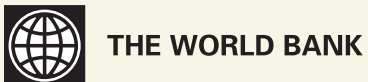


SPREAD – IMPACT – TRENDS

WORLD LIVESTOCK DISEASE ATLAS

A Quantitative Analysis of Global Animal Health Data (2006-2009)

November 2011



Public Disclosure Authorized

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1818 H Street, NW
Washington, DC 20433
Telephone 202-473-1000
Internet www.worldbank.org/ard
E-mail ard@worldbank.org

Bremgartenstrasse 109a
CH-3012 Bern, Switzerland
+41-31-6312928
www.tafsforum.org
info@tafsforum.org

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SPREAD – IMPACT – TRENDS

WORLD LIVESTOCK DISEASE ATLAS

A Quantitative Analysis of Global Animal Health Data



THE WORLD BANK



ABBREVIATIONS

Av.	avian
BSE	bovine spongiform encephalopathie
CAGR	compound annual growth rate
FAO	Food and Agriculture Organization of the United Nations
FMD	foot-and-mouth disease
HPAI	highly pathogenic avian influenza
Inf.	infectious
LPAI	low-pathogenic avian influenza
LSU	livestock unit (please see page 6 for detailed explanation)
OIE	World Organisation for Animal Health
p.a.	per year (per annum)
PRRS	porcine reproductive/respiratory syndrome
SVD	swine vesicular disease

Table of Contents

Foreword	2
Acknowledgements	3
Introduction	4
Methodology and Data Sources	5
Results	8
General Analyses	9
Disease-by-Disease Analyses	19
Reading Instructions	20
Zoonotic Diseases	22
Non-Zoonotic Diseases	51
Appendix	93

Foreword

It is projected that by 2050 global consumption of livestock products will reach 452 million tons of meat and 880 million tons of milk. More than half of this amount will be consumed in the developing world, where population growth, urbanization and particularly rising incomes are stimulating increasing per capita consumption. Early in the 2000s, aggregate production of livestock in developing countries overtook that of developed ones. Currently there are over 17 billion farm animals in diverse farming systems around the world, and this number is growing, and will continue to grow, mainly in the developing world to keep pace with rapidly expanding demand for animal source foods.

This rapid growth of the livestock sector, which will persist well into the foreseeable future, presents both opportunities and challenges. It already accounts for approximately 40 percent of agricultural GDP and contributes substantially to economic growth. It also plays a crucial role in meeting global food and nutritional security, and provides pathways out of poverty for the more than one billion people whose livelihoods depend directly or indirectly on livestock. The sector's ongoing development is however confronted with serious risk – the ever-increasing societal and economic threat from diseases. Zoonotic diseases, particularly those with pandemic potential, could disrupt the global economy and kill millions around the world if more effective efforts are not undertaken to prevent and control them. There are also the so called *endemic diseases* (zoonotic and



Photo: Curt Carnemark, The World Bank.

non-zoonotic), which are seldom noticed in developed countries, but which inflict enormous losses on small farms in developing ones. H5N1 (avian influenza) and more recently H1N1, both near misses, are recent examples of the threat that potential pandemics pose. Domestic livestock are not the only source of the disease threat. Wild animals are as well. Disease prevention and control must therefore consider the animal-human-ecosystems interplay.

Yet not enough is known about the true extent of disease outbreaks in spatial and temporal terms around the world. The overall lack of available data on livestock diseases puts those who argue for more investment on the part of national governments and international agencies

at a serious disadvantage. This has been a major problem in particular for those advocating more systematic interaction between human public health, and the health of ecosystems in an agenda that has come to be known as “One Health.” The World Bank and the International Forum for Transmissible Animal Diseases and Food Safety (TAFS), in partnership with the World Organisation for Animal Health (OIE) and the UN Food and Agriculture Organization (FAO) produced this atlas to illustrate the best available data on livestock diseases around the world. It is the hope of these partner agencies that the atlas will be useful to those who advocate a stronger commitment to animal disease prevention and control in making their case for increased investment – particularly investment in the capacity of responsible agencies in poorer countries, in which the next infectious zoonotic disease with pandemic potential is most likely to emerge. While the recent outbreaks of avian influenza have been dealt with effectively, it is necessary to remind ourselves that *we may not be as lucky in the future as we have been in the recent past.*

Juergen Voegelé
Director
Agriculture and Rural Development Department
The World Bank

Acknowledgements

The World Livestock Disease Atlas was conceptualized by Ulrich Sperling, Director of Safe Food Solutions (SAFOSO) and Jimmy W. Smith, Livestock Advisor at the World Bank. It was written by Ulrich Sperling with financial support by the Agriculture and Rural Development Department of the World Bank and the TAFS forum. The TAFS forum is an independent, non-profit foundation dedicated to studying, reporting and making recommendations on controversial and emerging issues relating to the safety of food derived from animals.

The Atlas is based on animal health data which the World Organisation for Animal Health (OIE) collected and validated from its 167 member countries and economies between 2006 and 2009, and on livestock population size data published by the Food and Agriculture Organization (FAO) of the United Nations in its FAOSTAT portal. In addition, OIE and FAO are acknowledged for their vital contributions to the FAO - OIE - World Bank partnership.

The producers would also like to acknowledge the editorial and production inputs of Kaisa Antikainen and Gunnar Larson of the World Bank.



Photo: Tomas Sennett, The World Bank.

Introduction

Which livestock diseases cause the heaviest losses globally? Which countries and economies* suffer the worst disease-related losses among their livestock populations? Which livestock species are most affected by diseases? Having the answers to these questions available as reference to inform policy making, investment planning, and decision making about disease control strategies is vitally important. Yet while there is no shortage of opinions and beliefs, hard facts are difficult to find. Most studies on the spread of livestock diseases and the losses caused by them are strictly limited in scope. Most examine a small, discrete number of diseases or species and do so at a single given point in time. Some examine just one. The prevailing lack of aggregated data across all these dimensions makes comparisons impossible to render.

There is however a rich source of available data that basically covers the entire planet. It covers all relevant livestock species, wildlife, a huge number of diseases and is updated on a six-monthly basis. This source is the World Organisation for Animal Health (OIE) through its OIE World Animal Health Information System (WAHIS). This data is available online through the OIE World Animal Health Information Database (WAHID): <http://www.oie.int/wahid>. Once a year, this data is summarized in a paper publication "World Animal Health." The aggregation and analysis of those data enables us to give an insight in the questions asked above, and many others. The data presented in this publication will hopefully provide the factual basis for a discussion that can only increase in relevance and urgency. Most generally, they should help to answer

the questions of sequencing and prioritizing - especially where action is first needed to limit the damage of livestock diseases and to prevent their further spread.

Although not all countries are members of the OIE, 99.8 percent of global livestock lived in OIE-member countries as of 2009. The coverage of the database is therefore very wide, although not entirely complete. The issue of coverage is less problematic than that of timeliness. OIE usually publishes annual reports on global animal health during the fourth quarter of the year, while the constantly updated information is available via WAHID: www.oie.int/wahid. This information covers both the monitoring data (provided by OIE member countries and economies on a six-monthly basis) and by the rapid alert system (provided within 24 hours).

Despite the obligation to comprehensively report on OIE-listed diseases, OIE member countries sometimes provide partial information. The causes of underreporting generally relate to an inability to report because the necessary surveillance systems are not in place, or simply an unwillingness to report. (See: *People, Pathogens and Our Planet, Volume 1. Towards a One Health Approach*



Photo: Curt Carnemark, The World Bank.

for Controlling Zoonotic Diseases. World Bank. Report No. 50833-GLB. 2010. Page 18.) The causes of underreporting vary from country to country, sometimes even from disease to disease. So too does the degree of underreporting. There is no way to estimate a global average rate of underreporting. OIE collects data originating from national

veterinary authorities which are then twice verified before dissemination. This makes OIE animal health data the best reference currently available.

Closing this circle of thought, this publication is not only meant to analyze and display whatever information is available on global livestock health, but also to contribute to an improvement of the data basis, over time, by showing that data can be used for meaningful purposes, such as efficient disease control on a global level. By maximizing the value of data as global public goods, the authors hope to encourage all stakeholders to collect and share the best and most comprehensive information possible.

This analysis has been co-funded by the World Bank and the TAFS Forum (www.tafsforum.org) and undertaken by Ulrich Sperling.

* The analysis in this publication covers all countries and economies that were included in OIE Animal Health Yearbooks between 2006 and 2009, and for which FAOSTAT included data on livestock populations. For a list of these countries and economies, please see page 5. Whenever this publication refers to "countries," it refers to this list of both countries and economies.

Methodology and Data Sources

DISCLAIMER

OIE is not responsible for any inaccuracies or misinterpretation of the analyzed OIE data and information.

I. SOURCES OF DATA

All analyses presented in this publication are based on two sources of data:

1. For information on livestock diseases and the losses they caused:

OIE (World Organisation for Animal Health), Paris, France, the following publications:

World Animal Health 2006
World Animal Health 2007
World Animal Health 2008
World Animal Health 2009

2. For information on sizes and composition of national livestock populations:

Food and Agriculture Organization of the United Nations, Rome, Italy

FAOSTAT (faostat.fao.org); accessed March 30–April 13, 2010, for 2006–2008 data, and May 17, 2011, for 2009 data.

II. COUNTRIES AND ECONOMIES COVERED

Our analysis covered all countries and economies that were included in OIE Animal Health Yearbooks between 2006 and 2009, and for which FAOSTAT included data on livestock populations:

Afghanistan, Albania, Algeria, Andorra, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Comoros, Democratic Republic of Congo, Republic of Congo, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, The Former Yugoslav Republic of Macedonia, France, French Guiana, French Polynesia, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Greenland, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Islamic Republic of Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Democratic People's Republic of Korea, Republic of Korea, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Lebanon, Lesotho, Libyan Arab Jamahiriya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Martinique, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Caledonia, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Réunion, Romania, Russian Federation, Rwanda, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, United Republic of Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey,

Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Vanuatu, Bolivarian Republic of Venezuela, Viet Nam, West Bank and Gaza, Yemen, Zambia, Zimbabwe.

These countries and economies account for 99% of the global livestock population (as defined below under "aggregation"; data for 2008).

III. DISEASES COVERED

All diseases of terrestrial vertebrate livestock reportable to OIE, with very few exceptions of extremely rare diseases:

Zoonoses (30): Anthrax, avian chlamydiosis, bovine babesiosis, bovine genital campylobacteriosis, bovine spongiform encephalopathy (BSE), bovine tuberculosis, *Brucella abortus*, *Brucella melitensis*, *Brucella suis*, Crimean Congo Hemorrhagic fever, echinococcosis, equine piroplasmiasis, fowl cholera, Glanders, highly pathogenic avian influenza (HPAI), Japanese encephalitis, leptospirosis, new world screwworm, Newcastle disease, Nipah, porcine cysticercosis, Q fever, rabies, Rift Valley fever, trichinellosis, trypanosomiasis, tularemia, Venezuelan equine encephalitis, vesicular stomatitis and West Nile fever.

Non-zoonotic diseases (41): African horse sickness, African swine fever, Aujeszky's disease, avian infectious bronchitis, avian infectious laryngotracheitis, avian mycoplasmosis (*M. synoviae*), Bluetongue, bovine anaplasmosis, bovine viral diarrhoea, camelpox, caprine arthritis, contagious agalactia, contagious bovine pleuropneumonia, contagious caprine pleuropneumonia, classical swine fever, duck virus hepatitis, enzootic

abortion, enzootic bovine leukosis, equine infectious anaemia, foot-and-mouth disease, fowl typhoid, heartwater, hemorrhagic septicaemia, infectious bovine rhinotracheitis, infectious bursal disease, Leishmaniosis, low-pathogenic avian influenza (LPAI), lumpy skin disease, Maedi Visna disease, Marek's disease, mycoplasmosis (*M. gallisepticum*), ovine epididymitis, paratuberculosis, peste des petits ruminants, porcine reproductive/respiratory syndrome, pullorum disease, scrapie, sheep-and-goat pox, swine vesicular disease, Theileriosis, transmissible gastroenteritis.

IV. DATA AGGREGATION

Data aggregation is crucial for understanding the ranking of diseases. Raw data on animal losses were aggregated as follows:

1. Losses of animals of different species were calculated as Livestock Unit (LSU) losses, using the following definition:

1 camel or "other camelid"	=	1.1 LSU
1 cattle	=	0.9 LSU
1 buffalo	=	0.9 LSU
1 horse or mule (equidae)	=	0.8 LSU
1 pig	=	0.25 LSU
1 sheep	=	0.1 LSU
1 goat	=	0.1 LSU
1 poultry bird (chicken, duck, guinea fowl or goose).	=	0.015 LSU

2. "Sheep," "goat" and "sheep and goat" (OIE categories) were added up to "sheep and goat" (category used here).

3. Losses of livestock due to different reasons were aggregated as follows:

1 LSU "dead"	=	0.8 LSU lost
1 LSU "destroyed"	=	1.0 LSU lost
1 LSU "slaughtered"	=	0.4 LSU lost.

These factors are meant to account for the fact that the economic value of an animal is not always completely lost if the animal dies, is culled or is slaughtered. All future gains in value (e.g., from eggs, milk or weight gain) are lost, of course, but in some cases the carcass can—at least in part—be used for human consumption. Details vary by species, diseases and common practices in different countries. The values used here are a rough estimation of global averages. (See Table 1.)

4. For some analyses, countries were grouped either by continent or by income category according to World Bank-approved categories. <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>.

5. Averages over four years:

To increase the representativeness of data, averages were calculated over four consecutive years, 2006–2009. For some countries the animal health reports for one or more years during this period are missing. In such cases the average was not calculated inserting zeros for the missing year (which would have distorted the result massively), but from the years for which data were available. On average, there were 3.36 annual reports to be aggregated per country into the four-year average.

DEFINITION OF LIVESTOCK UNIT (LSU)

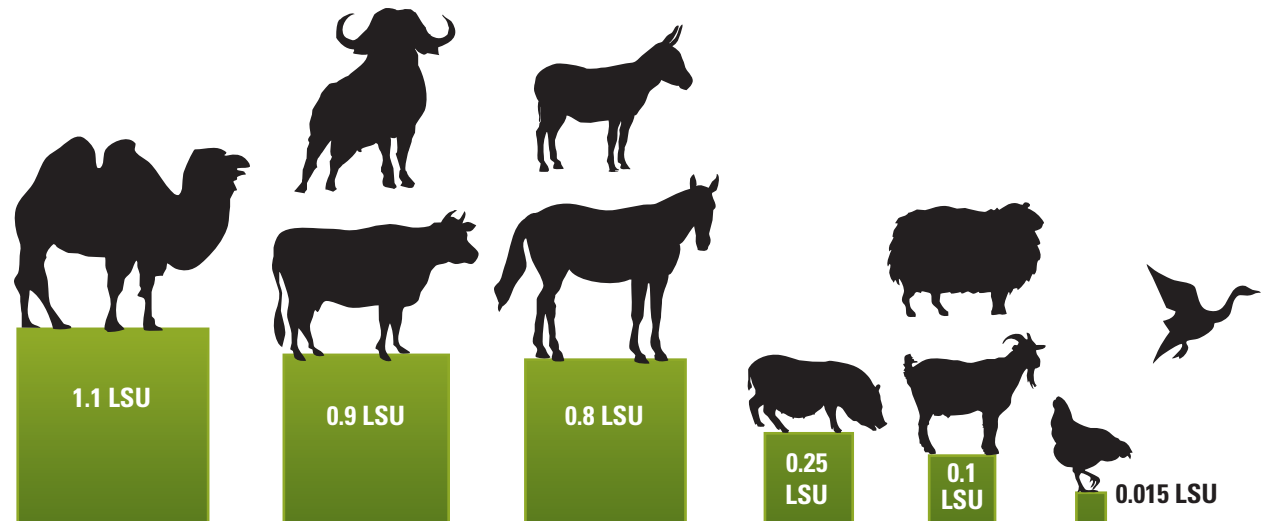


Table 1: Sensitivity Analysis of Weighing Factors

Weighting Factors	Death	Destruction	Slaughter	Total
80/100/40	295,540	278,422	188,251	762,212
	39%	37%	25%	100%
100/100/100	369,425	278,422	470,627	1,118,473
	33%	25%	42%	100%
68/68/68	251,704	189,851	320,657	762,212
	33%	25%	42%	100%

The top row of the table gives the number of average annual LSU losses and their relative contributions to total losses by cause of death for the weighting factors used throughout this publication (80/100/40). The second row shows how results change if all livestock losses were weighted equally and complete loss of value was assumed (100/100/100) regardless of the causes of death.

The third row indicates how weighting factors would need to be set equally (68/68/68) such that the absolute number of total losses would not change compared to the weighting factors used (767,212).

V. CALCULATION OF RELATIVE LSU LOSSES

The relative LSU losses per country were calculated by dividing the LSU losses by the total livestock populations (same group of species as taken into account for the LSU losses) of the respective country.

VI. CALCULATION OF GEOGRAPHICAL DATA AND DISEASE MOBILITY

To calculate a geographical “balance point” of LSU losses per disease, the LSU losses in each country were multiplied

with the geographical coordinates of the center point of the respective country and the total was then divided by the total number of LSU losses in all countries.

The net movement of the geographical balance point of a disease (or rather of LSU losses due to this disease) over time, i.e., from the average of 2006–2008 to 2009, was calculated as the distance on the earth’s surface, measured in kilometers, between the old and the new balance point coordinates. The spherical law of cosines was applied:

$$d = \text{acos}(\sin(\text{lat}_1) \cdot \sin(\text{lat}_2) + \cos(\text{lat}_1) \cdot \cos(\text{lat}_2) \cdot \cos(\text{long}_2 - \text{long}_1)) \cdot R$$

with R being the Earth’s radius (6731km).

The bearing for the respective movement is calculated as the average of initial and final bearing:

$$\theta_{\text{Initial bearing}} = \text{atan2}(\sin(\Delta\text{long}) \cdot \cos(\text{lat}_2), \cos(\text{lat}_1) \cdot \sin(\text{lat}_2) - \sin(\text{lat}_1) \cdot \cos(\text{lat}_2) \cdot \cos(\Delta\text{long}))$$

$$\theta_{\text{Final bearing}} = \text{mod}(\theta_{\text{Initial bearing}}(\text{lat}_2, \text{lon}_2 \text{ to } \text{lat}_1, \text{lon}_1) + \pi; 2 \cdot \pi).$$

Because the net movement is 0 if a disease spreads symmetrically, the mobility of a disease was calculated as the gross movement, defined as the sum over all movements of a disease calculated for each country separately.

VII. DATA UNIVERSE

The resulting data universe is a 5-dimensional matrix containing 2,699,136 data points. In summary, it is composed as follows:

- 4 years (2006, 2007, 2008, 2009)
- x 176 countries
- x 71 diseases (30 zoonoses, 41 non-zoonoses)
- x (8 species groups: cattle, sheep and goat, swine, equidae (horses and mules), camelidae (camels and other “camelids” i.e., llamas and alpacas), buffalo, poultry (chicken, ducks, turkeys, geese and guinea fowl), wild animals
- x 5 disease information points per species: susceptible, cases, deaths, destroyed, slaughtered
- + 1 number of outbreaks (for all species)
- +13) species for livestock population data: cattle, buffalo, horses, mules, camels, other camelids, swine, sheep, goat, chicken, turkey, geese, guinea fowl

$$4 \times 176 \times 71 \times (8 \times 5 + 1 + 13) = 2,699,136$$

Results

The authors have analyzed animal health data for the years 2006 through 2009 as reported by the World Organisation for Animal Health (OIE)—the four most recent “World Animal Health Yearbooks” available when the analysis was prepared. The data covers 176 countries and economies on 71 livestock diseases (30 zoonoses and 41 non-zoonotic diseases) and 8 species or groups of species (cattle, sheep and goat, swine, poultry, equidae, buffalo, cervidae, and camels). Losses due to death, destruction or slaughter were distinguished. In total, the scope of the analysis comprises about 2.7 million data points.

Livestock units (LSUs) were used to make losses across species comparable (see Methodology and Data Sources on page 5).

The most widespread diseases in terms of the number of countries affected are rabies, Newcastle disease and bovine tuberculosis. By number of outbreaks, the top three diseases are sheep-and-goat pox, bovine tuberculosis, and bluetongue. The three diseases that have claimed the largest numbers of LSUs were highly pathogenic avian influenza (HPAI), echinococcosis, and avian infectious bronchitis.

The high losses resulting from avian influenza (HPAI and LPAI) in the poultry sector reflect the global situation between 2006 and 2009. Analysis of future data will show if, and to what degree, the prominence of avian influenza constituted an unusual situation. The four-year time span should at least have limited this window effect.

Of all the LSUs lost to the diseases analyzed, 48 percent came from poultry, 33 percent from cattle, 9 percent from swine, 4 percent from sheep and goat and 1 percent from buffalo. Overall, 0.03 percent (762,212 LSUs per year) of the global livestock population was lost to one of the 71 diseases, 50 percent to zoonotic diseases and 50 percent to non-zoonotic diseases.

On average, over the four years analyzed, the Islamic Republic of Iran, China, and Brazil lost the highest absolute numbers of LSUs, while Israel, Iran, and Namibia suffered the highest losses relative to their livestock populations.

Data need to be interpreted taking into account a potential reporting bias resulting from countries’ different levels of reporting transparency and competency. This report is not based on the “real” world animal health situation, but on the best information available to the authors.

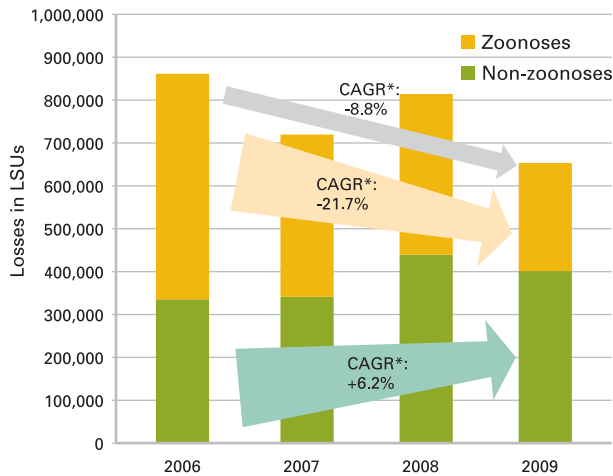


Photo: Curt Carnemark, The World Bank.

General Analyses

CHANGES IN LSU LOSSES

2006-2009

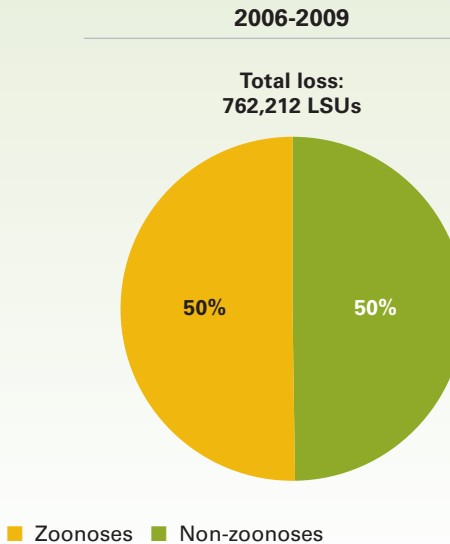


* Compound annual growth rate

On average, 762,212 LSUs were lost to the 71 diseases annually between 2006 and 2009. Total losses varied between about 861,000 LSUs (2006) and 653,000 LSUs (2009) with a compound annual growth rate (CAGR) of -8.8 percent. Zoonoses and non-zoonoses showed diverging trends. Losses from zoonoses declined by -21.7 percent per year whereas losses from non-zoonoses increased by 6.2 percent per year. The fact that different countries failed to submit their reports in different years cannot fully account for the observed change in total losses. If corrected for the respective percentage of LSUs living in countries that did submit their reports, total losses still decreased by -8.2 percent per year (not shown).

LOSS OF LSUs BY GROUP OF DISEASES

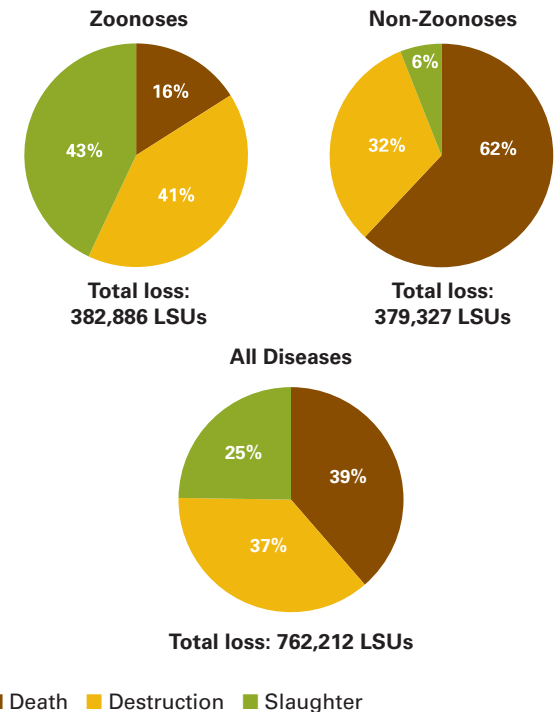
Zoonoses and non-zoonoses each contributed 50 percent to overall livestock losses. Considering that 30 out of the 71 (42 percent) diseases considered were zoonoses, they caused slightly more losses per disease than non-zoonoses. A possible reason for this effect may be the stricter surveillance and control for zoonotic diseases.



Death, destruction and slaughter are the three standard epidemiological categories of losses which are also used for OIE reporting.¹ Unsurprisingly, the zoonoses and non-zoonoses show different distributions of losses over the categories. Most losses (84 percent) to zoonotic diseases occur through destruction or slaughter, i.e., the animals are either culled preventively in the course of disease control or the disease is only discovered after

LOSS OF LSUs BY TYPE OF LOSS

2006-2009



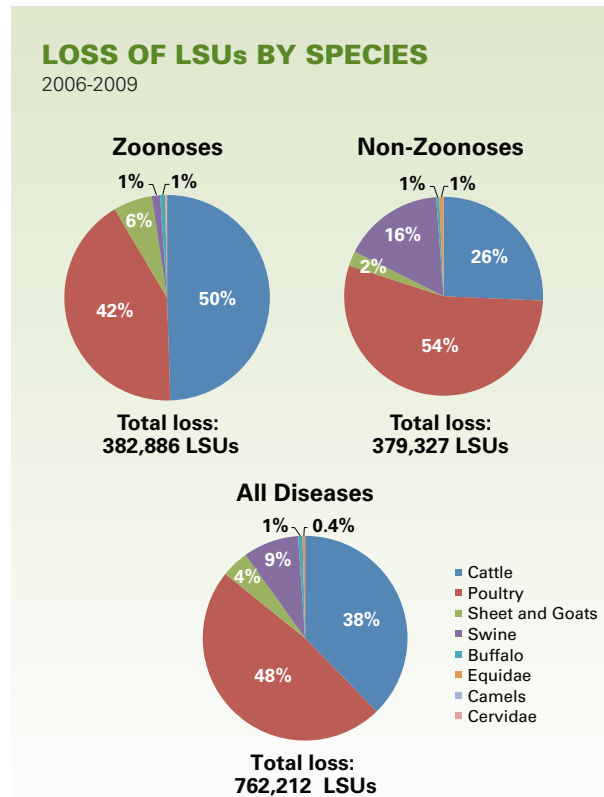
¹ The definitions according to OIE reporting guidelines are:
Number of deaths: number of animals that died from the disease.
Number of animals destroyed: number of animals that were culled and destroyed by incineration or burying. This number should not include the number of animals that died from the disease or were slaughtered.
Number of animals slaughtered: number of animals that were slaughtered with no restrictions on the use of the slaughter products, such as for human consumption.

the slaughter of animals that were deemed healthy at this time. Of course, it lies in the nature not only of the disease itself but also of its surveillance plan whether it is detected at the slaughterhouse or elsewhere. In contrast, most losses to non-zoonotic diseases occur through death, i.e., the animals actually died because of the diseases. This is a typical scenario for slowly progressing, endemic diseases.

Note that the loss figures indicated (as well as throughout this publication) are weighted to reflect the different degree of economical loss for various types of losses. See the Methodology and Data Sources on page 5 for details.

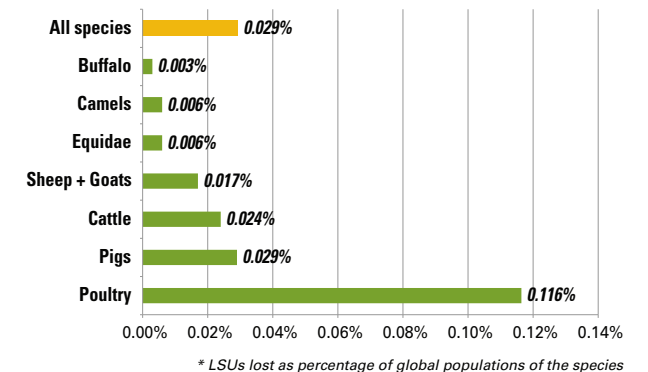
Livestock species are differently affected by zoonoses and non-zoonoses. 50 percent of all LSU losses from zoonoses are in cattle, followed by 42 percent in poultry, and 6 percent in small ruminants (sheep and goats). In contrast, the species group most affected by non-zoonoses is poultry (54 percent), followed by cattle (26 percent), swine (16 percent) and small ruminants (2 percent).

In total, poultry accounts for almost half of all livestock losses, followed by cattle (38 percent), swine (9 percent) and small ruminants (4 percent).



The authors calculated the losses of LSUs by species as the percentage of their respective global population sizes. Poultry is the livestock species group that ranked highest and was in fact the only one with a higher-than-average loss rate (about four times higher). Relative losses in the global pig populations were as high as the average over all species (0.029 percent) and all remaining species groups had below-average loss rates.

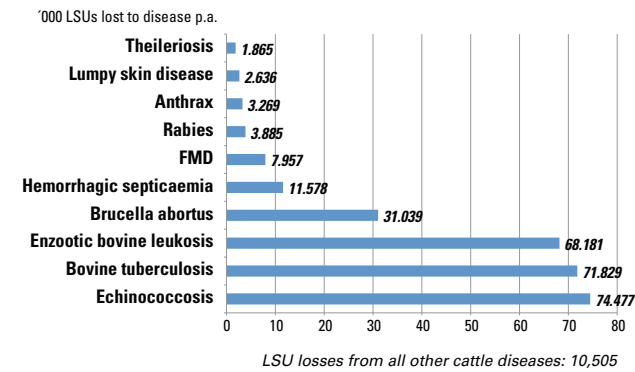
RELATIVE LOSS OF LSUs BY SPECIES*
2006-2009



The authors identified the ten most important diseases in terms of LSUs lost for each species or species groups covered in our analysis. On average, over all species (groups), the three most important diseases accounted for 80 percent of the losses. This finding allows disease control efforts to focus on a few diseases per species and yet be very effective in terms of overall loss reduction.

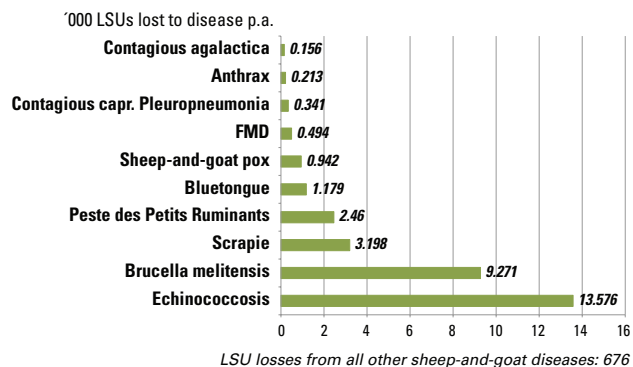
TOP 10 DISEASES CATTLE

2006-2009



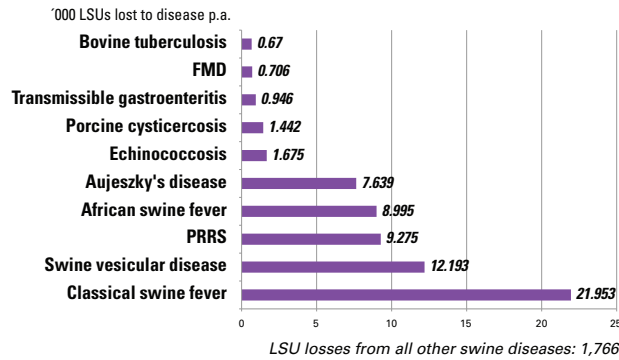
TOP 10 DISEASES SHEEP AND GOAT

2006-2009



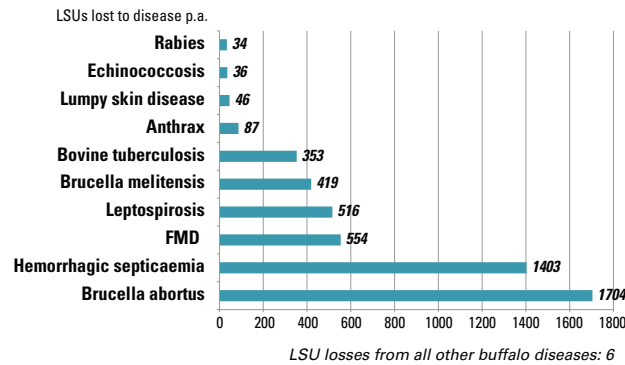
TOP 10 DISEASES SWINE

2006-2009



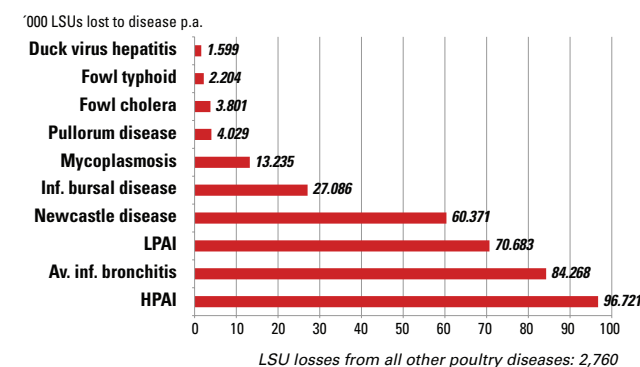
TOP 10 DISEASES BUFFALO

2006-2009



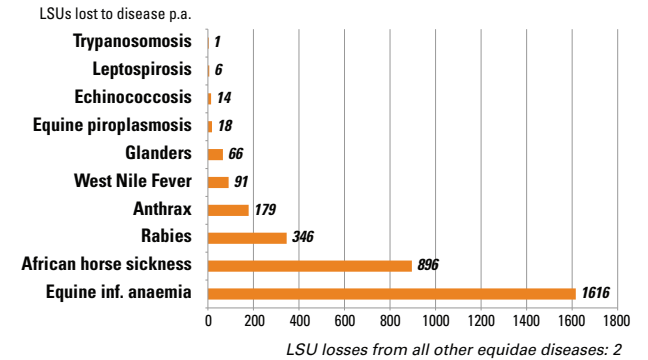
TOP 10 DISEASES POULTRY

2006-2009



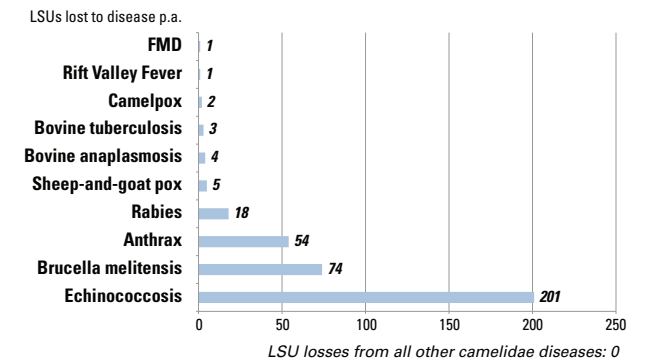
TOP 10 DISEASES EQUIDAE

2006-2009



TOP 10 DISEASES CAMELIDAE

2006-2009

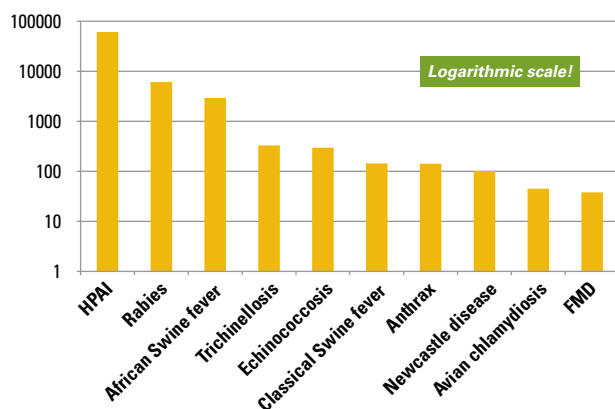


Losses among wild animals cannot be consolidated in the same way as different livestock species were transformed into LSUs, because OIE data do not (so far) reveal the species of wild animals, only their numbers. (However, OIE is preparing a new information system that may include wildlife by species.) Therefore, we simply calculated the number of wild animals that were lost through death, destruction or slaughter in the course of the 71 diseases covered. Losses varied immensely between the diseases, note the logarithmic scale in the chart. HPAI, rabies and African swine fever ranked highest. It is fair to assume that surveillance and monitoring is less dense, systematic and reliable with wildlife than with livestock, so that a high reporting bias is likely to have occurred.

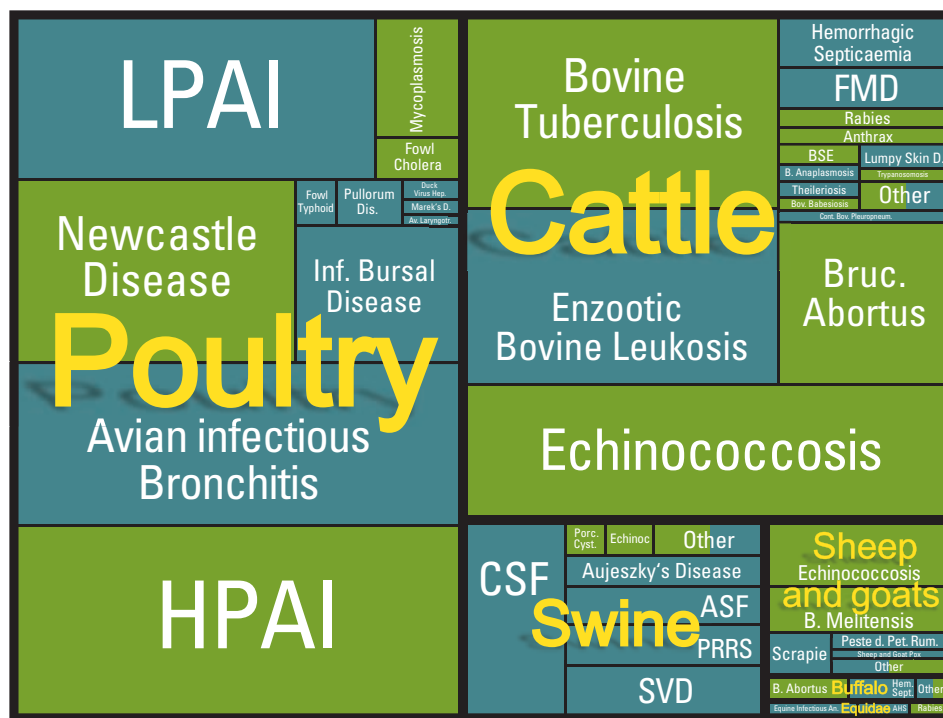
TOP WILDLIFE DISEASES

2006-2009

Number of animals lost through death, destruction or slaughter



Wild animals lost to all other diseases: 148



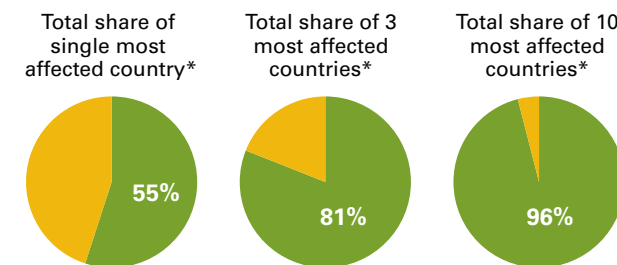
these 71 percentages. 55 percent of global losses occurred in the single most affected country, on average, over all diseases. If the three or ten most affected countries are considered, their average share of global losses rises to 81 percent and 96 percent, respectively. This finding clearly indicates that livestock losses are very unevenly distributed worldwide and disease-control measures need to focus on where the heaviest losses occur.

A treemap representation of LSU losses visualizes the relative contribution of different diseases to overall losses. Losses are grouped by livestock species, which explains why some diseases appear more than once (e.g., echinococcosis in cattle and sheep and goats). Zoonotic diseases are highlighted in green, non-zoonotic diseases in blue. The size of the rectangle is proportional to the average annual number of LSUs lost to the respective disease.

To quantify how evenly or unevenly livestock losses were distributed among countries, the authors calculated for each of the 71 diseases the share of the single worst affected country (in terms of LSU losses) and averaged

UNEVEN DISTRIBUTION OF DISEASE LOSSES IN COUNTRIES

2006-2009



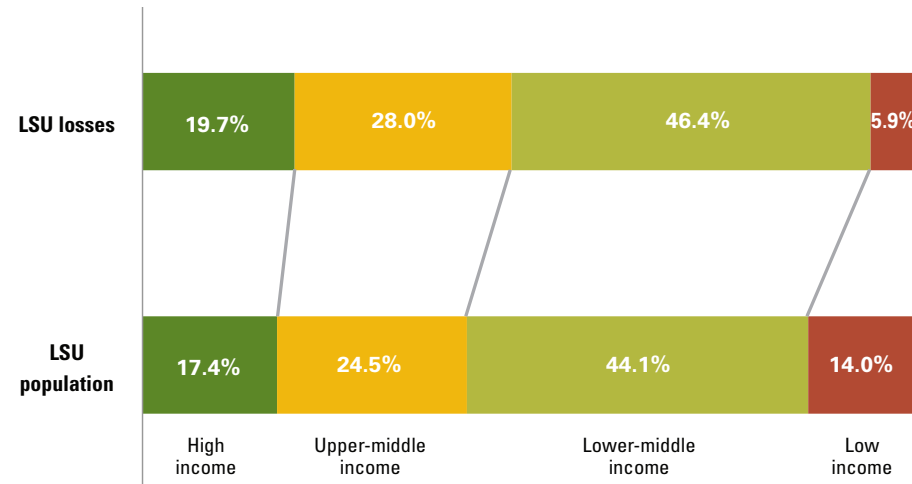
* Losses in LSUs, average of all 71 diseases

Countries are grouped by World Bank income categories and regions, respectively, to check for disparities in the distribution of losses. If grouped by income, it turns out that losses of LSUs occurred roughly in proportionality to the respective LSU populations, with the exception of a lower-than-proportional share of losses in low-income countries. This finding may be the result of underreporting in low-income countries overcompensating the effect of relatively high disease incidences.

Greater disparities can be observed if countries are grouped by region. East Asia and Pacific, Latin America and the Caribbean, South Asia, North America and Sub-Saharan Africa all show fewer LSU losses than proportional to their LSU populations, whereas Europe and Central Asia and the Middle East and North Africa show LSU losses higher than proportional to their LSU populations. Further analysis on a country level shows that these differences vary substantially from country to country rather than being equally distributed over geographical regions.

LOSS DISTRIBUTION BY INCOME CATEGORY*

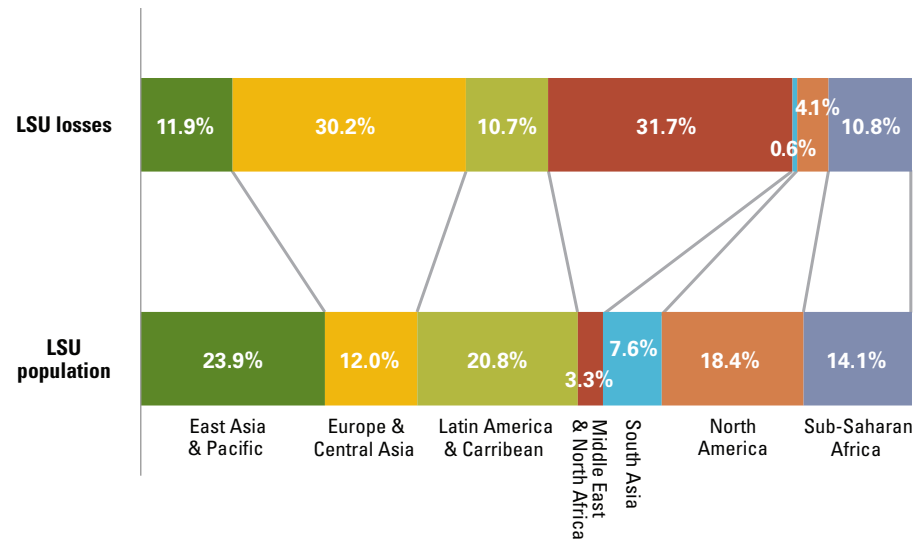
2006-2009



* According to World Bank categories

LOSS DISTRIBUTION BY REGION*

2006-2009



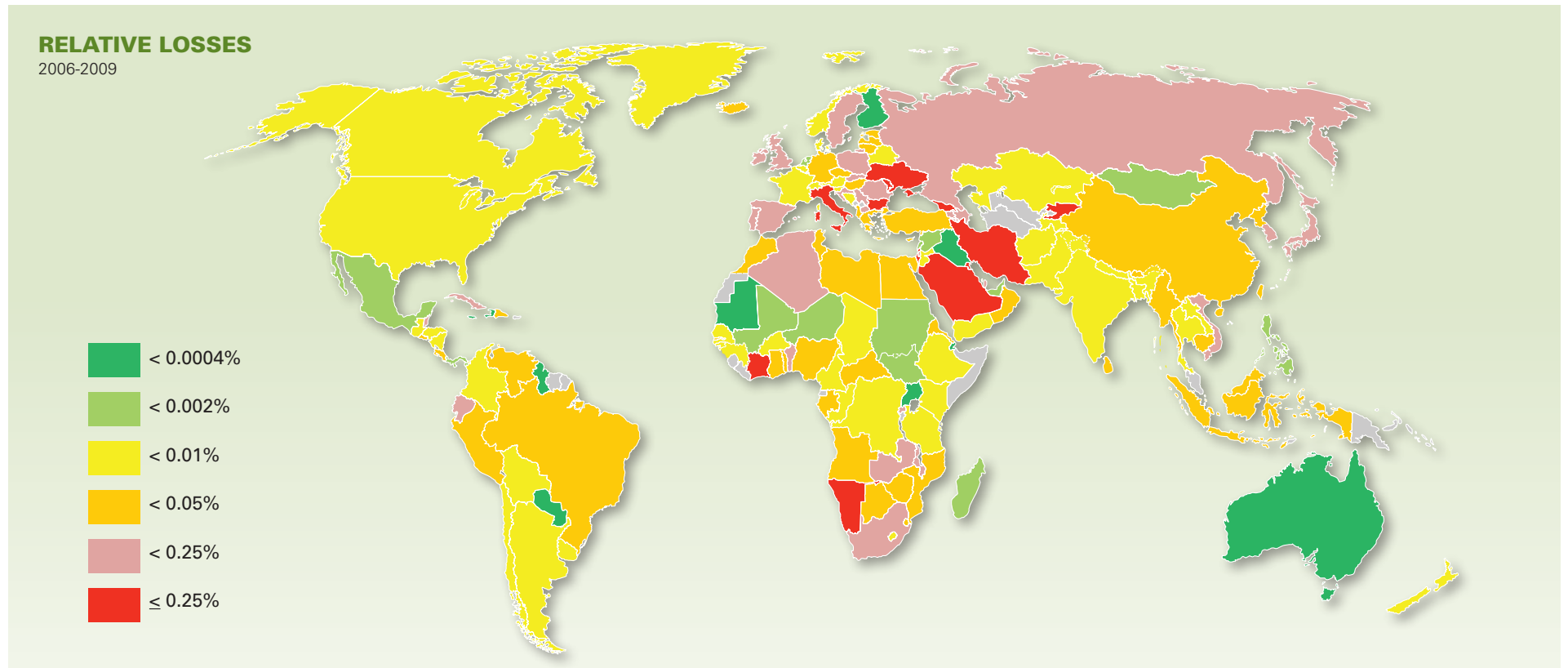
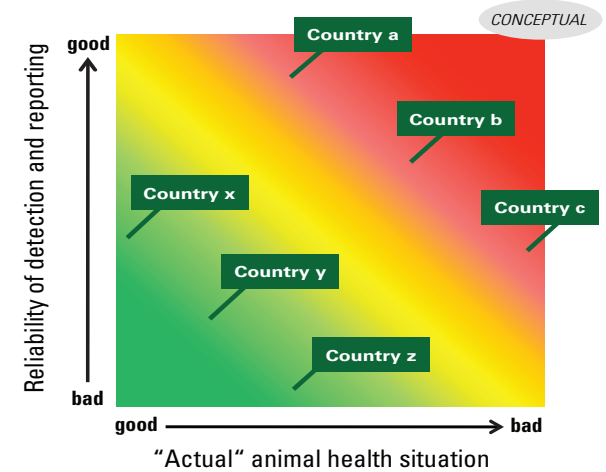
* According to World Bank categories

Average annual LSU losses were calculated relative to the total livestock populations for each country. As the map shows, the different levels of relative losses are very unevenly distributed across the globe with almost every continent showing countries of high-and-low losses.

