhydrous fertilizer jumped 26% from the previous month to levels not seen since 2008. Urea increased 21% from previous months, and the price of potash is now 13% higher.[12]

Despite the higher commodity prices we are seeing today, studies indicate that these ballooning fertilizer prices will consume farmers' profits and are predicting net farm income to fall. The Agricultural and Food Policy Center (AFPC) at Texas A&M has maintained a farm-level policy simulation model for over 30 years. Their model predicted fertilizer expenses to go up in 2022 (Nitrogen at 9.94% and Potash and Phosphorus at 13.61%); however, their model did not predict increases at the rates we are seeing today. Their recently-published study ran two models, one at the predicted fertilizer rate and a second at an adjusted rate of 55.43% for Nitrogen and 50.84% for Potash and Phosphorus, based on the most recent fertilizer data. A comparison of the two scenarios resulted in substantial net farm income reductions and significantly higher fertilizer expenses for farmers. Specifically, in feed corn farms their models show an average loss of income of $94,000 per farm due to an increased fertilizer expense of $39.55 per acre.[13]

Other studies are predicting similar if not more substantial impacts to net farm income due to rising fertilizer costs. A study from the University of Illinois projected that increasing fertilizer costs will lower farm incomes by 34%. Even at a high baseline price of $5.00/bu of corn and $12.00/bu of soybeans, this means a drop in farm income from 2020 and 2021 levels. If corn and soybeans drop to the levels predicted by the USDA in their long term price predictions of $4.80/bu and $10.50/bu respectively, this will drop net farm income to $64,600 — a more than $20,000 reduction from the 2013-2019 average of $85,000, and nowhere near the 2020 and 2022 income levels.[14]

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[11] Myers, Shelby and Veronica Nigh. 2021. "Too Many to Count: Factors Driving Fertilizer Prices Higher and Higher." American Farm Bureau Federation. Available at https://www.fb.org/market-intel/too-many-to-count-factors-driving-fertilizer-prices-higher-and-higher

[12] Micik Dehlinger, Katie. 2021. "DTN Retail Fertilizer Trends: Nitrogen Fertilizer Prices Close in on All-Time Highs as UAN32 Breaks Record." DTN/Progressive Farmer. Available at https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/11/03/nitrogen-fertilizer-prices-close

[13] Agricultural and Food Policy Center. 2022. "Economic Impact of Higher Fertilizer Prices on AFPC's Representative Crop Farms." Texas A&M University. Available at https://www.afpc.tamu.edu/research/publications/files/711/BP-22-01-Fertilizer.pdf

[14] Schnitkey, G., C. Zulauf, K. Swanson, N. Paulson and J. Baltz. 2021. "2022 Grain Farm Income Projections Negatively Impacted by Fertilizer Cost Increases." farmdoc daily (11):156, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign. Available at https://farmdocdaily.illinois.edu/2021/11/2022-grain-farm-income-projections-negatively-impacted-by-fertilizer-cost-increases.html

Consider Representative Fischbach's home county of Stearns, MN, where the USDA reported 214,930 acres of grain corn planted in 2021. Similar acreages planted today would cost farmers in this county an additional $8,500,481.50 in fertilizer expenses alone.

This is $8.5 million of income stolen not only from the local farmers of Stearns county, but from the community in which they reside. This loss of income means lower tax revenues for the county and state, which leads to lower investment in schools and local infrastructure. It means more independent farms and local businesses will go out of business, leading to even further tax-revenue loss. As we see $8.5 million leave this community, it means depopulation and increased poverty. It is not only a loss of income for farms, but the crippling of their communities.

If we do not put a stop to the consolidated oligarchies that we see today, then farms will continue to depend on taxpayer-funded subsidies and local residents will grow increasingly dependent on social-assistance programs — all trying to supplement the wealth these corporations have extracted from rural communities.

What Is the Cause of Ballooning Fertilizer Prices?

