Too Much of a Good Thing:

The Paradox of Perfect Weather

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Key Takeaways

- Supply Gluts: Perfect growing conditions can lead to an oversupply, causing a drop in crop prices and profits.
- Drought's Silver Lining: Sector-level crop receipts and average incomes tend to rise during periods of drought.
- Financial Management: Droughts heighten the risk and reward of crop production, making sound financial management essential.

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Executive Summary

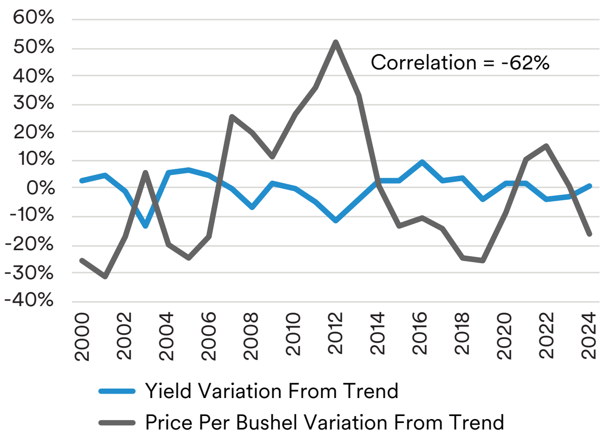
Rain makes grain, and in 2024, crop growers in the U.S. received plenty of it. When agricultural commodities become too abundant, prices decline alongside sector profitability. Although drought conditions pose considerable challenges, they also create notable opportunities for U.S. crop producers, making it a potentially more favorable environment to operate in.

Inelastic Demand Meets Supply Fluctuations

Paradoxically, one of the least desirable market conditions for U.S. crop producers is having ideal growing conditions and fantastic yields, leading to an oversupply that depresses prices and reduces profits. This is precisely what happened in 2024 as week-after-week crop conditions improved and yield expectations increased. The only way out of this situation, short of a miraculous increase in demand, is aggressive marketing to clear the stocks, which because most agricultural commodities can be stored for some time, could take multiple years.

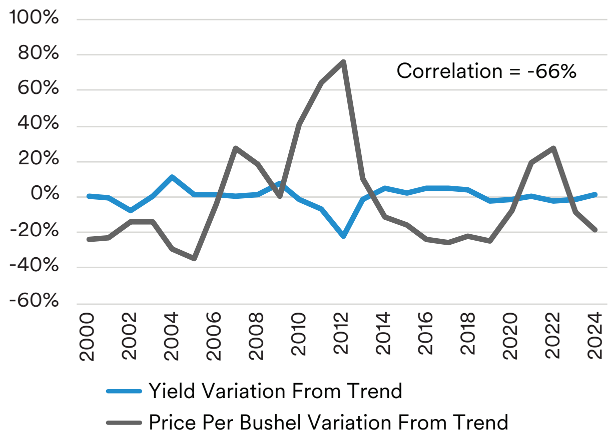
On the other hand, a reduction in sector-level yields and production, such as that experienced from 2010 to 2013 due to drought across much of North America, is a much more appealing market environment for growers. Due to the inelastic demand for most agricultural commodities[1], a modest reduction in supply results in a disproportionately large increase in prices, as is evident when comparing fluctuations in yields and prices of corn and soybeans (Exhibit 1 and Exhibit 2). This outsized price response means that industry revenues actually increase when overall production declines. Of course, an even more profitable outcome is when a competitor around the world is the one reducing production.

Exhibit 1 | Supply Fluctuations Drive Prices (Soybeans)



Source: MIM, USDA, 2024

Exhibit 2 | Supply Fluctuations Drive Prices (Corn)