The reported levels of losses are the result of two major factors: the actual animal health situation in the country on the one hand and the reporting reliability of the countries' veterinary services on the other hand. Countries that reported the same level of losses do not necessarily face the same actual animal health situation. The data the

authors have available do not allow for a distinction of the two factor's contribution to the overall result. This distinction would only be possible if OIE data were set in relation to either other sources of information on countries' animal health situation and/or information on the performance of the countries' veterinary services, e.g., based on the results of the OIE's Performance of Veterinary Services (PVS) evaluation tool. Additional information is available in OIE's World Animal Health Database (WAHID), for instance about the number of veterinarians active in certain domains.

HOW TO READ THE COLORS

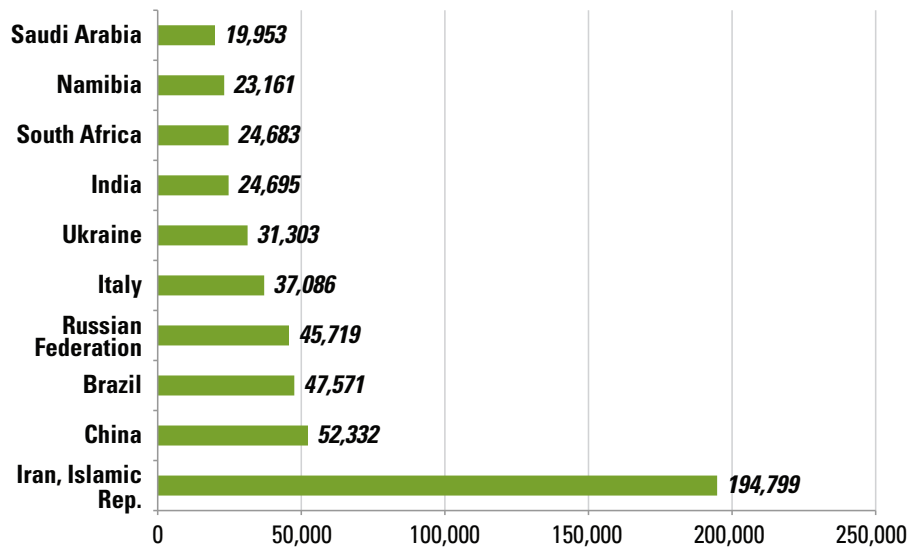


Countries are ranked by their average annual LSU losses between 2006 and 2009. Iran suffered the highest losses with about 195,000 LSUs per year. Remarkably, Iranian losses were almost four times higher than those in China, the country with the second-highest reported losses. Losses increased from the 2006–2008 averages to 2009 in 37 countries and decreased in 122 countries.

LSU losses were calculated relative to the total livestock populations for each country. Israel, Iran and Namibia rank highest, with Israel suffering about a 40-fold higher relative loss than the global average.

ABSOLUTE LOSS TO ALL DISEASES

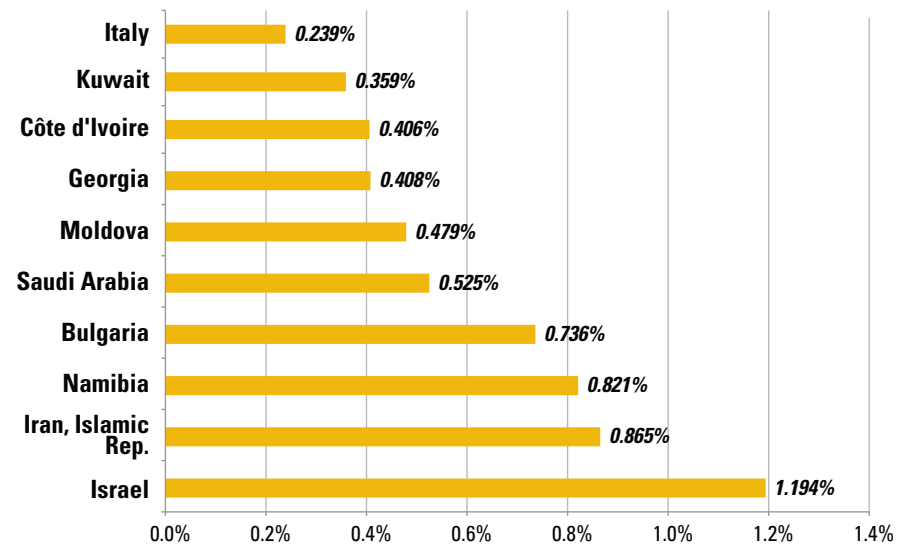
2006-2009



Top 10 countries account for 64 % of total.

RELATIVE LOSS OF LSUs*

2006-2009



* LSUs lost in country as percentage of total livestock populations in that country

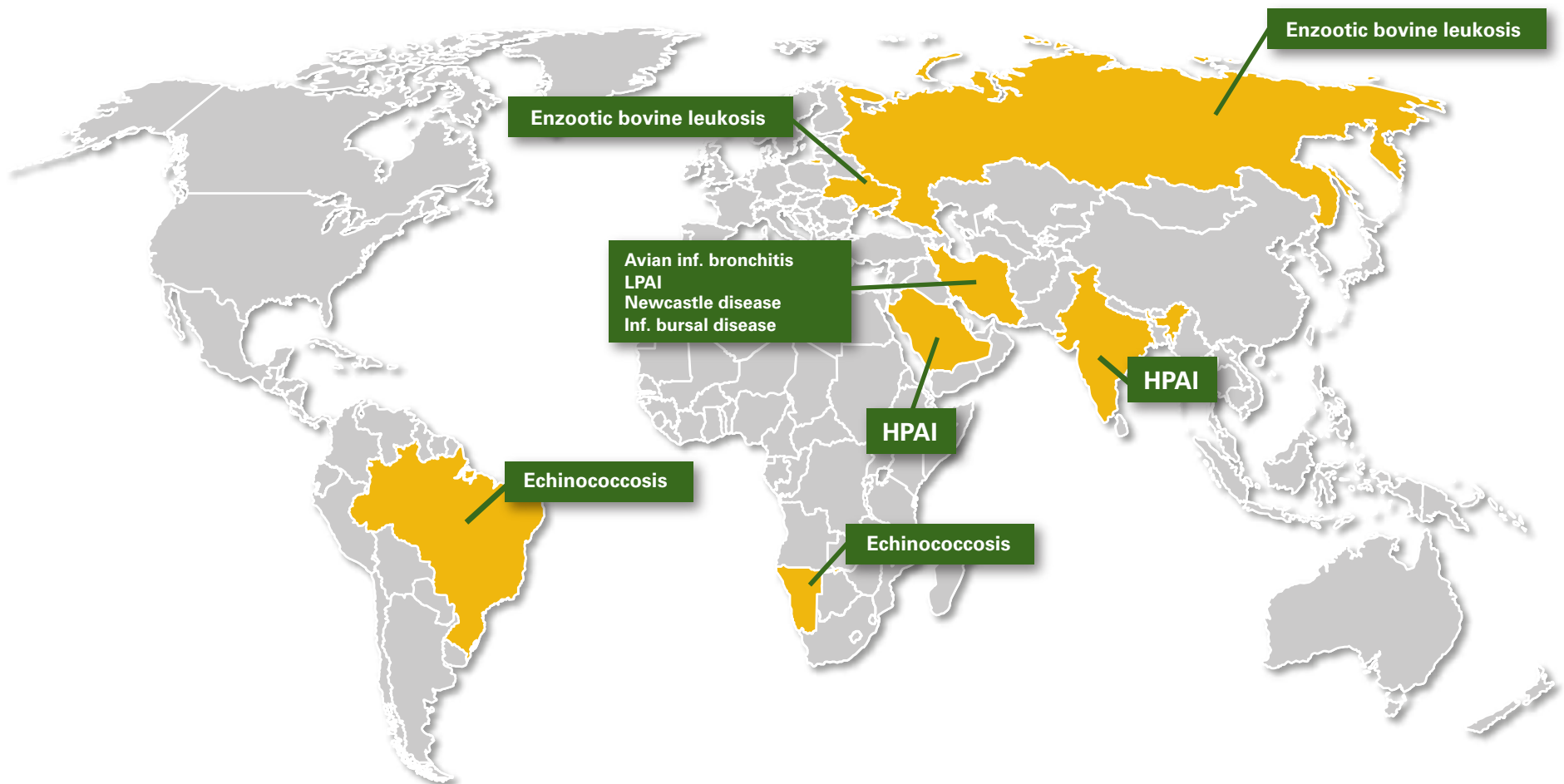
Looking at all 12,496 combinations of country and disease, we identified the 50 largest losses on average over the years 2006–2009 (20 largest thereof are shown on maps, see Appendix/page 93 for complete list). Iran, China and Italy are the most frequently named countries

on this list (five each) while HPAI (8), echinococcosis (6) and bovine tuberculosis (6) are the most frequently named diseases. It is remarkable that avian infectious bronchitis, with its outbreak in Iran, tops the list, but does not show up again among the top-50 losses, indicating a

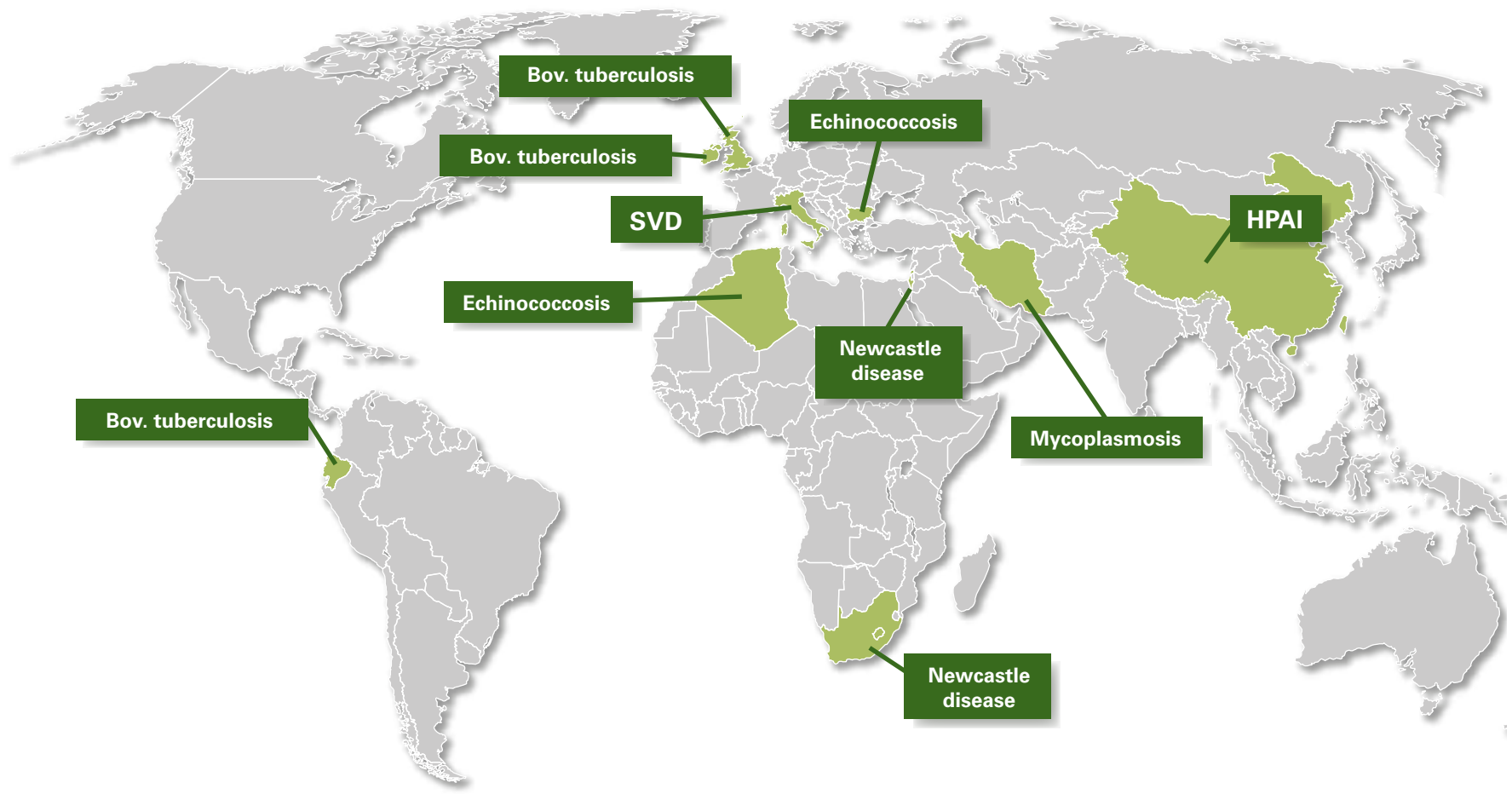
very severe outbreak that was restricted to a particular location. 19 out of the top-50 losses were caused by avian diseases, 15 by bovine diseases and eight each by porcine and multi-species diseases.

LARGEST LOSSES 1-10

2006-2009



LARGEST LOSSES 11-20
2006-2009



For the purpose of “radar screening” the landscape of livestock diseases, the authors combined three disease characteristics that are of relevance for global-disease control into one figure: absolute amount of losses (“size”), growth (or shrinking) of losses over time and mobility. Diseases causing high losses that keep grow-

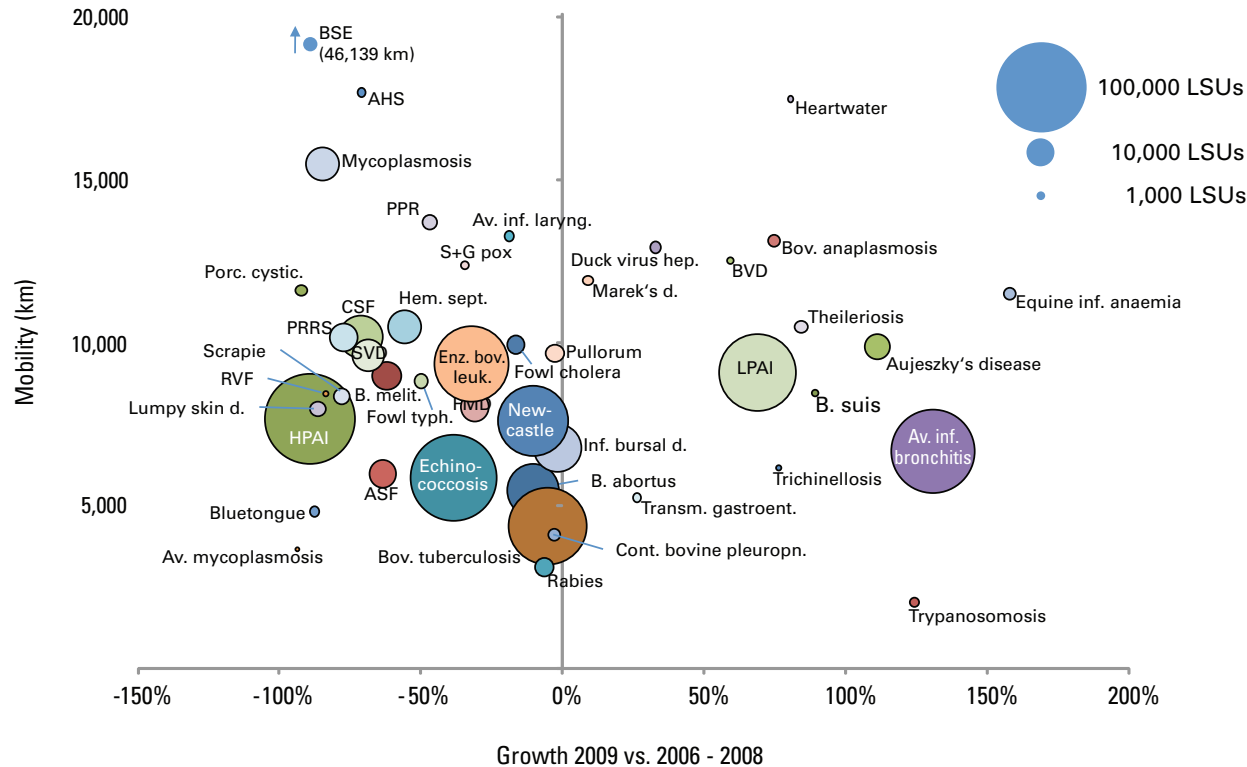
ing further and move quickly in terms of their geographical locations would require the highest attention (large bubbles in top right-quarter of figure below).

Only two of the diseases causing very heavy losses showed a further increase in losses over time (avian infectious bronchitis and LPAI) and none of them showed

a particularly high mobility. The diseases with growing losses and high mobility (e.g., heartwater and bovine anaplasmosis) caused only minor losses. Note that the very high mobility value of BSE does not stem from further spread of the disease, but from its withdrawal from several countries.

GROWTH / SIZE / MOBILITY

2006-2009

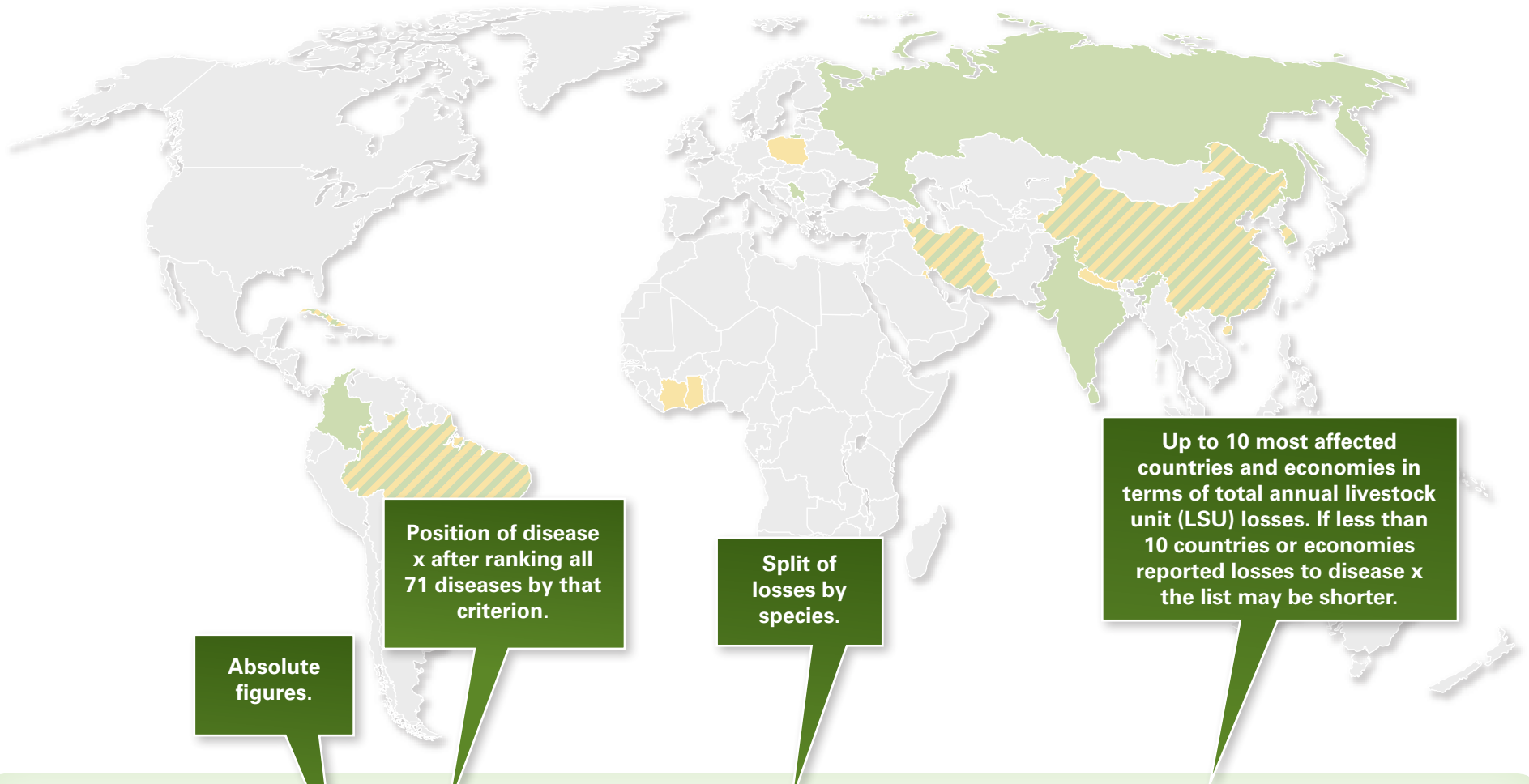


EXPLANATION OF ABBREVIATIONS:

AHS: African horse sickness, Av. inf. bronchitis: Avian infectious bronchitis, Av. inf. laryng.: Avian infectious laryngotracheitis, Av. mycoplasmosis: Avian mycoplasmosis, ASF: African swine fever, B. abortus: Brucella abortus, B. melit.: Brucella melitensis, B. suis: Brucella suis, BVD: Bovine viral diarrhoea, Bov. anaplasmosis: Bovine anaplasmosis, Bov. tuberculosis: Bovine tuberculosis, BSE: Bovine spongiform encephalopathy, Cont. bovine pleuropn.: Contagious bovine pleuropneumonitis, CSF: Classical swine fever, Duck virus hep.: Duck virus hepatitis, Enz. bov. leuk.: Enzootic bovine leukosis, Equine inf. anaemia: Equine infectious anaemia, FMD: foot-and-mouth disease, Fowl typh.: Fowl typhoid, HPAI: Highly pathogenic avian influenza, Inf. bursal d.: Infectious bursal disease, LPAI: Low-pathogenic avian influenza, Lumpy skin d.: Lumpy skin disease, Marek's d.: Marek's disease, Porc. cystic.: Porcine cysticercosis, PPR: Peste des petits ruminants, PRRS: Porcine reproductive/respiratory syndrome, RVF: Rift valley fever, S+G pox: sheep-and-goat pox, SVD: swine vesicular disease, Transm. gastroent.: Transmissible gastroenteritis.

Disease-by-Disease Analyses
ZOO NOTIC DISEASES

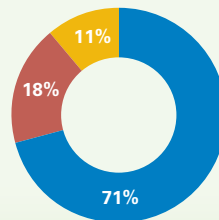
Reading Instructions: Disease x



Key Figures

Countries with outbreaks:	22	46
Outbreaks:	2,745	15
Cases (LSUs):	8,808	39
LSUs lost by death:	3,268	
LSUs lost by destruction:	345	
LSUs lost by slaughter:	2,124	
LSUs lost total:	5,779	17

LSUs Lost

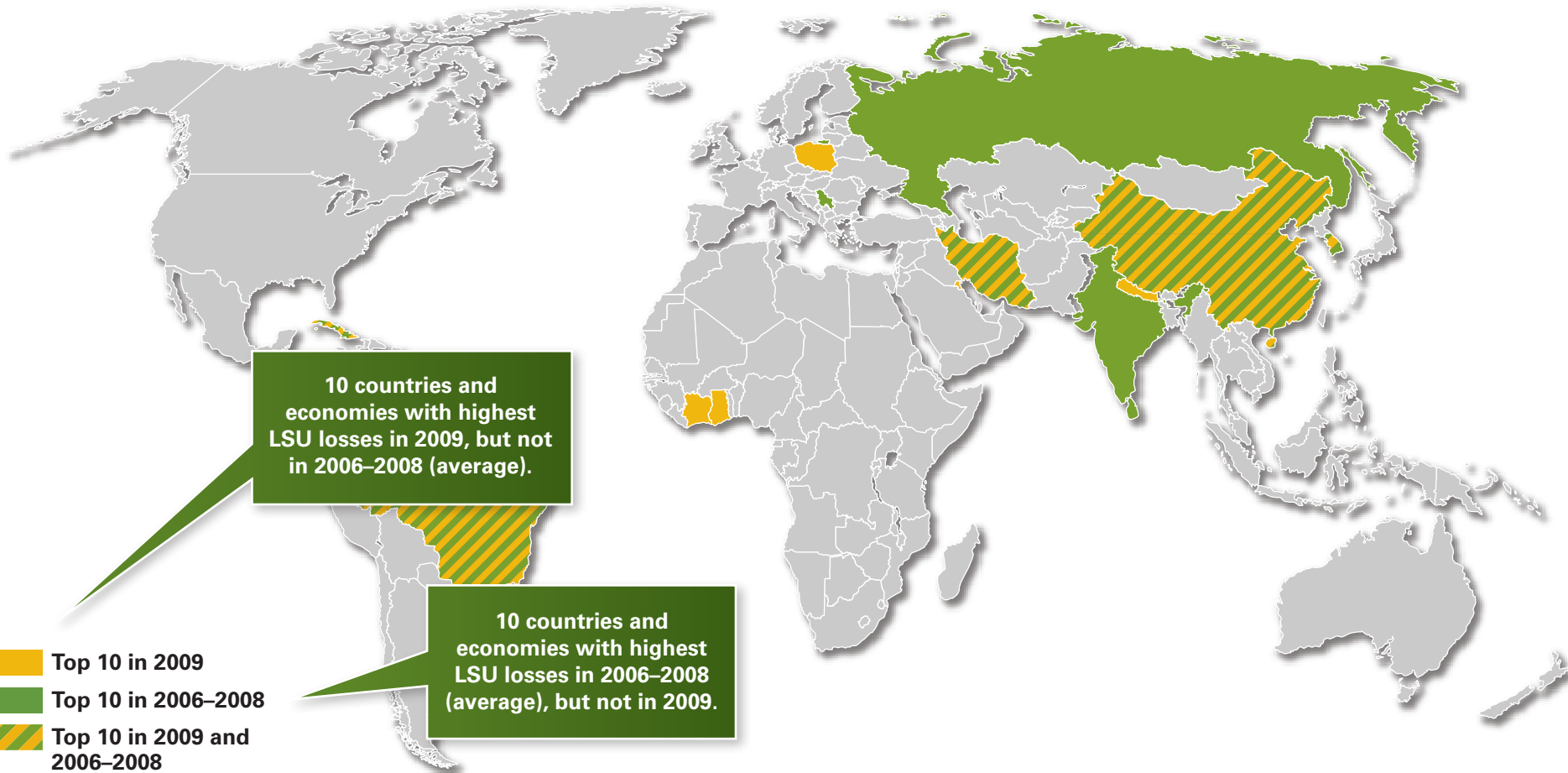


- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Country g	4,125
Country e	2,366
Country x	2,458
Country m	1,777
Country f	1,265
Country q	998

Country c	554
Country b	259
Country p	89
Country z	57

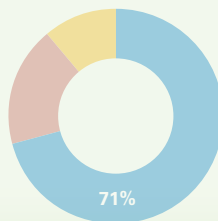


Key Figures

Countries with outbreak:	
Outbreaks:	
Cases (LSUs):	
LSUs lost by death:	3,268
LSUs lost by destruction:	345
LSUs lost by slaughter:	2,124
LSUs lost total:	5,779

Any countries or economies ranking among top 10 LSU losses in 2006–2008 (average) and 2009.

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

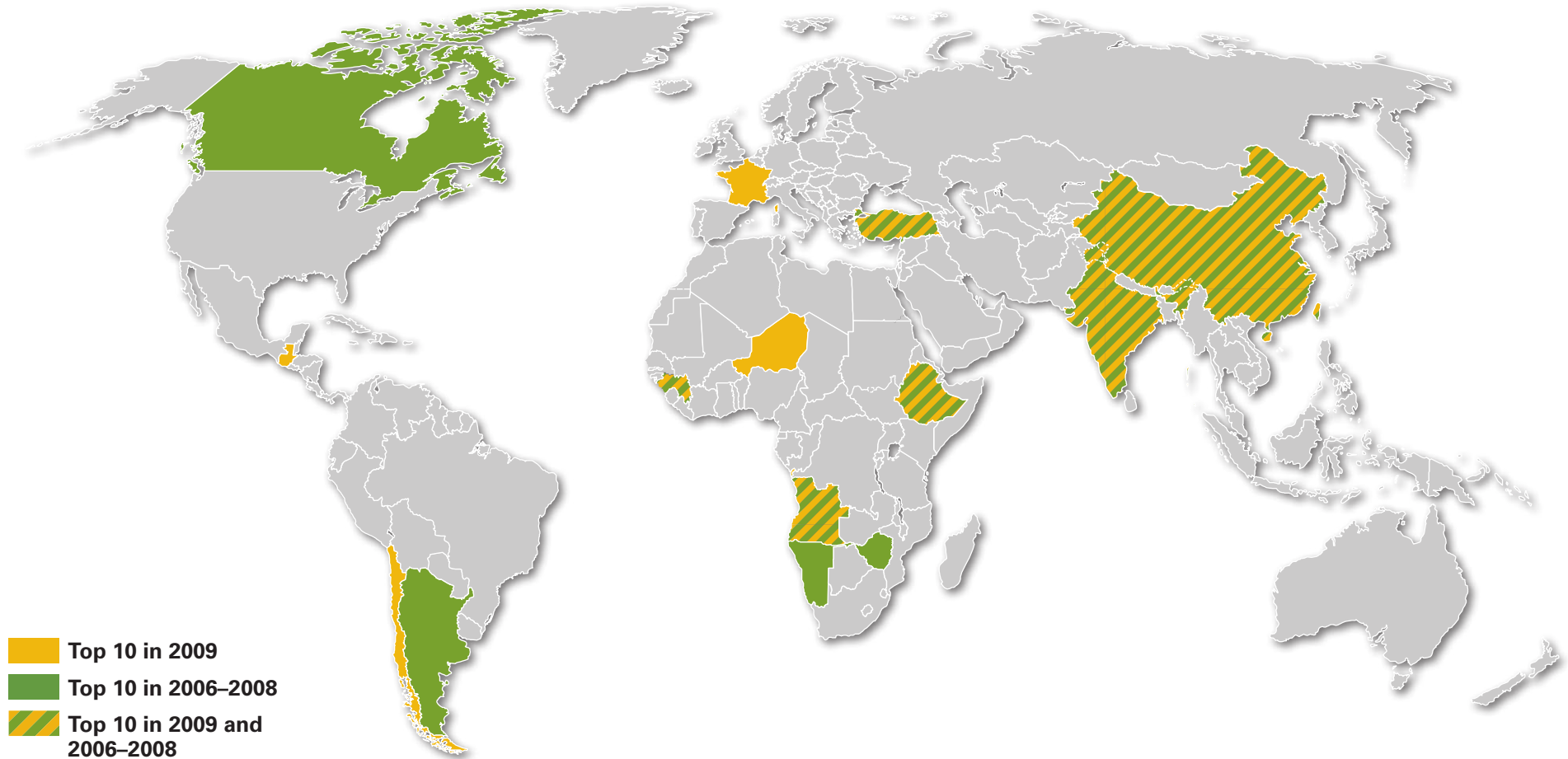
Most Affected Countries and Economies

LSUs lost	
Country g	4,125
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Country f	1,265
Country q	998

Country c	554
Country b	259
Country p	89
Country z	57

Anthrax

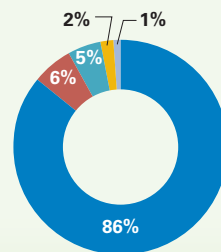
2006-2009



Key Figures

		RANK
Countries with outbreaks:	53	4
Outbreaks:	1,636	32
Cases (LSUs):	12,606	30
LSUs lost by death:	2,565	
LSUs lost by destruction:	187	
LSUs lost by slaughter:	1,060	
LSUs lost total:	3,812	8

LSUs Lost



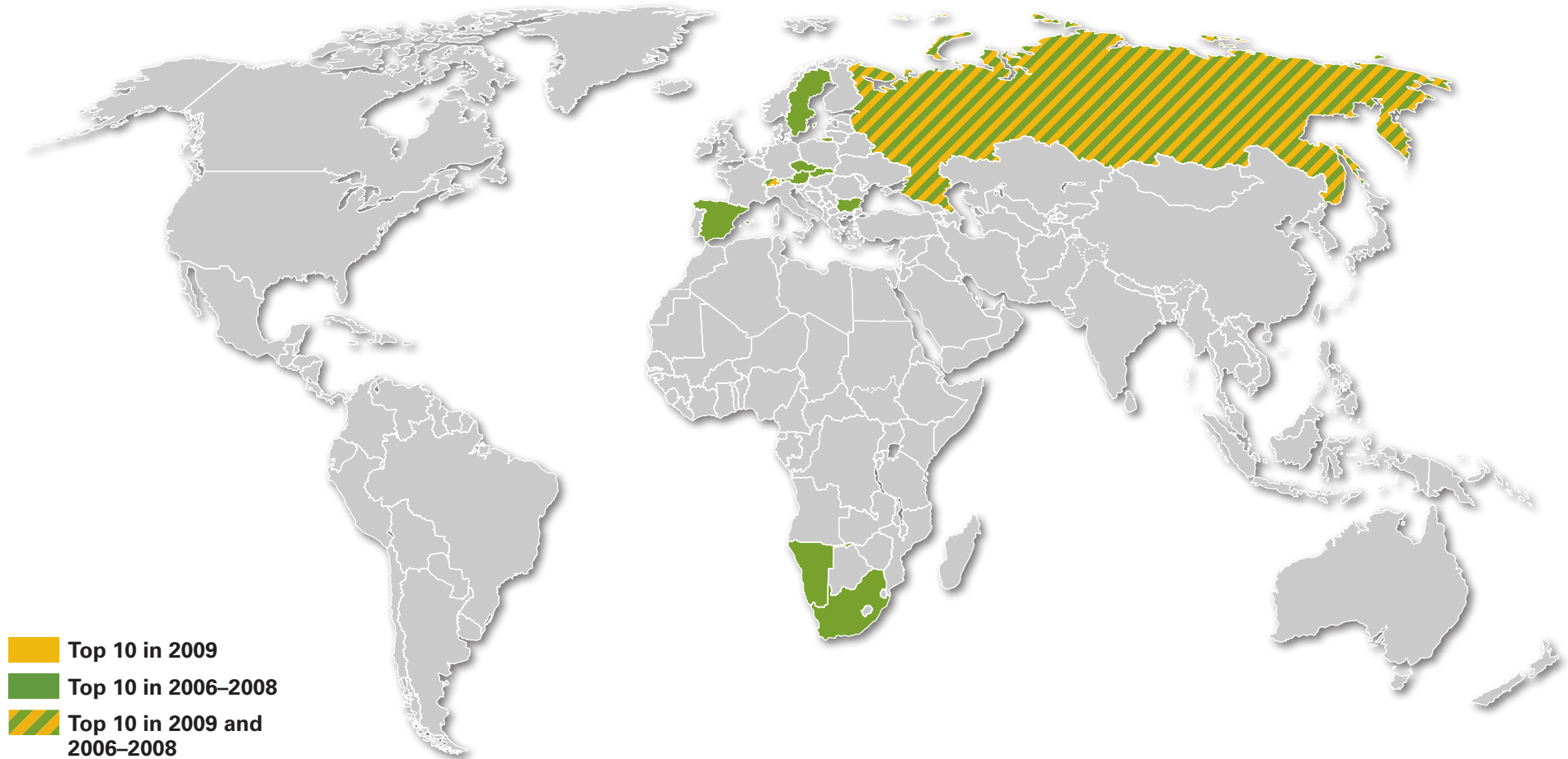
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Namibia	1,058
Ethiopia	993
Turkey	214
Canada	204
India	165
Guinea	148
Zimbabwe	142
China	118
Angola	98
Argentina	75

Avian Chlamydiosis

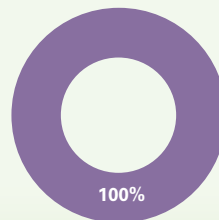
2006-2009



Key Figures

		RANK
Countries with outbreaks:	11	46
Outbreaks:	132	61
Cases (LSUs):	13	68
LSUs lost by death:	2	
LSUs lost by destruction:	0	
LSUs lost by slaughter:	0	
LSUs lost total:	2	67

LSUs Lost



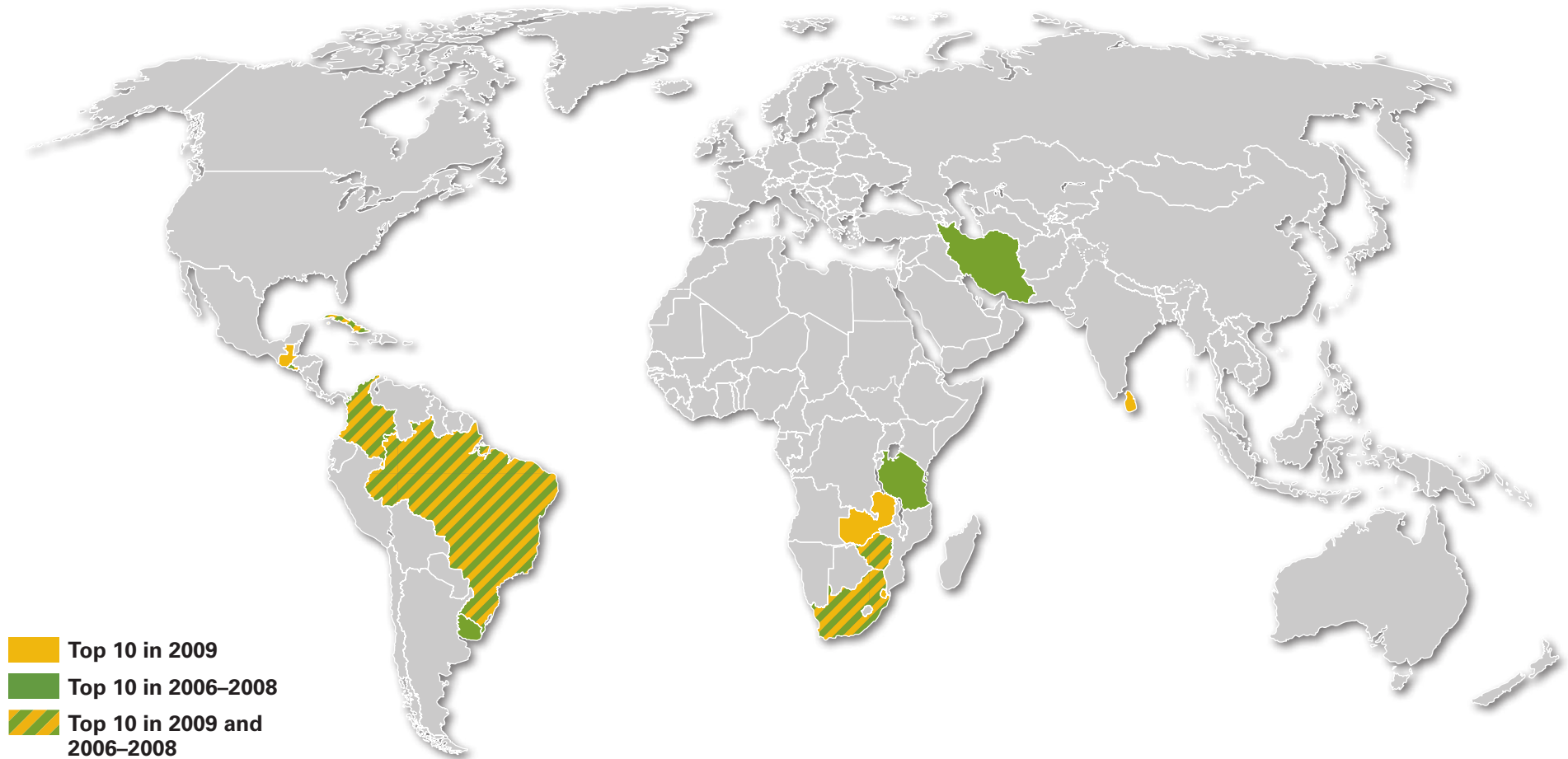
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Russian Federation	1.0
Bulgaria	0.3
Namibia	0.1
Switzerland	0.1
Austria	0.1

Bovine Babesiosis

2006-2009

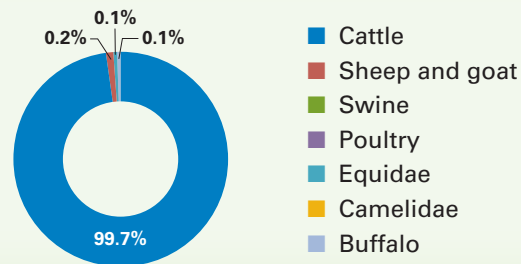


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	35	8
Outbreaks:	4,290	16
Cases (LSUs):	30,241	16
LSUs lost by death:	1,128	
LSUs lost by destruction:	8	
LSUs lost by slaughter:	35	
LSUs lost total:	1,171	37

LSUs Lost

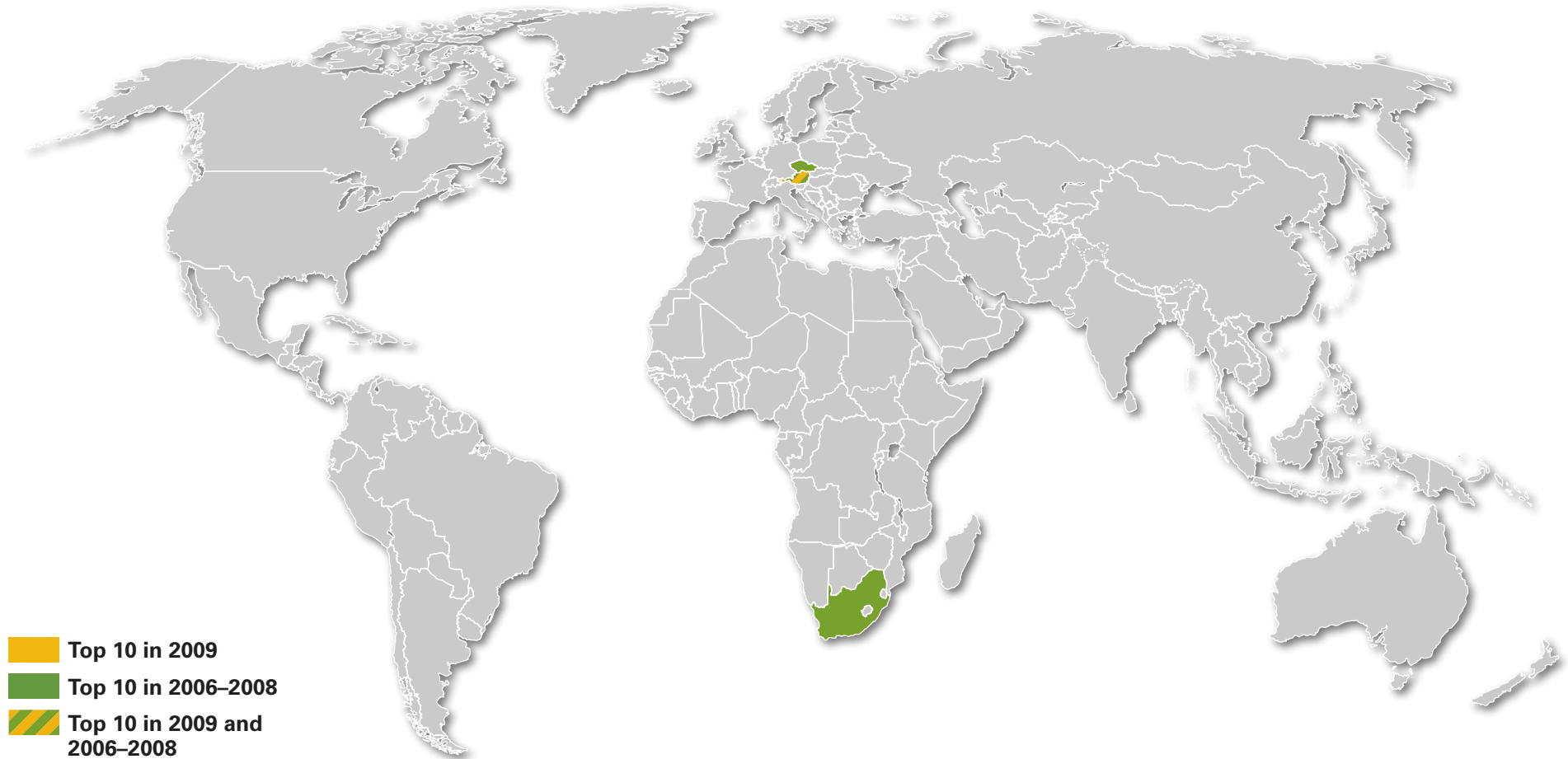


Most Affected Countries and Economies

LSUs lost	
Brazil	306
Zimbabwe	171
Cuba	127
Tanzania	125
Colombia	117
El Salvador	94
South Africa	72
Zambia	44
Uruguay	41
Iran, Islamic Rep.	36

