Terrain

9.38 BILLION

The Big Shrink

Best Trade Friends Forever?: Part 2

By Matt Clark

In "Best Trade Friends Forever?: Part 1" we assessed the export risk profiles of major U.S. crops as the agricultural industry faces a peaking global population in the coming decades. In this second part, we examine the long-term risks for U.S. export markets and evaluate what the path forward could look like for growers of corn, sorghum, soybeans and wheat in a world of fewer consumers.

EXPORTS: THE LONG-TERM RISK IS MORE SIGNIFICANT

As population growth and, to an extent, global prosperity accelerated over the last 30 years, the themes of "Feed the World" and globalization aligned with the growing demand for U.S. exports.

Nearly all our corn, sorghum, soybean and wheat exports could go to countries that are in population decline by 2050.

However, the pace of population growth has significantly declined because of rapidly declining fertility rates, and the world may reach peak population in the next 40 years. (Read Terrain's first report of this series, "How Will Agriculture Navigate the Baby Bust?")

In the long term, global population decline for our current export markets will become highly pronounced and create a strong need to diversify both our partnerships and our products. For corn, sorghum, soybean and wheat exports, declining global population trends raise significant risks for the current U.S. export model.

Using the United Nations' "low variant" projection scenario, which Terrain deems a highly likely scenario, nearly all our corn, sorghum, soybean and wheat exports could go to countries that are in population decline by 2050 (holding the current mix of trade partnerships constant).[1]

Without Changes to Export Destinations, Population Decline Matters

Percentage of Exports Shipped Today to Countries Where Population Will Have Peaked by 2035 and 2050

	Peak by **2035**	Peak by **2050**
Corn and Corn Products	39%	81%
Soy Complex	62%	88%
Sorghum	87%	92%
Wheat and Milled Products	40%	80%

Sources: United Nations, USDA, Terrain

From Terrain's research, it is very unlikely that the current mix of trade partnerships will escape the demographic trends. This is chiefly because of the long-term declining fertility rates of our export

partners. The weighted fertility rate for corn, sorghum and soybeans is near or below 1.5 live births per woman throughout her lifetime — well below the U.N.'s replacement rate of 2.1 live births per woman.[2]

Wheat is in a slightly better position, as many export partners (African nations, for example) still have a strong birth rate. But even so, the fertility rate of wheat's export partners fell below the population replacement rate in 2021. The trade-weighted fertility rate for soybeans, corn and sorghum fell below the population replacement rate in 1996, 2003 and 2015, respectively.

While 2050 may seem to be in the distant future, a 30-year farmland loan today would pay off in 2055.

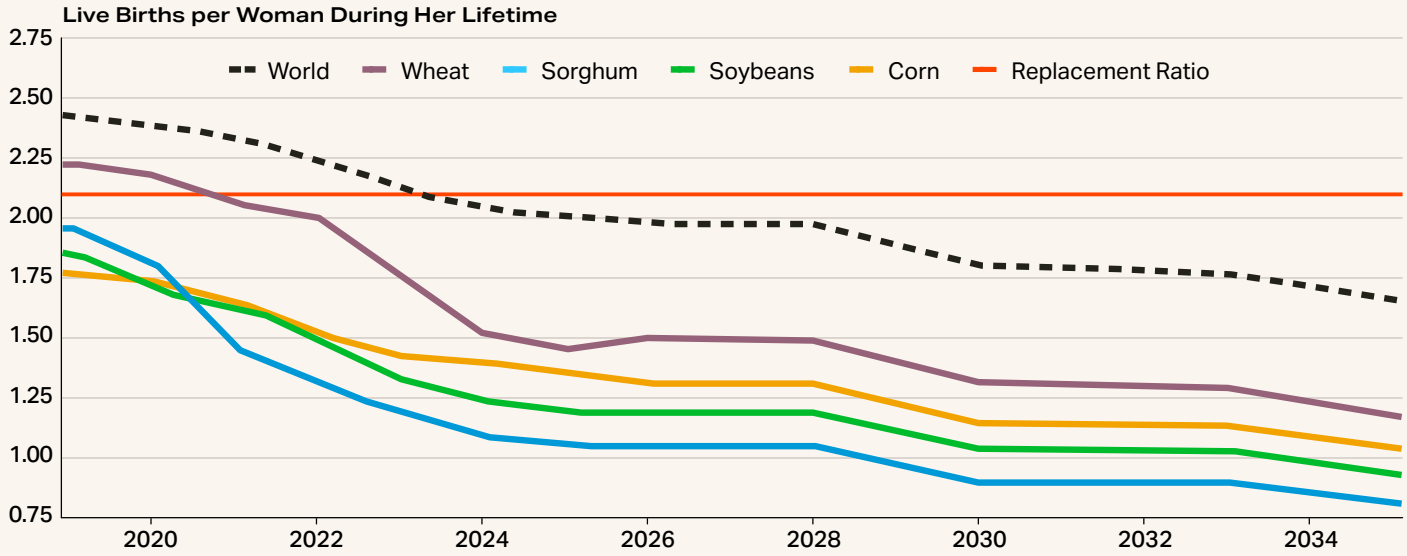
Reversing the long-term trend of these fertility rates will take work and creativity in the public policy arena. Using the U.N.'s "low variant" projections, the trade-weighted fertility rate of the current trade partners will be below or near 1.0 for corn, soybeans and sorghum by 2035 and reach 1.11 for wheat by 2050. The U.S. agricultural industry must prepare for and hedge against the likelihood of population decline in nearly all our current export partners by 2050.

