

The Opportunity: Shifting Global Demographics and Enhanced Demand for Agricultural & Animal Health Products

Bret Ford, Michael Helmstetter, Kent Glasscock

ABSTRACT

Many people understand the relationship between a growing world population and the need to produce more food to feed more people. What may surprise some people though, is the demographic shift of double the amount of people entering the middle class by 2030, and on average, younger in age. These young and middle-aged adults will expect a middle-class lifestyle, which includes a safe, higher quality diet that contains more animal protein. From Syngenta's 2012 Industry Outlook, global meat demand is expected to **increase by 50%** by 2025. The amount of grain required to feed these additional food animals will

need to increase at the same rate or more, however, limitations on arable land, working-age population and other resources may not allow farmers to keep up with demand with existing technologies.

These global trends present both a major challenge and opportunity for Agriculture and Animal Health (**A&AH**) companies. Innovation will be the key driver for meeting this challenge head-on and TechAccel is well positioned to play a major role in this opportunity with A&AH company partners.

Growth in Global Population

In a recent United Nations report, it estimates that the world population is 7.2 billion people today, growing to 8.1 billion by 2025 and 9.6 billion by 2050, an increase of 12.5% and 33% respectively. Most of the population growth will come from developing regions such as China, India and Africa (United Nations, 2013).

Other notable findings in the U.N. report:

- The population in developing regions is projected to increase from 5.9 billion in 2013 to 8.2 billion in 2050. In contrast, the population of developed countries is expected to remain largely unchanged during that period, at around 1.3 billion people.

(U.N., 2013)

- Africa's population could increase from 1.1 billion today to 2.4 billion in 2050, and potentially to 4.2 billion by 2100.

- Life expectancy at birth for the world as a whole rose from 47 years in 1950-55 to 69 years in 2005-2010 and is projected to reach 76 years in 2045-2050 and 82 years in 2095-2100.

The “Middle Class”

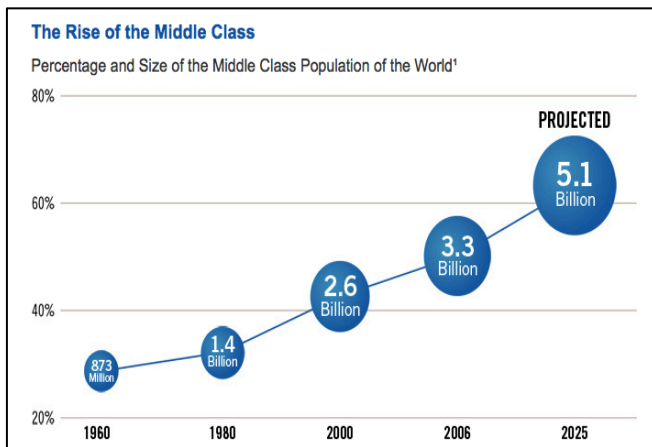
When defining the middle class and predicting the shift in economic demographics, many reputable sources have consistently cited Mr. Homi Kharas for his research in his 2010 report entitled, “The Emerging Middle Class in Developing Countries” while he was at the Organisation for Economic Co-operation and Development (OECD) in Paris, France (Mr. Kharas is now a Deputy Director for the Global Economy and

Development program at the Brookings Institution.) In his paper, he acknowledge different approaches for defining the middle class. Depending on the purpose, this can include political participation, contribution to human capital (education, life expectancy), entrepreneurship, savings rates, and consumption. For this reason, although recognizing that the middle class is as much a social designation as an economic classification, Kharas chose to measure the middle class in terms of consumption. In terms of consumption or purchasing power, the U.N. and OECD define the middle class as someone who spends \$10 US Dollar to \$100 US Dollars per day (“middle class definition”) (Kharas, 2010).

Demographic Shift

For the first time in history, a truly global middle class is emerging. By 2030, it will more than double in size, from 2 billion today to 4.9 billion. Kharas estimates that the European and North American middle classes will shrink from about 50% of the total to just above 20%. Rapid growth in Asia will cause its share of the new middle class to more than double from its current 30% (Rohde, 2012). Predictions by Franklin Templeton Investments shows an even quicker pace of people entering the middle class by reaching 5.1 billion by the year 2025, shown in Figure 1 below (Franklin Templeton Investments, 2013).