Bovine Genital Campylobacteriosis

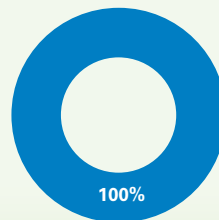
2006-2009



Key Figures

		RANK
Countries with outbreaks:	9	52
Outbreaks:	76	64
Cases (LSUs):	85	65
LSUs lost by death:	0	
LSUs lost by destruction:	3	
LSUs lost by slaughter:	1	
LSUs lost total:	4	64

LSUs Lost



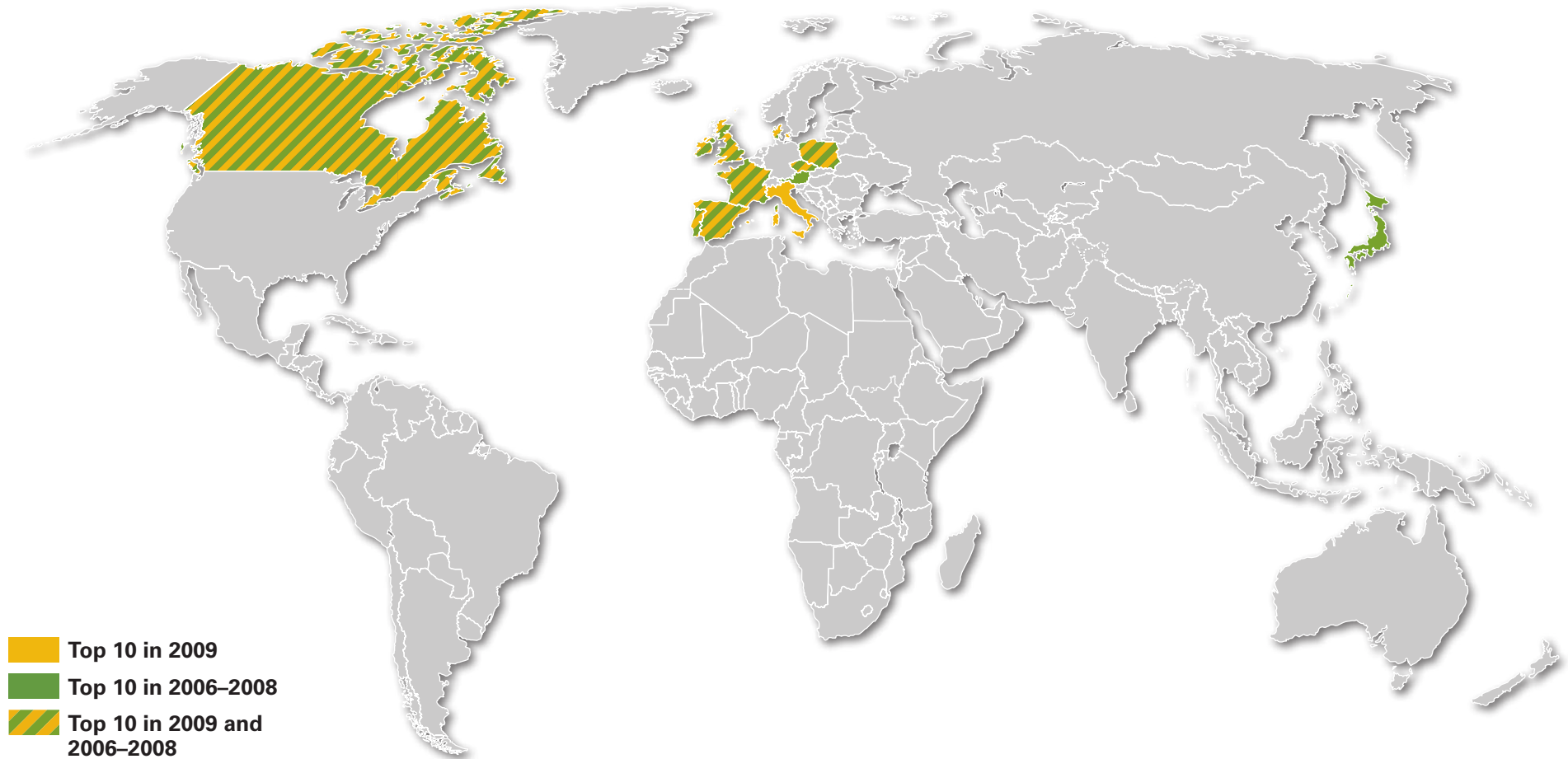
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

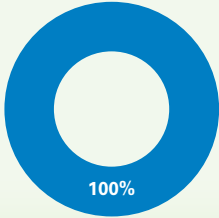
LSUs lost	
South Africa	2
Czech Republic	1
Austria	1

Bovine Spongiform Encephalopathie (BSE)

2006-2009

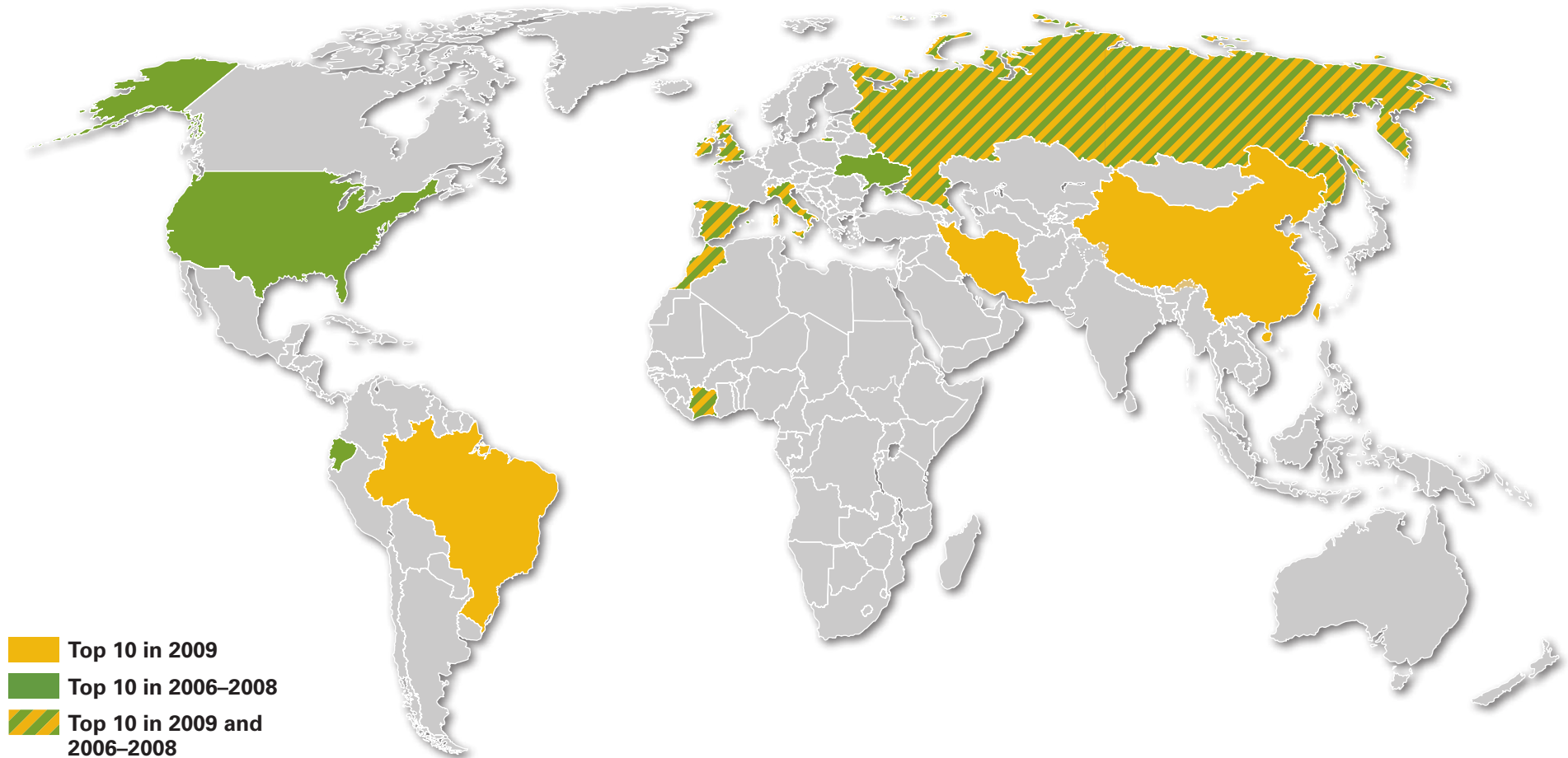


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	13	RANK 37	 <p>100%</p>	■ Cattle	LSUs lost Ireland 958 United Kingdom 28 Portugal 438 France 20 Spain 162 Austria 10 Canada 79 Japan 3 Czech Republic 74 Poland 37			
Outbreaks:	171	60		■ Sheep and goat				
Cases (LSUs):	148	61		■ Swine				
LSUs lost by death:	14			■ Poultry				
LSUs lost by destruction:	1,757			■ Equidae				
LSUs lost by slaughter:	51			■ Camelidae				
LSUs lost total:	1,822	29	■ Buffalo					

Bovine Tuberculosis

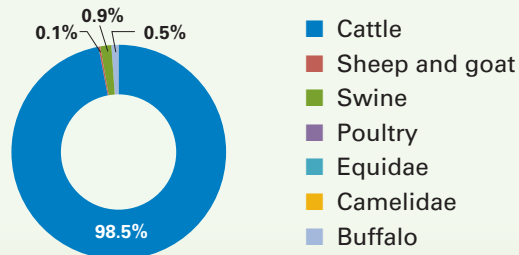
2006-2009



Key Figures

		RANK
Countries with outbreaks:	54	3
Outbreaks:	27,433	2
Cases (LSUs):	208,989	4
LSUs lost by death:	486	
LSUs lost by destruction:	15,998	
LSUs lost by slaughter:	56,532	
LSUs lost total:	73,015	4

LSUs Lost

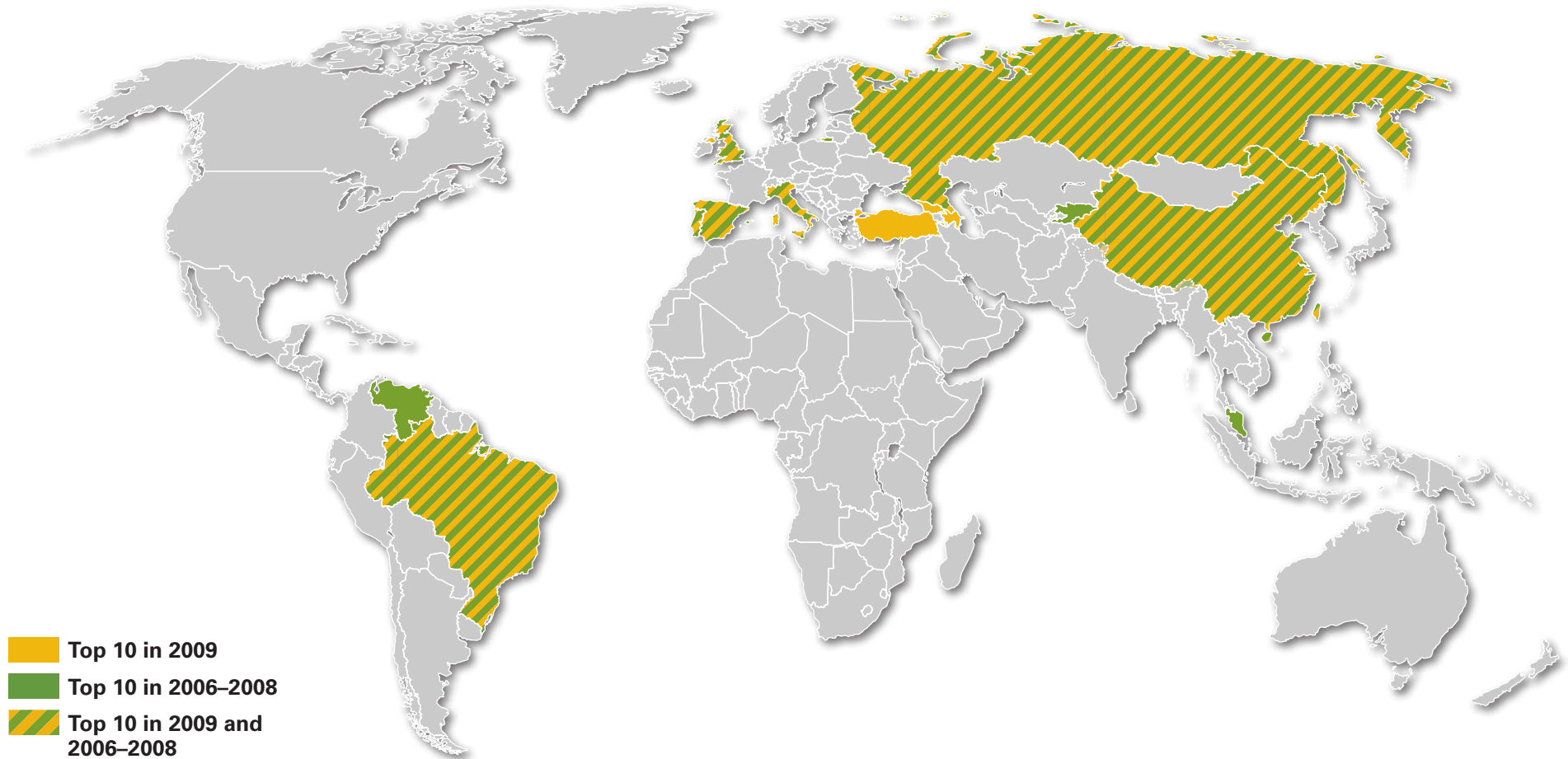


Most Affected Countries and Economies

LSUs lost	
United Kingdom	10,993
Ecuador	10,720
Ireland	10,115
Spain	8,585
Côte d'Ivoire	8,518
Italy	5,681
United States	2,621
Russian Federation	2,549
Morocco	1,994
Ukraine	1,594

Brucella Abortus

2006-2009

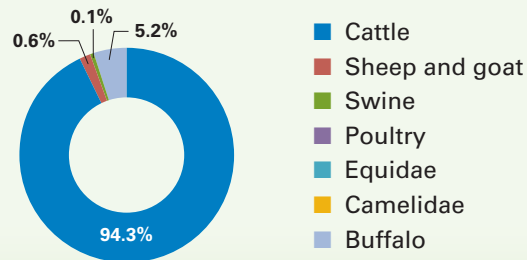


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	52	5
Outbreaks:	17,288	5
Cases (LSUs):	135,988	6
LSUs lost by death:	455	
LSUs lost by destruction:	15,277	
LSUs lost by slaughter:	17,176	
LSUs lost total:	32,908	8

LSUs Lost

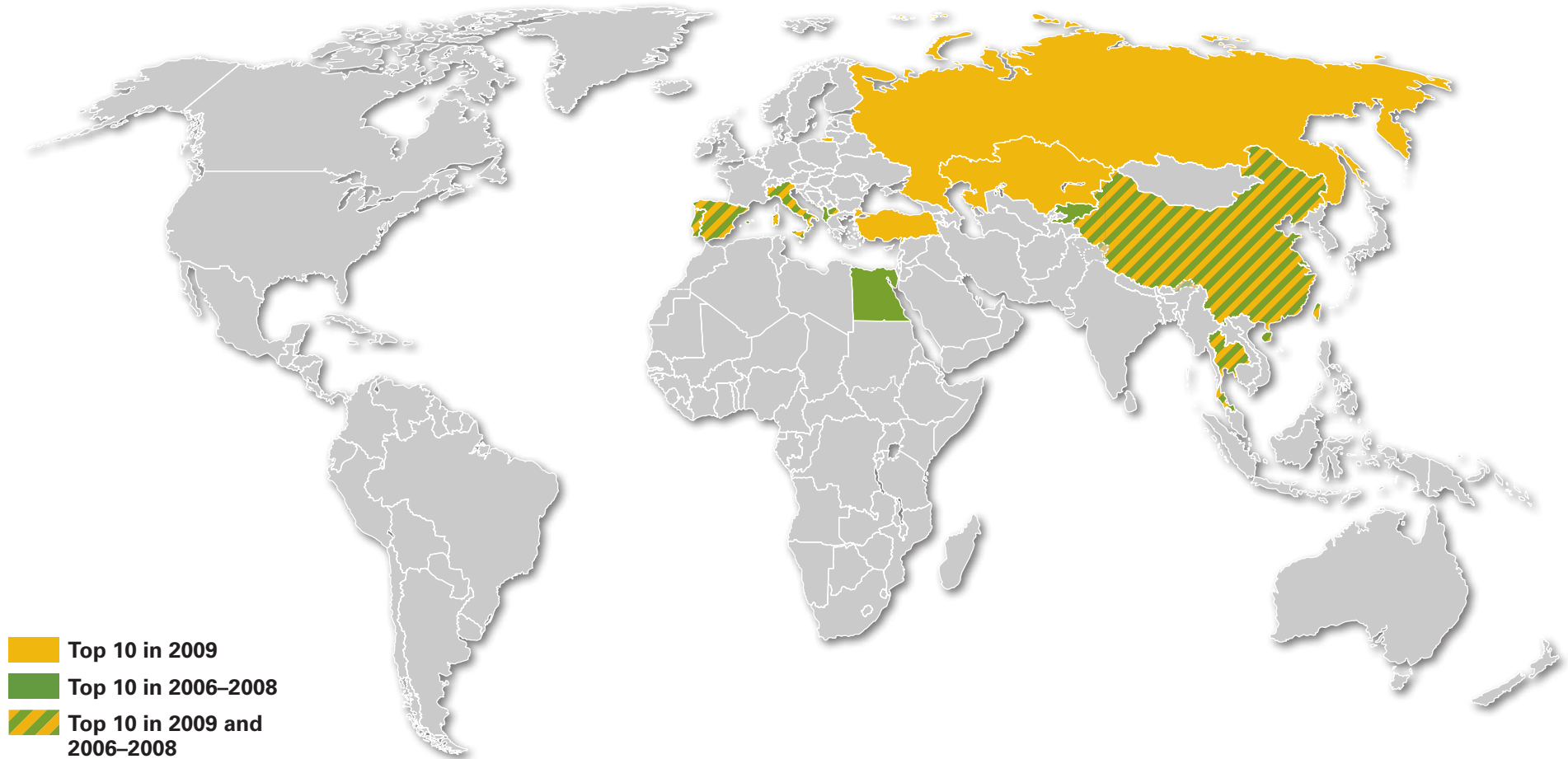


Most Affected Countries and Economies

LSUs lost	
Italy	7,848
Russian Federation	4,942
Spain	4,331
Kyrgyz Republic	3,175
Venezuela, RB	3,054
Brazil	2,570
China	1,559
Portugal	1,346
Malaysia	707
United Kingdom	681

Brucella Melitensis

2006-2009

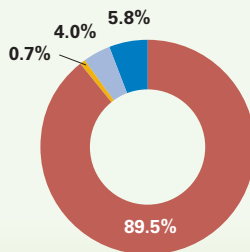


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	29	13
Outbreaks:	7,044	11
Cases (LSUs):	82,995	10
LSUs lost by death:	78	
LSUs lost by destruction:	5,550	
LSUs lost by slaughter:	4,322	
LSUs lost total:	9,950	14

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

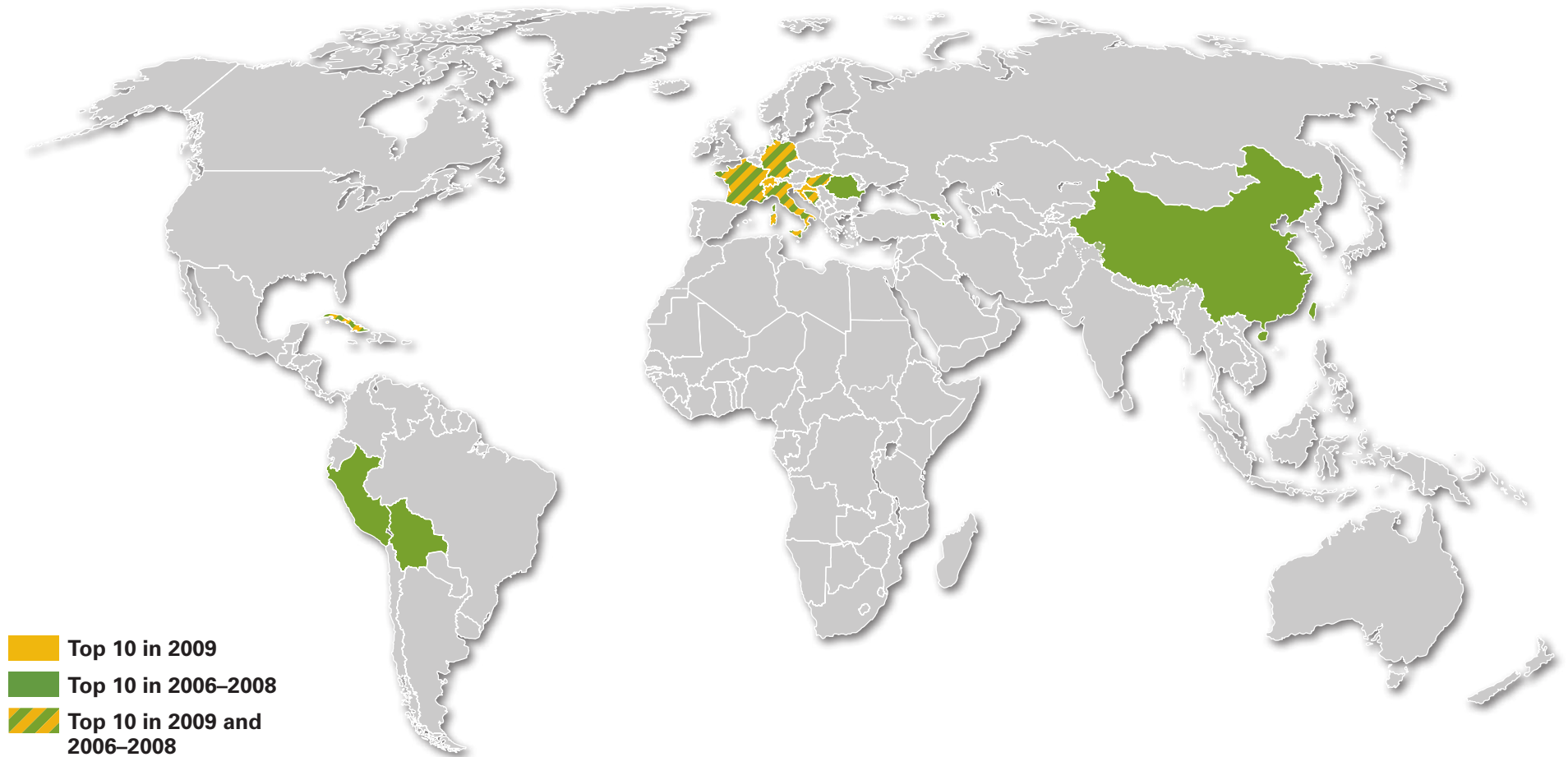
Most Affected Countries and Economies

LSUs lost	
Spain	3,523
Italy	3,107
Portugal	1,194
Macedonia, FYR	591
Thailand	204
China	201

Kyrgyz Republic	184
Albania	181
Kazakhstan	160
Qatar	135

Brucella Suis

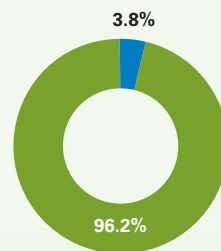
2006-2009



Key Figures

		RANK
Countries with outbreaks:	9	52
Outbreaks:	121	63
Cases (LSUs):	175	60
LSUs lost by death:	2	
LSUs lost by destruction:	341	
LSUs lost by slaughter:	160	
LSUs lost total:	503	43

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

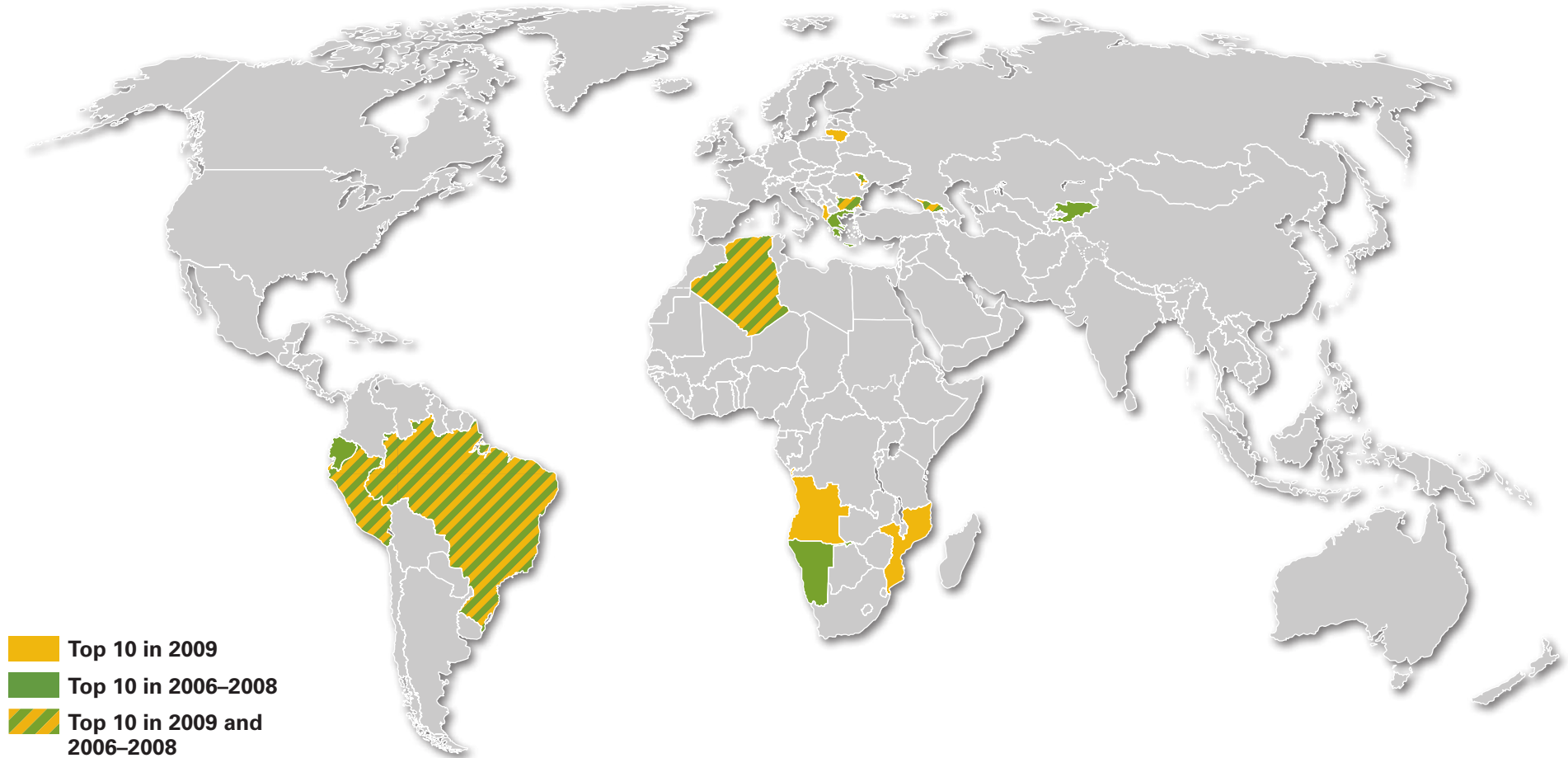
Most Affected Countries and Economies

LSUs lost	
Hungary	243
Germany	162
France	104
Romania	50
Croatia	40
Italy	17

Cuba	4
Switzerland	3

Echinococcosis

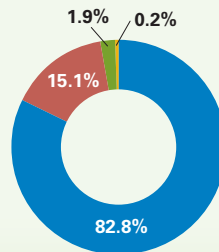
2006-2009



Key Figures

		RANK
Countries with outbreaks:	20	28
Outbreaks:	22,815	4
Cases (LSUs):	1,038,660	1
LSUs lost by death:	24	
LSUs lost by destruction:	5,837	
LSUs lost by slaughter:	84,130	
LSUs lost total:	89,991	2

LSUs Lost



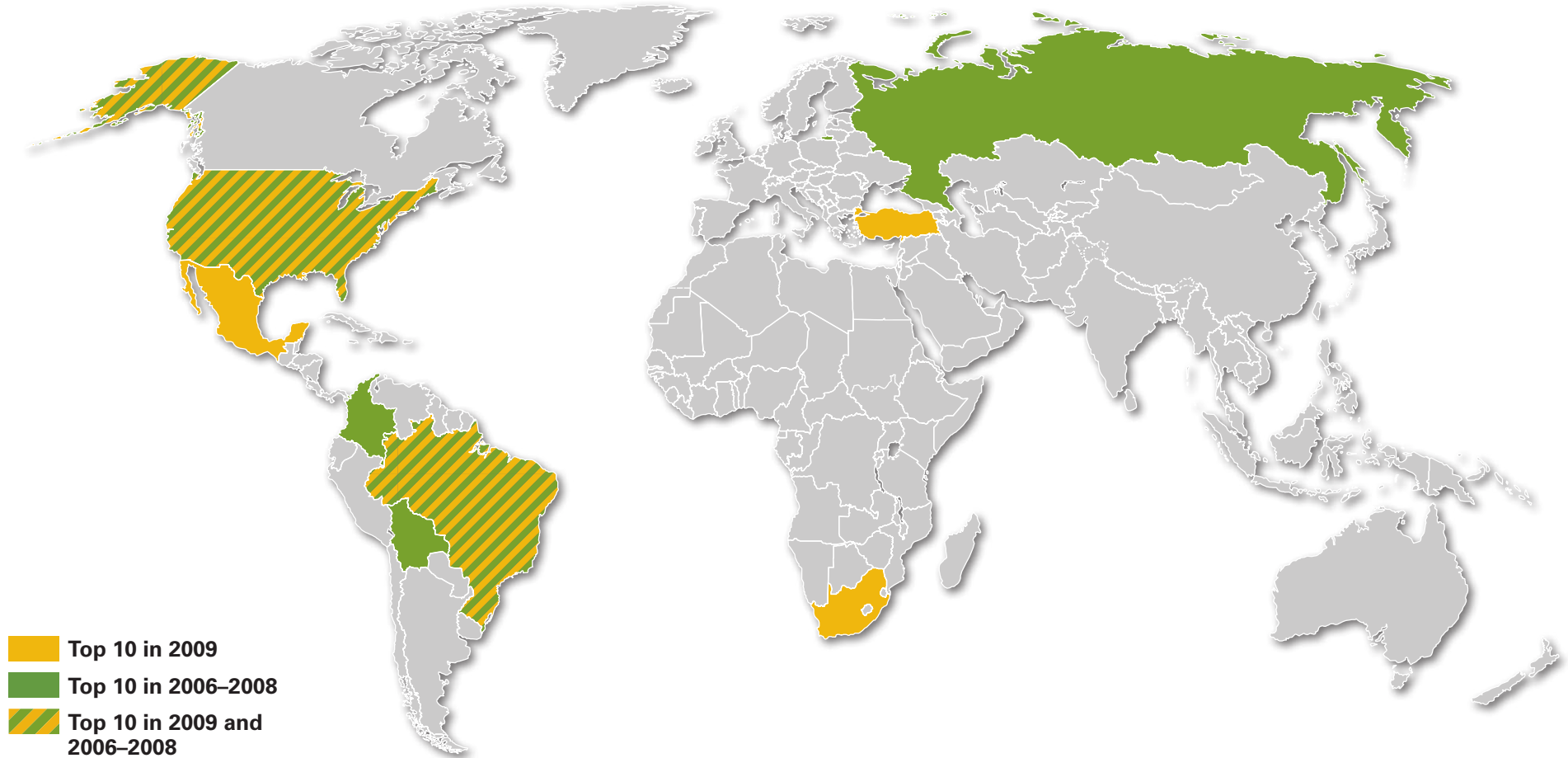
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Brazil	33,792
Namibia	21,957
Bulgaria	10,082
Algeria	8,883
Peru	6,795
Ecuador	5,354
Moldova	2,126
Kyrgyz Republic	1,457
Greece	69
Georgia	67

Equine Piroplasmosis

2006-2009

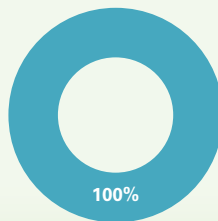


-  Top 10 in 2009
-  Top 10 in 2006-2008
-  Top 10 in 2009 and 2006-2008

Key Figures

		RANK
Countries with outbreaks:	11	48
Outbreaks:	615	42
Cases (LSUs):	1,373	49
LSUs lost by death:	13	
LSUs lost by destruction:	13	
LSUs lost by slaughter:	0	
LSUs lost total:	25	58

LSUs Lost



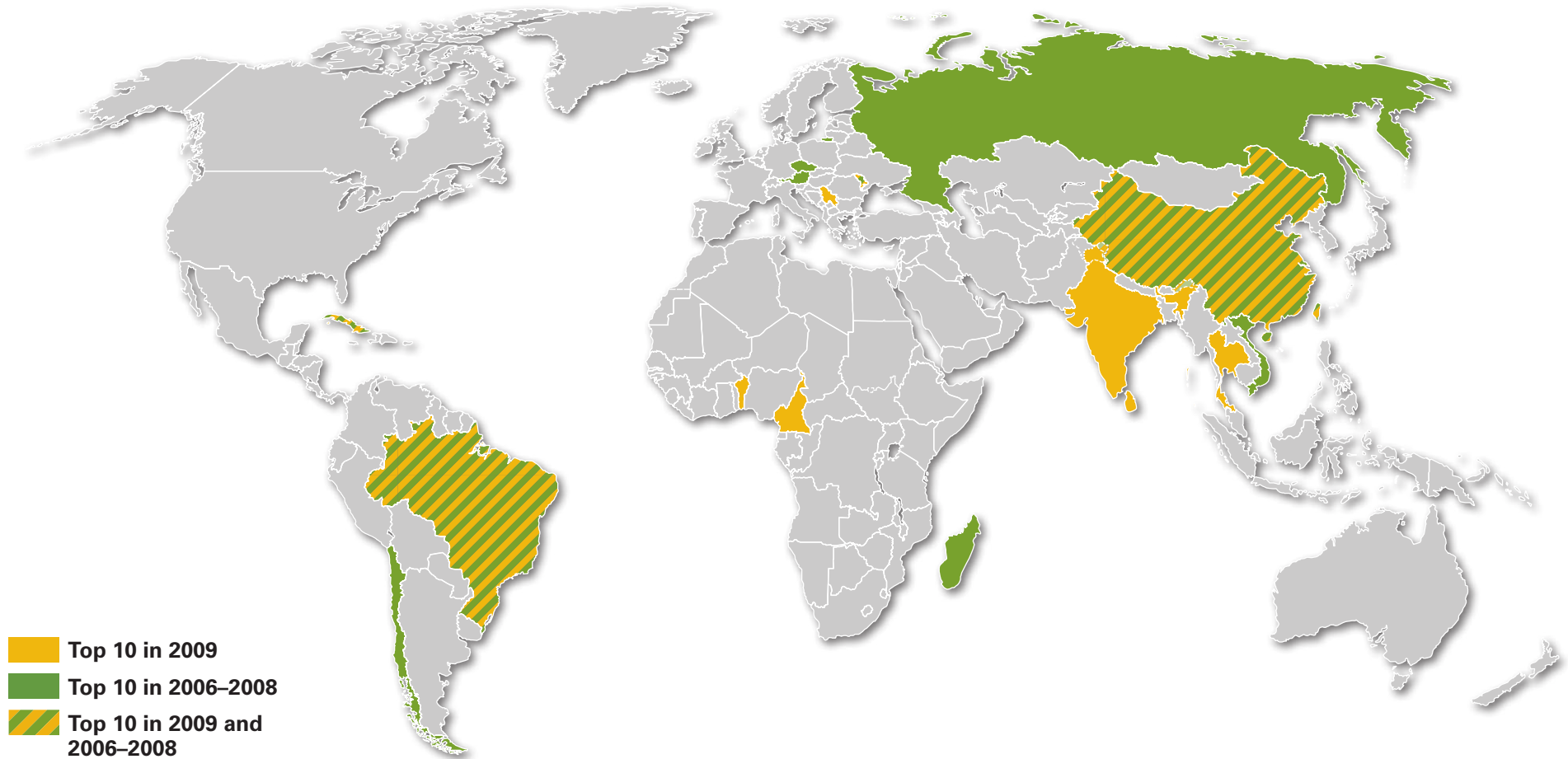
-  Cattle
-  Sheep and goat
-  Swine
-  Poultry
-  Equidae
-  Camelidae
-  Buffalo

Most Affected Countries and Economies

LSUs lost	
United States	11
Brazil	8
Bolivia	2
Russian Federation	2
Mexico	2
Colombia	1

Fowl Cholera

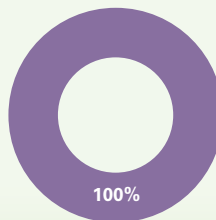
2006-2009



Key Figures

		RANK
Countries with outbreaks:	23	21
Outbreaks:	1,751	29
Cases (LSUs):	20,260	24
LSUs lost by death:	3,570	
LSUs lost by destruction:	169	
LSUs lost by slaughter:	64	
LSUs lost total:	3,803	22

LSUs Lost



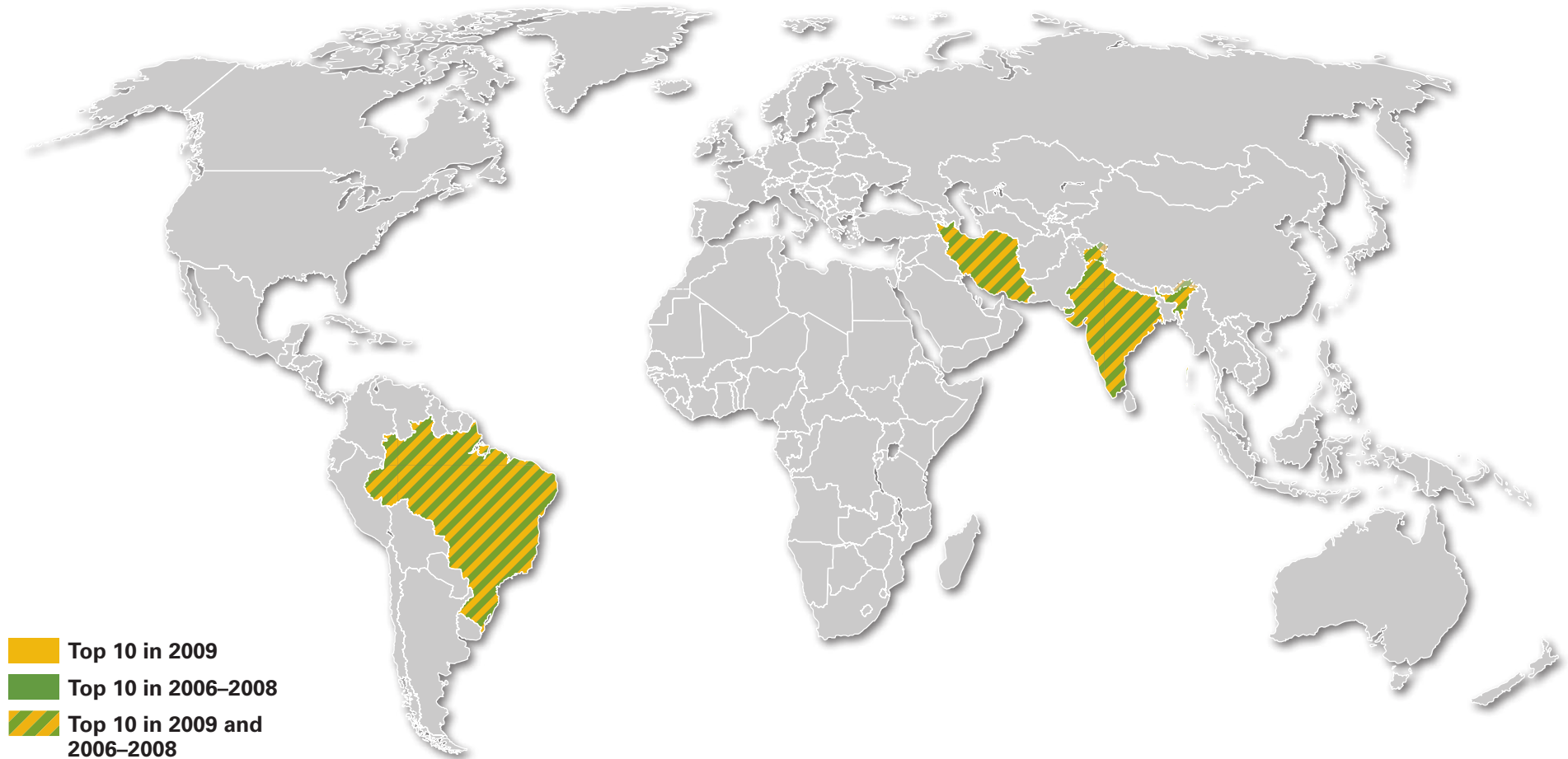
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost			
China	4,338	Austria	21
Brazil	165	Czech Republic	19
Chile	163	Vietnam	10
Russian Federation	70	India	9
Cuba	47	Moldova	9

Glanders

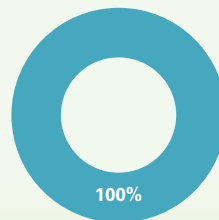
2006-2009



Key Figures

		RANK
Countries with outbreaks:	3	64
Outbreaks:	40	67
Cases (LSUs):	124	62
LSUs lost by death:	7	
LSUs lost by destruction:	58	
LSUs lost by slaughter:	1	
LSUs lost total:	66	54

LSUs Lost



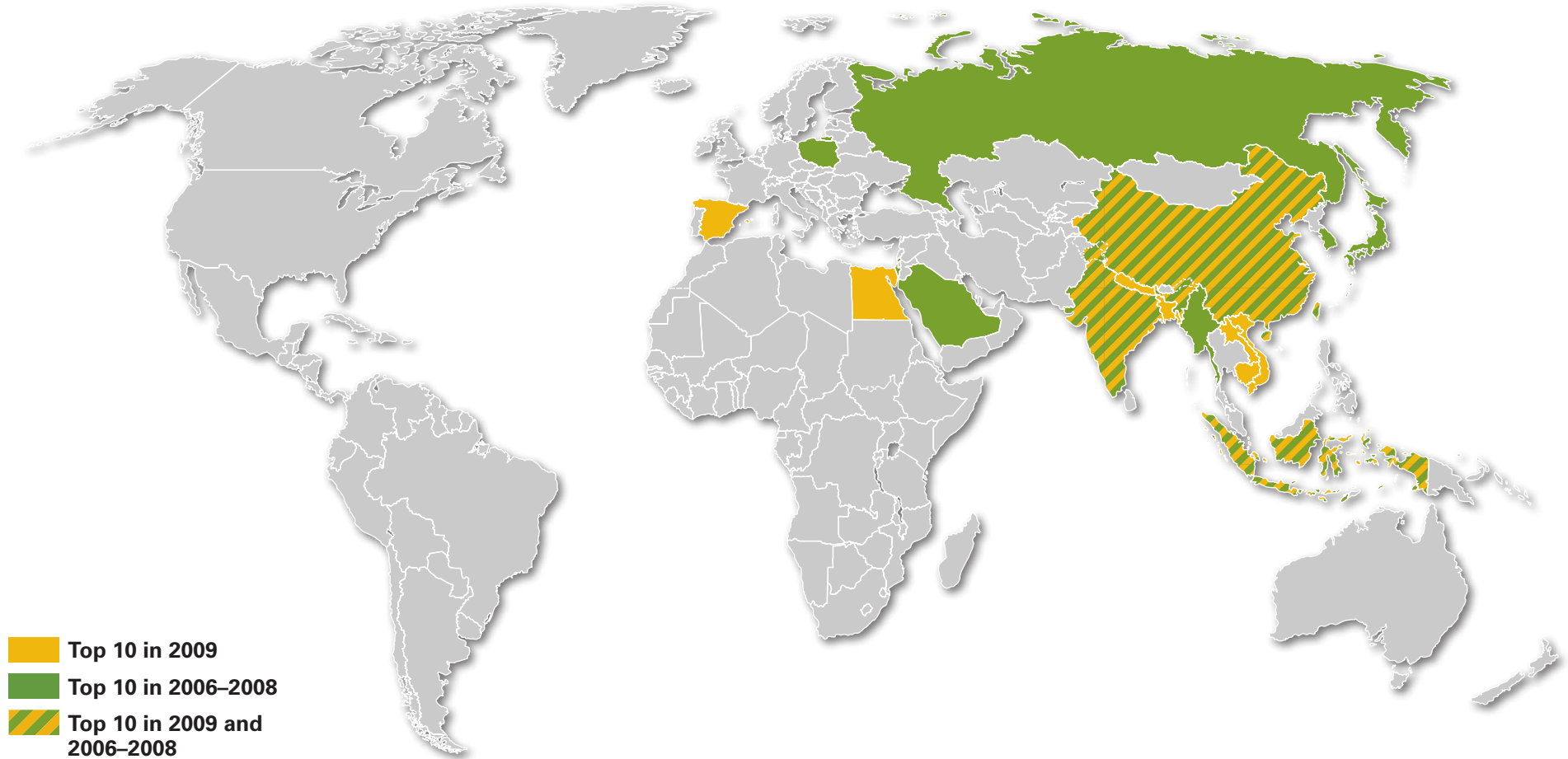
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Brazil	58
India	7
Iran, Islamic Rep.	2

Highly Pathogenic Avian Influenza (HPAI)

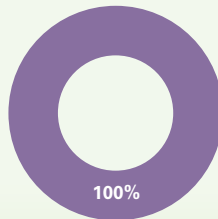
2006-2009



Key Figures

		RANK
Countries with outbreaks:	28	15
Outbreaks:	1,685	31
Cases (LSUs):	16,718	26
LSUs lost by death:	11,202	
LSUs lost by destruction:	85,517	
LSUs lost by slaughter:	2	
LSUs lost total:	96,721	1