While 2050 may seem to be in the distant future, a 30-year farmland loan today would pay off in 2055. So, for young producers, and the next generation of farmers growing up on the farm or coming home, the strategy of producing as much as possible and depending on an ever-growing global population consuming more and more food is less likely to be a reality for them than it was for the previous and current generation of farmers.

A PATH FORWARD FOR U.S. AGRICULTURE

If new demand sources are unable to be developed, the long-standing model in U.S. agriculture of continuous productivity expansion could yield surpluses that weigh heavily on the farm economy. A new reality of a future world population that stops growing will require new approaches in U.S. agriculture, including:

A Reversal in Population Direction Is Unlikely



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Note: Data are shown on a 2-year moving average. Future fertility rates are from the United Nations' low variant and the mix of export partners is an average from 2022-2024.
Sources: United Nations, USDA, Terrain

1. Deepening and broadening export markets strategically
2. Capturing growing demand for high-value products
3. Diversifying revenue streams
4. Developing new domestic demand

Broadening our potential destinations would allow for a longer runway to transition to a new growth paradigm.

Deepening and Broadening Export Markets Strategically

Trade and commodity groups should continue to deepen our current trade relationships and push for new export markets. Exports will continue to be important demand outlets in the near to medium term, and broadening our potential destinations would allow for a longer runway to transition to a new growth paradigm. Consider that in 2024, only 2% of U.S. agricultural exports went to African nations and only 1.3% went to India — both areas of the world where future population growth is expected to occur.[1,2]

In addition, further expansion or deepening of trade relationships should be done to help balance the trade portfolios of commodities. For example, soybeans and sorghum should focus on development in fast-growing countries even if there are some added financial stability risks, as the population decline of their current trade partners is imminent.

On the opposite end of the spectrum, wheat should focus on deepening relationships with countries that are financially stable such as Japan, South Korea, Canada (for milled products) and Europe. Although focusing on these regions may sacrifice some future growth, it could add financial stability and improve trade fairness as outlined in "Best Trade Friends Forever?: Part 1."

Capturing Growing Demand for High-Value Products

As population growth slows and population age increases, there may be expanded opportunities for higher-value or higher-quality products to gain a larger foothold in domestic and foreign markets. Demand for non-GMO, organic and climate-smart products is currently limited to a small enough market that price is not attracting significant expansion in acres (regulatory and certification hurdles aside). However, in the longer term, demand for these products may pick up and compete for acres.

Diversifying Revenue Streams

Farmland owners can diversify revenue streams. While not captured in traditional farm economic measures, the conversion of farmland acres to wind and solar energy, agritourism, vacation stay destinations, wedding venues, and hunting or other recreational incomes has been a growing portion of "farm income." This trend is likely to continue, particularly on marginal acres. The conversion of marginal farmland to new revenue streams moves the focus from farmland as an asset to grow commodities to farmland as the primary commodity to grow revenue — an important distinction that will continue to gain steam in the coming years.

The playbook from King Corn may be an excellent model for other industries.

