From the desk of the DairyDoc

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The Big Shrink – How will agriculture navigate the Baby Bust

Yes, you heard that right: after all these years talking about how to feed a booming human population, now we need to start thinking about what comes after the peak! Talking about a mind twister... Terrain's analysts Matt Woolf and Don Close recently published a report showing what the future for agriculture may look like. Here are some key takeaways:

- **Population decline.** In many countries and regions, population decline has already arrived. Europe has been in decline since 2020, China and South Korea since 2021, and Japan since 2010, U.N. data show. Whether the timing of peak population is exact or not, the reality of a sustained contraction is incredibly profound, as humanity has never consistently been in population decline.
- Impact on Ag. Agriculture will experience significant implications from diminishing population growth. Since the 1970s, the sector has operated on the premise that more people will require more food, notably in the form of exports. This idea is captured by the mantra "Feed the World," which is often displayed at farming conferences and repeated in the speeches of policymakers. In a world where the population is contracting, however, it is unlikely that producing more for a world that demands less will be a winning strategy for many reasons.
- Agricultural productivity in the U.S. today is nearly three times what it was in 1960, and the real value of U.S. agricultural exports has increased nearly 25 times since 1970, according to the USDA. Simultaneously, fertility rates have declined universally, even in developing countries where it was once seen as highly unlikely. Though commodity markets tend to be volatile, and costs have been on the rise, the desire to feed the world created opportunities for U.S. farmers and ranchers. Farm receipts have risen steadily from decade to decade, driven by the increase in production, the development of export markets, and the rise in renewable energy sources derived from agricultural products. At the same time, farmland values across the country have appreciated rapidly, increasing the equity position of many farmers. Whereas the average value of farmland in the U.S. was \$921 per acre in 1960 (in 2023 dollars), it was just over \$4,000 in 2023, according to the USDA.
- From success to obstacle. While the U.S. agricultural industry poised itself for growth by enhancing productivity, the very factors that have contributed to its successes in the last half-century are likely to become significant obstacles in the not-sodistant future. The U.N. projects not only that the global population will max out at 10.3 billion by 2084 but also that it will sink to just under 10.2 billion by the end of the century. It's also worth noting that the International Institute for Applied Systems Analysis in Austria as well as a team at the Institute for Health Metrics and Evaluation at the University of Washington predict an earlier and lower peak than the U.N.'s numbers.
- **Terrain's analysis.** Whereas the U.N. 2024 fertility estimates project 2.09 births per woman by 2050 and 1.84 births by 2100, our estimates suggest fertility rates could be as low as 1.65 per woman by 2050 and 1.43 per woman by 2100, approximately 20% lower than the U.N.'s medium variant estimates but almost exactly in line with its low variant estimates. Given these lower fertility levels, our model projects the world's population level reaches 9.21 billion in 2050 and will peak at 9.38 billion between 2065 and 2070.
- Demand and Supply after the peak. On the demand side, changes to consumption patterns could soon accelerate as the population ages and the composition of food demand evolves. Globally, continued productivity gains in agricultural output around the world will make export markets more competitive at a time when many populations may be in sustained decline. Competition creates uncertainty, and uncertainty can yield increased volatility. On the supply side, farmers are unlikely to experience an easy solution to labor challenges, which may accelerate the trend of consolidation, since larger farms can often exercise their economies of scale to adapt to productivity challenges. The populations in rural America are also likely to face challenges due to demographic shifts. From 2000 to 2020, more than half of the counties in rural America lost population, which could impede access to childcare, healthcare and economic opportunities in the communities farmers and ranchers call home.
- What's next? The U.S. agricultural sector has seized the economic opportunities associated with rising global population and income levels. But in only a few decades, and possibly within the lifetime of farmers and ranchers in business today, U.S. agriculture will have to face the prospect of a shrinking global population that will demand less from the industry. How farmers respond to these new challenges should they materialize remains to be seen, but U.S. agriculture has faced down challenges before. Farmers innovate out of necessity, and forthcoming reports from Terrain will consider potential implications of population decline and discuss how farmers can successfully navigate the future.

Source and additional info: <u>https://www.terrainag.com/wp-content/uploads/2025/02/The-Big-Shrink01.pdf</u> Terrain website: <u>https://www.terrainag.com/insights/how-will-agriculture-navigate-the-baby-bust/</u>

Global Population May Peak by 2065