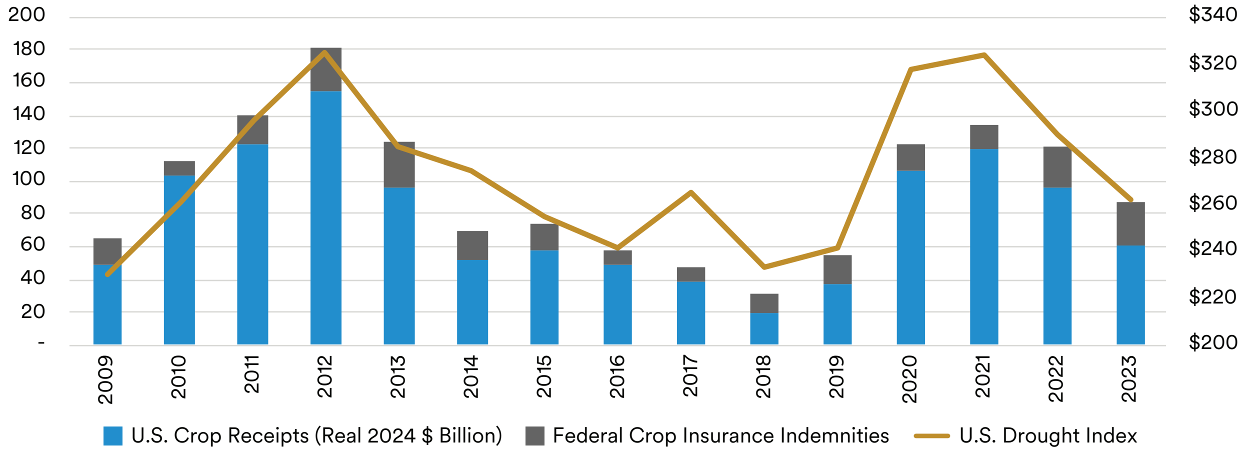
Source: MIM, USDA, 2024

Impacts of Drought

Because prices of most agricultural commodities respond so disproportionately to modest reductions in production, drought has historically been associated with higher sector-level crop revenues (Exhibit 3). As weather patterns shift and drought potentially becomes more common, U.S. producers could benefit — provided they employ sound financial management strategies. In any given year, producers affected by drought would likely be compensated by federal crop insurance and other farm support programs, while those not affected will benefit from higher market prices. This dynamic leads to higher industry incomes and increasing land values driven by elevated average profits. Over time, all producers can benefit from higher average prices, incomes and land values, as long as they can endure the wait for drought conditions to move on to a new area, and then they can take their turn producing at higher prices.

It's important to note that these impacts differ in the long run and the short run. If production were to decline for too long, then consumers of crops, particularly livestock producers, would adapt and respond to their higher costs by limiting the size of their herds/flocks/etc. — and reduce the overall demand for crops. So, the benefits of drought on crop profits are not necessarily due to the reduction in yields and production, but instead due to volatility in yields and production.

