

What's the connection between animal diseases and consumers?

William Sicho
School for Global Animal Health
Washington State University
P.O. Box 647060
Pullman, WA 99164
509-335-7495
wmsicho@vetmed.wsu.edu

What is a consumer?

Consumers are individuals and households (other demographics might be villages, enterprises, cooperative groups) that use goods or services. In the broadest terms, consumer's relationship to the same product may range from necessity to discretionary and its availability dear to abundant. This range is absolutely true for global consumers of animal products. The impact of animal disease on consumers is very conditional on where in the world you live and how you make your living.

Agriculture Labor Force (percent of total labor force) 2004

From Earth Trends based on data from International Labor Organization and FAO

Region	%	High	Low	
World	43.1			
Asia	55.4	93.6	0.1	Bhutan, Singapore
Central America	21.8	60.2	1.8	Haiti, Puerto Rico
Europe	7.5	45.6	0	Albania, Monaco
Middle East	30.3	65.6	0.9	Afghanistan, Qatar
North America	1.9	3.4	1.8	Greenland, US
Oceania	19.4	72	4.3	Papua, Australia
South America	16	43	6.9	Bolivia, Venezuela
Sub Saharan Africa	60.5	90.1	8.3	Rwanda, South Africa

The direct significance of agriculture on people's daily livelihood is reflected in this table. Countries and regions with significant portions of their populations directly involved in agriculture have a more visceral connection to the health of animals. These countries and regions have lower per capita income and agriculture tends to be subsistence and does not generate much if any income. Animal disease is part of daily life and endemic disease is a continual challenge to putting food on the table. Zoonotic diseases in countries where a major portion of the population are subsistence farmers are an important issue. Diseases such as bovine tuberculosis and brucellosis are real and common threats to the human population in these regions. As an example, it is estimated that 85% of cattle and 82% of humans in Africa live in areas where bovine TB is prevalent or only partially controlled. It is a common practice in these regions to drink unpasteurized milk. In Africa, TB is a significant public health disease and is increasingly found in conjunction with AIDS. The epidemiology of human cases of bovine TB in Africa is uncertain since there are few laboratories capable of differentiating

human and bovine TB. Endemic animal diseases in these regions including tick borne and viral diseases have an impact on productivity and this is likely reflected in the following tables.

Calorie Supply per Capita from Animal Products 2002

From Earth Trends based on data from FAO

Region	kCal/person/day	High	Low
World	468.3		
Asia	384	893.7	67.9
Central America	493.6	906.8	145.3
Europe	922.5	1349.7	391.4
Middle East	309.1	963.5	245.6
North America	1038.3	1047	582.6
Oceania		1062.5	169.8
South America	603.4	894.4	336.1
Sub Saharan Africa	148.9	484.8	33.9

Meat Production per Capita (Kg/person) Commercial and Home 2006

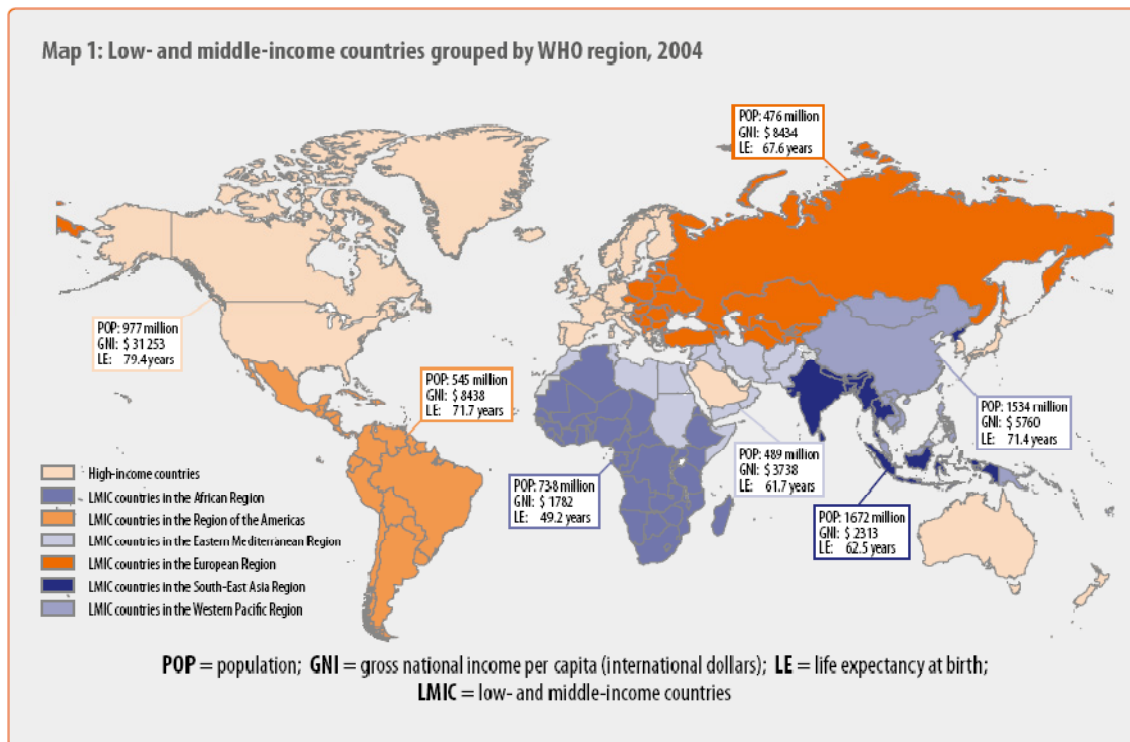
From Earth Trends based on data from FAO