LSUs Lost



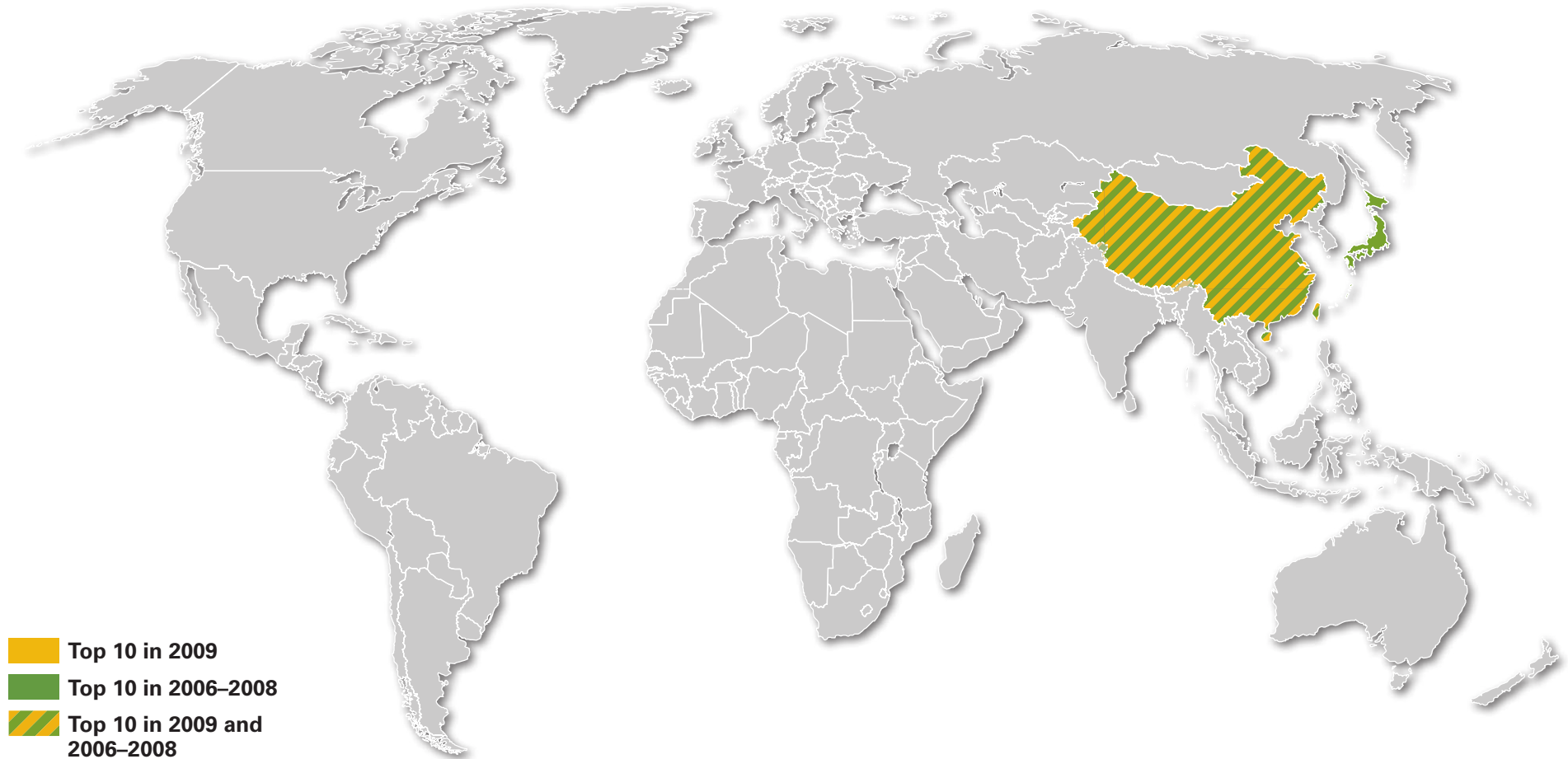
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

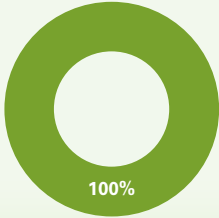







LSUs lost			
India	22,227	Israel	3,044
Saudi Arabia	19,951	Nigeria	2,986
China	18,718	Korea, Rep.	2,784
Indonesia	5,085	Myanmar	2,750
Japan	3,758		
Russian Federation	3,279		

Japanese Encephalitis

2006-2009

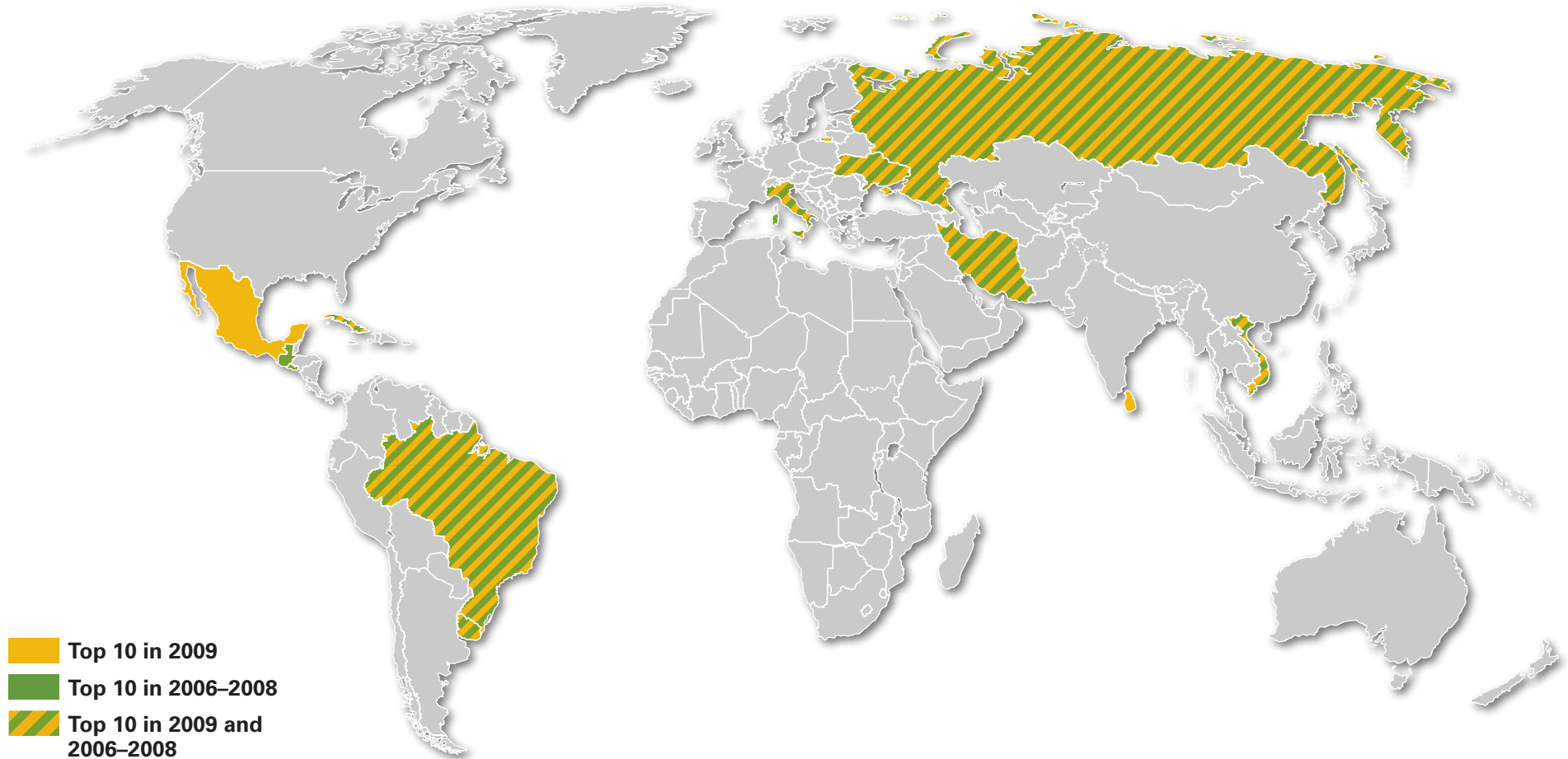


-  Top 10 in 2009
-  Top 10 in 2006–2008
-  Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	2	67	 <p>100%</p>	<ul style="list-style-type: none">  Cattle  Sheep and goat  Swine  Poultry  Equidae  Camelidae  Buffalo 	LSUs lost China 47	
Outbreaks:	37	68				
Cases (LSUs):	106	63				
LSUs lost by death:	28					
LSUs lost by destruction:	7					
LSUs lost by slaughter:	0					
LSUs lost total:	35	56				

Leptospirosis

2006-2009

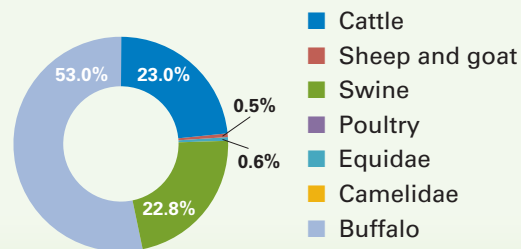


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	37	7
Outbreaks:	2,316	25
Cases (LSUs):	223,546	3
LSUs lost by death:	863	
LSUs lost by destruction:	108	
LSUs lost by slaughter:	2	
LSUs lost total:	973	14

LSUs Lost



Most Affected Countries and Economies

LSUs lost	
Vietnam	823
Iran, Islamic Rep.	39
Uruguay	30
Brazil	22
Ukraine	18
Russian Federation	10

Cuba	8
Mexico	6
Italy	4
Guatemala	3

New World Screwworm

2006-2009

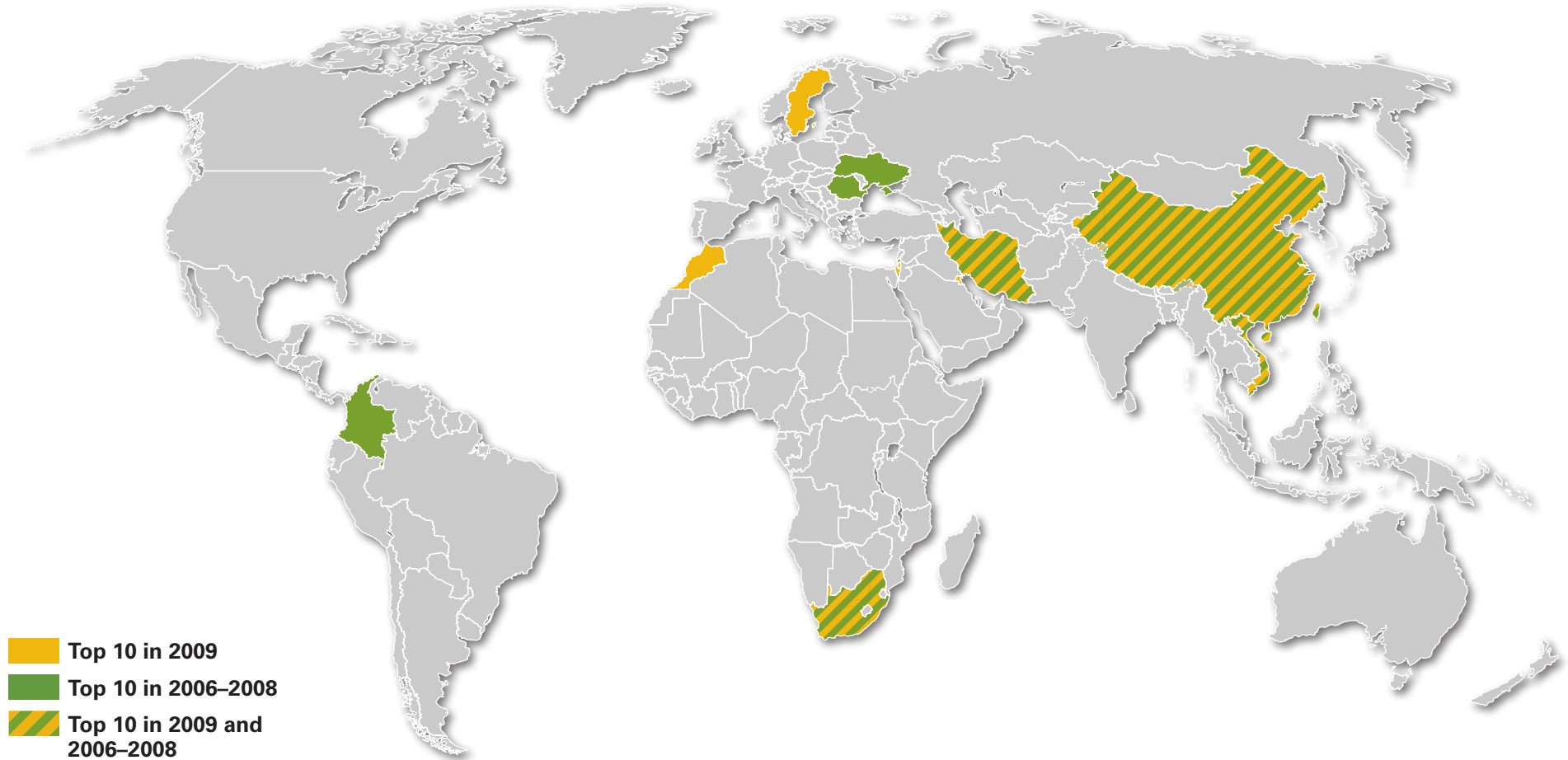


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	1	RANK 69	■ Cattle	LSUs lost		
Outbreaks:	444	50	■ Sheep and goat			
Cases (LSUs):	11,023	32	■ Swine			
LSUs lost by death:	0		■ Poultry			
LSUs lost by destruction:	0		■ Equidae			
LSUs lost by slaughter:	0		■ Camelidae			
LSUs lost total:	0	67	■ Buffalo			

Newcastle Disease

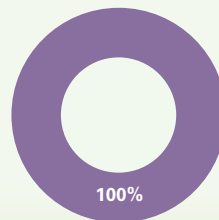
2006-2009



Key Figures

		RANK
Countries with outbreaks:	56	2
Outbreaks:	4,246	17
Cases (LSUs):	88,047	8
LSUs lost by death:	35,980	
LSUs lost by destruction:	23,795	
LSUs lost by slaughter:	595	
LSUs lost total:	60,370	7

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost

Iran, Islamic Rep.	20,466	Colombia	1,169
South Africa	18,923	Romania	719
Israel	9,979	Korea, Rep.	661
China	5,264	Kuwait	285
Vietnam	1,222	Sweden	256

Nipah

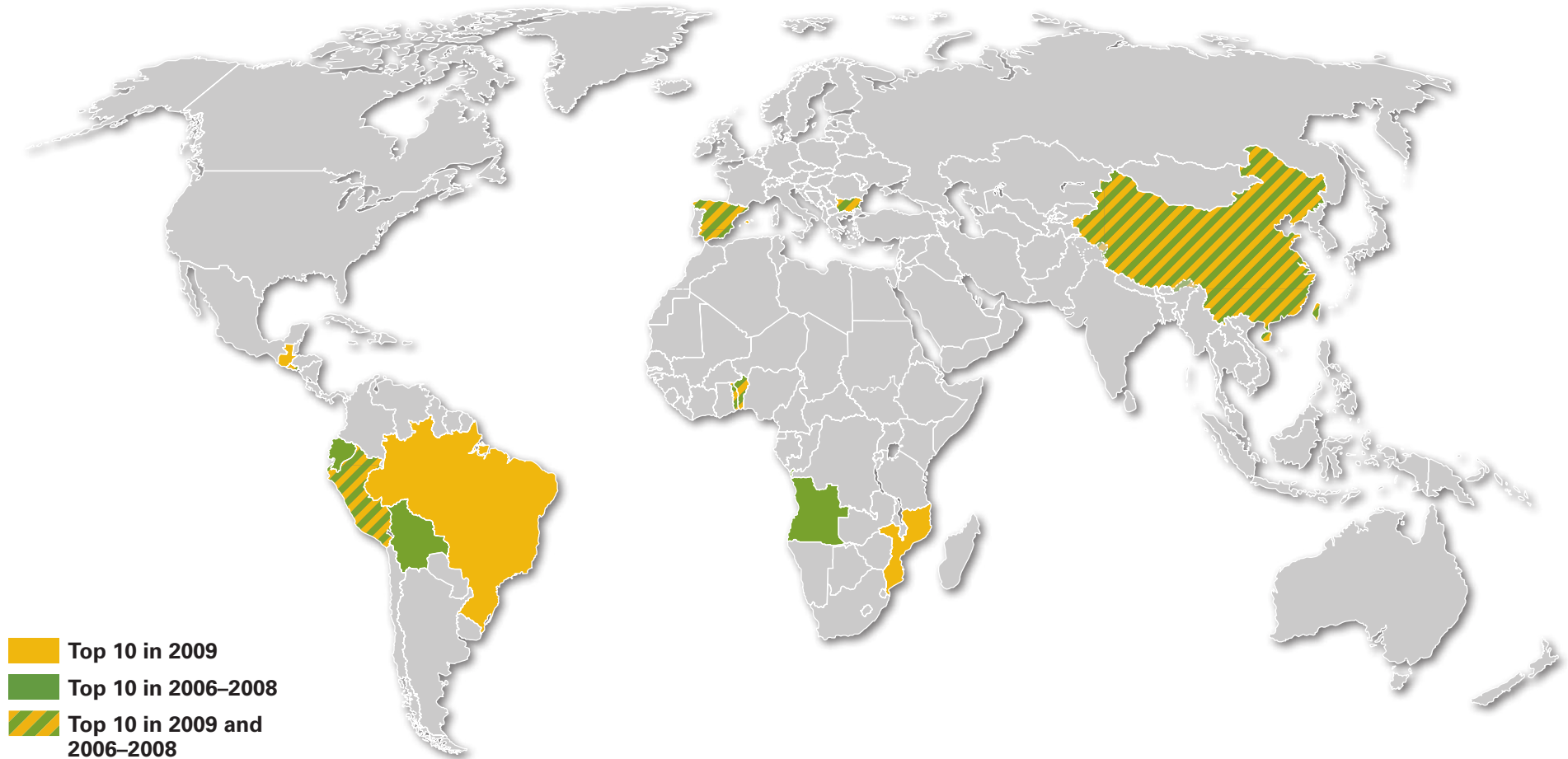
2006-2009




Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	0	RANK 70	■ Cattle	LSUs lost		
Outbreaks:	0	70	■ Sheep and goat			
Cases (LSUs):	0	70	■ Swine			
LSUs lost by death:	0		■ Poultry			
LSUs lost by destruction:	0		■ Equidae			
LSUs lost by slaughter:	0		■ Camelidae			
LSUs lost total:	0	69	■ Buffalo			

Porcine Cysticercosis

2006-2009

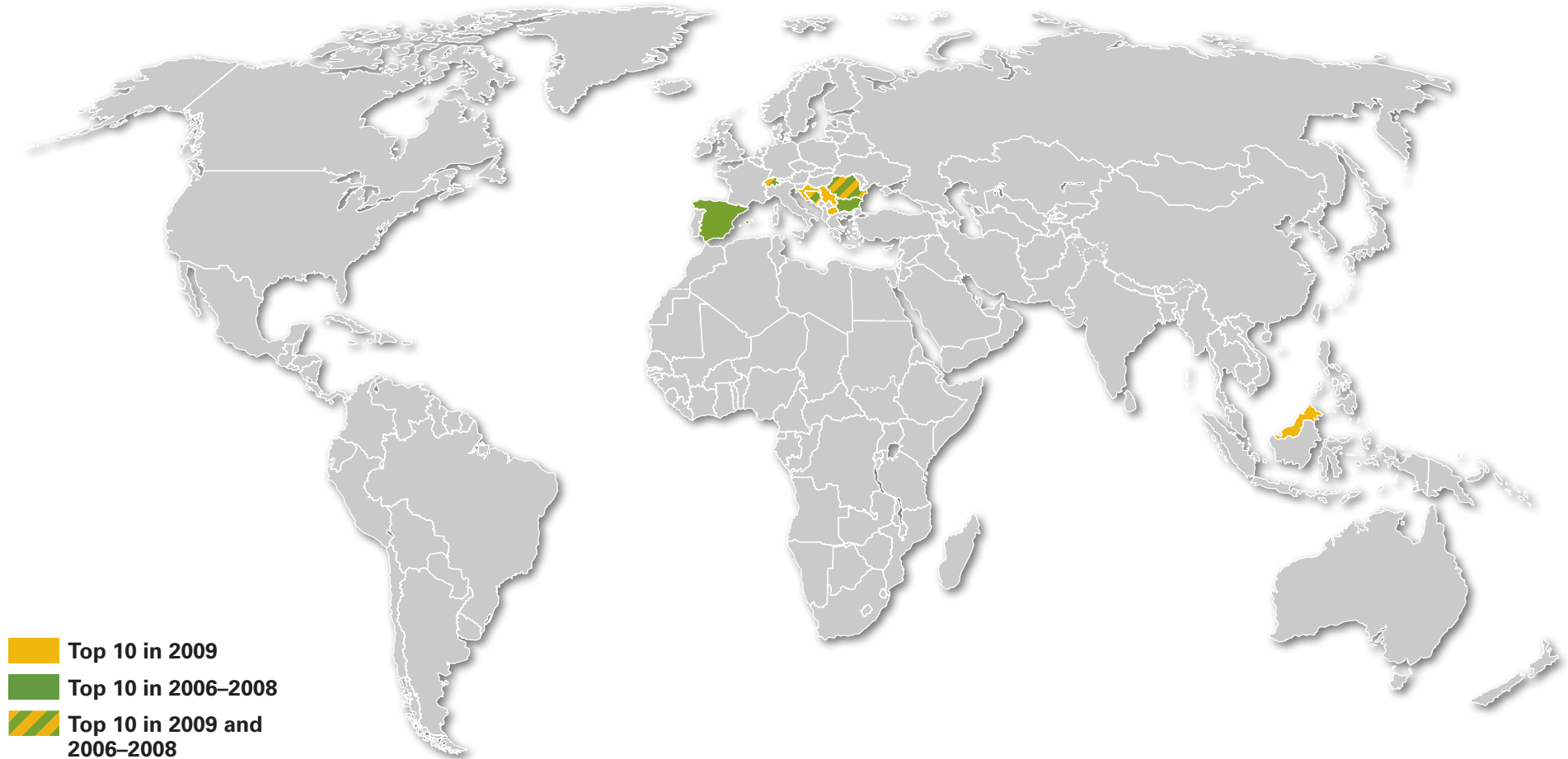


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies																																				
Countries with outbreaks:	13	RANK 40	 <p>100%</p>	■ Cattle	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">LSUs lost</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Ecuador</td> <td style="text-align: right; padding: 5px;">767</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;">Bulgaria</td> <td style="text-align: right; padding: 5px;">13</td> </tr> <tr> <td style="padding: 5px;">Peru</td> <td style="text-align: right; padding: 5px;">561</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;">Benin</td> <td style="text-align: right; padding: 5px;">8</td> </tr> <tr> <td style="padding: 5px;">China</td> <td style="text-align: right; padding: 5px;">24</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;">El Salvador</td> <td style="text-align: right; padding: 5px;">8</td> </tr> <tr> <td style="padding: 5px;">Spain</td> <td style="text-align: right; padding: 5px;">17</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;">Bolivia</td> <td style="text-align: right; padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">Togo</td> <td style="text-align: right; padding: 5px;">16</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Angola</td> <td style="text-align: right; padding: 5px;">14</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table>			LSUs lost				Ecuador	767		Bulgaria	13	Peru	561		Benin	8	China	24		El Salvador	8	Spain	17		Bolivia	7	Togo	16				Angola	14			
LSUs lost																																									
Ecuador	767			Bulgaria				13																																	
Peru	561			Benin				8																																	
China	24			El Salvador				8																																	
Spain	17			Bolivia				7																																	
Togo	16																																								
Angola	14																																								
Outbreaks:	2,388	24	■ Sheep and goat																																						
Cases (LSUs):	1,254	50	■ Swine																																						
LSUs lost by death:	4		■ Poultry																																						
LSUs lost by destruction:	628		■ Equidae																																						
LSUs lost by slaughter:	811		■ Camelidae																																						
LSUs lost total:	1,443	33	■ Buffalo																																						

Q Fever

2006-2009



- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies				
Countries with outbreaks:	17	RANK 32			LSUs lost				
Outbreaks:	566	45			Cattle	Croatia	17	Macedonia, FYR	1
Cases (LSUs):	509	54			Sheep and goat	Liechtenstein	2		
LSUs lost by death:	3				Swine	Serbia	1		
LSUs lost by destruction:	18				Poultry	Spain	1		
LSUs lost by slaughter:	1				Equidae	Switzerland	1		
LSUs lost total:	22	59	Camelidae						
			Buffalo						

Rabies

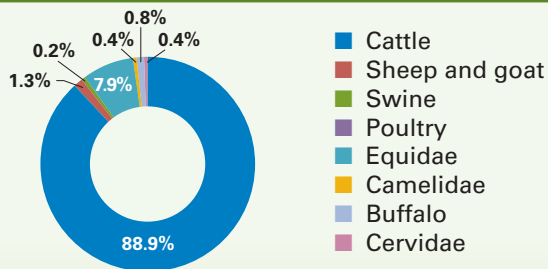
2006-2009



Key Figures

		RANK
Countries with outbreaks:	82	1
Outbreaks:	13,902	6
Cases (LSUs):	5,432	42
LSUs lost by death:	3,935	
LSUs lost by destruction:	415	
LSUs lost by slaughter:	20	
LSUs lost total:	4,370	19

LSUs Lost

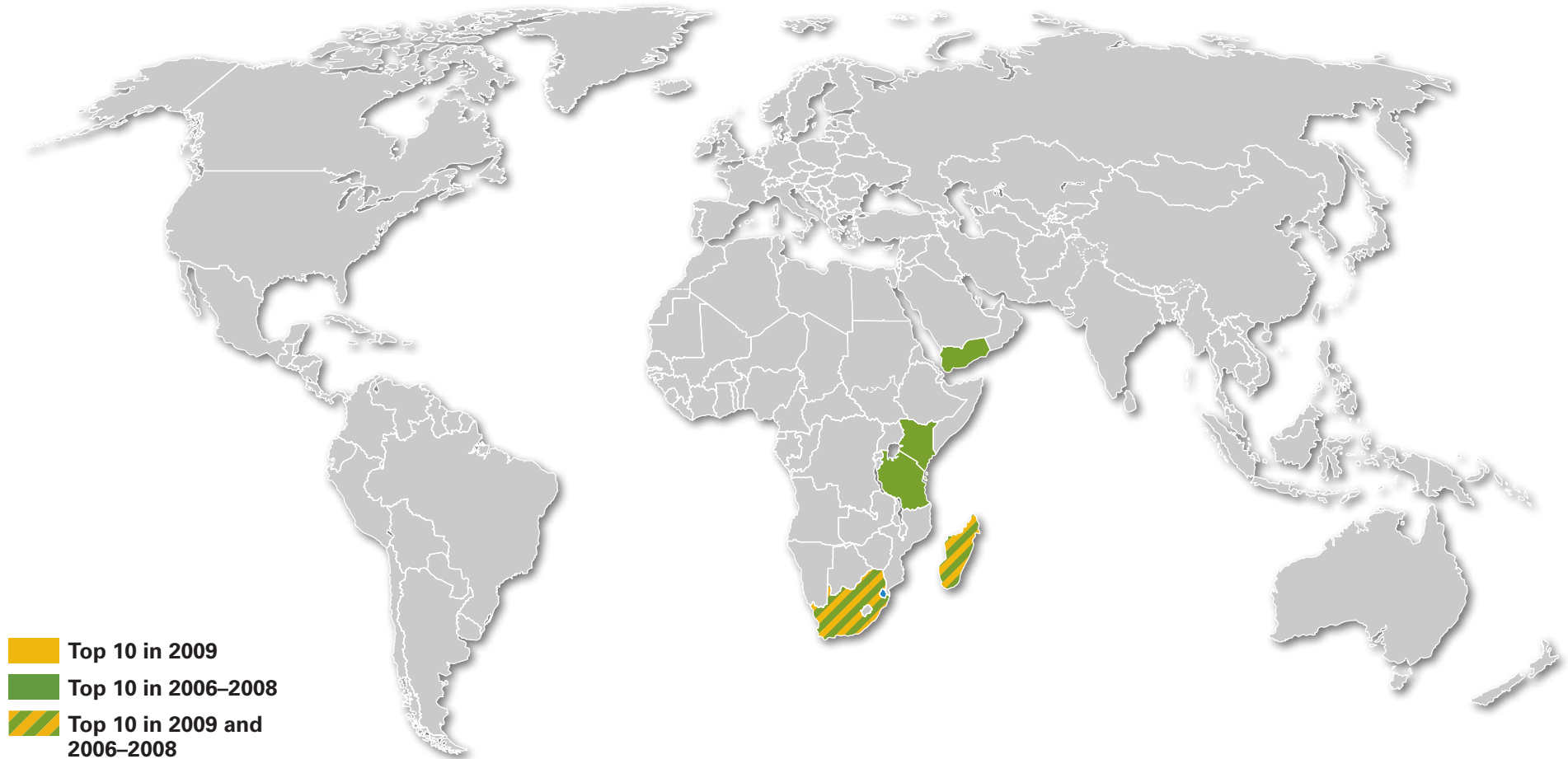


Most Affected Countries and Economies

LSUs lost	
Brazil	1,425
Russian Federation	528
Colombia	258
Algeria	227
Iran, Islamic Rep.	154
Philippines	139
Mexico	139
Morocco	126
India	123
Ukraine	104

Rift Valley Fever

2006-2009

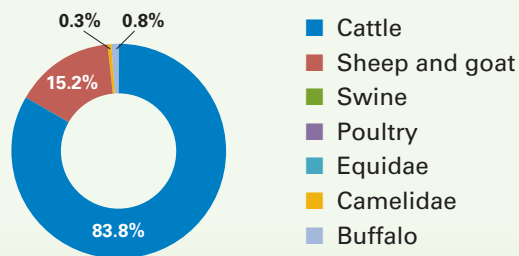


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	4	62
Outbreaks:	58	66
Cases (LSUs):	3,752	44
LSUs lost by death:	383	
LSUs lost by destruction:	5	
LSUs lost by slaughter:	0	
LSUs lost total:	389	46

LSUs Lost



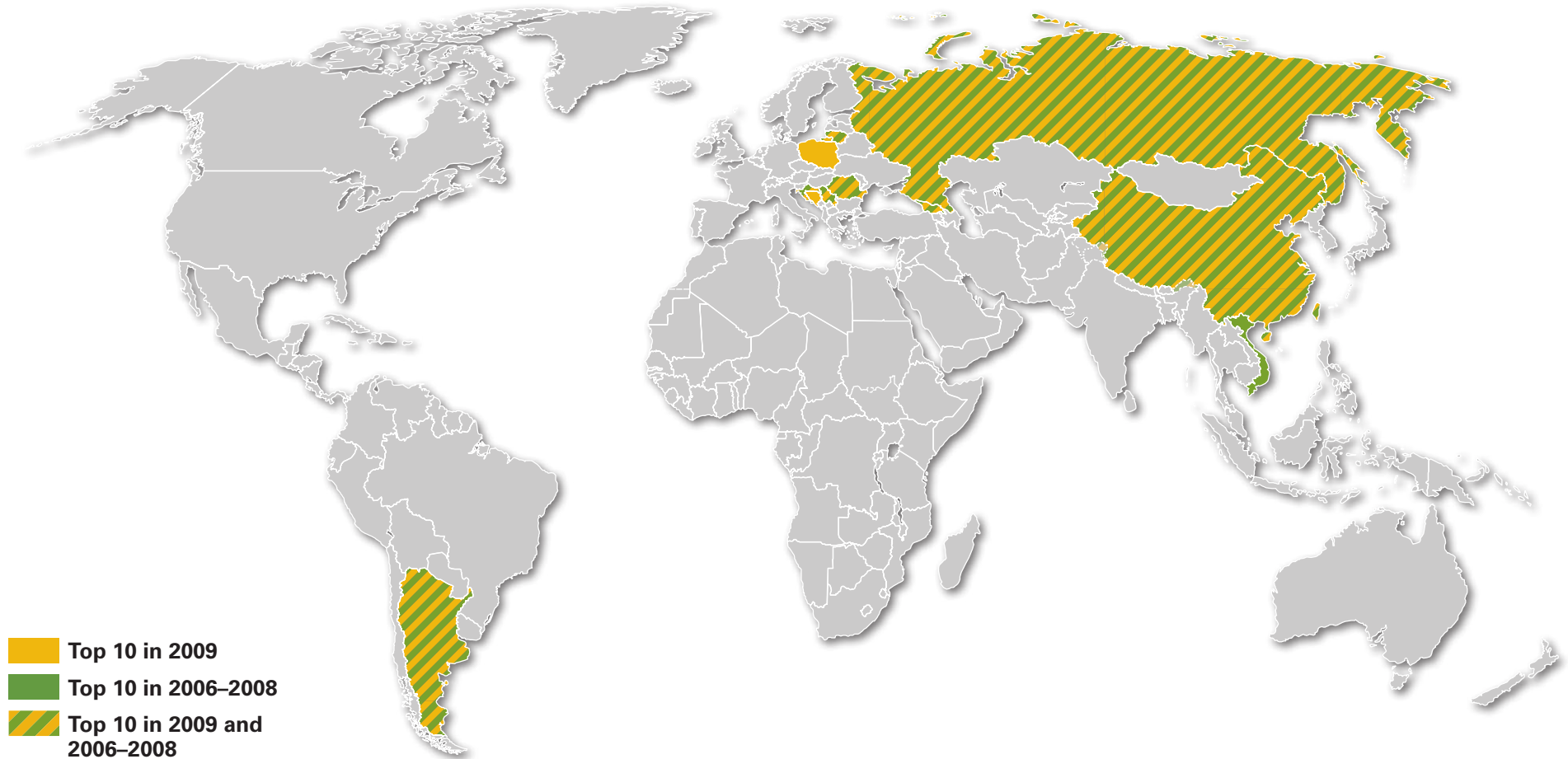
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

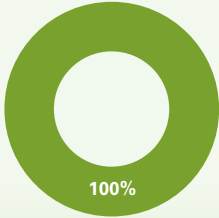
Country	LSUs lost
Tanzania	435
South Africa	46
Kenya	9
Madagascar	3
Yemen, Rep.	3
Swaziland	2

Trichinellosis

2006-2009

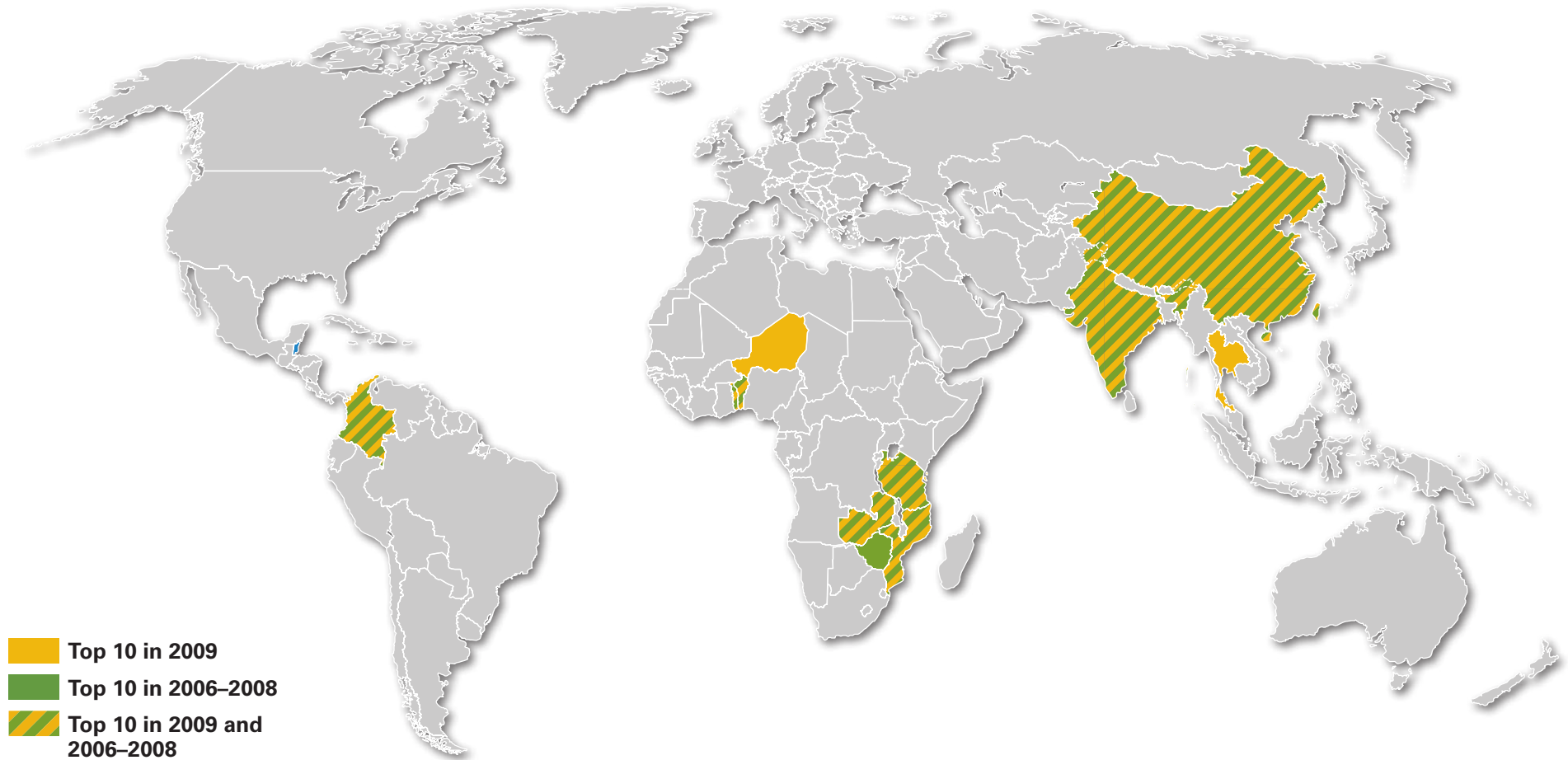


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	19	RANK 30	 <p>100%</p>	■ Cattle	LSUs lost			
Outbreaks:	1,167	37		■ Sheep and goat	Serbia	143	Vietnam	10
Cases (LSUs):	317	57		■ Swine	Argentina	114	Georgia	7
LSUs lost by death:	16			■ Poultry	Croatia	39	China	5
LSUs lost by destruction:	204			■ Equidae	Romania	18	Bosnia and Herzegovina	3
LSUs lost by slaughter:	141			■ Camelidae	Russian Federation	16	Bulgaria	2
LSUs lost total:	361	49	■ Buffalo					

Trypanosomosis

2006-2009

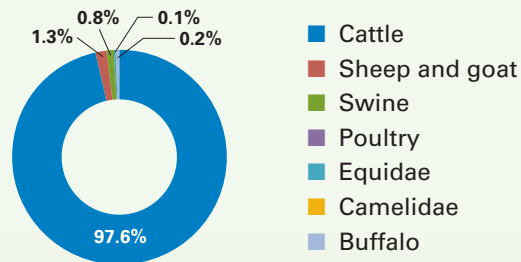


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	13	39
Outbreaks:	364	53
Cases (LSUs):	48,537	13
LSUs lost by death:	763	
LSUs lost by destruction:	12	
LSUs lost by slaughter:	246	
LSUs lost total:	1,022	38

LSUs Lost



Most Affected Countries and Economies

LSUs lost	
Benin	653
Belize	104
Zambia	79
Togo	48
India	29
Colombia	28

China	26
Mozambique	17
Tanzania	15
Zimbabwe	13

Tularemia

2006-2009



Key Figures

		RANK
Countries with outbreaks:	6	58
Outbreaks:	257	55
Cases (LSUs):	63	66
LSUs lost by death:	0	
LSUs lost by destruction:	0	
LSUs lost by slaughter:	0	
LSUs lost total:	0	69

LSUs Lost

- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost

Venezuelan Equine Encephalitis

2006-2009



Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	2	66		■ Cattle	LSUs lost	
Outbreaks:	9	69		■ Sheep and goat	Guatemala	2
Cases (LSUs):	346	56		■ Swine	Belize	1
LSUs lost by death:	3			■ Poultry	Colombia	1
LSUs lost by destruction:	0			■ Equidae		
LSUs lost by slaughter:	0			■ Camelidae		
LSUs lost total:	3	65		■ Buffalo		

Vesicular Stomatitis

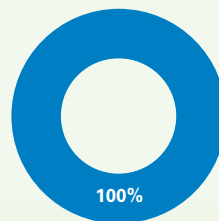
2006-2009



Key Figures

		RANK
Countries with outbreaks:	12	42
Outbreaks:	947	39
Cases (LSUs):	3,654	45
LSUs lost by death:	12	
LSUs lost by destruction:	0	
LSUs lost by slaughter:	0	
LSUs lost total:	12	60

LSUs Lost



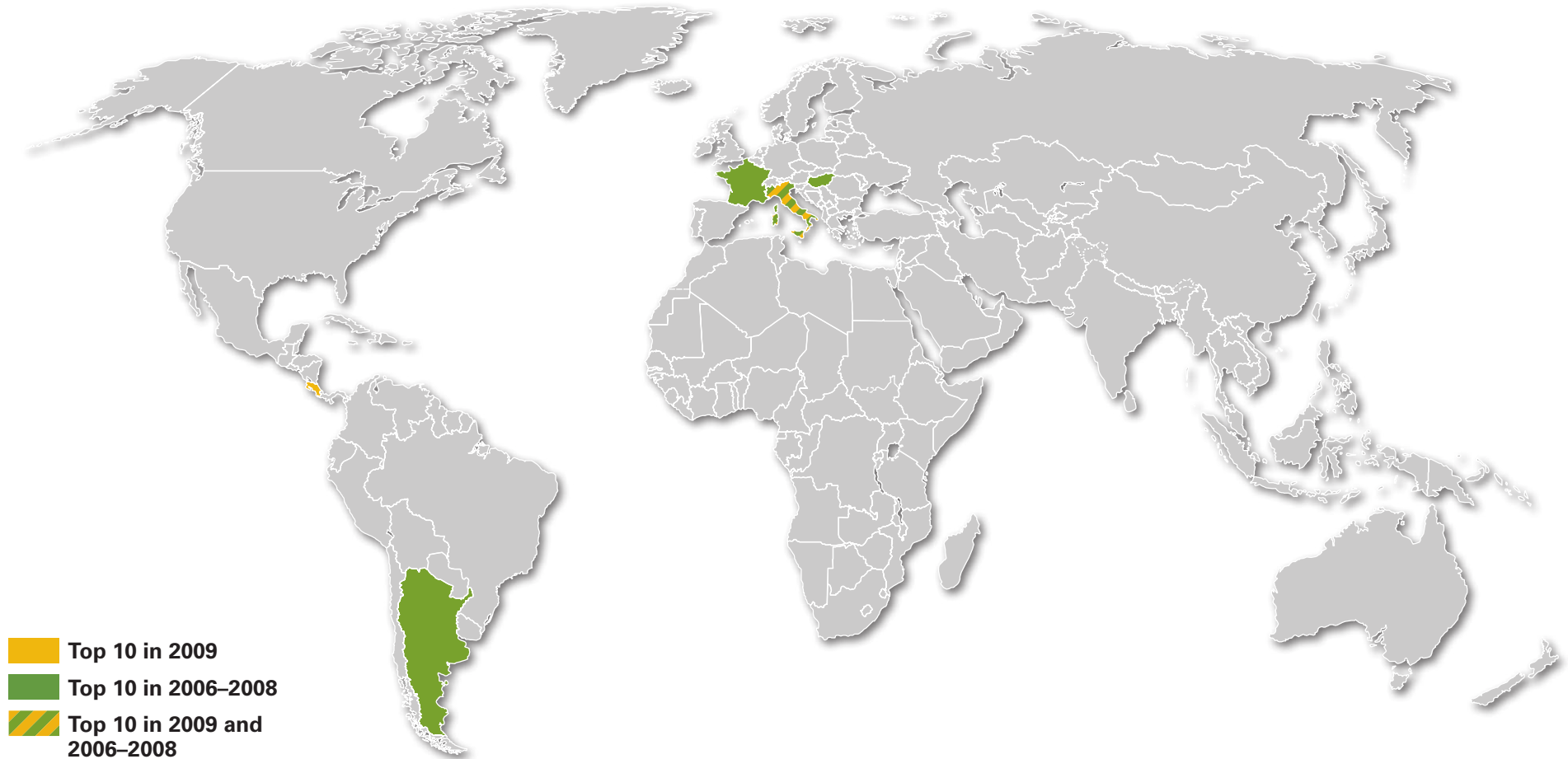
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

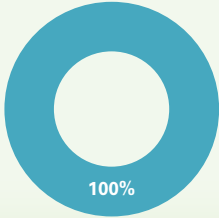







Country	LSUs lost
Colombia	7
Mexico	5

West Nile Fever

2006-2009



-  Top 10 in 2009
-  Top 10 in 2006–2008
-  Top 10 in 2009 and 2006–2008

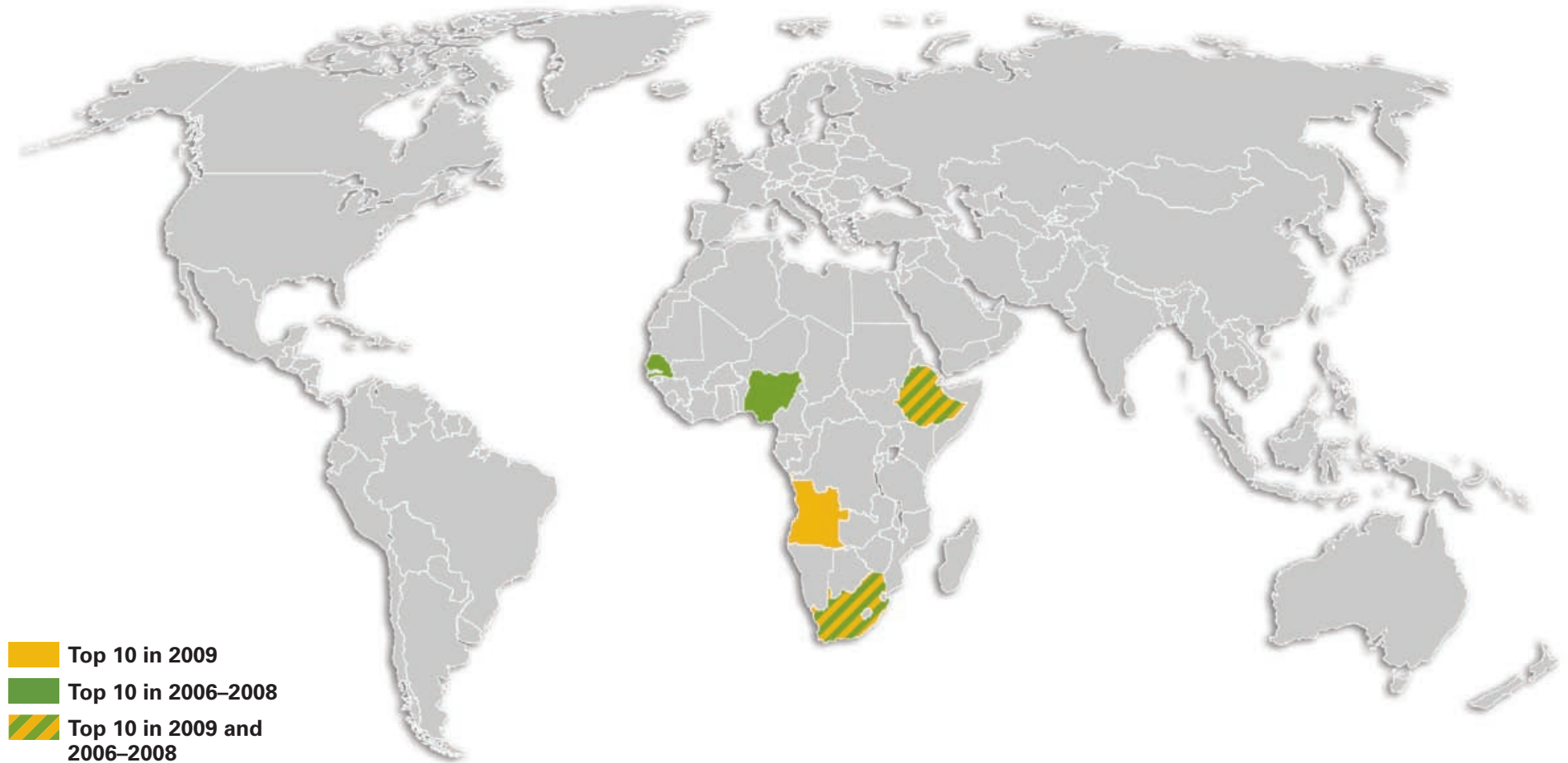
Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	5	RANK 61	 <p>100%</p>	 Cattle	LSUs lost	
Outbreaks:	197	58		 Sheep and goat	Italy	89
Cases (LSUs):	750	52		 Swine	Costa Rica	1
LSUs lost by death:	88			 Poultry		
LSUs lost by destruction:	2			 Equidae		
LSUs lost by slaughter:	0			 Camelidae		
LSUs lost total:	91	53	 Buffalo			