Exhibit 3 | Drought and Crop Revenues



Source: MIM, USDA, National Drought Mitigation Center, 2024

Managing Volatility and Uncertainty

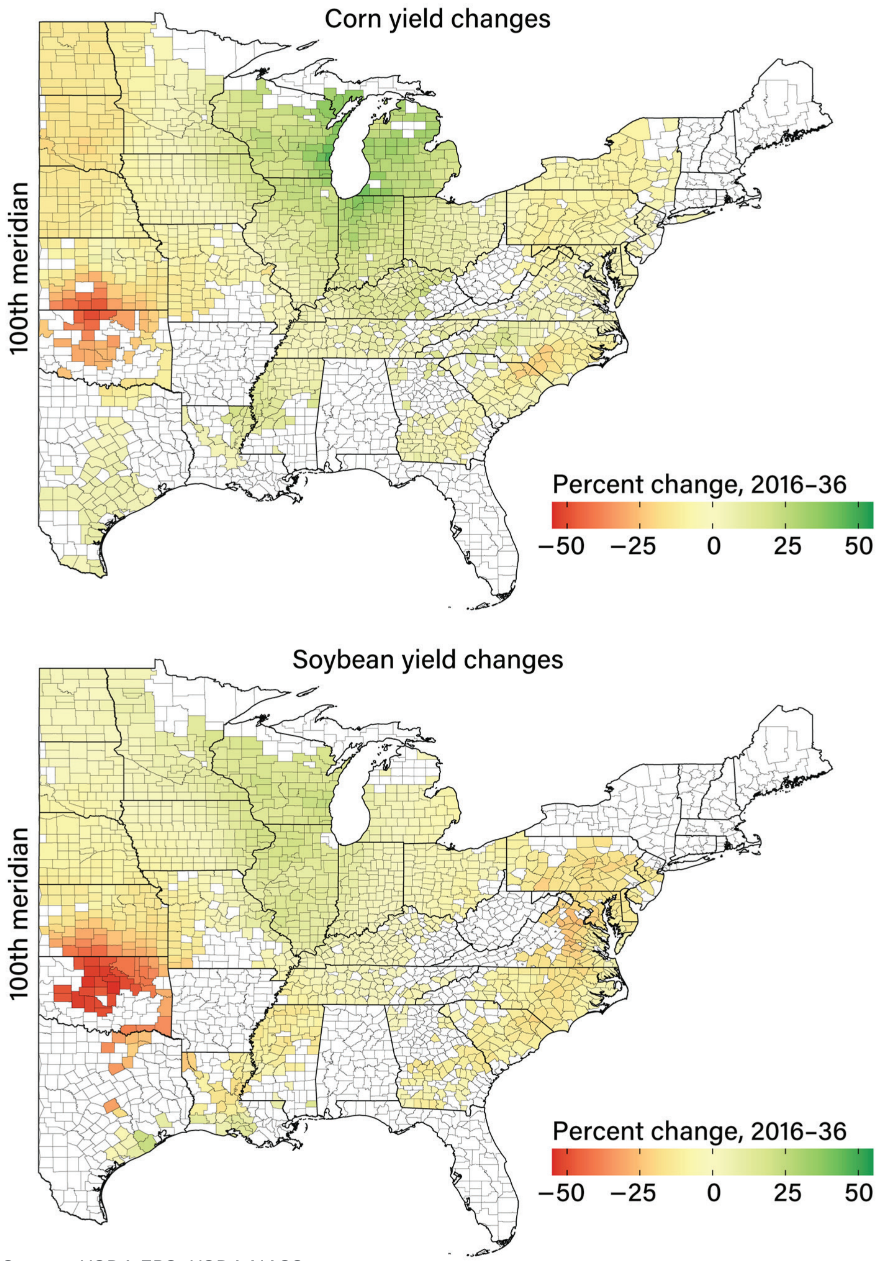
However, the benefits of higher prices and incomes come at a cost. More volatile weather results in more volatile incomes. To capitalize on higher average prices and incomes, producers must endure the highs and lows of the market. Effective financial management becomes increasingly important in this context. Building a healthy balance sheet and smartly utilizing leverage to maintain adequate working capital are crucial for any producer aiming to survive poor years and thrive in better ones. In such an environment, a relationship with a lender who is going to be there throughout cycles of the agricultural economy to provide necessary capital becomes a crucial tool.

Future Impacts of Changing Weather Patterns

Small producers are likely unable to have the financial fortitude to survive a multi-year drought hovering over their land. Agriculture in the U.S. has a long history of consolidation, and an increased prevalence of drought would only increase the synergies and efficiencies unlocked by consolidating and geographically diversifying.

Most scientists believe that the U.S. at large will continue to warm throughout the century, and as weather patterns are expected to be more volatile, floods, droughts and tropical storms will become more commonplace[2]. The USDA has studied how corn and soybean yields may be affected by changes in precipitation and temperature[3] (Exhibit 4). In the Midwest, the impacts on crop yields are expected to differ depending on how close the farmland is to the Great Lakes, with areas closer to the Great Lakes experiencing higher increases in yields.

Exhibit 4 | Climate-Linked Yield Changes Projected To Vary by Region and by Crop



Source: USDA ERS, USDA NASS, 2024

Conclusion

When weather is good and farmers produce too much, no one can escape lower prices. While drought conditions present significant challenges, they also offer substantial opportunities for U.S. crop producers because of the disproportionate increase in prices associated with modest declines in production, and drought becomes especially desirable when it's located in a competing nation in another hemisphere. By maintaining robust financial management practices, producers can navigate the risks and reap the rewards of drought conditions.

Endnotes

1 Roberts, Michael J., and Wolfram Schlenker. 2013. "Identifying Supply and Demand Elasticities of Agricultural Commodities: Implications for the US Ethanol Mandate." American Economic Review, 103 (6): 2265–95.

2 Fifth National Climate Assessment (globalchange.gov)
Jay, A.K., A.R. Crimmins, C.W. Avery, T.A. Dahl, R.S. Dodder, B.D. Hamlington, A. Lustig, K. Marvel, P.A. Méndez-Lazaro, M.S. Osler, A. Terando, E.S. Weeks, and A. Zycherman, 2023: Ch. 1. Overview: Understanding risks, impacts, and responses. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, US

3 Beckman, J., Ivanic, M., & Nava, N. J (2023). Estimating Market Implications From Corn and Soybean Yields Under Climate Change in the United States (Report No. ERR-324). U.S. Department of Agriculture, Economic Research Service.

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