Region	Kg/person	High	Low	
World	41.39			
Asia	30.11	79.02	2.9	
Central America	40.67	59.82	4.99	
Europe	70.12	378.24	13.1	
Middle East	22.3	110.34	6.29	Iraq,
North America	135.82	137.92	0.33	Canada
Oceania	173.68	349	2.44	NZ, Guam
South America	84.66	303.67	9.69	Faukland, French Guiana
Sub Saharan Africa	11.81	45.1	1.15	Reunion, Eq Guinea

The correlation between regions with high level of subsistence farms and relatively low meat productivity per capita and consumption of meat suggest an important linkage in the prevalence of disease in these regional herds.

In the map below, the regions of the world are demarcated on the basis of income level. Evaluation of the map and the previous tables shows that the regions of high income have very low percentage of the population that is involved with agriculture. In general, less than 10% of the population is directly involved with agriculture. In these regions, trade is a significant source of revenue within the region and most of the diseases that plague the lower income countries are tightly controlled. Bovine

TB is rare and because of pasteurization is virtually non-existent as a public health concern. Productivity is highest in these countries and in the main there is more production than consumption. It is estimated that there are 2800 Kcal from overall food that is available in the world per person. In the high income countries approximately 1/3 of the total calories are animal-derived protein compared to 1/8th or less in low income countries.



From the Global Burden of Disease, 2004 World Health Organization

For the high income regions, there is little involvement of the general population in food animal production. As a result, the populations in these regions are consumers in the common meaning of the word, users of product and goods, i.e. they purchase products. For these regions, animal disease is not a general consumer concern. If there is an impact it is on availability and price which is felt indirectly at the cash register. In these regions (as in all regions) epidemic disease is a devastating event for the producer (who carries nearly all the burden), but for the general population usually only represents an allocation of resources from other sources to address the problem. Even in significant outbreaks such as Exotic Newcastle Disease in southern California in 2002-2003, where the cost of eradication was \$170 million paid for by the consumer (taxpayer), but had only modest impact on the cost of product.

More significant to the consumer in regions of high income are diseases that have modest or no impact on the health of food animals, the food and waterborne diseases. Most of these diseases cause non-life threatening conditions, mainly diarrhea. In people, these diseases are not significant causes of mortality but are the most common reported disease in high income regions. While the food and waterborne diseases are not likely to be less common in other parts of the world (and evidence suggests they may be much higher), their significance to the consumer is small given other challenges such as securing sufficient food. Other animal disease issues relate to welfare of animals.

Diseases that cause distress to animals or appear to be diseases of management (or mismanagement) can generate a great deal of concern. Downer cow syndrome and the publicity surrounding animals being dragged to slaughter played a role in legislation mandating food animal production practices in the 2008 election cycle. The controversy during the FMD outbreak in Great Britain in 2001 over disposal and slaughter of 4 million animals ended the careers of politicians because of consumer outcry. Finally, the rise of organic and 'natural' meat and dairy products is a direct reflection on a consumer belief that large production units create unhealthy animals and consequently receive antimicrobials and hormones to mask management-induced issues.

The significance of animal disease in food production to the consumer is very much tied to the relationship that the consumer has with animal production. While the issues that consumers are addressing are different whether as a subsistence farmer or a consumer in the marketplace, consumers are affected by animal disease and impact how animal production is conducted.