Disease-by-Disease Analyses

NON-ZOONOTIC DISEASES

African Horse Sickness

2006-2009

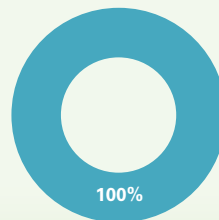


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	6	59
Outbreaks:	392	51
Cases (LSUs):	2,588	47
LSUs lost by death:	888	
LSUs lost by destruction:	8	
LSUs lost by slaughter:	0	
LSUs lost total:	896	42

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

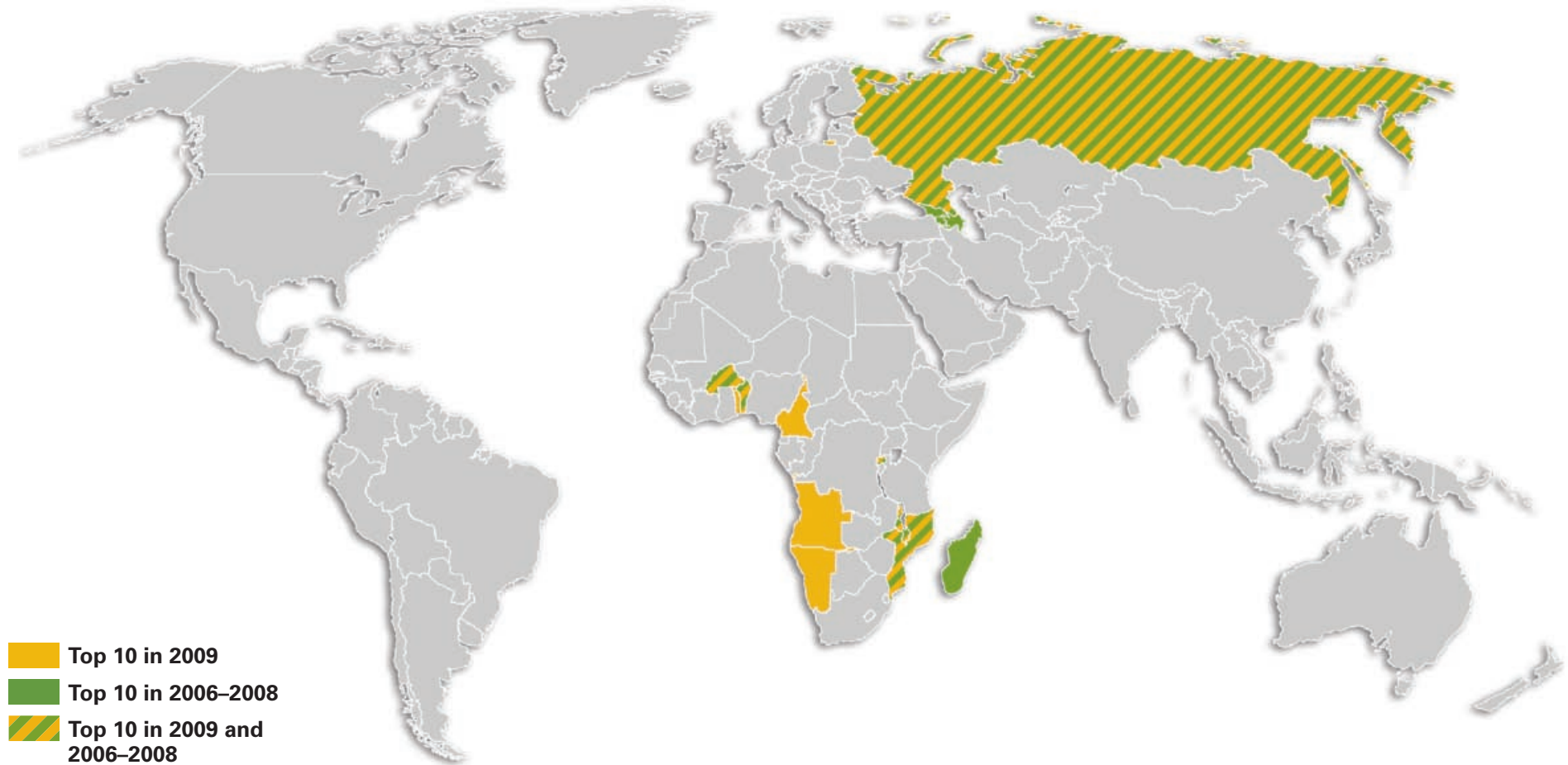
Most Affected Countries and Economies

LSUs lost	
Ethiopia	599
South Africa	160
Senegal	119
Nigeria	10
Gambia, The	8
Angola	5

Namibia	3
Lesotho	1

African Swine Fever

2006-2009

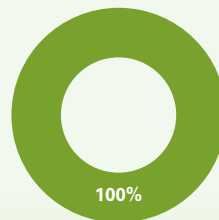


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	17	33
Outbreaks:	229	57
Cases (LSUs):	8,270	35
LSUs lost by death:	5,962	
LSUs lost by destruction:	2,268	
LSUs lost by slaughter:	766	
LSUs lost total:	8,995	17

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

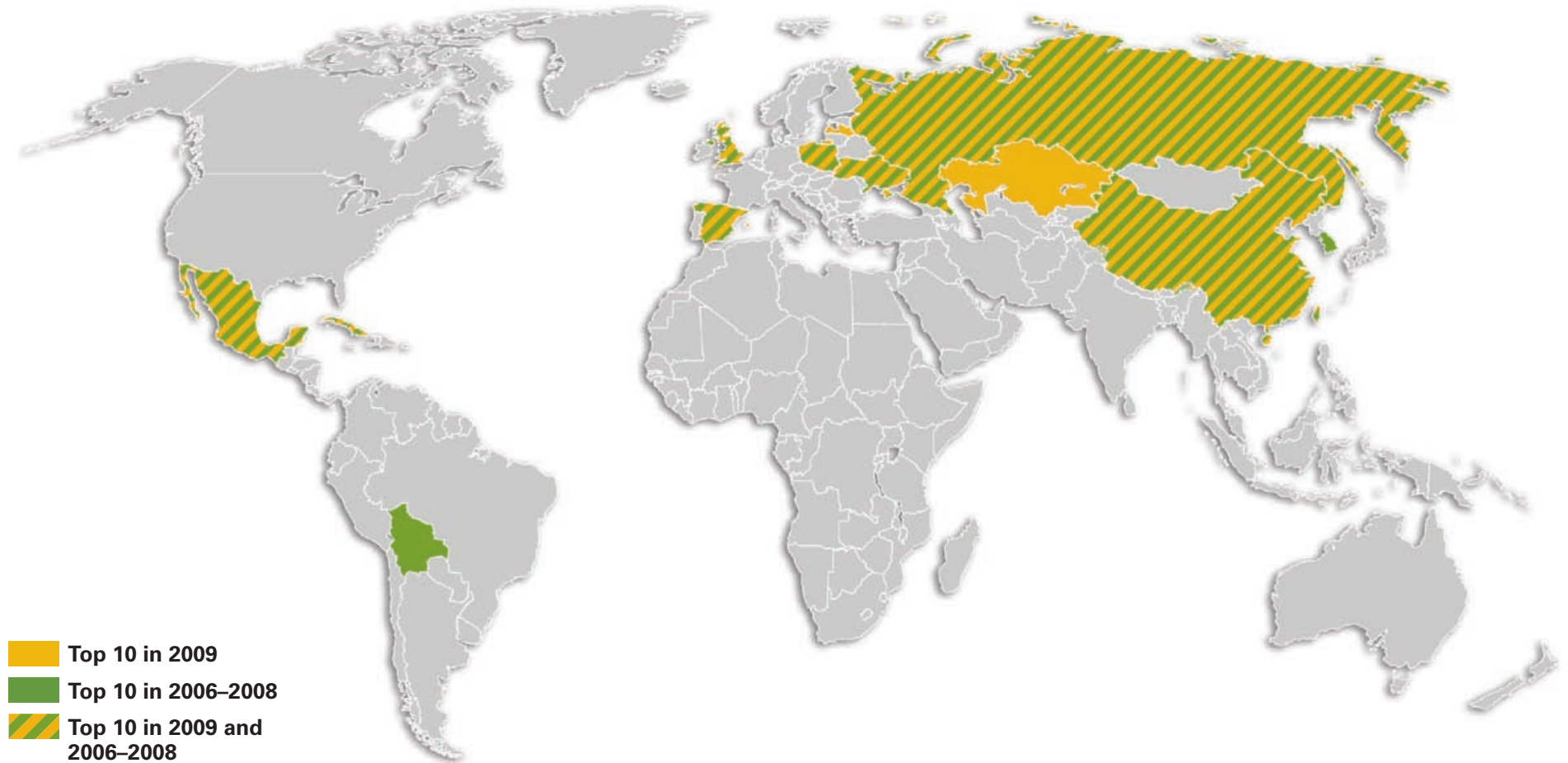
Most Affected Countries and Economies

LSUs lost	
Georgia	4,582
Rwanda	913
Russian Federation	677
Malawi	413
Burkina Faso	327

Benin	302
Azerbaijan	301
Mozambique	247
Mauritius	238
Armenia	218

Aujesky's Disease

2006-2009

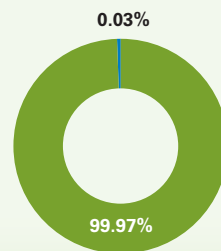


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	15	35
Outbreaks:	6,061	12
Cases (LSUs):	20,519	23
LSUs lost by death:	250	
LSUs lost by destruction:	433	
LSUs lost by slaughter:	6,965	
LSUs lost total:	7,647	18

LSUs Lost



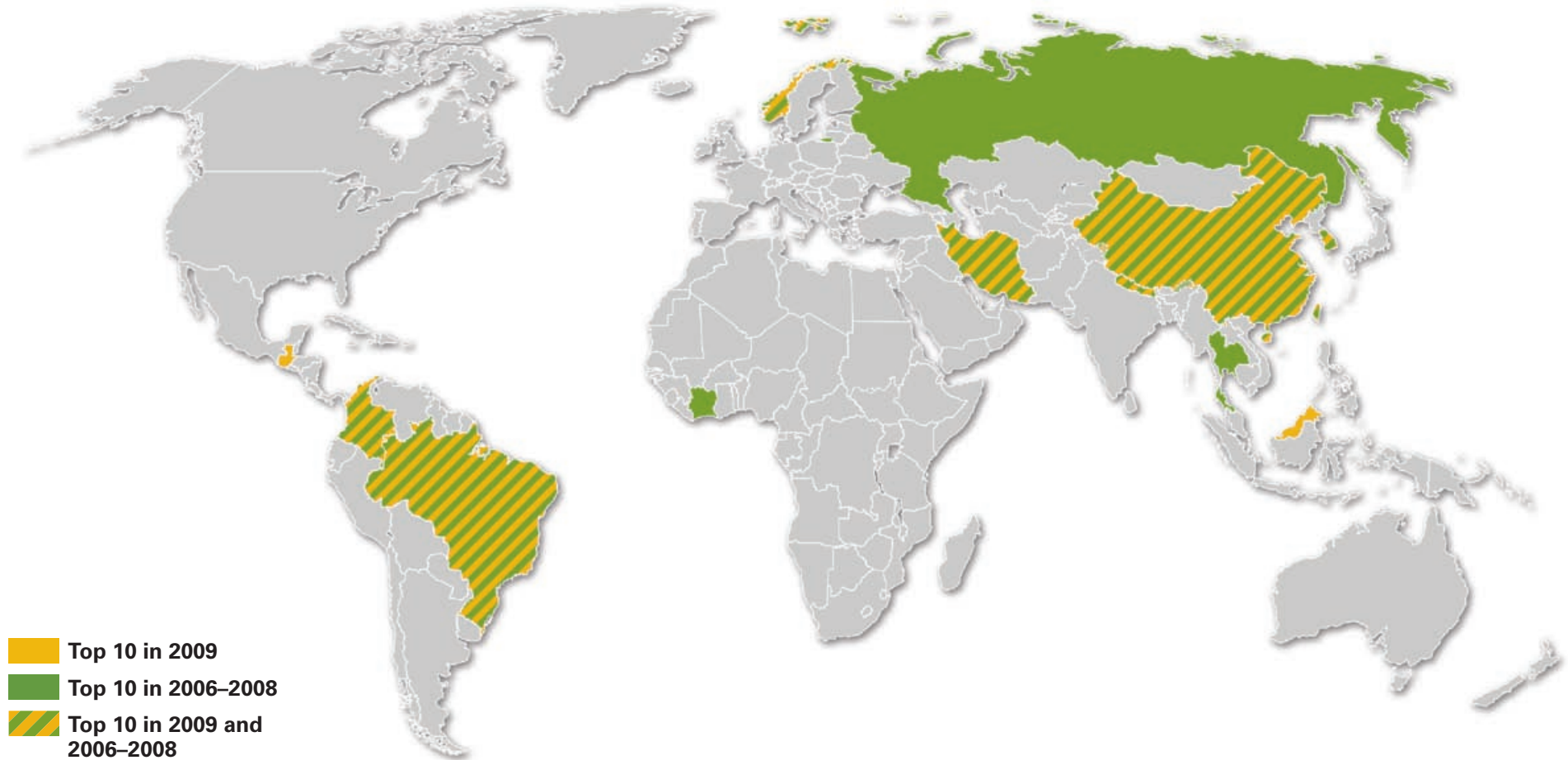
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost			
Poland	6,851	Korea, Rep.	39
Spain	286	Ukraine	35
China	159	Cuba	20
United Kingdom	115	Kazakhstan	11
Mexico	108		
Russian Federation	41		

Avian Infectious Bronchitis

2006-2009

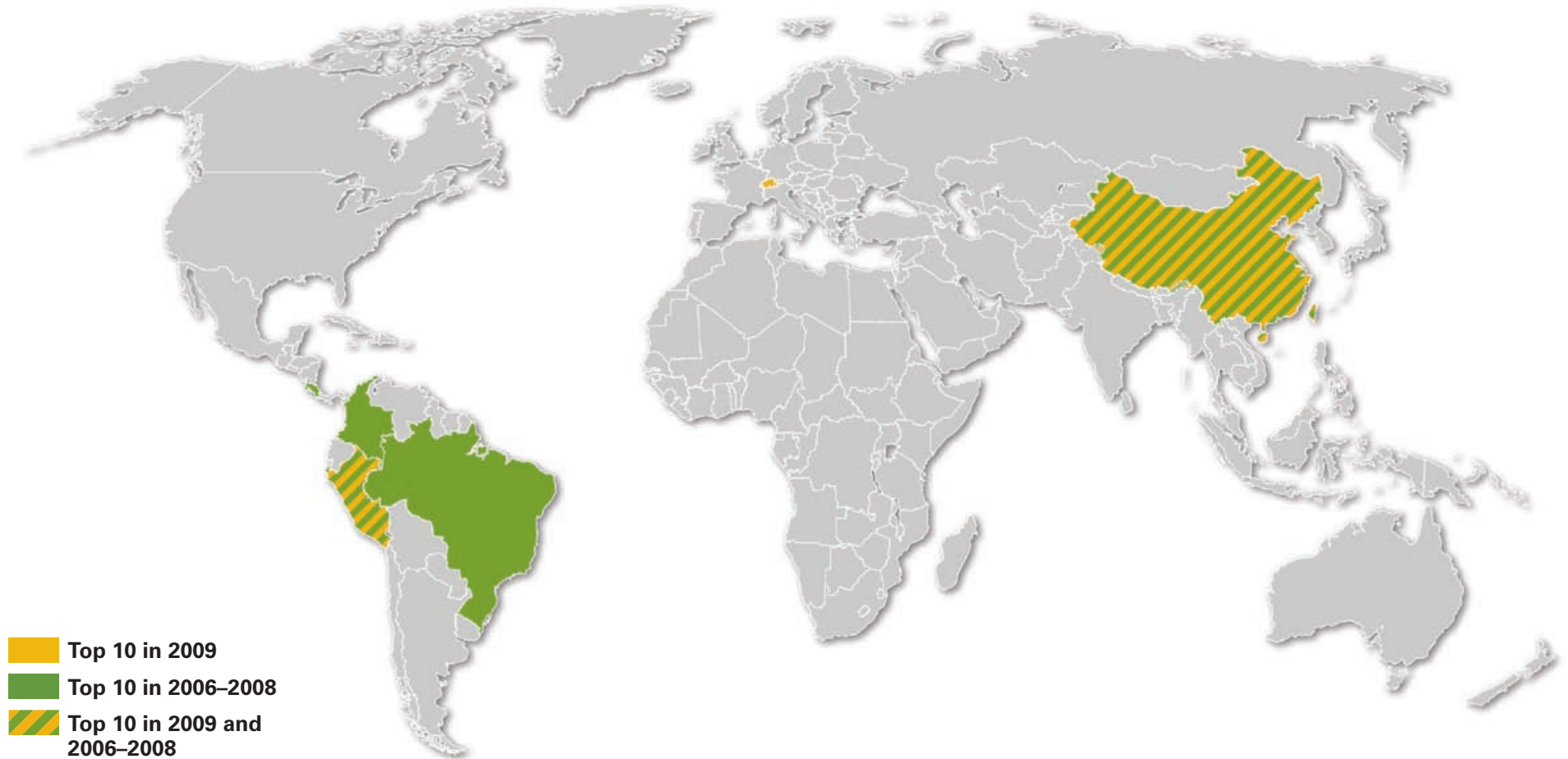


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies																									
Countries with outbreaks:	20	RANK 29	<p>100%</p>	■ Cattle	<table border="1"> <thead> <tr> <th colspan="2">LSUs lost</th> <th></th> </tr> </thead> <tbody> <tr> <td>Iran, Islamic Rep.</td> <td>81,072</td> <td>Russian Federation</td> <td>217</td> </tr> <tr> <td>China</td> <td>1,183</td> <td>Colombia</td> <td>175</td> </tr> <tr> <td>Brazil</td> <td>750</td> <td>Côte d'Ivoire</td> <td>72</td> </tr> <tr> <td>Korea, Rep.</td> <td>632</td> <td>Thailand</td> <td>63</td> </tr> <tr> <td>West Bank and Gaza</td> <td>405</td> <td>Norway</td> <td>56</td> </tr> </tbody> </table>			LSUs lost			Iran, Islamic Rep.	81,072	Russian Federation	217	China	1,183	Colombia	175	Brazil	750	Côte d'Ivoire	72	Korea, Rep.	632	Thailand	63	West Bank and Gaza	405	Norway	56
LSUs lost																														
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Brazil	750	Côte d'Ivoire		72																										
Korea, Rep.	632	Thailand		63																										
West Bank and Gaza	405	Norway	56																											
Outbreaks:	3,765	RANK 19	■ Sheep and goat																											
Cases (LSUs):	231,815	RANK 2	■ Swine																											
LSUs lost by death:	83,992		■ Poultry																											
LSUs lost by destruction:	164		■ Equidae																											
LSUs lost by slaughter:	112		■ Camelidae																											
LSUs lost total:	84,268	RANK 3	■ Buffalo																											

Avian Infectious Laryngotracheitis

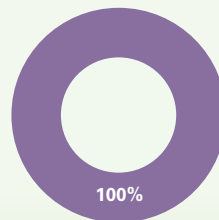
2006-2009



Key Figures

		RANK
Countries with outbreaks:	13	37
Outbreaks:	612	43
Cases (LSUs):	11,690	31
LSUs lost by death:	1,174	
LSUs lost by destruction:	95	
LSUs lost by slaughter:	7	
LSUs lost total:	1,276	36

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost			
China	1,415	Costa Rica	2
Brazil	138		
Peru	52		
Colombia	17		
West Bank and Gaza	8		

Avian Mycoplasmosis (*M. synoviae*)

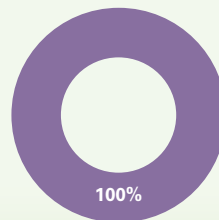
2006-2009



Key Figures

		RANK
Countries with outbreaks:	9	52
Outbreaks:	373	52
Cases (LSUs):	28,044	19
LSUs lost by death:	9	
LSUs lost by destruction:	60	
LSUs lost by slaughter:	80	
LSUs lost total:	148	52

LSUs Lost



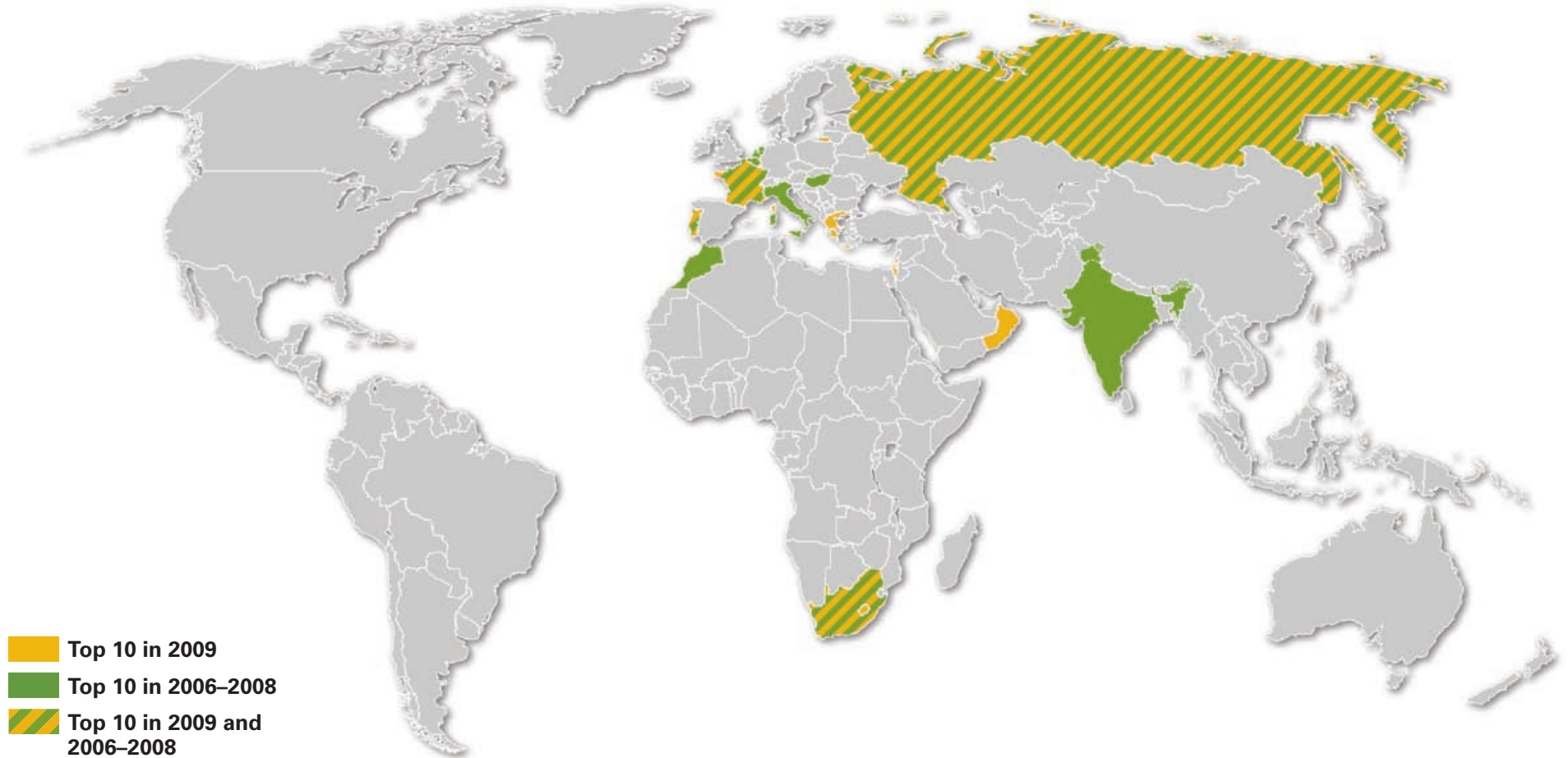
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Brazil	144
Jordan	3

Bluetongue

2006-2009

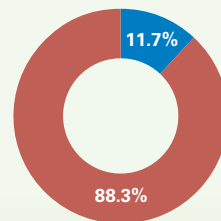


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	23	24
Outbreaks:	26,065	3
Cases (LSUs):	27,795	20
LSUs lost by death:	1,189	
LSUs lost by destruction:	78	
LSUs lost by slaughter:	69	
LSUs lost total:	1,336	34

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

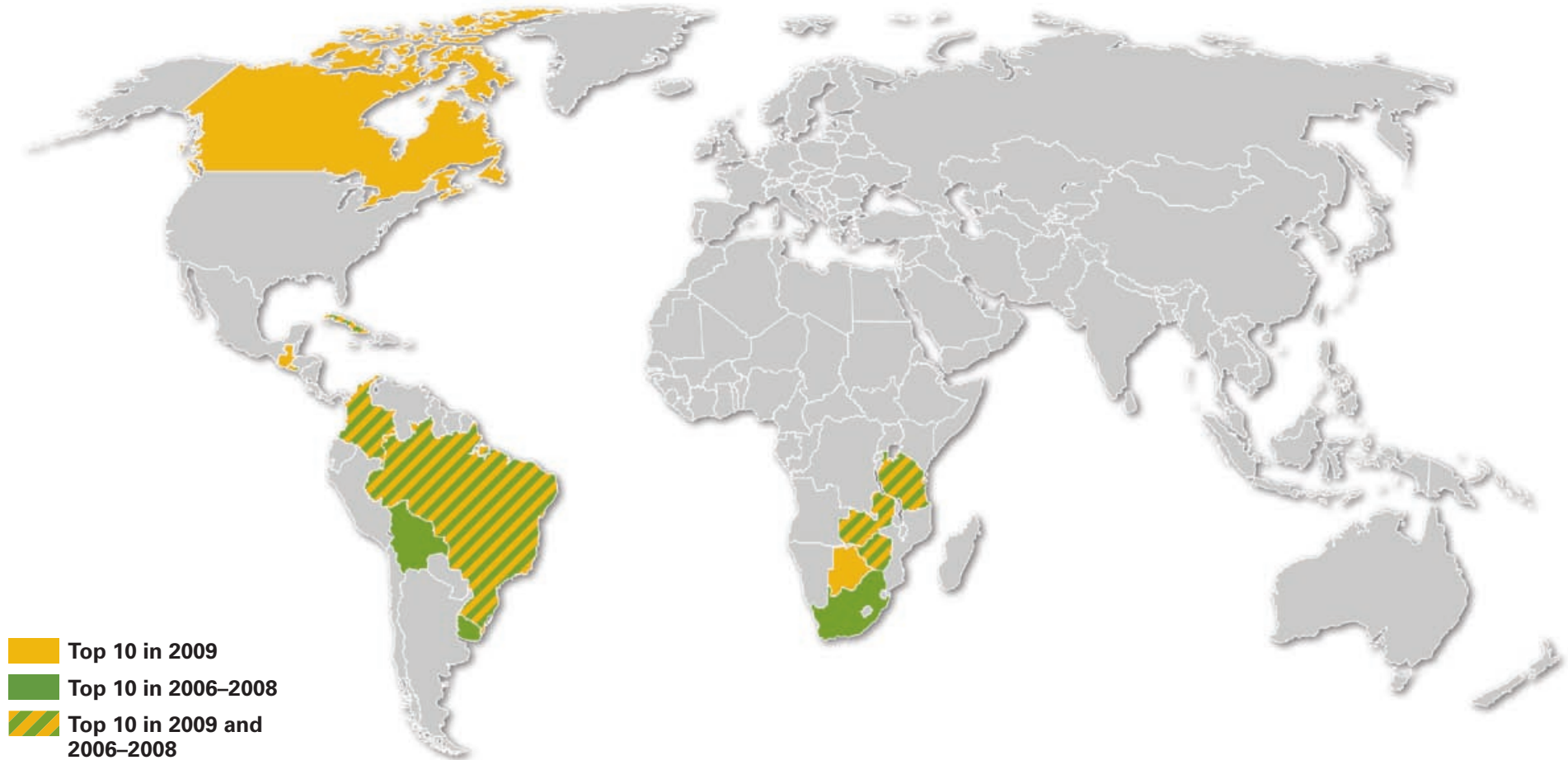
Most Affected Countries and Economies

LSUs lost	
Spain	934
Netherlands	79
Hungary	73
Morocco	58
Portugal	52
India	34

France	33
South Africa	25
Russian Federation	24
Belgium	15

Bovine Anaplasmosis

2006-2009

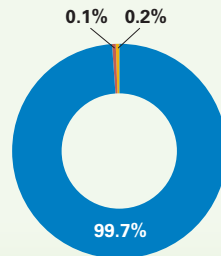


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	33	10
Outbreaks:	4,358	15
Cases (LSUs):	18,995	25
LSUs lost by death:	1,811	
LSUs lost by destruction:	5	
LSUs lost by slaughter:	53	
LSUs lost total:	1,869	28

LSUs Lost



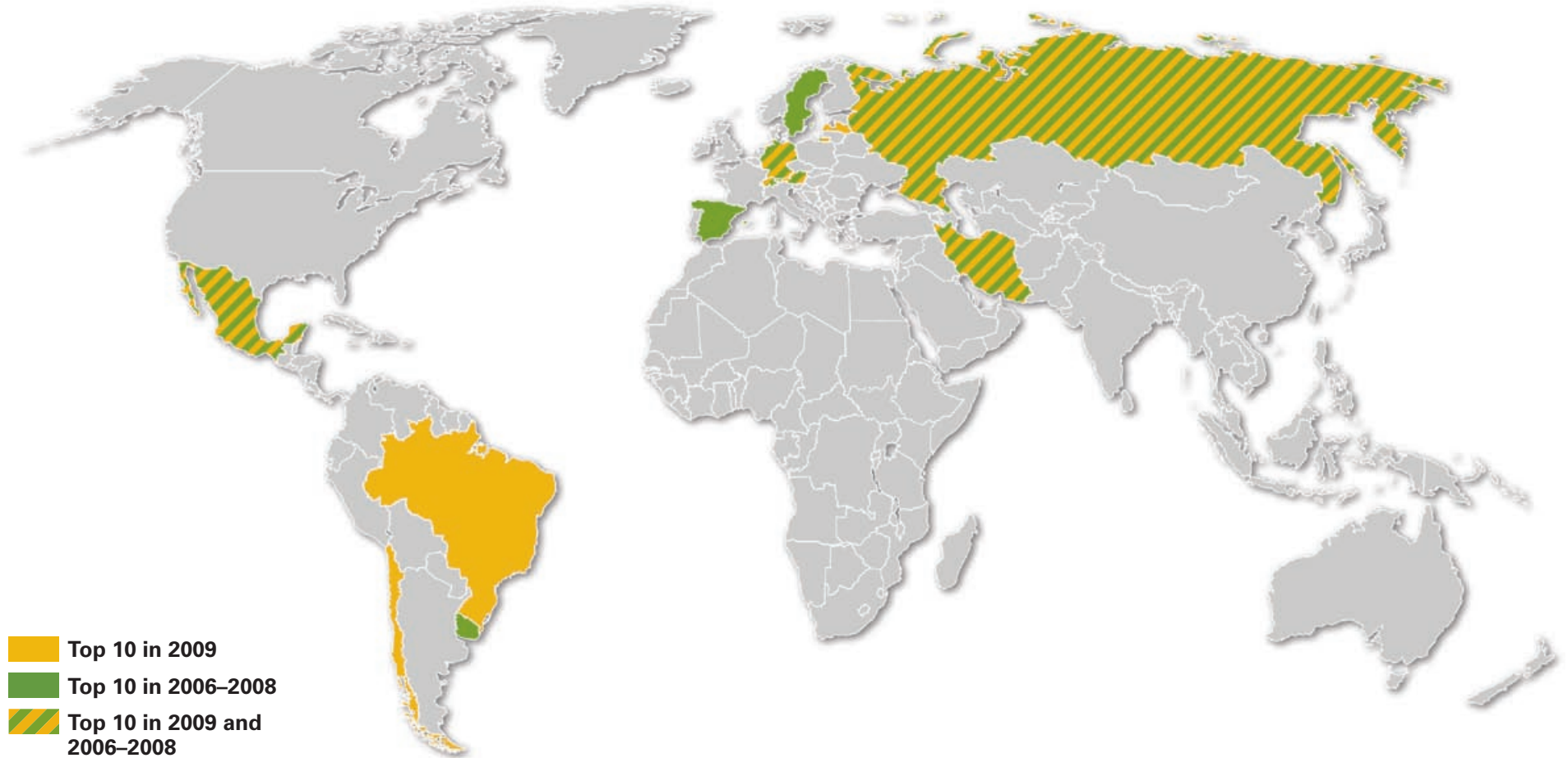
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

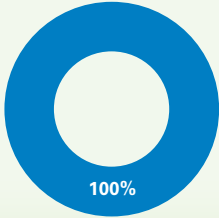
LSUs lost			
Zambia	437	El Salvador	122
Cuba	365	Bolivia	56
Colombia	233	Canada	50
Brazil	233	South Africa	31
Tanzania	174		
Zimbabwe	147		

Bovine Viral Diarrhoea

2006-2009

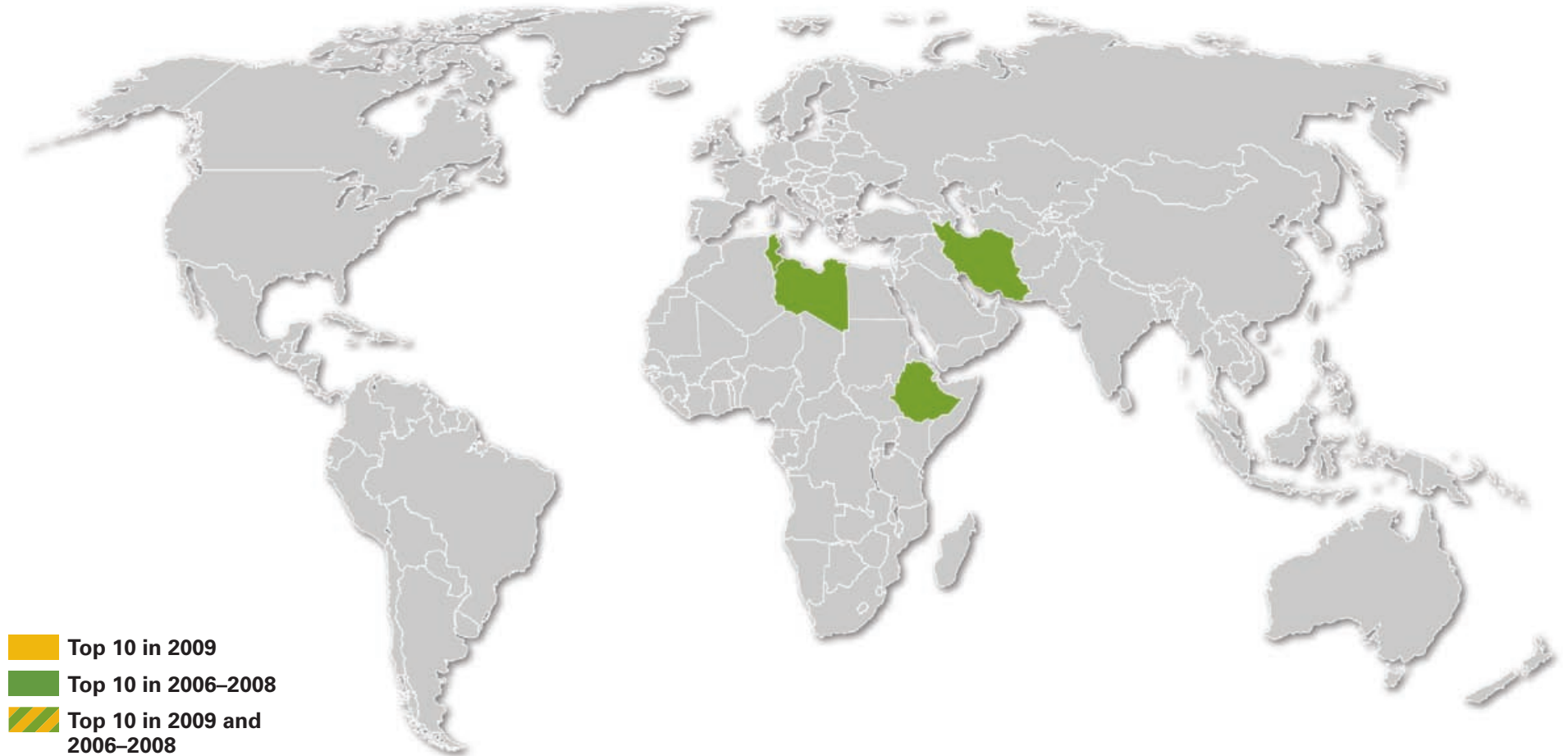


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies				
Countries with outbreaks:	24	RANK 18	 <p>100%</p>	■ Cattle					
Outbreaks:	5,418	13		■ Sheep and goat					
Cases (LSUs):	9,653	33		■ Swine					
LSUs lost by death:	127			■ Poultry					
LSUs lost by destruction:	147			■ Equidae					
LSUs lost by slaughter:	217			■ Camelidae					
LSUs lost total:	491	44	■ Buffalo						
					LSUs lost				
					Austria	207	Spain	10	
					Switzerland	94	Mexico	10	
					Russian Federation	71	Liechtenstein	9	
					Germany	54	Latvia	5	
					Iran, Islamic Rep.	22	Uruguay	4	

Camelpox

2006-2009

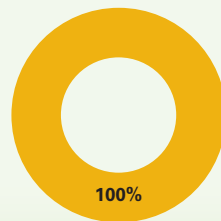


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	3	64
Outbreaks:	1,264	36
Cases (LSUs):	697	53
LSUs lost by death:	2	
LSUs lost by destruction:	0	
LSUs lost by slaughter:	0	
LSUs lost total:	2	66

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

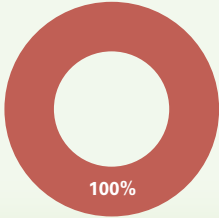
LSUs lost	
Libya	2
Iran, Islamic Rep.	1

Caprine Arthritis

2006-2009

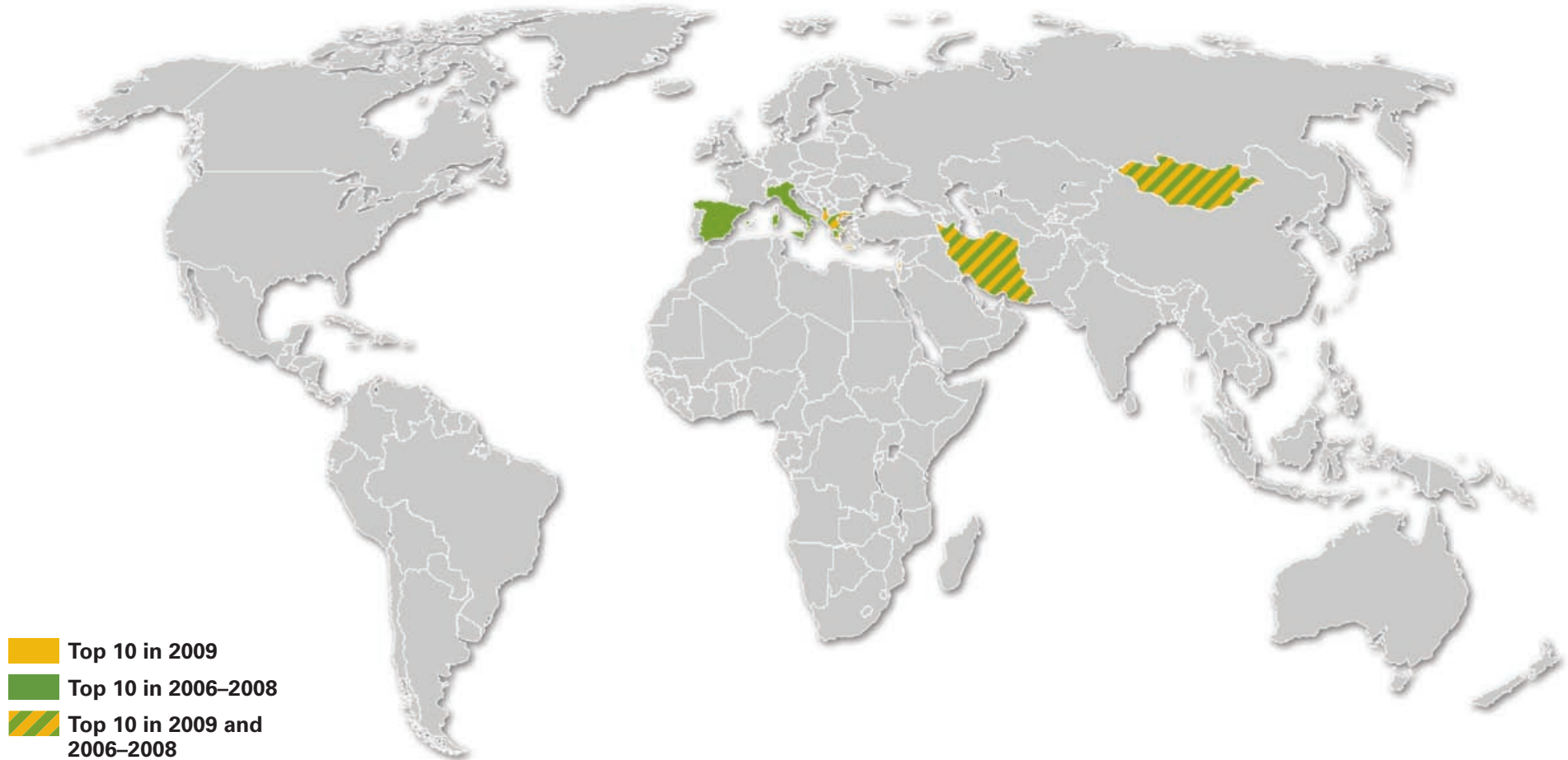


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost	Most Affected Countries and Economies		
Countries with outbreaks:	8	RANK 57	 <p>100%</p>	■ Cattle	LSUs lost	
Outbreaks:	124	62		■ Sheep and goat	Romania	2
Cases (LSUs):	58	67		■ Swine	Switzerland	2
LSUs lost by death:	0			■ Poultry		
LSUs lost by destruction:	4			■ Equidae		
LSUs lost by slaughter:	0			■ Camelidae		
LSUs lost total:	5	63	■ Buffalo			

Contagious Agalactica

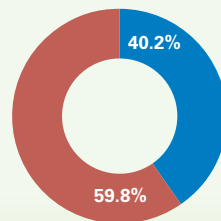
2006-2009



Key Figures

		RANK
Countries with outbreaks:	9	56
Outbreaks:	1,390	34
Cases (LSUs):	6,755	37
LSUs lost by death:	122	
LSUs lost by destruction:	122	
LSUs lost by slaughter:	16	
LSUs lost total:	261	51

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

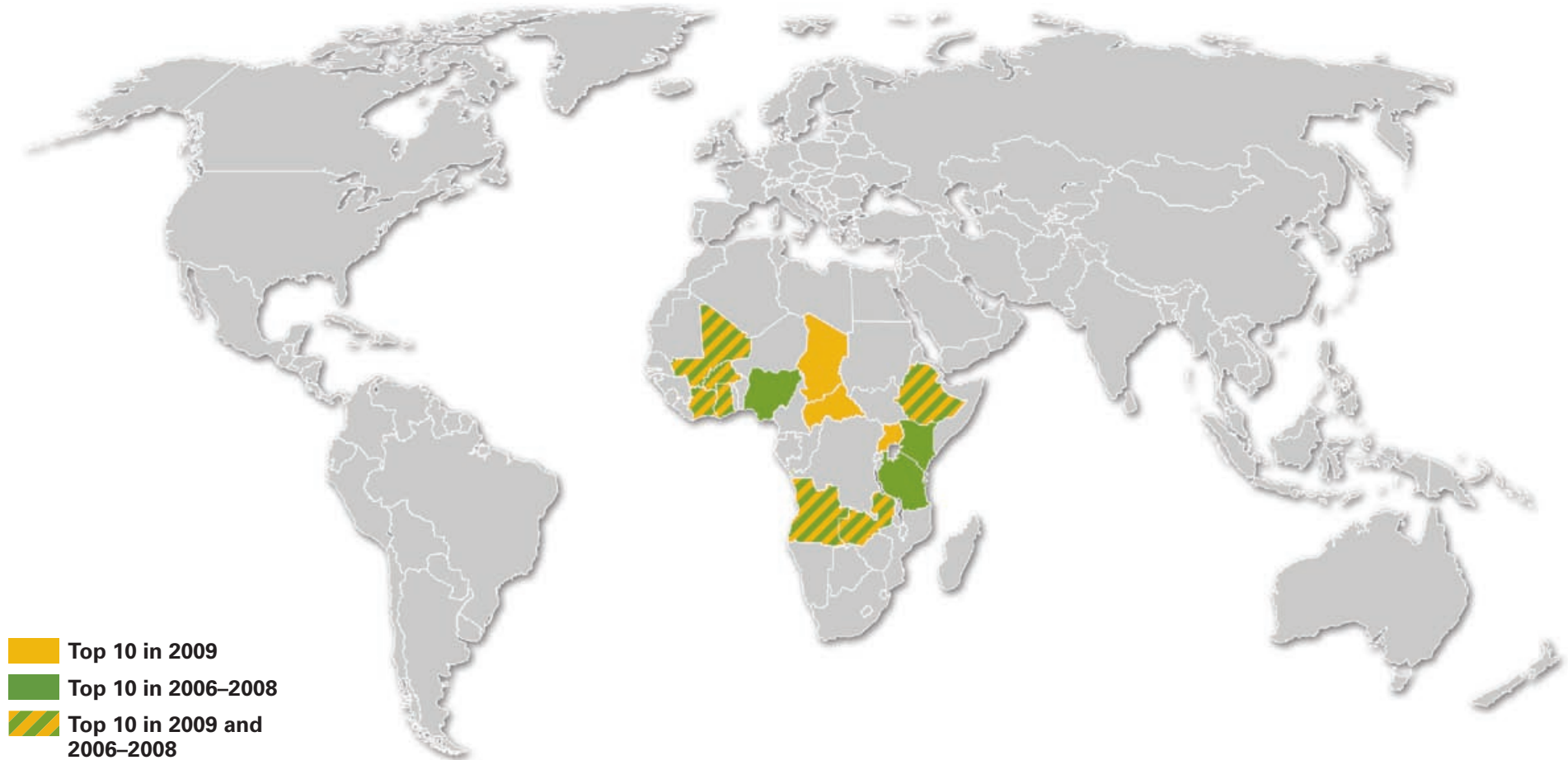
Most Affected Countries and Economies

LSUs lost

Iran, Islamic Rep.	106	Eritrea	1
Italy	104	West Bank and Gaza	1
Mongolia	59		
Albania	15		
Greece	3		
Spain	2		