Fertilizer companies have attributed these rising prices to global shortages, yet the companies' own documents refute any shortage claims by revealing that they have additional capacity that they are not utilizing. While it is true that natural gas prices are currently high, Yara's 2021 third quarter report explicitly states that this has had "[l]imited impact on finished fertilizer production to date."[15] Nutrien's annual report states that, "due to historically low global ammonia prices we curtailed production…while maintaining flexibility to respond to improvements in the market condition."[16] Their potash capacity also exceeds current production levels and in 2020, the cash cost to produce potash was $59 per tonne, the lowest level on record for Nutrien.[17] Their very own reports tell us there are no capacity shortages, that some of their production costs are even at record lows; yet farmers across the country are grappling with fertilizer price increases that knock their feet out from under them.

According to fertilizer companies' own financial statements, their cost of goods sold has increased; still, their gross margins have gone up substantially more. According to Nutrien's third quarterly report, in the three months prior to September 30th, their gross margins in nitrogen

[15] Yara International ASA. 2021. "Yara International ASA 2021 Third quarter results." Available at https://www.yara.com/investor-relations/latest-quarterly-report/

[16] Nutrien. 2020. "Leading Solutions for Sustainable Agriculture: Nutrien Annual Report 2020." Available at https://www.nutrien.com/investors/financial-reporting

[17] Nutrien. 2020. "Leading Solutions for Sustainable Agriculture: Nutrien Annual Report 2020." Available at https://www.nutrien.com/investors/financial-reporting

production went up 680% while their cost of goods only rose 51%.[18] At CF Industries, they saw their gross margin increase 530%, while the cost of sales only accounted for 120% of that increase, during that same period.[19]

What appears much likelier than global shortages is that these price hikes are aligned with the rising prices farmers are able to get for their grain harvests. In fact, in 2018, Yara stated that "[v]ariations in grain prices (corn or wheat) explain approximately 50% of the variations in the urea price, making grain prices one of the most important factors driving fertilizer prices."[20] On average, corn prices are up more than 20% from the start of the year.[21] In effect, these corporations are stealing the farmers' profits. Farming is full of highs and lows; bumper years help cushion the effects of disastrous years, and are critical to farms' long-term survival. If these corporations are tying the price of their products to the farmer's ability to pay, rather than to supply and demand, that equates to an abuse of the market. Such abuses allow concentrated corporations to extract maximum profit out of the supply chain, leaving the farmer with no hope of profitability.

Conclusion

In a highly concentrated food system, independent farmers are forced to play the game according to rules that favor huge, global corporations. These rules act as barriers to profitability for independent farms,[22] and have consequences that ripple outwards. When independent farms fail, the United States' loosely-regulated farmland market means that there is a strong chance the valuable land will be snatched up by billionaires, corporations, or global entities. As a result, the surrounding community loses neighbors, local employers, and a significant part of its tax base. Farm closures mean less funding for schools and hospitals, leaving the remaining population with little or no access to critical services.[23] Reining in corporate consolidation and creating more fair, inclusive, and competitive markets will not only bring a financial boon to farmers, but will strengthen the economies and social fabric of our rural communities, and even improve our national food security.

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[18] Nutrien. 2021. "Nutrien Q3 2021 Earnings Release." Available at https://www.nutrien.com/investors/financial-reporting

[19] CF Industries Holdings, Inc. 2021. "United States Security and Exchange Commission Form 10-Q." Available at https://cfindustries.q4ir.com/sec-filings/documents/sec-filings-details/default.aspx?FilingId=15332569

[20] Yara International. 2018. "Yara Fertilizer Industry Handbook." Available at https://www.yara.com/siteassets/investors/057-reports-and-presentations/other/2018/fertilizer-industry-handbook-2018-with-notes.pdf/

[21] "Corn Prices - 59 Year Historical Chart." Macrotrends. Available at https://www.macrotrends.net/2532/corn-prices-historical-chart-data

[22] Mary Hendrickson, Phillip Howard, Emily Miller, and Douglas Constance. 2020. "The Food System: Concentration and Its Impacts." Special Report to Family Farm Action Alliance. Available at https://farmaction.us/concentrationreport/

[23] Miller, Emily M. 2021. "The Truth About Industrial Agriculture: A Fragile System Propped up by Myths and Hidden Costs." Available at https://farmaction.us/truthreport/