Fig. 1. The Rise of the Middle Class



Using the middle class definition above, there are 1.8 billion people in the global middle class (Table 1 below), concentrated in North America (338 million), Europe (664 million) and Asia (525 million). The US leads among individual countries, with about 230 million. The EU has almost 450 million middle class consumers and Japan has a further 125 million (Kharas, 2010).

Table 1. Numbers (millions) and Share (percent) of the Global Middle Class

	2009		2020		2030	
	Numbers	Share	Numbers	Share	Numbers	Share
North America	338	18%	333	10%	322	7%
Europe	664	36%	703	21%	680	14%
Central & South America	181	10%	251	8%	313	6%
Asia Pacific	525	28%	1740	54%	3228	66%
Sub-Saharan Africa	32	2%	57	2%	107	2%
Middle East & North Africa	105	6%	165	5%	234	5%
World	1845	100%	3249	100%	4884	100%

Over the next twenty years, nearly all of the growth (85%) comes from Asia. The size of the middle class in North America is expected to remain roughly constant. The reason being is because the same number of people move from the middle class to become rich as the same number moving from poor into middle class (Kharas, 2010).

This massive middle class expansion will be accompanied by increased purchasing power. The OECD estimate shows global middle class spending increasing from \$21 trillion to \$56 trillion by 2030, in constant 2005 dollars. However, the numbers of the global middle class hide the differences in purchasing power. The range for what constitutes a middle class consumer is quite broad, so someone in the Chinese middle class does not spend as much as someone in the US middle class. The data bears

this out. The North American middle class accounts for substantially more of global spending than its population share, while the reverse is true of Asia's middle class. North America is home to 18% of the world's middle class in numbers of people, but it accounts for US \$5.6 trillion (26%) of the US \$21 trillion in global spending by middle class consumers. The difference is because the North American middle class is much wealthier than the average global middle class consumer (Kharas, 2010).

Table 2. Spending by the Global Middle Class, 2009 to 2030

(in Millions of Dollars of 2005 Purchasing Power Parity ("PPP"))

	2009		2020		2030	
North America	5602	26%	5863	17%	5837	10%
Europe	8138	38%	10301	29%	11337	20%
Central and South America	1534	7%	2315	7%	3117	6%
Asia Pacific	4952	23%	14798	42%	32596	59%
Sub-Saharan Africa	256	1%	448	1%	827	1%
Middle East and North Africa	796	4%	1321	4%	1996	4%
World	21278	100%	35045	100%	55680	100%

Another significant demographic shift to point out is the age divergence among populations in wealthier regions & less developed regions and its impact on working-age populations. The number of children in less-developed regions is at an all time high at 1.7 billion. In those regions, children under age 15 account for 26% of the population. In the poorest countries, children constitute 40% of their populations, posing huge challenges for providing adequate food, education and

employment. In wealthier regions, by contrast, children account for 16% of the population. In developed countries as a whole, the number of older people has already surpassed the number of children, and by 2050 the number of older people will be nearly twice the number of children (U.N. 2013). This means that in many parts of the world, there will be fewer workers and the same number (or in many cases more) mouths to feed. New innovation will need to cover this labor gap.

Agriculture and Animal Health Defined

The Agriculture and Animal Health (A&AH) sectors can be defined in a number of different ways depending on the purpose. For the purposes of TechAccel, the following definitions are used:

- **Agriculture** is the science, art, and business of cultivating soil, producing crops, and raising livestock; farming. Within this broad definition, TechAccel will identify areas with the greatest need for innovation and companies interested in sharing the risk/reward of co-developed products. This will include proprietary seed development with improved traits, agrochemicals & biotechnology products.
 - **The leading initial target Agriculture companies include:** ADM, Cargill, Monsanto, Syngenta, Dow AgroScience, Dupont, Bayer CropScience, BASF, Land O'Lakes and General Mills
- **Animal Health** will include all products and services that promote livestock productivity & health and companion animal health. These products and services include medicines and vaccines, livestock feed, new pet food, diagnostics, medical devices, pet supplies, nutritional supplements, veterinary and other related services.

The animal medicines/vaccines subsector of Animal Health is estimated to represent a global market of \$22 billion within the approximately \$92 - 102 billion animal health industry. Between 2011 and 2016, the animal medicines and vaccines sector is projected to grow at a compound annual growth rate of 5.7 percent per year. Of this subsector, North America led with a 38% share, followed by Europe with 34% and Latin America with 12% of the \$22 billion (Zoetis, 2013).