Contagious Bovine Pleuropneumonia

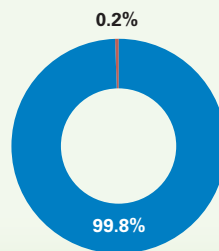
2006-2009



Key Figures

		RANK
Countries with outbreaks:	17	34
Outbreaks:	276	54
Cases (LSUs):	5,789	40
LSUs lost by death:	1,115	
LSUs lost by destruction:	161	
LSUs lost by slaughter:	225	
LSUs lost total:	1,500	32

LSUs Lost



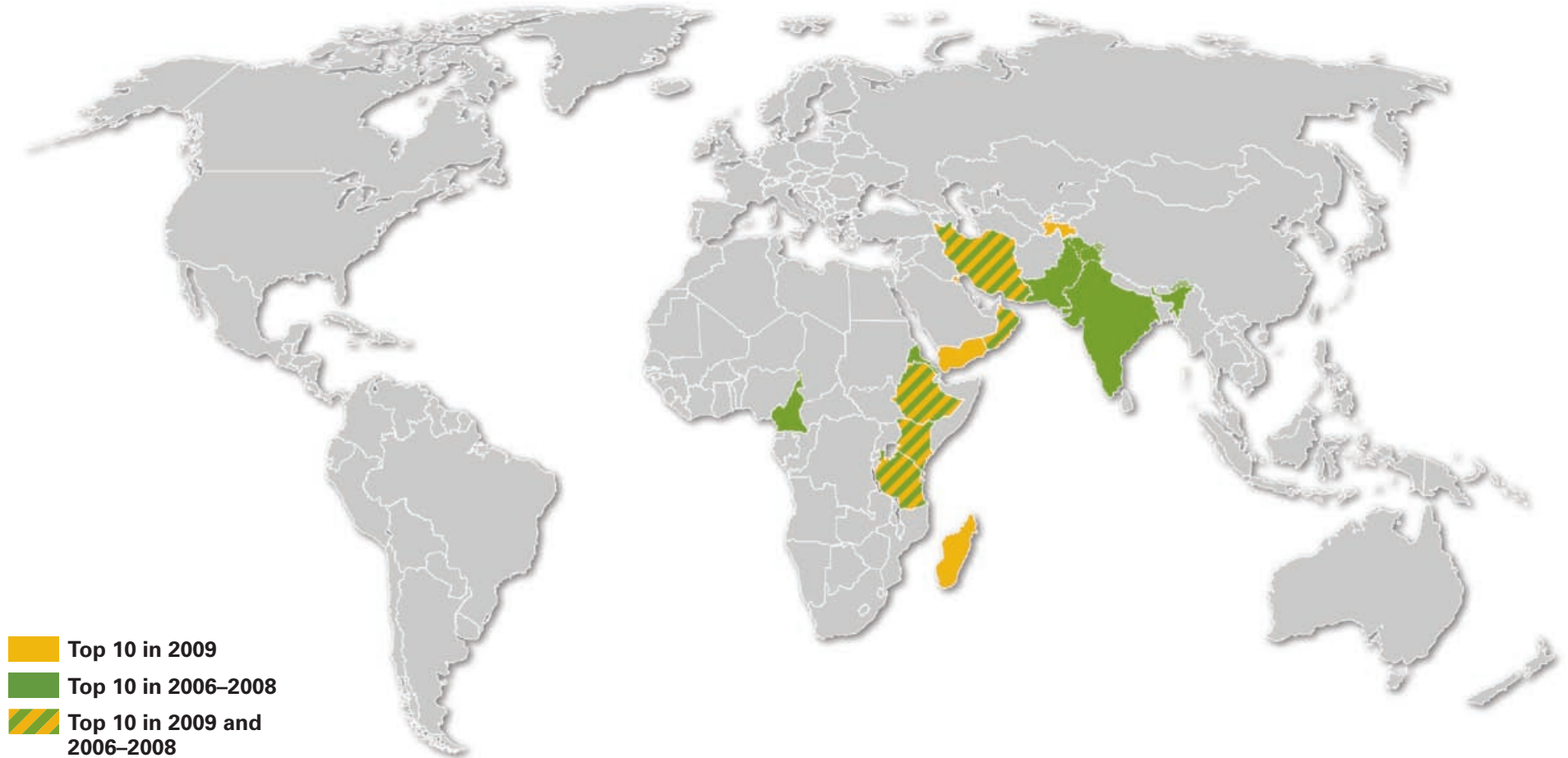
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Angola	463
Central African Republic	353
Ethiopia	349
Chad	69
Zambia	69
Tanzania	56
Mali	53
Côte d'Ivoire	47
Mali	51
Nigeria	34

Contagious Caprine Pleuropneumonia

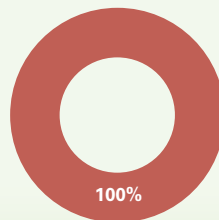
2006-2009



Key Figures

		RANK
Countries with outbreaks:	9	51
Outbreaks:	514	47
Cases (LSUs):	3,298	46
LSUs lost by death:	294	
LSUs lost by destruction:	38	
LSUs lost by slaughter:	8	
LSUs lost total:	341	50

LSUs Lost



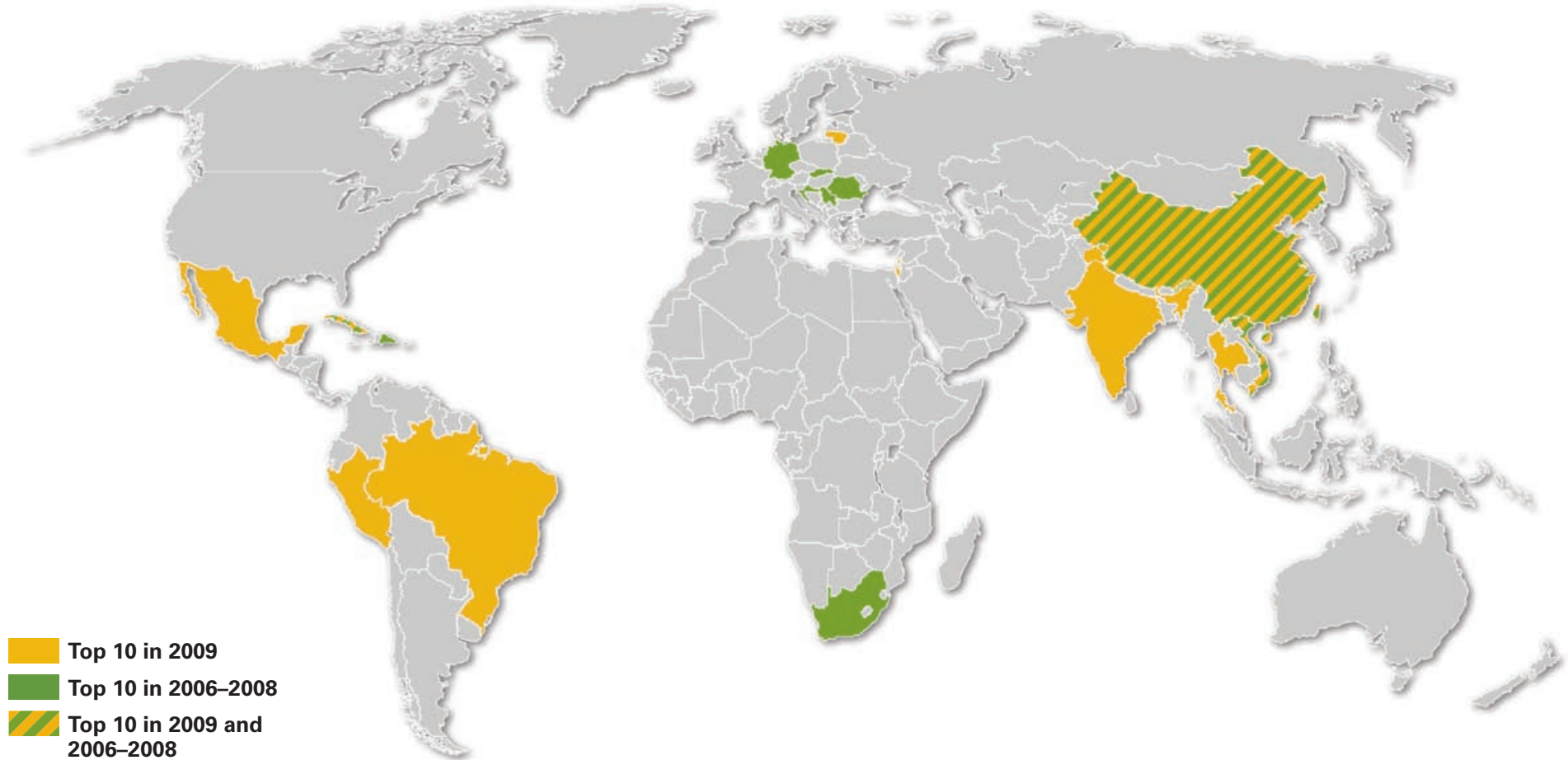
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Ethiopia	147
Tanzania	65
Oman	61
Iran, Islamic Rep.	51
Mauritius	8
Pakistan	6
Yemen, Rep.	6
Eritrea	4
Tajikistan	4
India	3

Classical Swine Fever

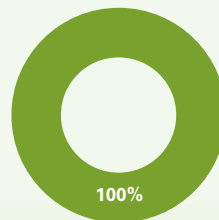
2006-2009



Key Figures

		RANK
Countries with outbreaks:	23	22
Outbreaks:	2,010	26
Cases (LSUs):	27,049	21
LSUs lost by death:	6,361	
LSUs lost by destruction:	12,741	
LSUs lost by slaughter:	2,851	
LSUs lost total:	21,953	10

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

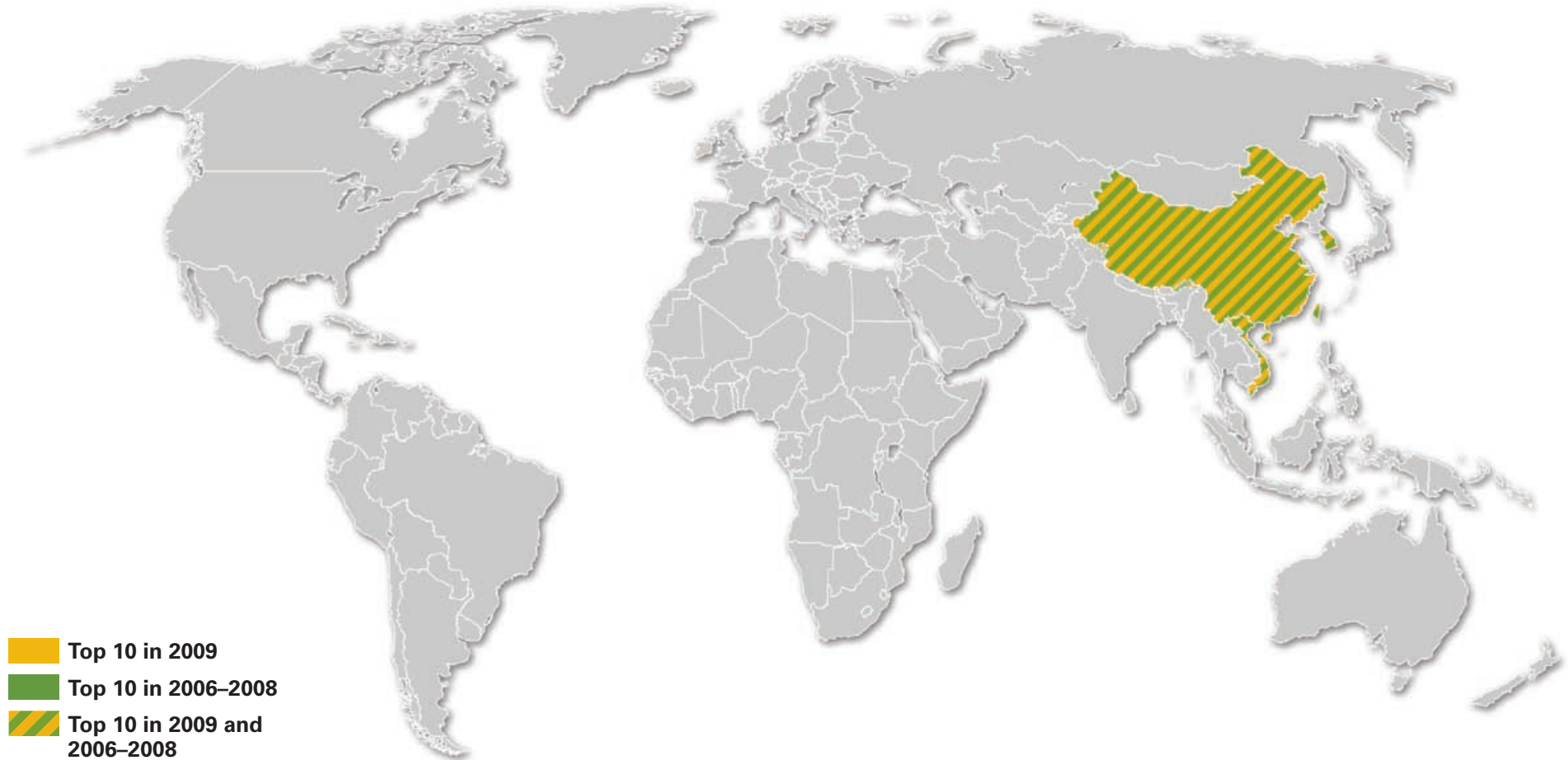
Most Affected Countries and Economies

LSUs lost

Cuba	5,722	Slovak Republic	449
China	4,942	Germany	350
South Africa	4,346	Croatia	300
Romania	5,727	India	175
Vietnam	1,221		
Serbia	624		

Duck Virus Hepatitis

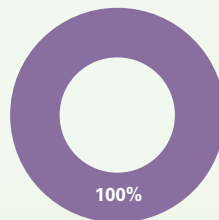
2006-2009



Key Figures

		RANK
Countries with outbreaks:	4	62
Outbreaks:	469	49
Cases (LSUs):	6,072	39
LSUs lost by death:	1,450	
LSUs lost by destruction:	125	
LSUs lost by slaughter:	24	
LSUs lost total:	1,599	31

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

Country	LSUs lost
China	1,249
Korea, Rep.	407
Vietnam	239
Taiwan, China	16

Enzootic Abortion

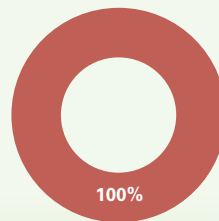
2006-2009



Key Figures

		RANK
Countries with outbreaks:	12	42
Outbreaks:	488	48
Cases (LSUs):	310	58
LSUs lost by death:	7	
LSUs lost by destruction:	2	
LSUs lost by slaughter:	0	
LSUs lost total:	9	61

LSUs Lost



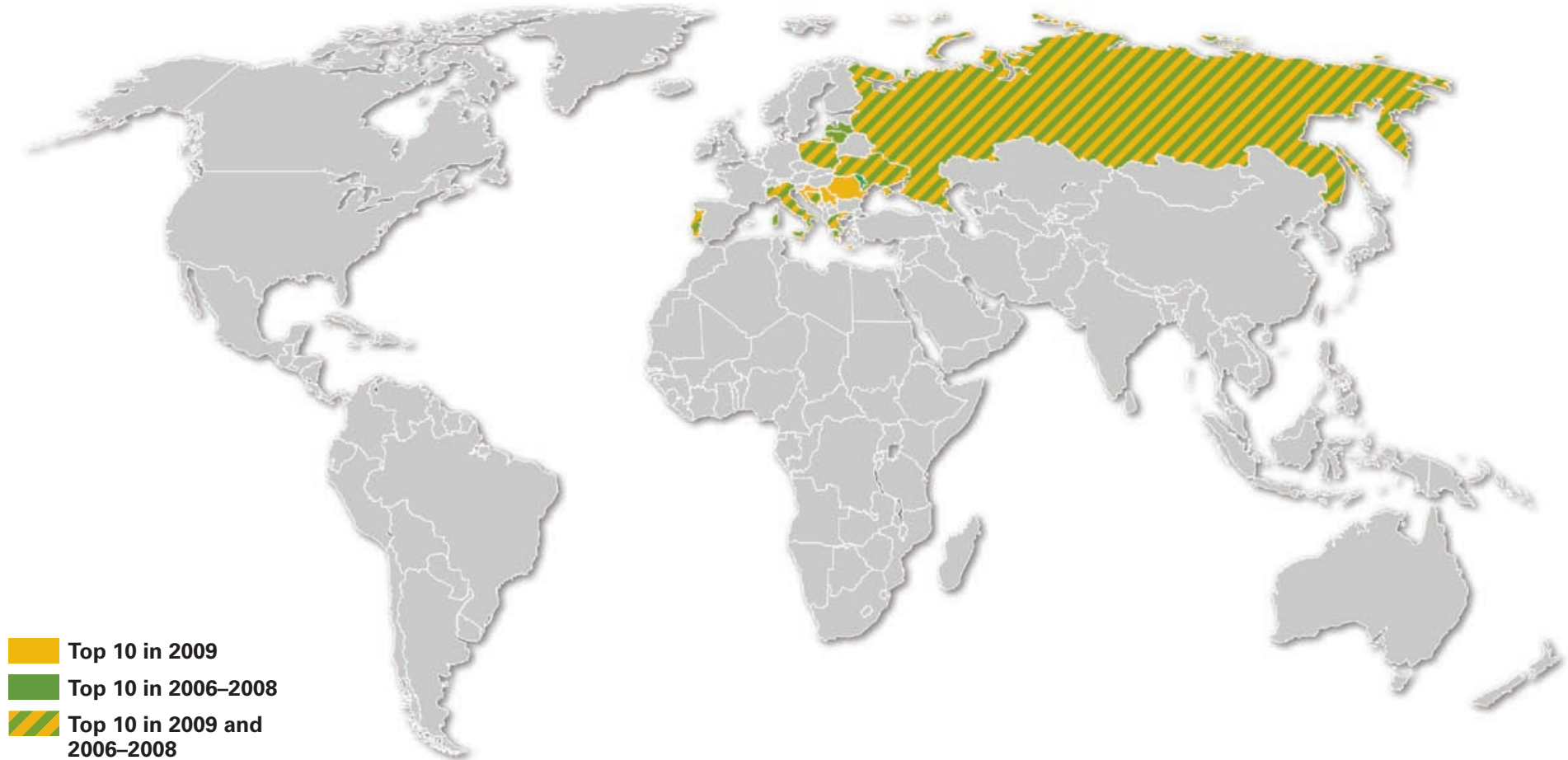
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

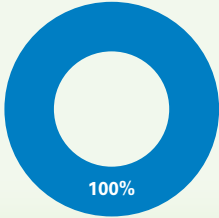
LSUs lost	
Namibia	4
West Bank and Gaza	3
Switzerland	2

Enzootic Bovine Leukosis

2006-2009

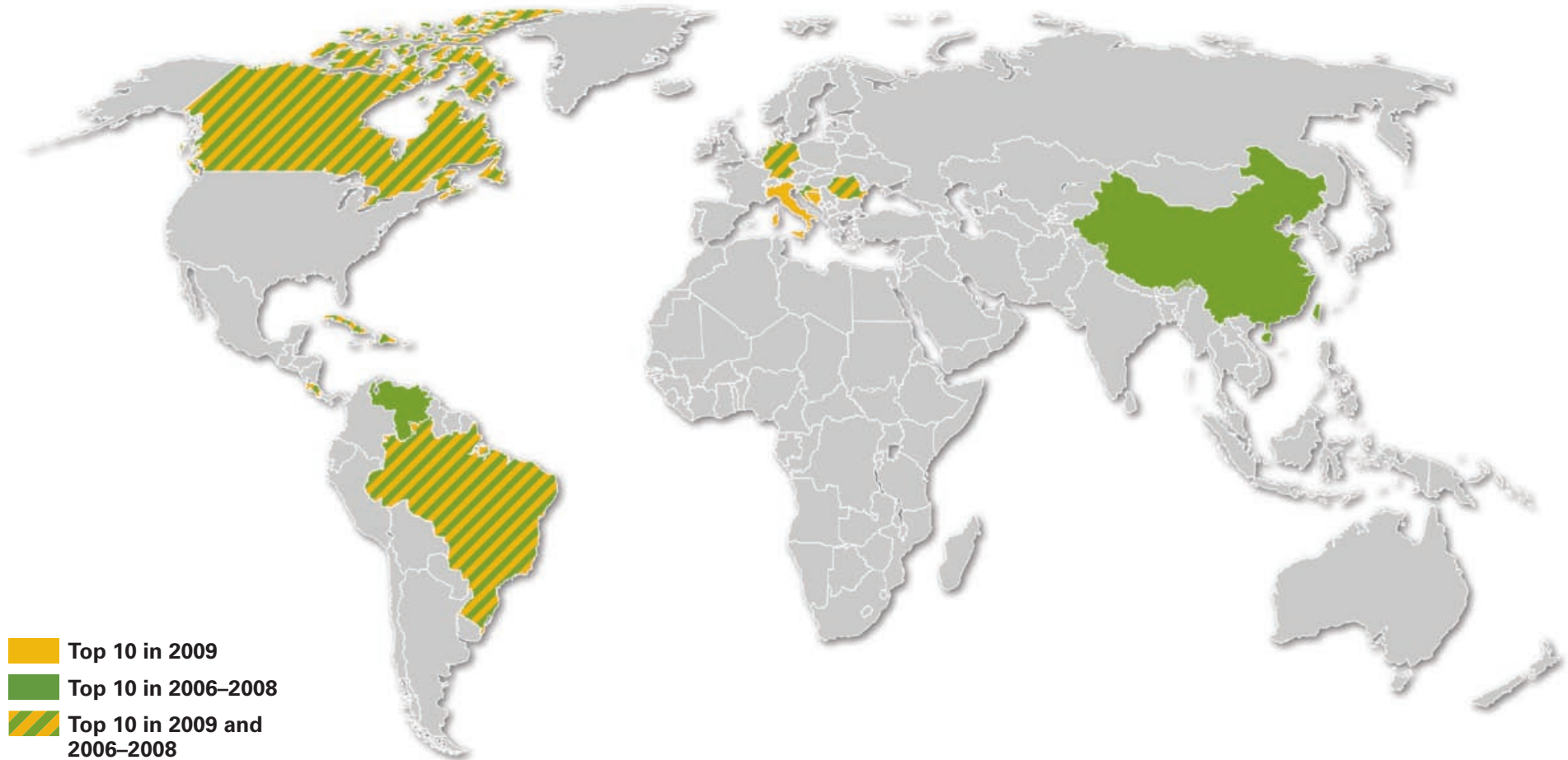


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

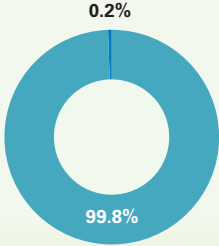
Key Figures			LSUs Lost		Most Affected Countries and Economies																									
Countries with outbreaks:	34	RANK 9	 <p>100%</p>	■ Cattle	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 5px;">LSUs lost</td> <td style="padding: 5px;">Portugal</td> <td style="text-align: right; padding: 5px;">112</td> </tr> <tr> <td style="padding: 5px;">Russian Federation</td> <td style="text-align: right; padding: 5px;">31,625</td> <td style="padding: 5px;">Croatia</td> <td style="text-align: right; padding: 5px;">112</td> </tr> <tr> <td style="padding: 5px;">Ukraine</td> <td style="text-align: right; padding: 5px;">29,305</td> <td style="padding: 5px;">Lithuania</td> <td style="text-align: right; padding: 5px;">81</td> </tr> <tr> <td style="padding: 5px;">Poland</td> <td style="text-align: right; padding: 5px;">4,899</td> <td style="padding: 5px;">Greece</td> <td style="text-align: right; padding: 5px;">60</td> </tr> <tr> <td style="padding: 5px;">Moldova</td> <td style="text-align: right; padding: 5px;">1,581</td> <td style="padding: 5px;">Latvia</td> <td style="text-align: right; padding: 5px;">47</td> </tr> <tr> <td style="padding: 5px;">Italy</td> <td style="text-align: right; padding: 5px;">224</td> <td></td> <td></td> </tr> </table>		LSUs lost		Portugal	112	Russian Federation	31,625	Croatia	112	Ukraine	29,305	Lithuania	81	Poland	4,899	Greece	60	Moldova	1,581	Latvia	47	Italy	224		
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Poland	4,899	Greece		60																										
Moldova	1,581	Latvia		47																										
Italy	224																													
Outbreaks:	10,158	8	■ Sheep and goat																											
Cases (LSUs):	92,187	7	■ Swine																											
LSUs lost by death:	121		■ Poultry																											
LSUs lost by destruction:	61,148		■ Equidae																											
LSUs lost by slaughter:	6,912		■ Camelidae																											
LSUs lost total:	68,181	6	■ Buffalo																											

Equine Infectious Anaemia

2006-2009

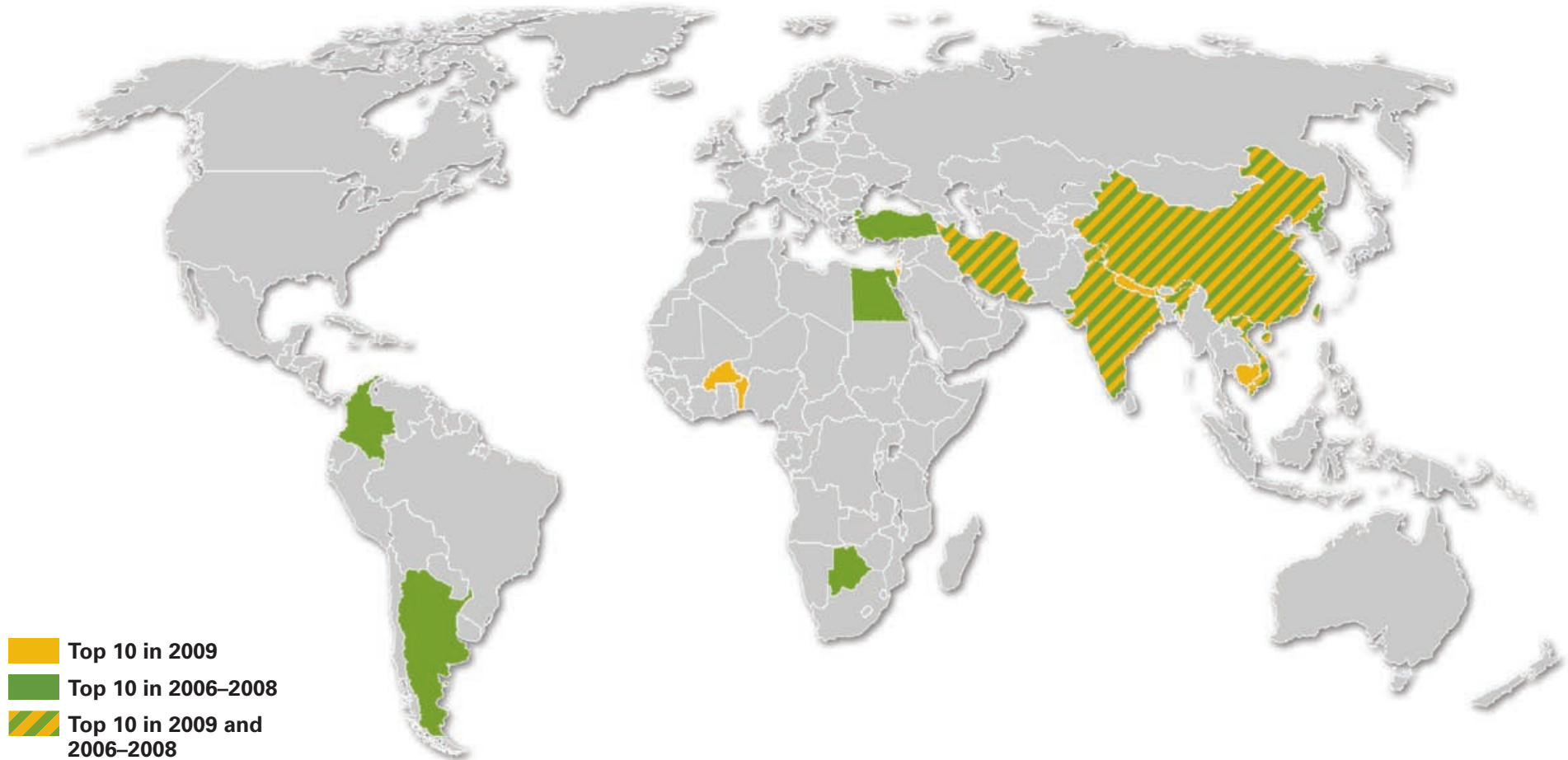


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	23	RANK 22			LSUs lost			
Outbreaks:	8,171	10			Brazil	1,321	Bosnia and Herzegovina	21
Cases (LSUs):	15,234	28			Costa Rica	72	Croatia	19
LSUs lost by death:	57				Cuba	62	Dominican Republic	13
LSUs lost by destruction:	790				Venezuela, RB	51	Germany	9
LSUs lost by slaughter:	771				Canada	30		
LSUs lost total:	1,619	30	Romania	23				
			<ul style="list-style-type: none"> Cattle Sheep and goat Swine Poultry Equidae Camelidae Buffalo 					

Foot-and-Mouth Disease

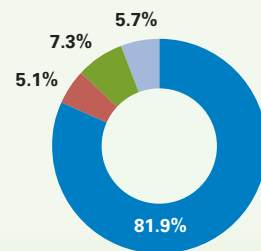
2006-2009



Key Figures

		RANK
Countries with outbreaks:	45	6
Outbreaks:	4,470	14
Cases (LSUs):	154,299	5
LSUs lost by death:	3,545	
LSUs lost by destruction:	5,047	
LSUs lost by slaughter:	1,120	
LSUs lost total:	9,713	15

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

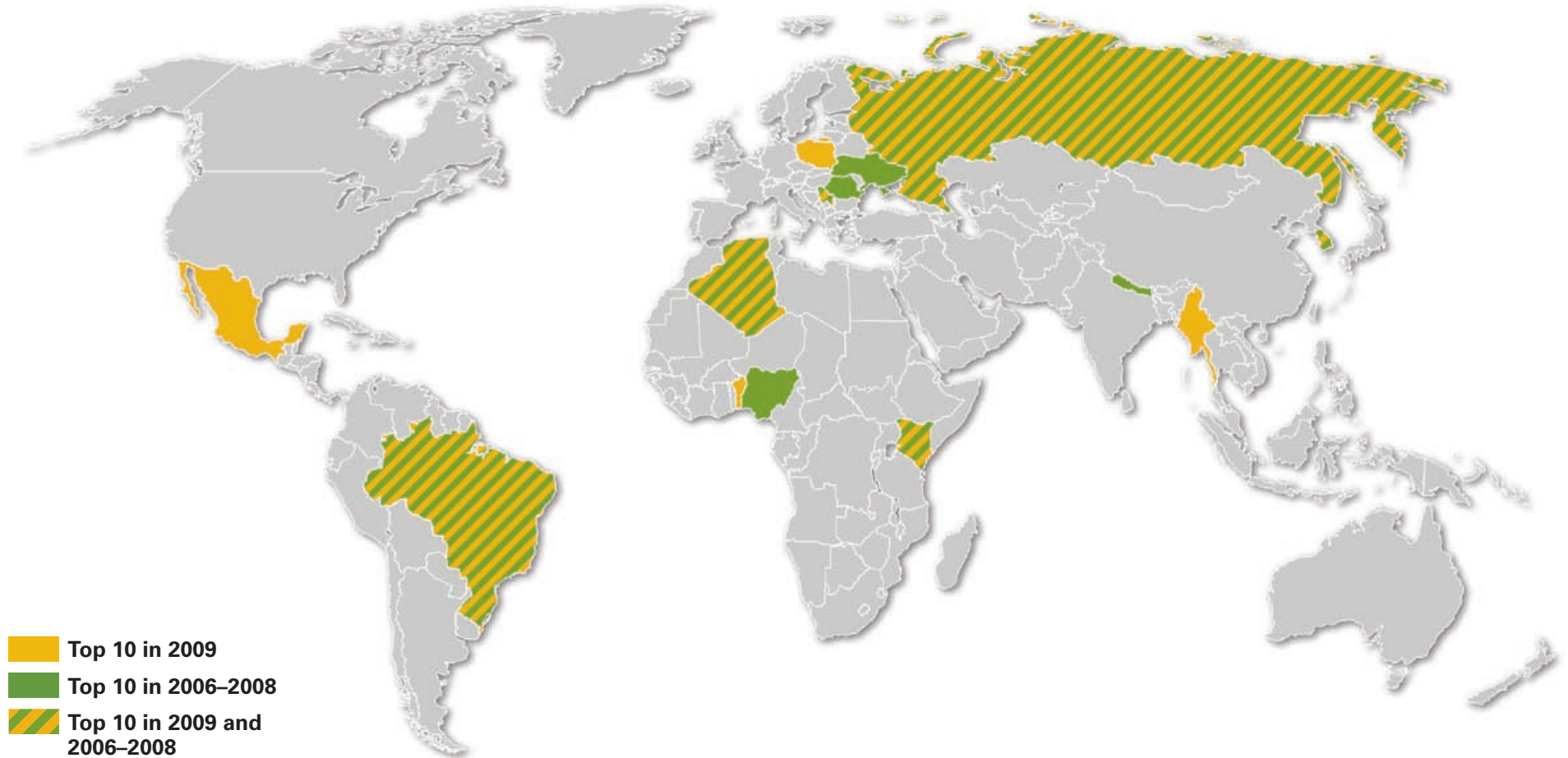
Most Affected Countries and Economies

LSUs lost

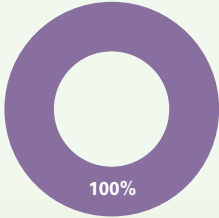
Zambia	2,148	Vietnam	775
China	2,096	Iran, Islamic Rep.	378
Uzbekistan	1,856	Togo	372
Argentina	1,029	Botswana	362
Egypt, Arab Rep.	946		
Turkey	903		

Fowl Typhoid

2006-2009

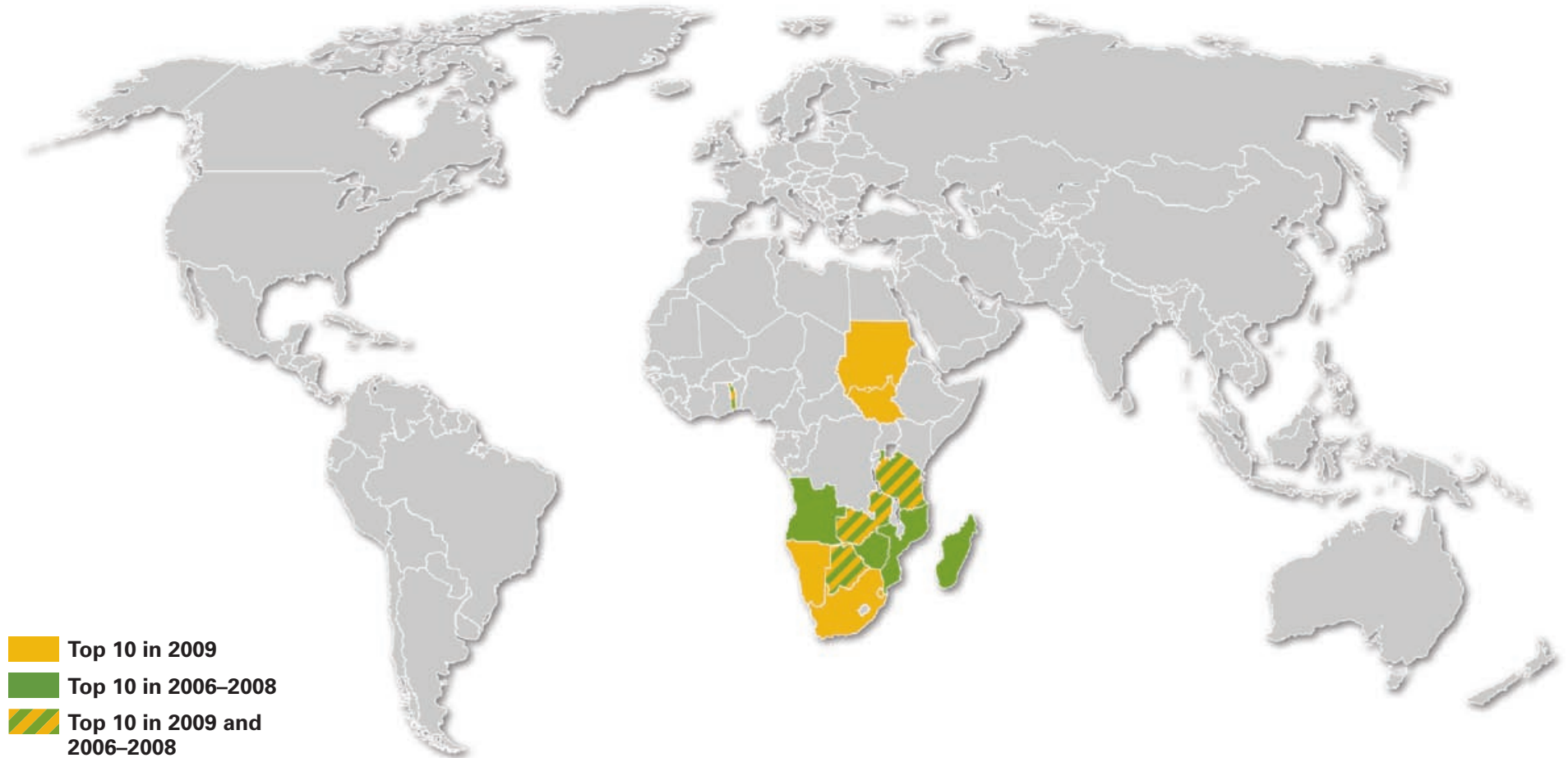


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- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

<h3 style="margin: 0;">Key Figures</h3> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Countries with outbreaks:</td> <td style="width: 20%; text-align: right;">15</td> <td style="width: 20%; text-align: right;">RANK 36</td> </tr> <tr> <td>Outbreaks:</td> <td style="text-align: right;">232</td> <td style="text-align: right;">56</td> </tr> <tr> <td>Cases (LSUs):</td> <td style="text-align: right;">6,706</td> <td style="text-align: right;">38</td> </tr> <tr> <td>LSUs lost by death:</td> <td style="text-align: right;">1,657</td> <td></td> </tr> <tr> <td>LSUs lost by destruction:</td> <td style="text-align: right;">393</td> <td></td> </tr> <tr> <td>LSUs lost by slaughter:</td> <td style="text-align: right;">154</td> <td></td> </tr> <tr> <td>LSUs lost total:</td> <td style="text-align: right;">2,204</td> <td style="text-align: right;">26</td> </tr> </table>	Countries with outbreaks:	15	RANK 36	Outbreaks:	232	56	Cases (LSUs):	6,706	38	LSUs lost by death:	1,657		LSUs lost by destruction:	393		LSUs lost by slaughter:	154		LSUs lost total:	2,204	26	<h3 style="margin: 0;">LSUs Lost</h3>  <p>100%</p> <ul style="list-style-type: none"> Cattle Sheep and goat Swine Poultry Equidae Camelidae Buffalo 	<h3 style="margin: 0;">Most Affected Countries and Economies</h3> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">LSUs lost</td> </tr> <tr> <td style="width: 30%;">Korea, Rep.</td> <td style="width: 20%; text-align: right;">913</td> <td style="width: 50%;"></td> </tr> <tr> <td>Serbia</td> <td style="text-align: right;">360</td> <td>Russian Federation</td> </tr> <tr> <td>Brazil</td> <td style="text-align: right;">339</td> <td style="text-align: right;">132</td> </tr> <tr> <td>Romania</td> <td style="text-align: right;">223</td> <td>Nigeria</td> </tr> <tr> <td>Algeria</td> <td style="text-align: right;">222</td> <td style="text-align: right;">3</td> </tr> <tr> <td></td> <td></td> <td>Kenya</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">3</td> </tr> <tr> <td></td> <td></td> <td>Ukraine</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">3</td> </tr> <tr> <td></td> <td></td> <td>Nepal</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">2</td> </tr> </table>	LSUs lost			Korea, Rep.	913		Serbia	360	Russian Federation	Brazil	339	132	Romania	223	Nigeria	Algeria	222	3			Kenya			3			Ukraine			3			Nepal			2
Countries with outbreaks:	15	RANK 36																																																									
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		Ukraine																																																									
		3																																																									
		Nepal																																																									
		2																																																									

Heartwater

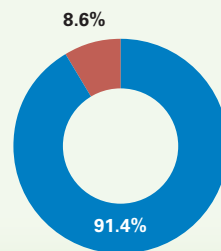
2006-2009



Key Figures

		RANK
Countries with outbreaks:	11	46
Outbreaks:	561	46
Cases (LSUs):	2,375	48
LSUs lost by death:	368	
LSUs lost by destruction:	5	
LSUs lost by slaughter:	3	
LSUs lost total:	376	47

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

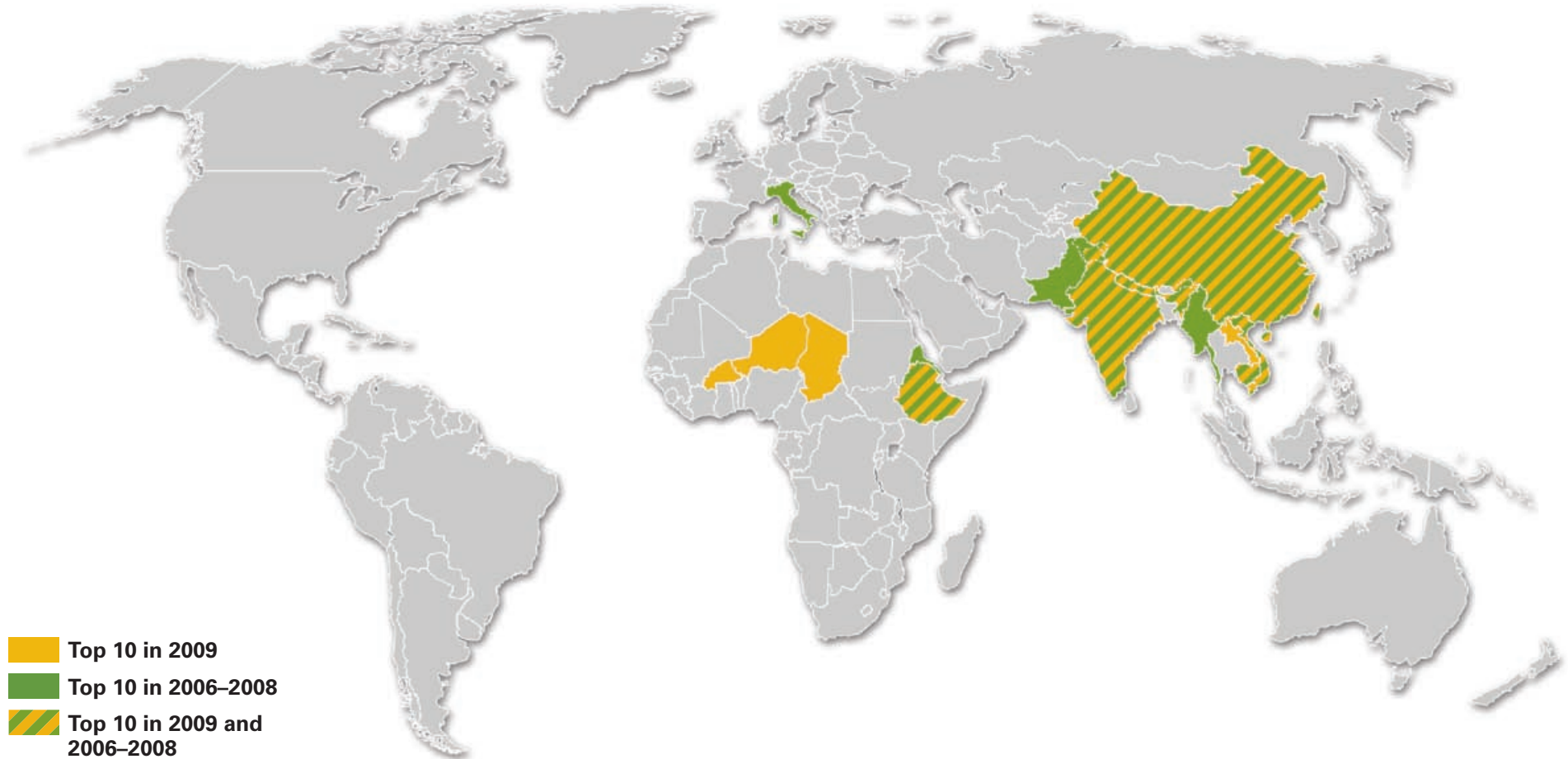
Most Affected Countries and Economies

LSUs lost	
Zimbabwe	119
Zambia	112
Tanzania	73
South Africa	49
Botswana	42
Madagascar	14

Swaziland	13
Togo	8
Comoros	6
Mozambique	5

Hemorrhagic Septicaemia

2006-2009

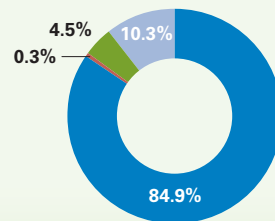


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	22	26
Outbreaks:	9,860	9
Cases (LSUs):	48,831	12
LSUs lost by death:	6,549	
LSUs lost by destruction:	6,844	
LSUs lost by slaughter:	250	
LSUs lost total:	13,644	11