Developing New Domestic Demand

The playbook from King Corn may be an excellent model for other industries. In 1990, more than 20% of the corn crop was exported and more than 80% of the value of exports was in the bulk goods form (corn grain).[2] As ethanol and related industries took off, in 2024 only 15% of the crop was exported in bulk, and these exports account for less than 60% of the total value of all corn and corn product exports.[2] The value of corn exports, in inflation-adjusted

dollars, increased 150% from 1990 to 2024, led by a near doubling in the value of processed (non-bulk) exports.[2] As a result, a greater value of the supply chain is captured locally, and basis at the farm level is comparatively stronger.

Comparatively, the share of wheat and sorghum production that has been exported has remained stable over the years, and most of the export value is still in bulk.

The export share of soybean processed goods has remained stable since 1990. The continued build-out of soybean crush facilities should help the industry capture some additional value. The soybean industry may also receive a lift in the long term from renewable diesel and sustainable aviation fuel demand, though both demand sources are still being developed and soybeans will compete with other crops for this feedstock demand.

For the sorghum, soybean and wheat industries, finding a demand source that can consume more in the U.S. and export high-value processed goods would significantly help the long-term growth outlook.

The idea of producing as much as possible and exporting the excess will likely not be a financially sound business plan in 20-plus years.

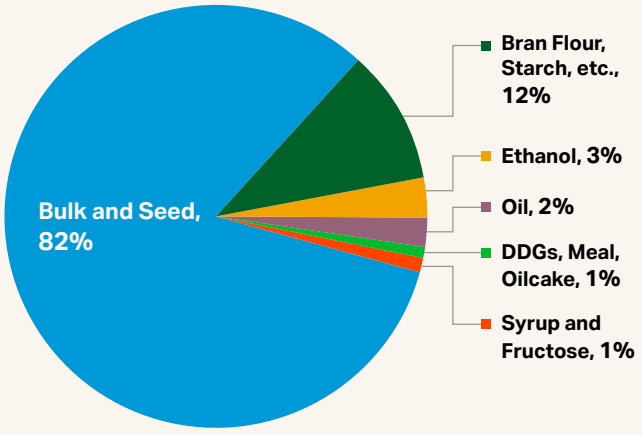
WHAT DOES THIS MEAN FOR FARMING?

Simply put, farmers today do not farm the same as their grandparents did; likewise, farmers in 30 years will farm differently than we do today. The industries around farming have evolved, too, and will continue to evolve to help meet demand and grow revenues. A key driver of that evolution in the next 20-plus years will be a declining global population. The idea of producing as much as possible and exporting the excess will likely not be a financially sound business plan in 20-plus years.

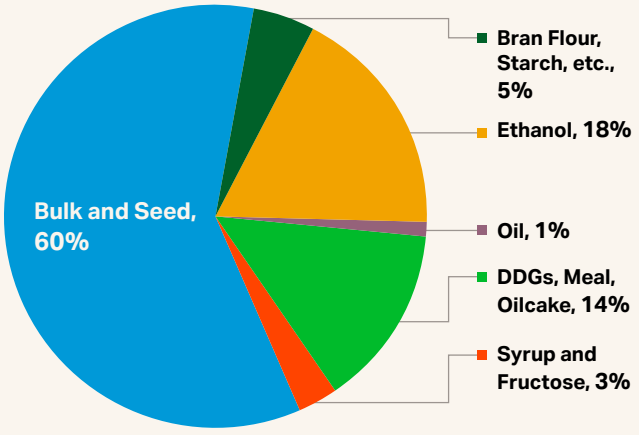
However, not all is doom and gloom. Commodity associations, private industry and government agencies have done an excellent job of growing