Fig. 2. 2012 Global Animal Medicine Sales

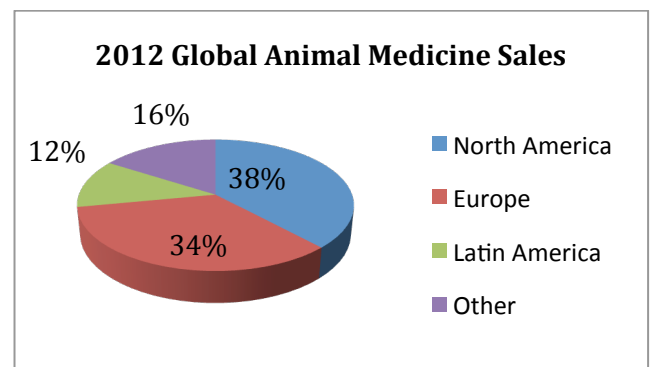
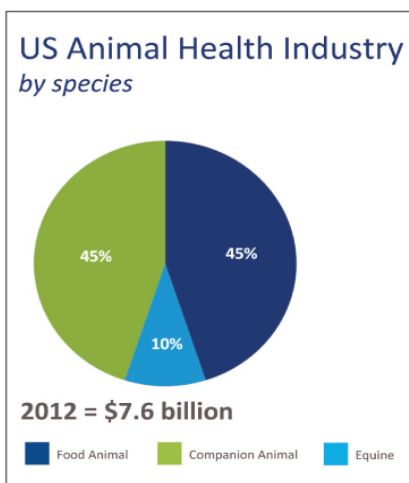


Fig. 3. US Animal Health Sales by Species



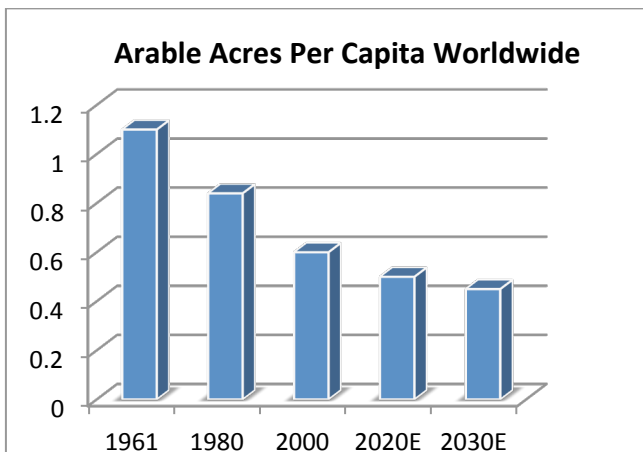
Within this subsector, US pet and production animal product sales are tied with a 45% share of market sales, with equine sales accounting for the remaining 10%. The same is likely true of the worldwide market, where the pet/production market share split is 43%–57%, but lumps in equine with production animals. In the developed world, the trend in production animal product sales cycles up and down based on food-industry trends and animal growing conditions. Companion-animal market global sales have been rising steadily for years. (Sperber, 2013)

- ❑ **The leading initial target Animal Health companies include:** Zoetis, Ceva, Elanco, Merck, Merial, Bayer, Boehringer-Ingelheim, Novartis, Hill’s Pet Nutrition, P&G Petcare, Nestle Purina, and Mars

What A&AH Companies are Predicting

Large international A&AH companies have recognized this shift in global demographics and the pressure it’ll put on supply and demand for meat and grains. Monsanto is one of the leading agricultural companies in the world. From a 2012 investor supplement report, Monsanto predicts that global demand for crops is projected to grow dramatically, while arable land per capita is losing ground due to population growth and economic development.