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

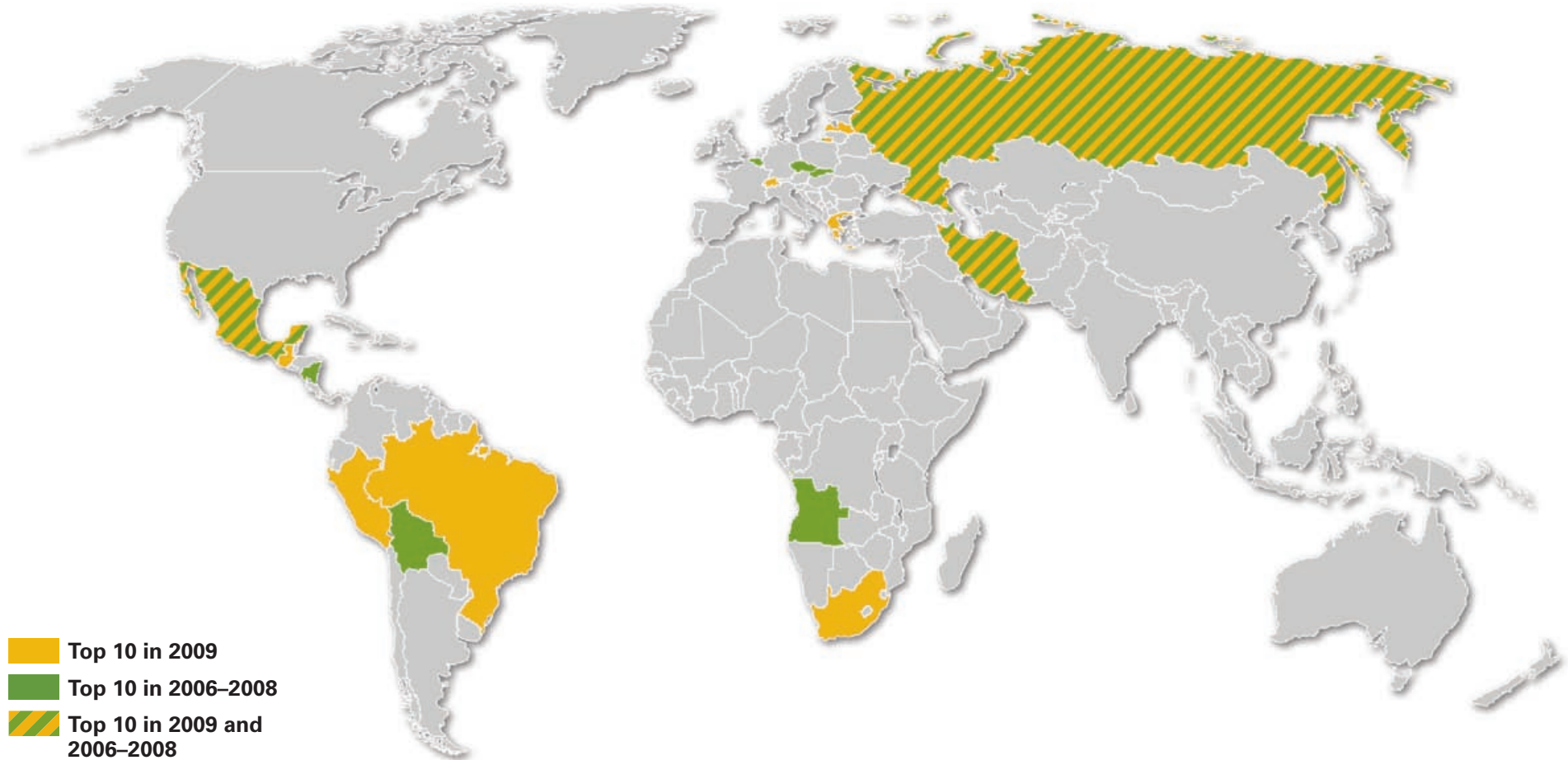
Most Affected Countries and Economies

LSUs lost	
Italy	6,750
Vietnam	2,322
India	975
China	919
Ethiopia	584
Pakistan	476

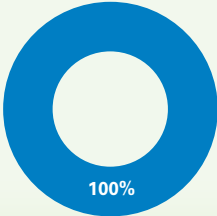
Cambodia	418
Myanmar	372
Eritrea	320
Nepal	218

Infectious Bovine Rhinotracheitis

2006-2009

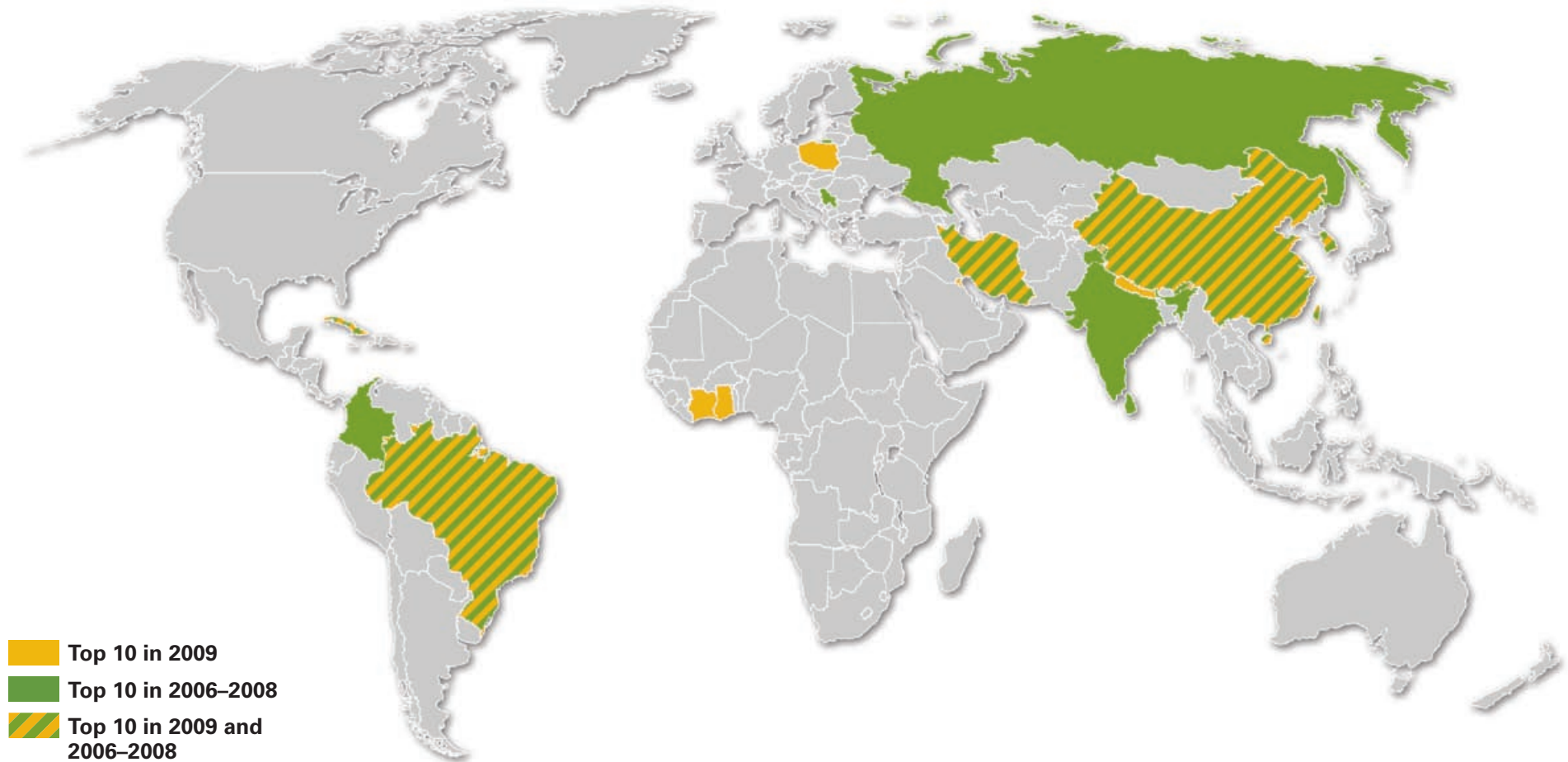


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	31	RANK 12	 <p>100%</p>	■ Cattle				
Outbreaks:	2,981	21		■ Sheep and goat				
Cases (LSUs):	25,167	22		■ Swine				
LSUs lost by death:	143			■ Poultry				
LSUs lost by destruction:	11			■ Equidae				
LSUs lost by slaughter:	208			■ Camelidae				
LSUs lost total:	362	48	■ Buffalo					
					LSUs lost			
					Czech Republic	194	Greece	13
					Russian Federation	41	Peru	10
					Iran, Islamic Rep.	24	Mexico	8
					Luxembourg	22	Guatemala	5
					Slovak Republic	21	Switzerland	5

Infectious Bursal Disease

2006-2009



- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies				
Countries with outbreaks:	32	RANK 11	<p>100%</p>	<ul style="list-style-type: none"> ■ Cattle ■ Sheep and goat ■ Swine ■ Poultry ■ Equidae ■ Camelidae ■ Buffalo 	LSUs lost				
Outbreaks:	3,196	RANK 20			Iran, Islamic Rep.	20,167	Cuba	492	
Cases (LSUs):	83,554	RANK 9			Brazil	2,283	Colombia	235	
LSUs lost by death:	26,644				China	2,258	Poland	219	
LSUs lost by destruction:	239				Korea, Rep.	666	Kuwait	135	
LSUs lost by slaughter:	202				Russian Federation	516	Sri Lanka	106	
LSUs lost total:	27,085	RANK 9							

Leishmaniosis

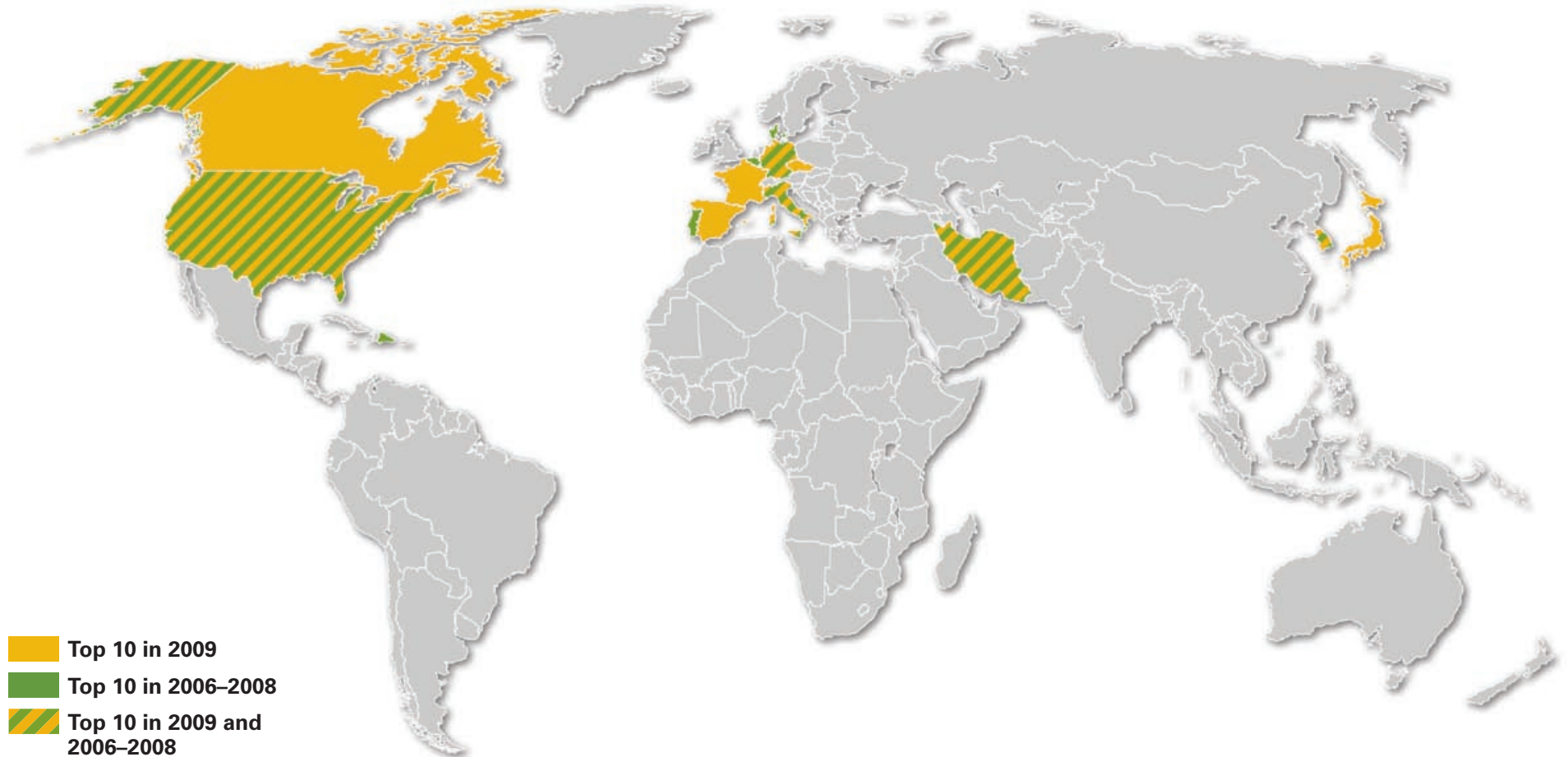
2006-2009



Key Figures			LSUs Lost		Most Affected Countries and Economies	
Countries with outbreaks:	9	RANK 52	■ Cattle	LSUs lost		
Outbreaks:	1,973	27	■ Sheep and goat			
Cases (LSUs):	0	69	■ Swine			
LSUs lost by death:	0		■ Poultry			
LSUs lost by destruction:	0		■ Equidae			
LSUs lost by slaughter:	0		■ Camelidae			
LSUs lost total:	0	67	■ Buffalo			

Low-Pathogenic Avian Influenza

2006-2009

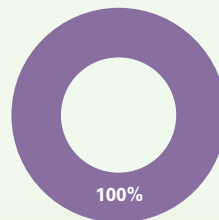


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	10	50
Outbreaks:	1,293	35
Cases (LSUs):	73,217	11
LSUs lost by death:	60,260	
LSUs lost by destruction:	9,966	
LSUs lost by slaughter:	457	
LSUs lost total:	70,683	5

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

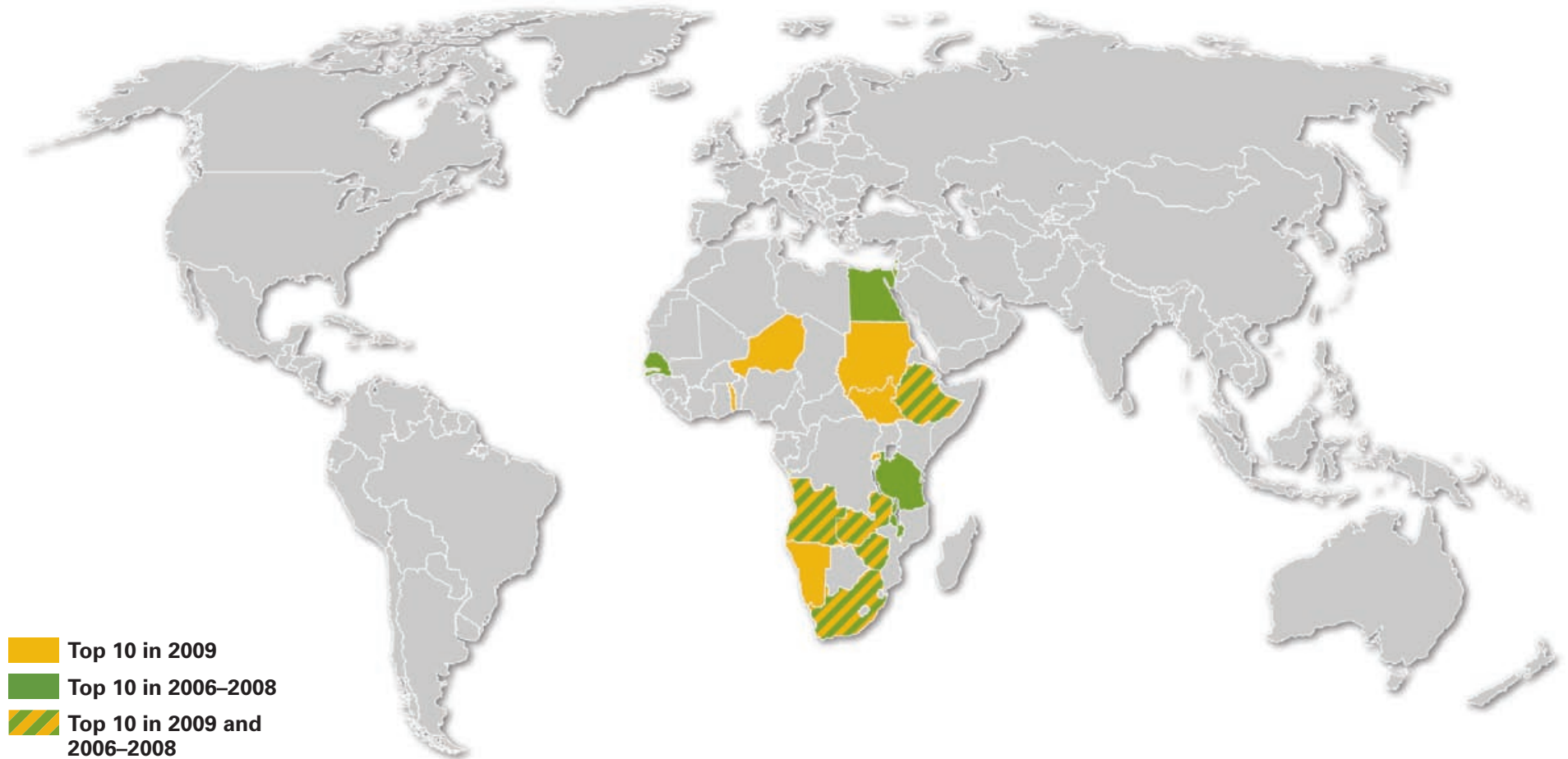
Most Affected Countries and Economies

LSUs lost

Iran, Islamic Rep.	60,196	Portugal	410
Japan	5,983	Canada	260
Germany	1,622	Denmark	195
Italy	842	Spain	105
United States	830	France	71

Lumpy Skin Disease

2006-2009

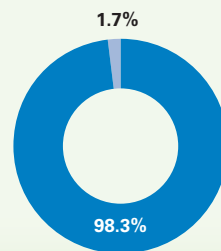


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	24	20
Outbreaks:	10,353	7
Cases (LSUs):	29,473	17
LSUs lost by death:	2,235	
LSUs lost by destruction:	344	
LSUs lost by slaughter:	103	
LSUs lost total:	2,682	24

LSUs Lost



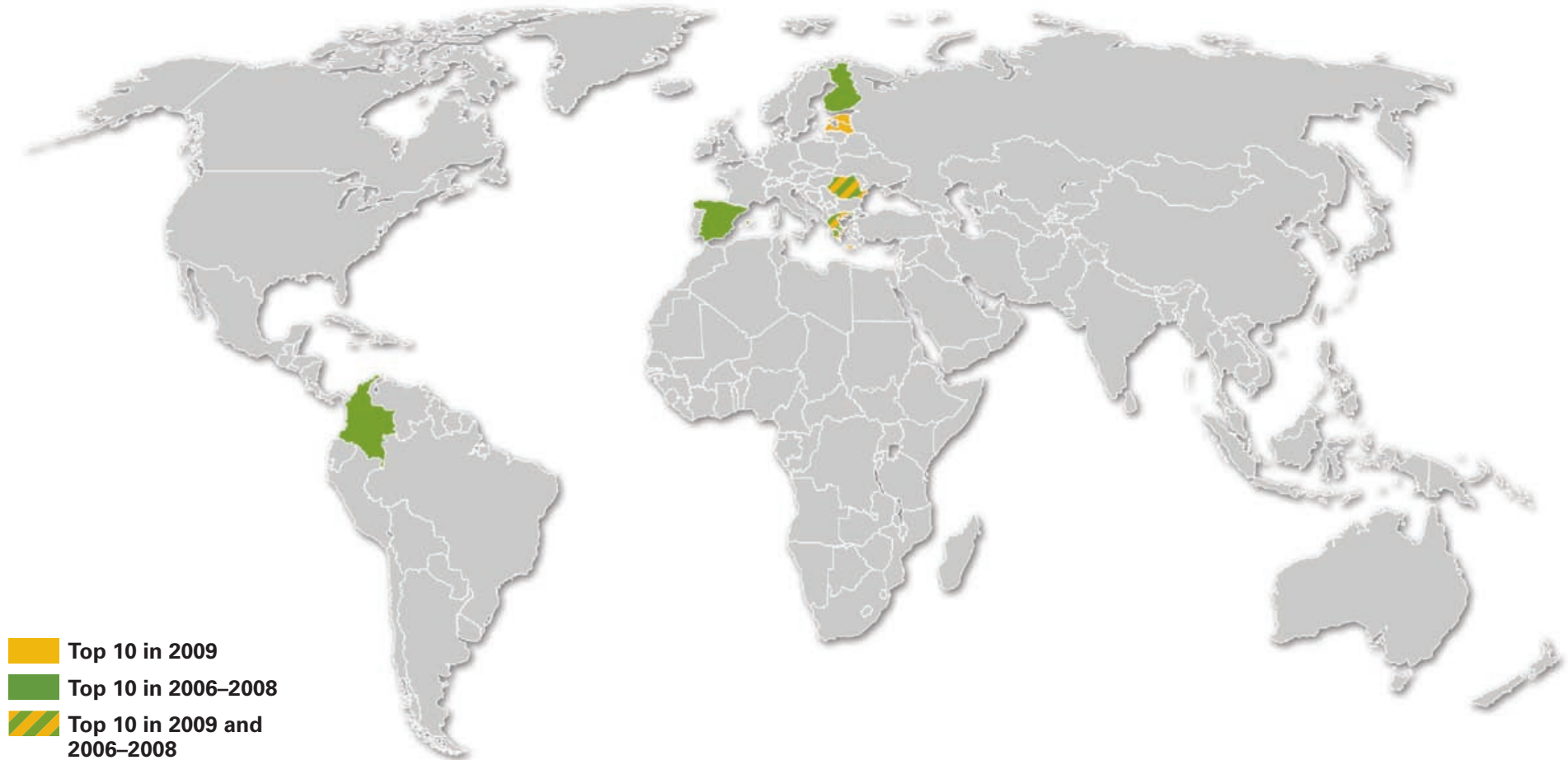
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Malawi	850
Ethiopia	819
Zimbabwe	312
Israel	187
Angola	184
Senegal	145
Zambia	113
South Africa	108
Egypt, Arab Rep.	79
Tanzania	64

Maedi Visna Disease

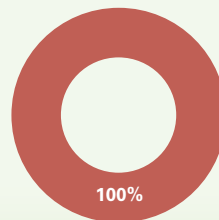
2006-2009



Key Figures

		RANK
Countries with outbreaks:	12	41
Outbreaks:	181	59
Cases (LSUs):	832	51
LSUs lost by death:	1	
LSUs lost by destruction:	26	
LSUs lost by slaughter:	3	
LSUs lost total:	30	57

LSUs Lost



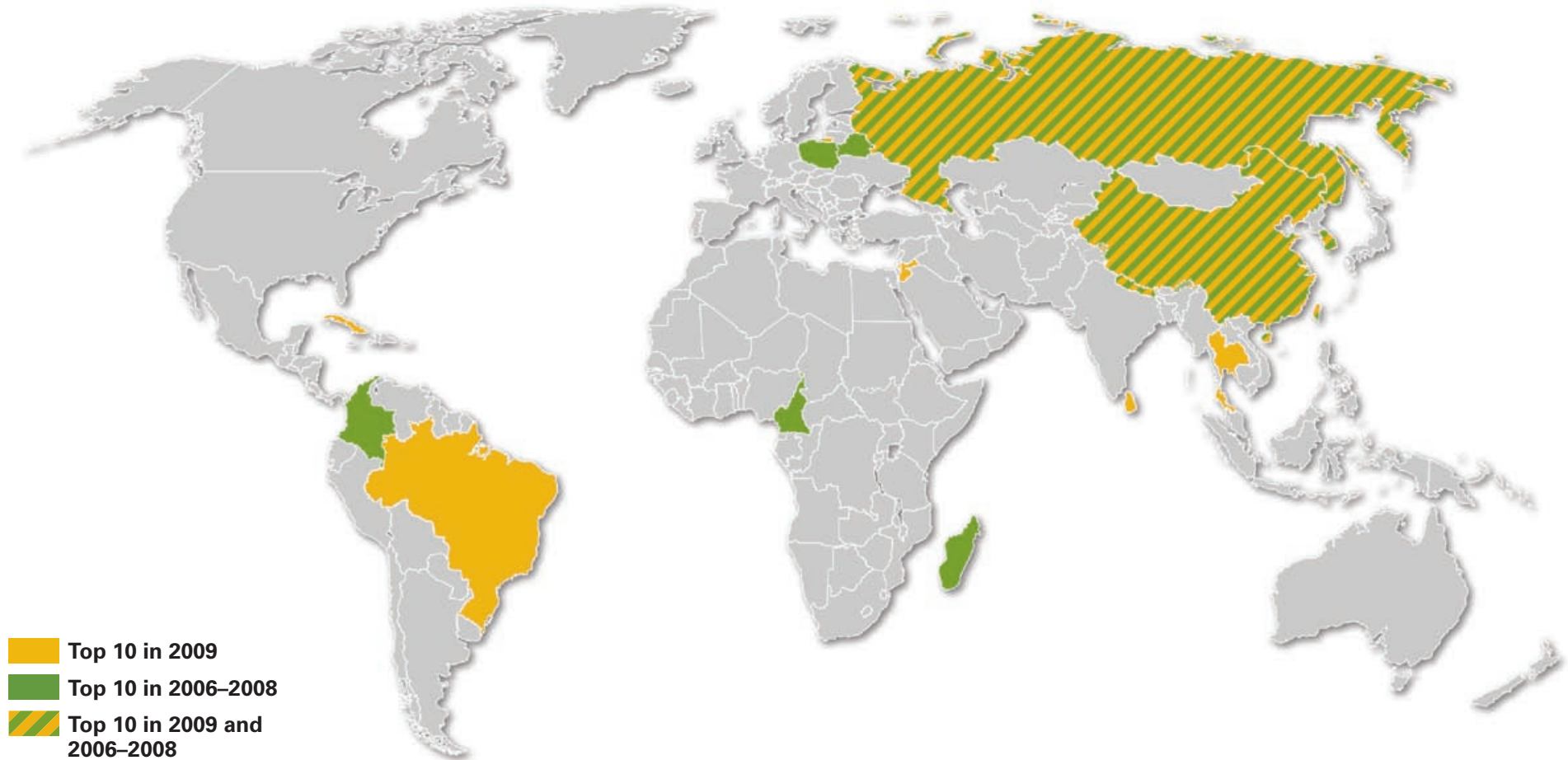
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

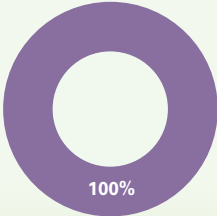
Country	LSUs lost
Romania	18
Colombia	7
Finland	2
Greece	1
Estonia	1
Spain	1

Marek's Disease

2006-2009

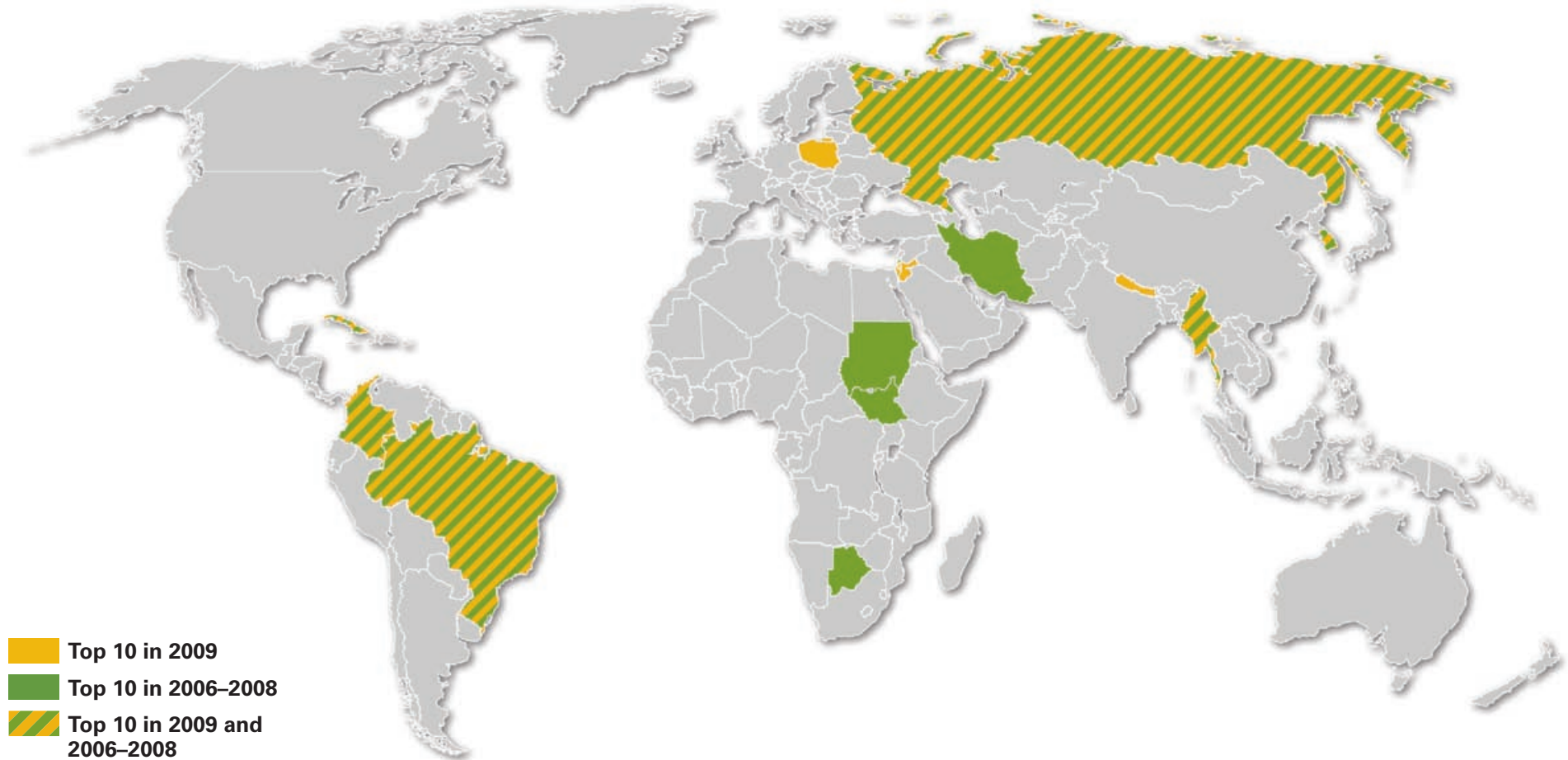


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

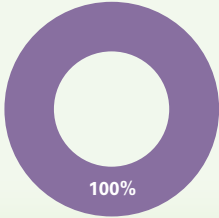
Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	25	RANK 17	 <p>100%</p>	■ Cattle	LSUs lost			
Outbreaks:	1,155	38		■ Sheep and goat	China	764	Jordan	20
Cases (LSUs):	5,261	43		■ Swine	Korea, Rep.	279	Nepal	8
LSUs lost by death:	1,291			■ Poultry	Russian Federation	167	Madagascar	7
LSUs lost by destruction:	42			■ Equidae	Colombia	165	Belarus	4
LSUs lost by slaughter:	0			■ Camelidae	Taiwan, China	95	Sri Lanka	3
LSUs lost total:	1,334	35		■ Buffalo				

Mycoplasmosis (*M. gallisepticum*)

2006-2009

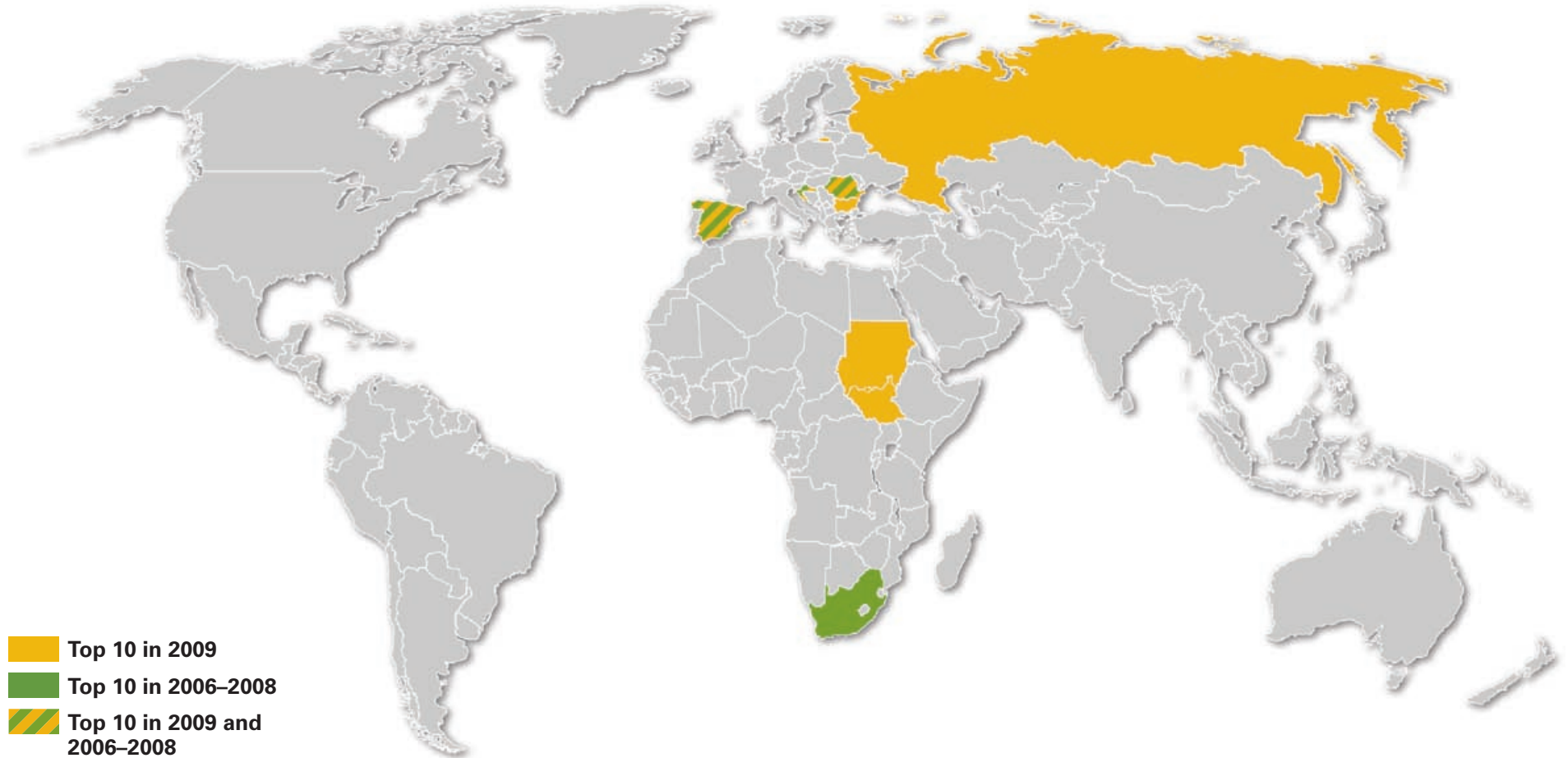


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	22	RANK 25	 <p>100%</p>	■ Cattle	Iran, Islamic Rep.	10,247	Colombia	60
Outbreaks:	608	44		■ Sheep and goat	Brazil	2,385	Russian Federation	53
Cases (LSUs):	14,871	29		■ Swine	Cuba	222	Namibia	19
LSUs lost by death:	12,678			■ Poultry	West Bank and Gaza	139	Sudan	16
LSUs lost by destruction:	400			■ Equidae	Korea, Rep.	107	Nepal	5
LSUs lost by slaughter:	157			■ Camelidae				
LSUs lost total:	13,235	12		■ Buffalo				

Ovine Epididymitis

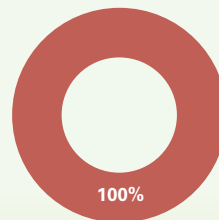
2006-2009



Key Figures

		RANK
Countries with outbreaks:	12	42
Outbreaks:	1,467	33
Cases (LSUs):	309	59
LSUs lost by death:	3	
LSUs lost by destruction:	20	
LSUs lost by slaughter:	38	
LSUs lost total:	61	55

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

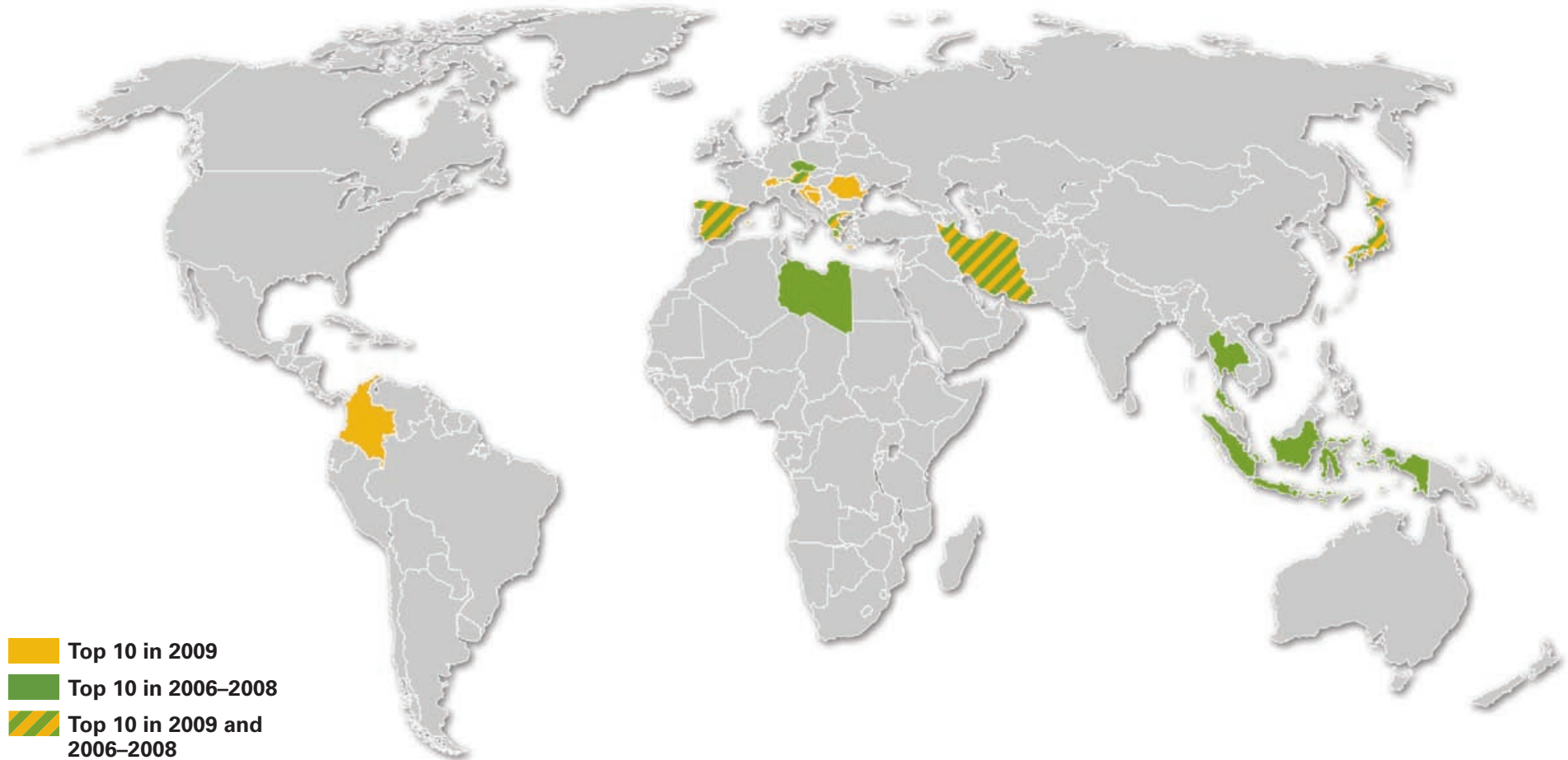
Most Affected Countries and Economies

LSUs lost	
Spain	16
South Africa	15
Bulgaria	13
Croatia	8
Romania	7
Sudan	1

Russian Federation 1

Paratuberculosis

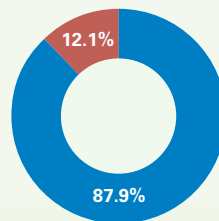
2006-2009



Key Figures

		RANK
Countries with outbreaks:	26	16
Outbreaks:	2,791	22
Cases (LSUs):	5,441	41
LSUs lost by death:	50	
LSUs lost by destruction:	244	
LSUs lost by slaughter:	153	
LSUs lost total:	447	45

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

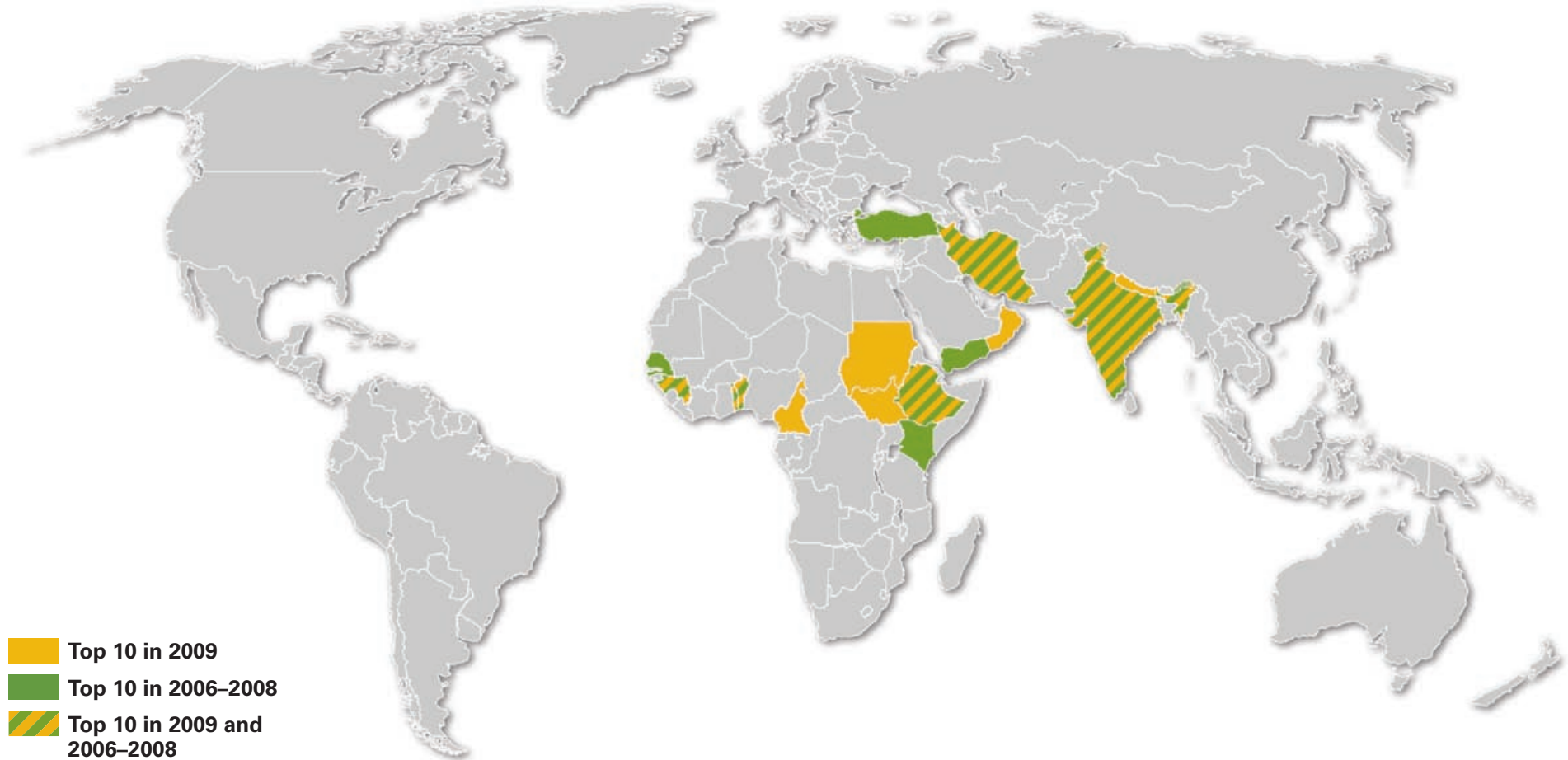
Most Affected Countries and Economies

LSUs lost

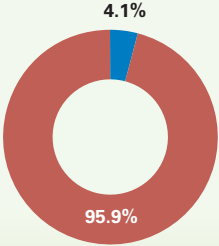
Libya	115	Iran, Islamic Rep.	28
Japan	90	Greece	18
Spain	84	Thailand	14
Czech Republic	61	Indonesia	9
Luxembourg	51		
Austria	30		