King Corn Exports More Value-Add Products

Corn and Corn Product Exports 1990



Corn and Corn Product Exports 2023-2024 Average



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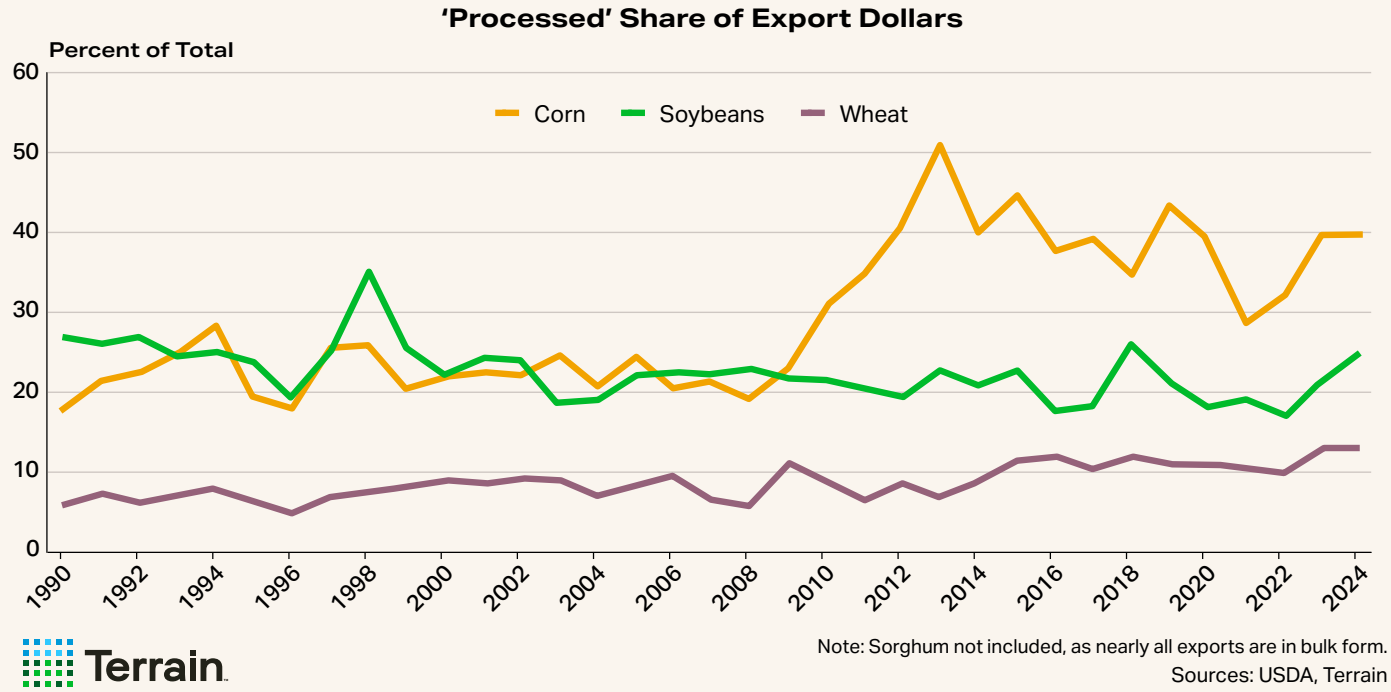
Sources: USDA, Terrain

consumption for U.S. products. Moving forward, each should continue to strategically develop new export markets to enable some long-term viability while recognizing the strong need to develop value-added products for both domestic and export markets.

Soybeans and Wheat Should Follow Corn's Export Lead



Note: Sorghum not included, as nearly all exports are in bulk form.
Sources: USDA, Terrain

The conversion of marginal farmland to new revenue streams moves the focus from farmland as an asset to grow commodities to farmland as the primary commodity to grow revenue.

ABOUT THE AUTHOR

Matt Clark is Terrain's senior rural economy analyst, focusing on the impacts of interest rates, land values and other macroeconomic trends on agriculture. He previously worked as a senior industry analyst with American AgCredit and as an assistant economist at the Federal Reserve Bank of Kansas City. Matt earned his B.S. and M.S. degrees in agricultural economics from Kansas State University.

ABOUT TERRAIN

Terrain's expert analysts distill vast amounts of data to deliver exclusive insight and confident forecasting for a more resilient agricultural economy. Terrain is an exclusive offering of AgCountry Farm Credit Services, American AgCredit, Farm Credit Services of America and Frontier Farm Credit.

ENDNOTES

[1] Given the work of Terrain analysts Matt Woolf and Don Close in "How Will Agriculture Navigate the Baby Bust?" I chose the U.N.'s "low variant" projection, as it seems like both a more likely scenario and one that the U.S. agricultural industry must hedge against.

[2] The U.N.'s "low variant" projection was used for fertility rates and net reproduction rate, the commodity export data was taken from the USDA Foreign Agricultural Service's GATS database, and the analysis was done by Terrain.