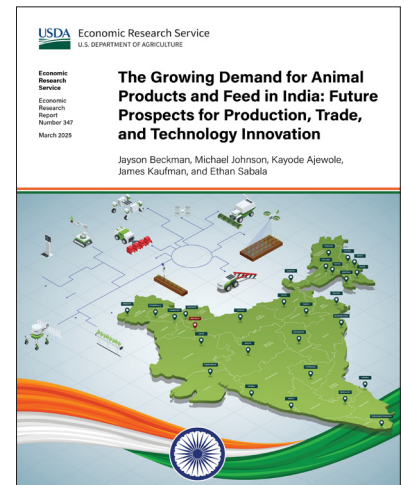




The Growing Demand for Animal Products and Feed in India: Future Prospects for Production, Trade, and Technology Innovation

Jayson Beckman, Michael Johnson, Kayode Ajewole, James Kaufman, and Ethan Sabala



What Is the Issue?

India became the most populated country in the world in 2023, and its population is expected to continue growing at least until 2050. During the same period, incomes are expected to grow rapidly. In a scenario of moderate income growth, the population could increase by 0.7 percent per year and Gross Domestic Product (GDP) per capita by 3.8 percent. In a scenario of more rapid income growth, these changes become 0.4 percent and 6.2 percent per year, respectively. Combined, these two effects could increase food demand, especially for animal products. India has a limited amount of arable land to expand production of food and feed, which could put pressure on domestic prices if demand increases. In 2021, some of this pressure was evident when the country imported soybean meal due to high domestic prices. These imports were genetically engineered (GE) despite a previous ban on such products. If demand for animal products continues to grow, more imports (including imports of GE products) might be needed.

What Did the Study Find?

India's demand for animal products has increased over time due to macroeconomic changes. This growing consumption drives the demand for feed.

- India's nonmilk animal product consumption has increased from less than 6 kilograms (kg) per capita in 1960 to 17 kg in 2021. However, the consumption rates for several products (poultry, beef, sheep and goat, and pork) are below the average for low-income food-deficit countries.
- India's population of 1.4 billion in 2023 is expected to grow to at least 1.5 billion by 2050. Income is also projected to double by 2050.
- India is becoming more urban, and projections indicate that by 2046, more than half of the population will be in an urban setting.

The production and supply of animal products in India has increased, and India has become the world's third-largest exporter of beef, namely carabeef, which derives from the domestic Asian water buffalo.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

- Beef production and productivity (meat per cow) in India lag behind major producers (Australia, Brazil, China, and the United States).
- Poultry meat productivity (meat per bird) also lags the global average; although it has increased since 2000. Production has increased by 8.5 percent per year from 2000 to 2022.
- In addition to meat products, India also produces and exports large amounts of fish and seafood, exporting 9.44 percent of its domestic value of production.

The feed production sector in India has grown over time.

- Almost two-thirds of India's consumption of animal feed in marketing year (MY) 2022/23 was made up of corn, wheat, and soybean meal.
- The share of corn in total animal feed consumption was 40.5 percent in MY 2022/23.

Projections indicate that India will need more feed to meet the growing demand for animal products, with imports needed by the early 2030s. The growth in imports will depend on the rate of income growth and the ability of the domestic production sector to meet the incremental increases in feed demand over time.

- Corn imports, for example, are projected to reach 122 million metric tons by 2050 under a scenario of rapid income growth. Under this scenario, imports are expected to pass 20 million metric tons by 2034. Note that if income growth is more moderate, India's corn imports are estimated to only reach 14 million metric tons (if they were to adopt GE production technologies) or 26 million metric tons (without GE adoption) in 2050. Hence, the income growth assumption is vital in determining estimated imports.
- For soybean meal, imports are projected to increase from 2.1 million metric tons in 2020 to more than 10 million metric tons in 2030 under rapid income growth. Ultimately, these imports reach 49.4 or 52.9 million metric tons (depending on GE adoption) in 2050. Projections under moderate income growth are 3.2 or 4.1 in 2030 and 9.3 or 12.8 million metric tons in 2050 (depending on GE adoption).

How Was the Study Conducted?

The authors used data from the Food and Agriculture Organization of the United Nations (FAO), USDA, and household surveys from India to examine India's animal product demand and supply, as well as the current feed situation. Macroeconomic projections for two Shared Socioeconomic Pathways (SSP2 and SSP5) are then used to project future population and income for India. The authors also used total supply and demand balance sheets with feed conversion ratios based on projected meat demand and income (or expenditure) elasticities of demand to estimate India's future supply and demand for feed.