Peste des Petits Ruminants

2006-2009

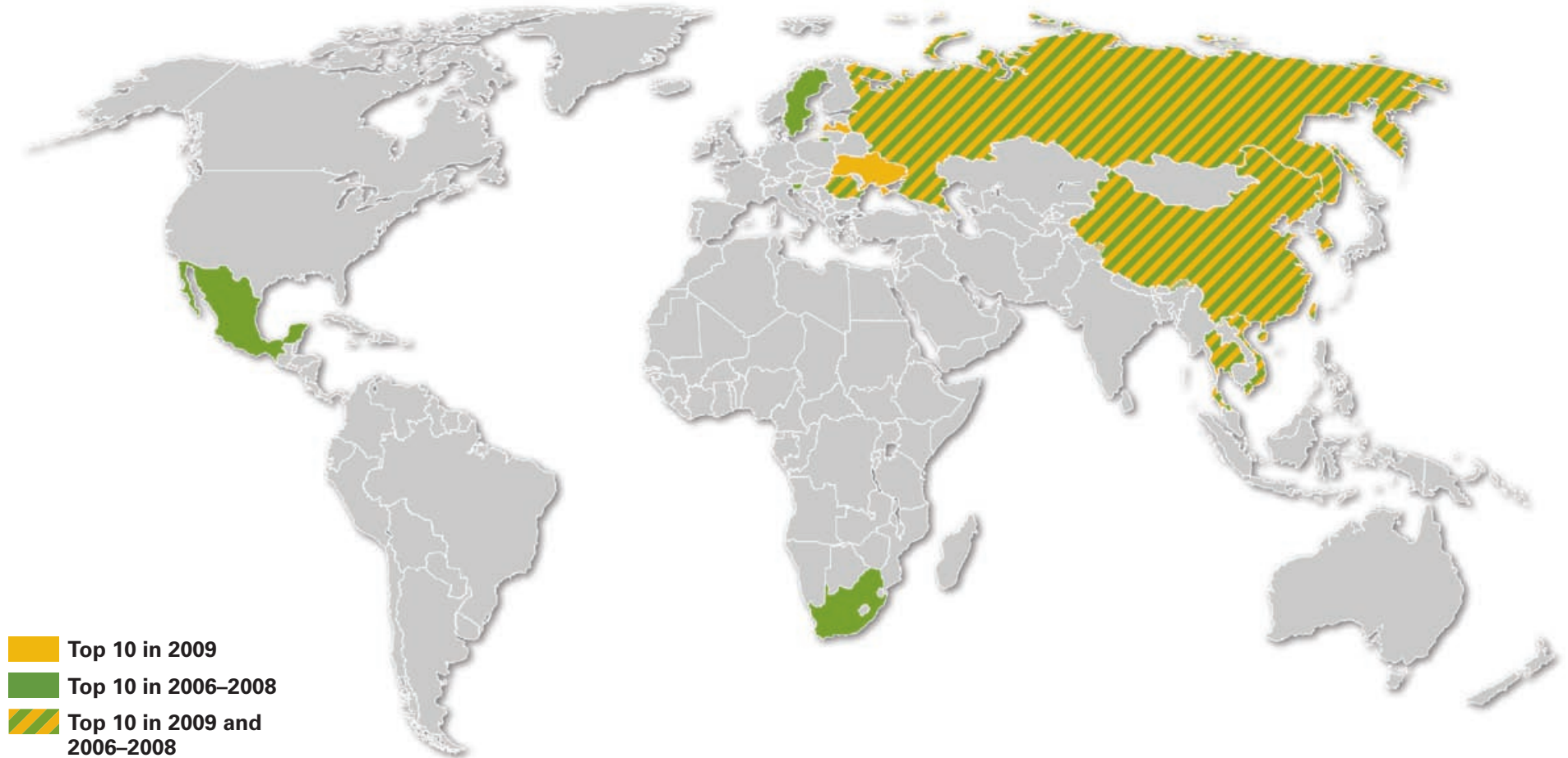


- Top 10 in 2009
- Top 10 in 2006–2008
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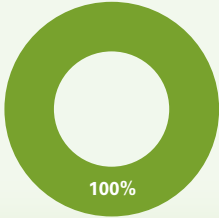
Key Figures			LSUs Lost		Most Affected Countries and Economies			
Countries with outbreaks:	28	RANK 14			LSUs lost			
Outbreaks:	1,713	30			Kenya	610	Senegal	111
Cases (LSUs):	8,697	34			Ethiopia	335	Yemen, Rep.	109
LSUs lost by death:	2,455				India	295	Turkey	86
LSUs lost by destruction:	49				Iran, Islamic Rep.	215	Togo	83
LSUs lost by slaughter:	61				Benin	197		
LSUs lost total:	2,565	25	Guinea	129				

Porcine Reproductive and Respiratory Syndrome

2006-2009

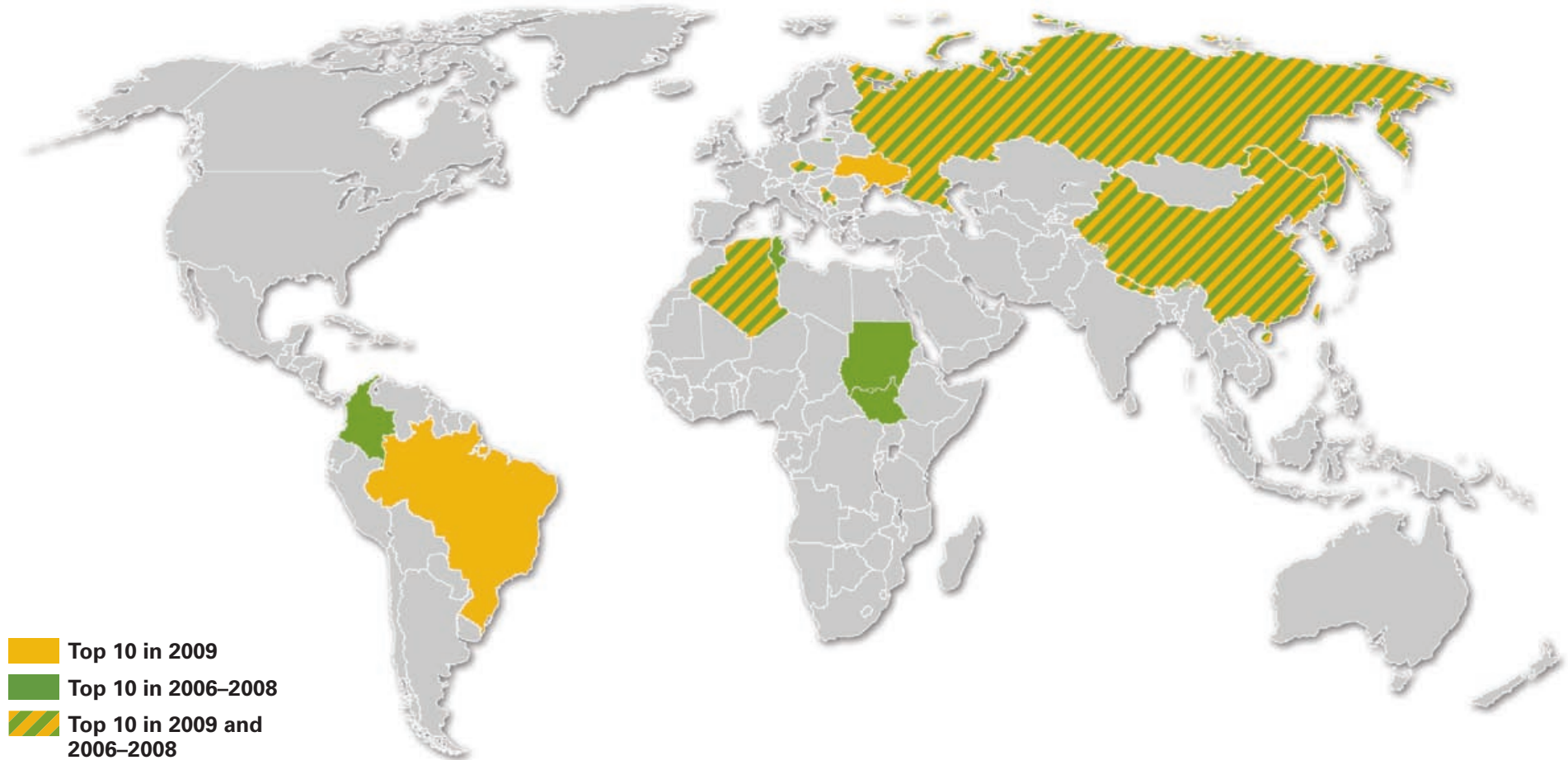


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures			LSUs Lost		Most Affected Countries and Economies				
Countries with outbreaks:	19	RANK 31	 <p>100%</p>	■ Cattle	LSUs lost				
Outbreaks:	1,864	28		■ Sheep and goat	Vietnam	7,126		South Africa	111
Cases (LSUs):	28,873	18		■ Swine	Sweden	987		Russian Federation	91
LSUs lost by death:	4,343			■ Poultry	China	636		Taiwan, China	22
LSUs lost by destruction:	4,519			■ Equidae	Romania	157		Mexico	17
LSUs lost by slaughter:	414			■ Camelidae	Korea, Rep.	153			
LSUs lost total:	9,275	16		■ Buffalo	Thailand	124			

Pullorum Disease

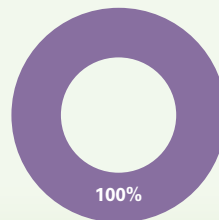
2006-2009



Key Figures

		RANK
Countries with outbreaks:	12	42
Outbreaks:	2,584	23
Cases (LSUs):	39,655	14
LSUs lost by death:	3,188	
LSUs lost by destruction:	746	
LSUs lost by slaughter:	95	
LSUs lost total:	4,029	20

LSUs Lost



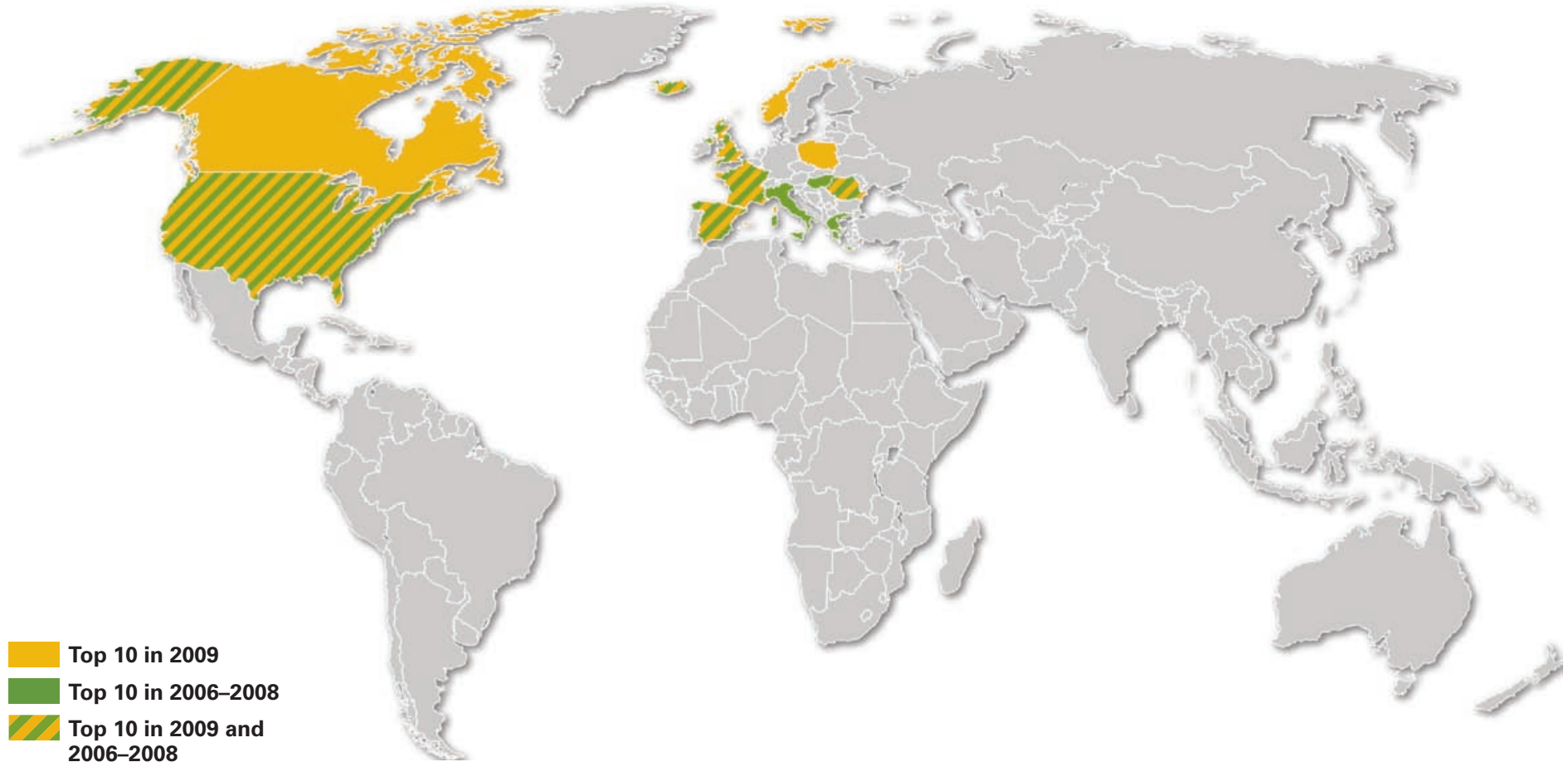
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost			
China	3,919	Tunisia	107
Serbia	380	Brazil	30
Algeria	204	Korea, Rep.	24
Czech Republic	166	Sudan	16
Russian Federation	133	West Bank and Gaza	15

Scrapie

2006-2009

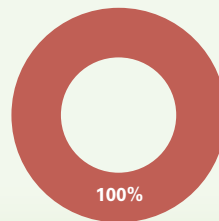


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	20	27
Outbreaks:	653	41
Cases (LSUs):	372	55
LSUs lost by death:	47	
LSUs lost by destruction:	2,887	
LSUs lost by slaughter:	364	
LSUs lost total:	3,198	23

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

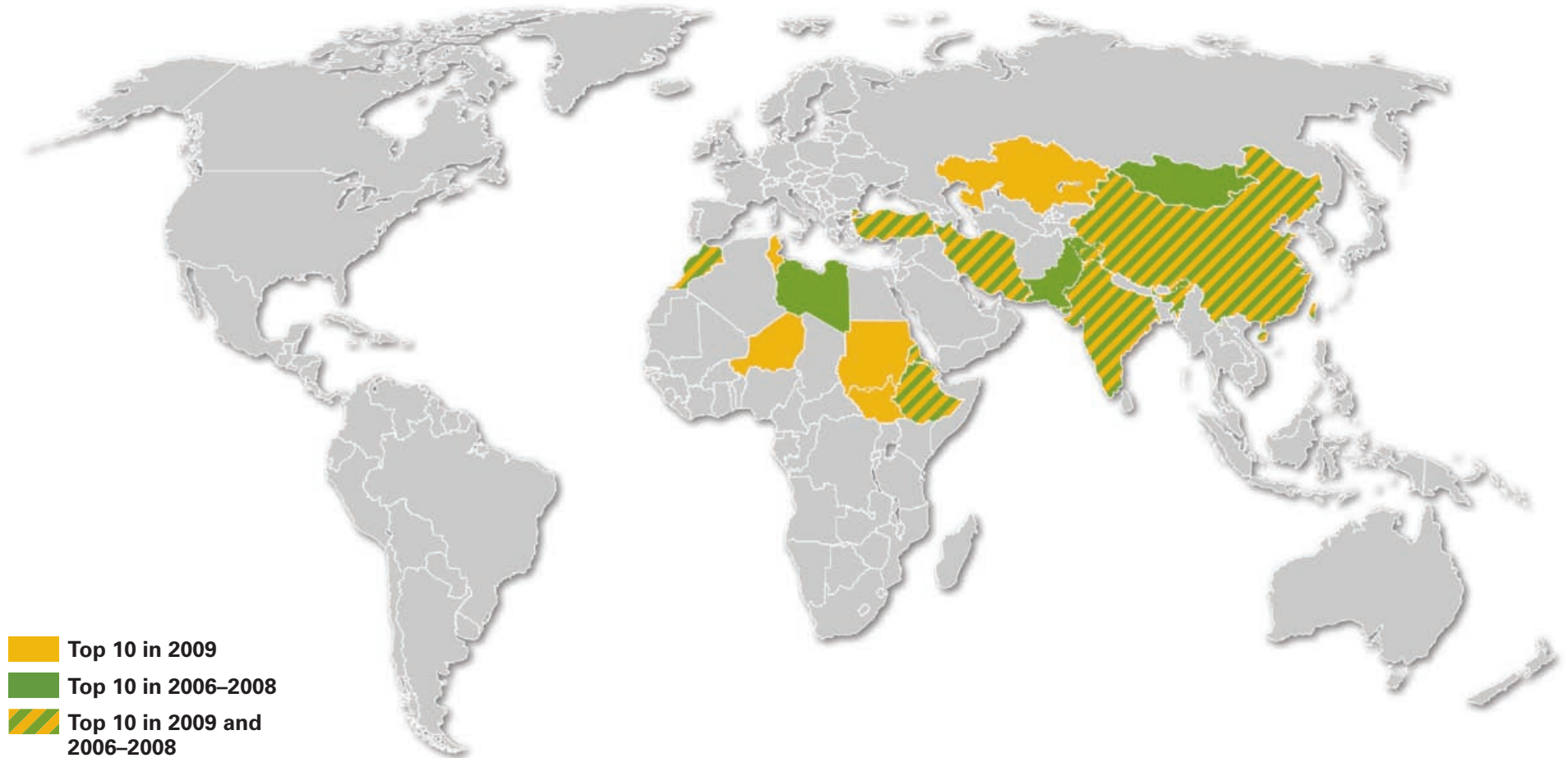
Most Affected Countries and Economies

LSUs lost

United Kingdom	1,722	France	124
United States	339	Romania	89
Spain	325	Iceland	68
Italy	242	Greece	64
Hungary	239	Canada	50

Sheep-and-Goat Pox

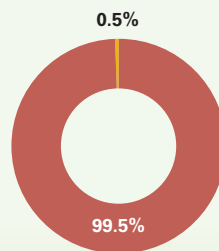
2006-2009



Key Figures

		RANK
Countries with outbreaks:	20	19
Outbreaks:	154,796	1
Cases (LSUs):	7,709	36
LSUs lost by death:	771	
LSUs lost by destruction:	59	
LSUs lost by slaughter:	117	
LSUs lost total:	947	40

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
India	206
Ethiopia	205
Morocco	109
Turkey	97
Pakistan	72
Iran, Islamic Rep.	69

China	66
Libya	31
Eritrea	28
Mongolia	22

Swine Vesicular Disease

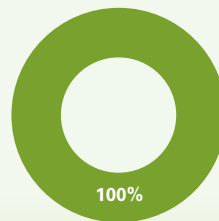
2006-2009



Key Figures

		RANK
Countries with outbreaks:	1	68
Outbreaks:	71	65
Cases (LSUs):	92	64
LSUs lost by death:	1	
LSUs lost by destruction:	12,192	
LSUs lost by slaughter:	0	
LSUs lost total:	12,193	13

LSUs Lost



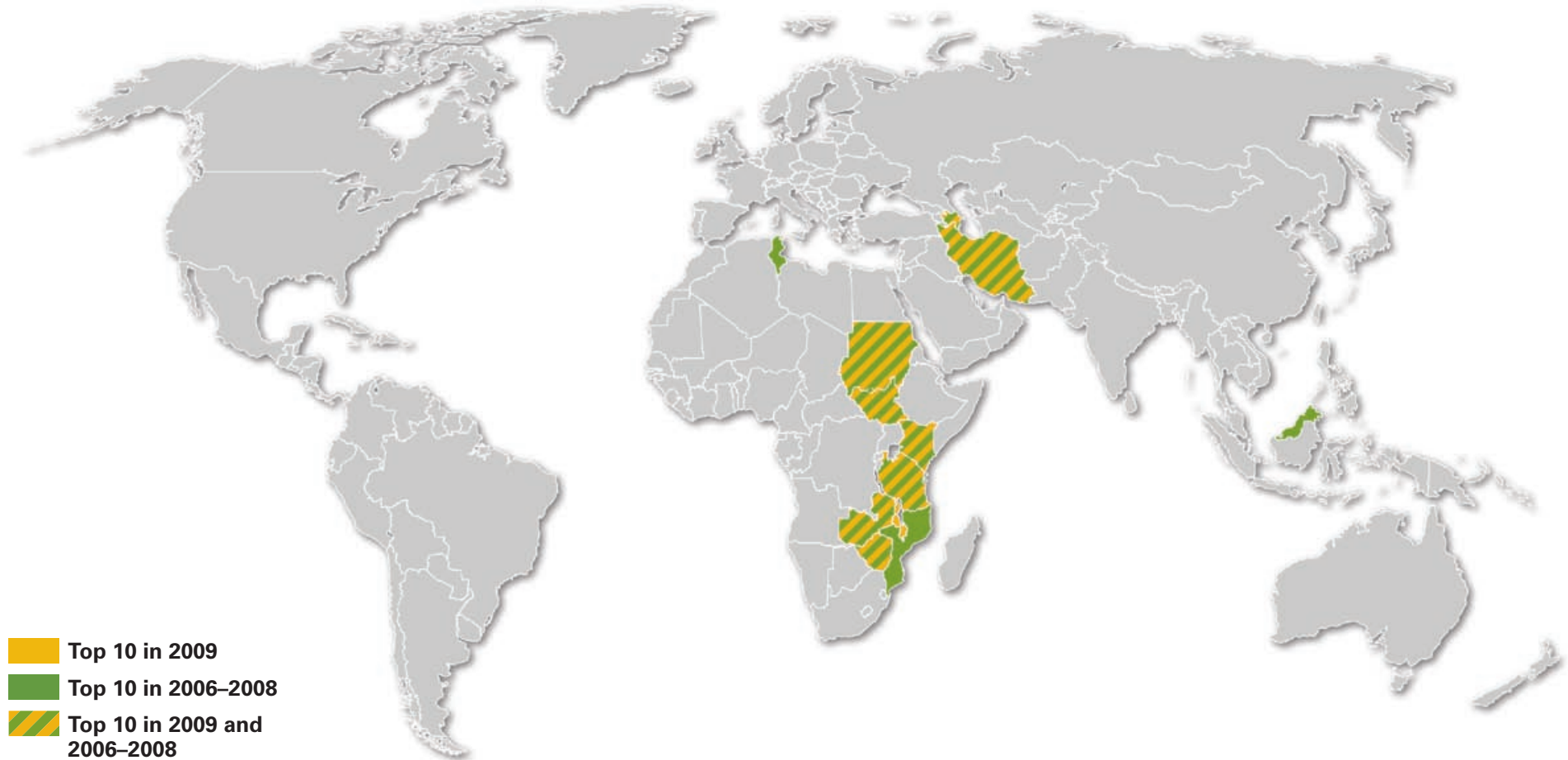
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost	
Italy	12,080
Portugal	113

Theileriosis

2006-2009

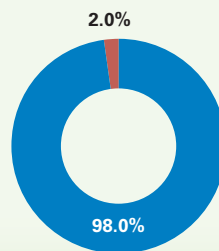


- Top 10 in 2009
- Top 10 in 2006–2008
- Top 10 in 2009 and 2006–2008

Key Figures

		RANK
Countries with outbreaks:	11	48
Outbreaks:	4,037	18
Cases (LSUs):	30,459	15
LSUs lost by death:	1,855	
LSUs lost by destruction:	52	
LSUs lost by slaughter:	16	
LSUs lost total:	1,924	27

LSUs Lost



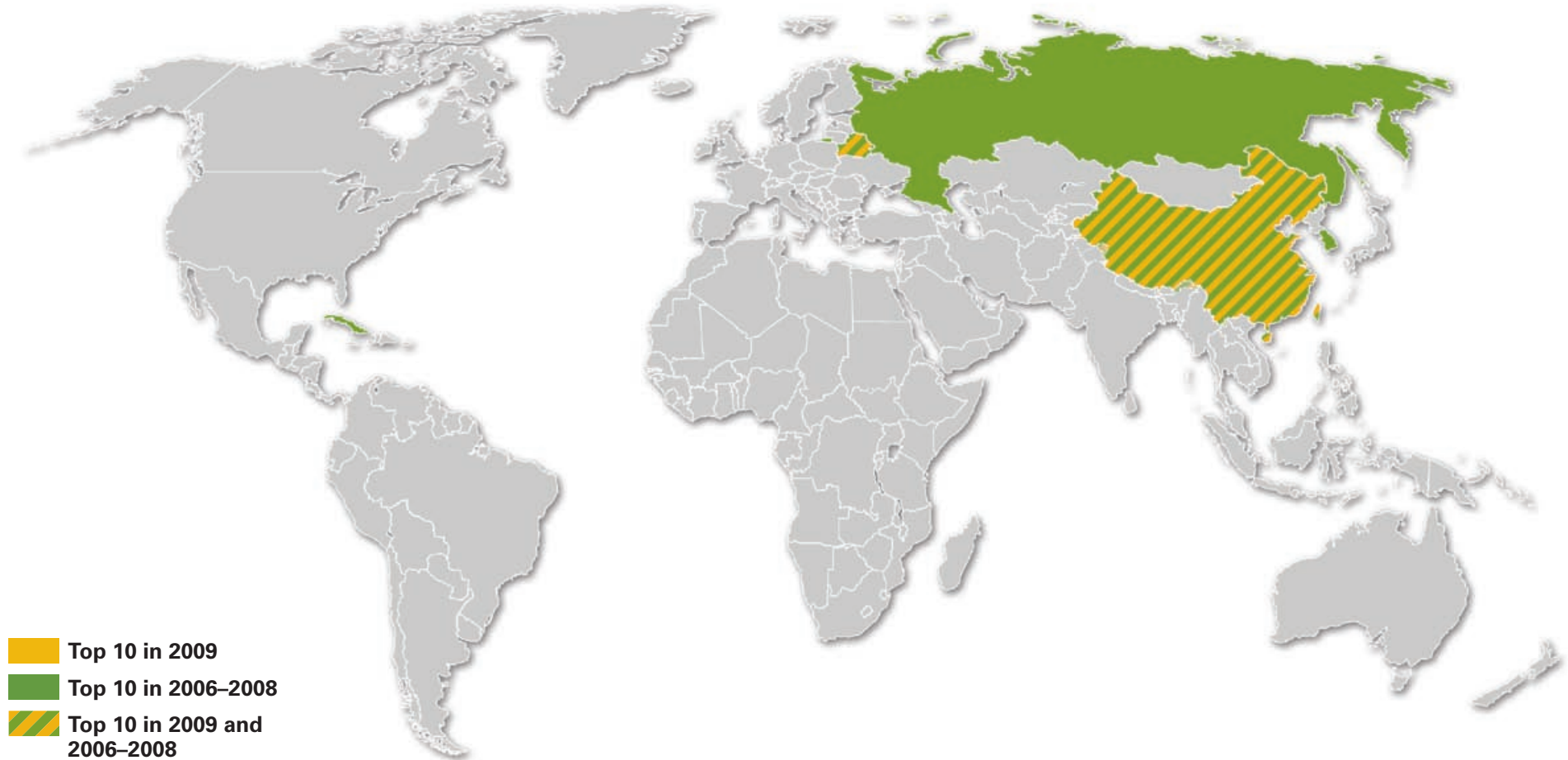
- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

LSUs lost			
Zambia	1,122	Mozambique	7
Iran, Islamic Rep.	415	Tunisia	6
Tanzania	401	Azerbaijan	3
Zimbabwe	83	Malaysia	2
Comoros	50		
Sudan	29		

Transmissible Gastroenteritis

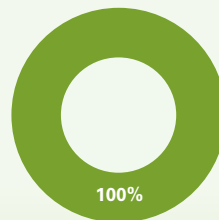
2006-2009



Key Figures

		RANK
Countries with outbreaks:	5	60
Outbreaks:	943	40
Cases (LSUs):	15,440	27
LSUs lost by death:	900	
LSUs lost by destruction:	37	
LSUs lost by slaughter:	10	
LSUs lost total:	946	41

LSUs Lost



- Cattle
- Sheep and goat
- Swine
- Poultry
- Equidae
- Camelidae
- Buffalo

Most Affected Countries and Economies

Country	LSUs lost
China	1,110
Russian Federation	58
Cuba	29
Korea, Rep.	26
Belarus	1

Appendix

SPREAD OF DISEASES: NUMBER OF COUNTRIES/ECONOMIES WITH OUTBREAKS

Spread of Diseases: Number of Countries/Economies with Outbreaks			
Rank	Disease	Average 2006–2009	Change 2009 vs. average 2006–2008
1	Rabies	82	16
2	Newcastle Disease	56	7
3	Bovine Tuberculosis	54	1
4	Anthrax	53	-4
5	Brucella Abortus	52	1
6	Foot-And-Mouth Disease	45	3
7	Leptospirosis	37	0
8	Bovine Babesiosis	35	8
9	Enzootic Bovine Leukosis	34	2
10	Bovine Anaplasmosis	33	3
11	Infectious Bursal Disease	32	7
12	Infectious Bovine Rhinotracheitis	31	11
13	Brucella Melitensis	29	2
14	Peste Des Petits Ruminants	28	2
15	HPAI	28	-23
16	Paratuberculosis	26	3
17	Marek's Disease	25	2
18	Bovine Viral Diarrhea	24	8
19	Sheep-And-Goat Pox	24	-3
20	Lumpy Skin Disease	24	-5
21	Fowl Cholera	23	-2
22	Classical Swine Fever	23	-6
22	Equine Infectious Anaemia	23	0
24	Bluetongue	23	3
25	Mycoplasmosis (<i>M. Gallisepticum</i>)	22	-1

Spread of Diseases: Number of Countries/Economies with Outbreaks			
Rank	Disease	Average 2006–2009	Change 2009 vs. average 2006–2008
26	Hemorrhagic Septicaemia	22	-3
27	Scrapie	20	1
28	Echinococcosis	20	2
29	Avian Infectious Bronchitis	20	-25
30	Trichinellosis	19	5
31	Porcine Reproductive/Respiratory Syndrome	19	3
32	Q Fever	17	5
33	African Swine Fever	17	-10
34	Contagious Bovine Pleuropneumonia	17	-1
35	Aujeszky's Disease	15	6
36	Fowl Typhoid	15	-2
37	BSE	13	-3
37	Avian Infectious Laryngotracheitis	13	3
39	Trypanosomosis	13	7
40	Porcine Cysticercosis	13	2
41	Maedi Visna Disease	12	1
42	Vesicular Stomatitis	12	2
42	Enzootic Abortion	12	3
42	Ovine Epididymitis	12	-2
42	Pullorum Disease	12	2
46	Avian Chlamydiosis	11	4
46	Heartwater	11	0
48	Equine Piroplasmosis	11	1
48	Theileriosis	11	3

Spread of Diseases: Number of Countries/Economies with Outbreaks			
Rank	Disease	Average 2006–2009	Change 2009 vs. average 2006–2008
50	Low-Pathogenic Avian Influenza	10	5
51	Contagious Caprine Pleuropneumonia	9	1
52	Bovine Genital Campylobacteriosis	9	-3
52	Brucella Suis	9	1
52	Avian Mycoplasmosis (<i>M. Synoviae</i>)	9	-2
52	Leishmaniosis	9	-59
56	Contagious Agalactica	9	0
57	Caprine Arthritis	8	-2
58	Tularemia	6	1
59	African Horse Sickness	6	-1
60	Transmissible Gastroenteritis	5	-3
61	West Nile Fever	5	4
62	Rift Valley Fever	4	-3
62	Duck Virus Hepatitis	4	0
64	Glanders	3	1
64	Camelpox	3	-2
66	Venezuelan Equine Encephalitis	2	2
67	Japanese Encephalitis	2	-1
68	Swine Vesicular Disease	1	-1
69	New World Screwworm	1	-1
70	Crimean Congo Hemorrhagic Fever	0	0
70	Nipah	0	0

DISEASES BY LSUs LOST

Diseases by LSUs Lost — Number of LSU Lost						
Rank	Disease	Average 2006–2009			Total	Change 2009 vs. average 2006–2008
		by death	by destruction	by slaughter		
1	HPAI	11,202	85,517	2	96,721	-83%
2	Echinococcosis	24	5,837	84,130	89,991	-9%
3	Avian infectious bronchitis	83,992	164	112	84,268	196%
4	Bovine tuberculosis	486	15,998	56,532	73,015	30%
5	Low-pathogenic avian influenza	60,260	9,966	457	70,683	128%
6	Enzootic bovine leukosis	121	61,148	6,912	68,181	-6%
7	Newcastle disease	35,980	23,795	595	60,370	9%
8	Brucella abortus	455	15,277	17,176	32,908	29%
9	Infectious bursal disease	26,644	239	202	27,085	118%
10	Classical swine fever	6,361	12,741	2,851	21,953	-57%
11	Hemorrhagic septicaemia	6,549	6,844	250	13,644	71%
12	Mycoplasmosis (<i>M. Gallisepticum</i>)	12,678	400	157	13,235	-84%
13	Swine vesicular disease	1	12,192	-	12,193	-47%
14	Brucella melitensis	78	5,550	4,322	9,950	-49%
15	Foot-and-mouth disease	3,545	5,047	1,120	9,713	-5%
16	Porcine reproductive/respiratory syndrome	4,343	4,519	414	9,275	-72%
17	African Swine fever	5,962	2,268	766	8,995	19%
18	Aujeszky's disease	250	433	6,965	7,647	114%
19	Rabies	3,935	415	20	4,370	42%
20	Pullorum disease	3,188	746	95	4,029	5%
21	Anthrax	2,565	187	1,060	3,812	-19%
22	Fowl cholera	3,570	169	64	3,803	-7%
23	Scrapie	47	2,887	264	3,198	-73%
24	Lumpy skin disease	2,235	344	103	2,682	-81%
25	Peste des Petits Ruminants	2,455	49	61	2,565	-31%
26	Fowl typhoid	1,657	393	154	2,204	-41%
27	Theileriosis	1,855	52	16	1,924	157%
28	Bovine anaplasmosis	1,811	5	53	1,869	177%
29	BSE	14	1,757	51	1,822	-87%
30	Equine infectious anaemia	57	790	771	1,619	313%
31	Duck virus hepatitis	1,450	125	24	1,599	34%
32	Contagious bovine pleuropneumonia	1,115	161	225	1,500	18%
33	Porcine cysticercosis	4	628	811	1,443	-92%
34	Bluetongue	1,189	78	69	1,336	-15%
35	Marek's disease	1,291	42	0	1,334	29%
36	Avian infectious laryngotracheitis	1,174	95	7	1,276	-19%

Diseases by LSUs Lost — Number of LSU Lost						
Rank	Disease	Average 2006–2009			Total	Change 2009 vs. average 2006–2008
		by death	by destruction	by slaughter		
37	Bovine babesiosis	1,128	8	35	1,171	44%
38	Trypanosomosis	763	12	246	1,022	201%
39	Leptospirosis	863	108	2	973	1190%
40	Sheep-and-goat pox	771	59	117	947	2%
41	Transmissible gastroenteritis	900	37	10	946	32%
42	African Horse Sickness	888	8	-	896	-58%
43	Brucella suis	2	341	160	503	96%
44	Bovine viral diarrhoea	127	147	217	491	124%
45	Paratuberculosis	50	244	153	447	55%
46	Rift Valley fever	383	5	0	389	46%
47	Heartwater	368	5	3	376	307%
48	Infectious bovine rhinotracheitis	143	11	208	362	-36%
49	Trichinellosis	16	204	141	361	159%
50	Contagious caprine pleuropneumonia	294	38	8	341	-3%
51	Contagious agalactica	122	122	16	261	-61%
52	Avian mycoplasmosis (<i>M. synoviae</i>)	9	60	80	148	-89%
53	West Nile fever	88	2	0	91	-93%
54	Glanders	7	58	1	66	288%
55	Ovine epididymitis	3	20	38	61	57%
56	Japanese encephalitis	28	7	-	35	512%
57	Maedi visna disease	1	26	3	30	-74%
58	Equine piroplasmiasis	13	13	-	25	260%
59	Q fever	3	18	1	22	1151%
60	Vesicular stomatitis	12	-	-	12	405%
61	Enzootic abortion	7	2	-	9	-6%
62	Caprine arthritis	0	4	-	5	16%
63	Bovine genital campylobacteriosis	-	3	1	4	-79%
64	Venezuelan equine encephalitis	3	0	-	3	2113%
65	Camelpox	2	0	-	2	-100%
66	Avian chlamydiosis	2	0	-	2	63%
68	Crimean Congo Hemorrhagic fever	-	-	-	-	0%
68	New world screwworm	-	-	-	-	0%
68	Nipah	-	-	-	-	0%
68	Tularemia	-	-	-	-	0%
68	Leishmaniasis	-	-	-	-	0%

TOTAL LSU LOSSES BY COUNTRY/ECONOMY

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
1	Iran, Islamic Rep.	21,785	173,278	195,062	70%
2	China	31,610	20,721	52,332	-56%
3	Brazil	39,787	7,783	47,571	-13%
4	Russian Federation	11,771	33,947	45,719	5%
5	Italy	16,751	20,334	37,086	-58%
6	Ukraine	1,959	29,345	31,303	-76%
7	India	22,731	2,149	24,880	-85%
8	South Africa	19,823	4,860	24,683	-92%
9	Namibia	23,061	100	23,162	-99%
10	Saudi Arabia	19,952	1	19,953	-100%
11	Spain	17,786	1,762	19,549	-48%
12	Ecuador	16,869	20	16,889	-100%
13	Vietnam	2,762	12,227	14,989	-40%
14	Poland	2,828	11,979	14,808	-8%
15	United Kingdom	12,440	2,065	14,505	33%
16	Israel	13,026	357	13,383	-73%
17	Ireland	11,097	6	11,104	-23%
18	Bulgaria	10,132	64	10,196	-88%
19	Algeria	9,758	429	10,187	-2%
20	Japan	3,761	6,074	9,835	378%
21	Côte d'Ivoire	8,640	172	8,811	308%
22	Peru	7,564	98	7,662	415%
23	Cuba	599	6,922	7,521	-69%
24	Korea, Rep.	3,466	3,366	6,832	-10%
25	Romania	1,030	4,764	5,794	-96%
26	Turkey	4,243	1,437	5,680	-73%
27	Georgia	522	4,582	5,104	-89%
28	Indonesia	5,085	9	5,094	-83%
29	Kyrgyz Republic	4,834	1	4,835	-100%
30	Ethiopia	1,068	3,282	4,350	-65%
31	Portugal	3,367	693	4,060	-49%
32	United States	2,787	1,169	3,955	-64%
33	Moldova	2,143	1,581	3,725	-62%
34	Egypt, Arab Rep.	2,533	1,025	3,558	0%
35	Nigeria	3,003	292	3,295	-100%

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
36	Myanmar	2,859	411	3,270	-91%
37	Venezuela, RB	3,204	52	3,256	-100%
38	Colombia	1,608	1,213	2,820	-68%
39	Morocco	2,332	170	2,502	154%
40	Germany	244	2,037	2,281	-20%
41	Kuwait	2,098	159	2,257	-61%
42	Zambia	236	2,010	2,246	206%
43	Azerbaijan	1,567	308	1,876	-63%
44	Serbia	290	1,492	1,782	-79%
45	Pakistan	1,127	612	1,739	-100%
46	Bangladesh	1,639	-	1,639	-64%
47	Benin	941	689	1,630	120%
48	Tanzania	717	899	1,615	-76%
49	Argentina	240	1,034	1,274	-70%
50	Sweden	280	993	1,273	-81%
51	Malawi	5	1,266	1,270	-94%
52	Dominican Republic	1,032	179	1,211	29%
53	Thailand	901	292	1,192	-54%
54	Rwanda	125	1,060	1,185	-40%
55	France	929	232	1,161	-71%
56	West Bank and Gaza	517	594	1,112	308%
57	Malaysia	1,017	77	1,094	-54%
58	Armenia	844	222	1,066	-80%
59	Zimbabwe	383	674	1,057	-57%
60	Angola	289	744	1,034	-73%
61	Macedonia, FYR	995	2	996	-32%
62	Canada	561	389	950	72%
63	Nepal	217	711	927	179%
64	Czech Republic	485	431	915	-20%
65	Greece	628	172	800	-36%
66	Mozambique	462	283	746	158%
67	Burkina Faso	114	628	742	-3%
68	New Zealand	729	1	730	-82%
69	Sudan	523	206	729	-64%
70	Kenya	45	677	722	-94%

TOTAL LSU LOSSES BY COUNTRY/ECONOMY (continued)

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
71	Croatia	185	446	631	-36%
72	Hungary	275	312	588	-95%
73	Ghana	287	296	583	-36%
74	Cambodia	7	549	557	81%
75	Korea, Dem. People's Rep.	-	538	538	-100%
76	Togo	177	319	496	-23%
77	Costa Rica	418	74	492	-67%
78	Slovak Republic	-	471	471	-100%
79	Senegal	7	449	455	-89%
80	Botswana	14	437	451	-72%
81	Central African Republic	84	363	448	novel: 895
82	El Salvador	314	130	445	-3%
83	Eritrea	49	395	444	-100%
84	Guinea	159	282	441	-41%
85	Mexico	220	202	422	259%
86	Kazakhstan	360	16	376	104306%
87	Bolivia	255	97	352	-83%
88	Albania	310	17	327	-64%
89	Uruguay	281	36	316	-11%
90	Tunisia	183	125	309	-30%
91	Cameroon	73	227	299	65%
92	Austria	49	238	288	-58%
93	Libya	6	263	269	-100%
94	Mauritius	-	252	252	-93%
95	Belgium	193	43	236	-96%
96	Lao PDR	83	148	231	205%
97	Sri Lanka	95	128	223	30%
98	Guatemala	190	26	216	773%
99	Denmark	1	205	206	-99%
100	Chile	187	3	190	-60%
101	Chad	7	171	178	1361%
102	Belarus	108	60	168	-49%
103	Lithuania	56	109	165	22%
104	Afghanistan	52	110	162	-91%
105	Qatar	155	2	157	-22%

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
106	Honduras	152	1	153	1569%
107	Mongolia	68	82	150	-63%
108	Oman	15	127	142	11%
109	Madagascar	16	124	140	-100%
110	Philippines	139	-	139	-100%
111	Yemen, Rep.	20	118	138	-88%
112	Tajikistan	130	4	135	84%
113	Bhutan	17	100	117	-85%
114	Estonia	109	5	115	-93%
115	Switzerland	5	105	111	4469%
116	Mali	26	83	109	9%
117	Belize	108	1	108	-97%
118	Nicaragua	85	10	95	267%
119	Congo, Dem. Rep.	-	92	92	-100%
120	Swaziland	26	66	92	-12%
121	Niger	29	61	90	3768%
122	Netherlands	5	79	84	-96%
123	Bosnia and Herzegovina	56	24	80	4666%
124	Lesotho	71	7	77	-65%
125	Luxembourg	0	73	73	-100%
126	Jordan	20	51	72	243%
127	Iceland	-	68	68	-80%
128	Latvia	4	62	66	3%
129	Panama	64	2	65	-88%
130	Gambia, The	-	62	62	-100%
131	Cyprus	0	61	61	-94%
132	Comoros	5	56	61	novel: 56
133	Norway	0	61	61	204%
134	Australia	57	2	59	-45%
135	Andorra	44	-	44	-100%
136	Syrian Arab Republic	39	0	39	-47%
137	New Caledonia	29	-	29	-98%
138	Congo, Rep.	3	20	23	-34%
139	Uganda	-	20	20	63%
140	Gabon	20	1	20	-100%

TOTAL LSU LOSSES BY COUNTRY/ECONOMY (continued)

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
141	Montenegro	5	14	19	-47%
142	Slovenia	8	10	18	-95%
143	Paraguay	16	-	16	-20%
144	Guinea-Bissau	11	5	16	196%
145	Liechtenstein	2	10	11	-53%
146	Malta	2	9	11	-100%
147	Mauritania	3	7	10	-94%
148	Maldives	9	9	9	novel: 9
149	Bahrain	7	2	9	-89%
150	Finland	3	3	5	-85%
151	United Arab Emirates	-	4	4	-90%
152	Lebanon	-	4	4	novel: 16
153	Haiti	-	4	4	-100%
154	Martinique	-	3	3	-85%
155	Singapore	2	-	2	-100%
156	Iraq	-	1	1	889%
157	Guadeloupe	1	-	1	-100%
158	Trinidad and Tobago	1	0	1	-100%

Total LSU Losses by Country/Economy (average 2006–2009)					
Rank	Country/Economy	Zoonoses	Non-zoonoses	Total	Change of total 2009 vs. average 2006–2008
159	Guyana	1	-	1	-100%
160	Djibouti	0	-	0	-100%
161	Greenland	0	-	0	-100%
162	Jamaica	0	-	0	-100%
163	Barbados	-	-	-	0%
164	Brunei Darussalam	-	-	-	0%
165	Burundi	-	-	-	0%
166	Equatorial Guinea	-	-	-	0%
167	Fiji	-	-	-	0%
168	French Guiana	-	-	-	0%
169	French Polynesia	-	-	-	0%
170	Papua New Guinea	-	-	-	0%
171	Réunion	-	-	-	0%
172	Sierra Leone	-	-	-	0%
173	Suriname	-	-	-	0%
174	Turkmenistan	-	-	-	0%
175	Uzbekistan	-	-	-	0%
176	Vanuatu	-	-	-	0%

50 LARGEST LSU LOSSES BY COUNTRY/ECONOMY AND DISEASE

50 Largest LSU Losses by Country/Economy and Disease			
	LSUs Lost	Country/Economy	Disease
1	81,072	Iran, Islamic Rep.	Avian infectious bronchitis
2	60,196	Iran, Islamic Rep.	HPAI
3	33,792	Brazil	Echinococcosis
4	31,625	Russian Federation	Enzootic bovine leukosis
5	29,305	Ukraine	Enzootic bovine leukosis
6	22,227	India	HPAI
7	21,957	Namibia	Echinococcosis
8	20,466	Iran, Islamic Rep.	Newcastle disease
9	20,167	Iran, Islamic Rep.	Infectious bursal disease
10	19,951	Saudi Arabia	HPAI
11	18,923	South Africa	Newcastle disease
12	18,718	China	HPAI
13	12,080	Italy	Swine vesicular disease
14	10,993	United Kingdom	Bovine tuberculosis
15	10,720	Ecuador	Bovine tuberculosis
16	10,247	Iran, Islamic Rep.	Mycoplasmosis
17	10,115	Ireland	Bovine tuberculosis
18	10,082	Bulgaria	Echinococcosis
19	9,979	Israel	Newcastle disease
20	8,883	Algeria	Echinococcosis
21	8,585	Spain	Bovine tuberculosis
22	8,518	Côte d'Ivoire	Bovine tuberculosis
23	7,848	Italy	Brucella abortus
24	7,126	Vietnam	Porcine reproductive /respiratory syndrome
25	6,851	Poland	Aujeszky's disease

50 Largest LSU Losses by Country/Economy and Disease			
	LSUs Lost	Country/Economy	Disease
26	6,795	Peru	Echinococcosis
27	6,750	Italy	Hemorrhagic septicaemia
28	5,983	Japan	HPAI
29	5,722	Cuba	Classical swine fever
30	5,681	Italy	Bovine tuberculosis
31	5,354	Ecuador	Echinococcosis
32	5,264	China	Newcastle disease
33	5,085	Indonesia	HPAI
34	4,942	China	Classical swine fever
35	4,942	Russian Federation	Brucella abortus
36	4,899	Poland	Enzootic bovine leukosis
37	4,582	Georgia	African swine fever
38	4,346	South Africa	Classical swine fever
39	4,338	China	Fowl cholera
40	4,331	Spain	Brucella abortus
41	4,195	Romania	Classical swine fever
42	3,919	China	Pullorum disease
43	3,758	Japan	HPAI
44	3,523	Spain	Brucella melitensis
45	3,279	Russian Federation	HPAI
46	3,175	Kyrgyz Republic	Brucella abortus
47	3,107	Italy	Brucella melitensis
48	3,054	Venezuela, RB	Brucella abortus
49	3,044	Israel	HPAI
50	2,986	Nigeria	HPAI



AGRICULTURE AND RURAL DEVELOPMENT



Agriculture and Rural Development (ARD)

1818 H Street, NW

Washington, D.C. 20433 USA

Telephone: 202-477-1000

Internet: www.worldbank.org/ard



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