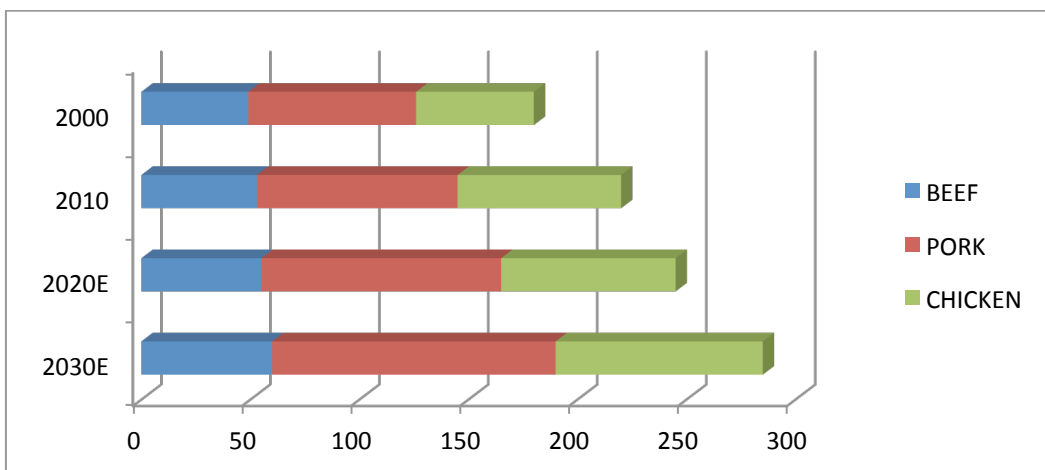
Fig. 4. Arable Acres Per Capita Worldwide (Monsanto, 2012)



Monsanto estimates that by 2020, there will be a productivity gap of about 22 million hectares of arable land needed to meet demand. The company predicts 66 million hectares will be needed and an estimate by the United States Department of Agriculture shows that only 48 million hectares will be available in 2020. *“The growing demand for grain cannot be met with more acres, the clear need is for more yield through productivity.”* (Monsanto, 2012)

Monsanto (2012) also predicts that a wealthier, growing global population will seek improved diets and increased meat consumption. As per capita incomes increase, animal protein consumption rises rapidly, which in turn drives demand for feed grains.

Fig. 5. Global Meat Consumption (in million metric tons) (Monsanto, 2012)



As further support, TechAccel looked at other leading agriculture companies. Syngenta is a Top 10 international company in both proprietary seed and agrochemical sales. From its 2012 industry outlook report, it predicts global demand for meat is expected to increase by 50% by 2025. The type of meat consumed affects the amount of grain demand: 1 kilogram of beef requires 7 kilograms of grain; 1 kilogram of pork requires 4 kilograms of grain; 1 kilogram of poultry requires 2 kilograms of grain (Syngenta, 2012). As the growing middle class demands more beef and pork over time, based on Syngenta's food animal feed efficiency analysis, this will compound the amount of feed grain needed to feed these animals.

By 2050 global meat demand will be double that of 2000, an increase of over 230 metric tons

(Syngenta, 2012)

Conclusion

The world will demand more food, and in particular, significantly more meat over the next two decades. Limitations on more arable land, working age labor and other resources needed to produce feed grains will challenge the ability of companies to keep up with demand. Innovative companies with new A&AH technologies that have international reach into major developing countries will be in a position to capitalize the most on this growing opportunity. TechAccel plans to be the co-development partner of some of these new cutting-edge technologies with the leaders in the industry.

References

- Franklin Templeton Investments. (2013). *The world's middle class is growing*. Retrieved from https://www.franklintempleton.com/retail/pages/generic_content/home/splash_PUB/the_worlds_middle_class_is_growing.jsf
- Kharas, Homi. (2010). *The emerging middle class in developing countries*. OECD Development Centre. 26 Jan. 2010
- Monsanto. (2012). *Monsanto supplemental information for investors*. Retrieved from <http://www.monsanto.com/investors/Documents/Whistle%20Stop%20Tour%20VI%20-%20Aug%202012/Monsanto%20Supplemental%20Information.pdf>
- Rohde, David. (2012). *The swelling middle class*. Reuters. Retrieved from <http://www.reuters.com/middle-class-infographic>
- Sperber, Bob. (2013). *Animal-health pharmaceuticals are jumping the 'ethical channel.'* Pharmaceutical Commerce. Retrieved from http://pharmaceuticalcommerce.com/brand_communications?articleid=26854
- Syngenta. (2012). *Our industry 2012*. Retrieved from http://www.syngenta.com/global/corporate/sitecollectiondocuments/pdf/publications/our_industry_2012_en_lo_w_res_mail.pdf
- United Nations, Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.
- Zoetis. (2013). *Growing Industry*. Retrieved from <http://www.zoetis.com/growing-industry>