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BOVINE BRUCELLOSIS IN THE AMERICAS



PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION

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With the information in *World Animal Health 1993*, published by OIE, and the *Animal Health Yearbook 1992*, published by FAO/OIE/WHO, in addition to the information gathered in an INPPAZ/PAHO/WHO survey of the countries of the Americas in 1994, a summary of the bovine brucellosis situation in the Americas has been prepared.

The Hemisphere has a bovine population of 436.2 million, 62.9% of which is located in South America, 32.5% in North America, and the remaining 4.6% in Central America and the Caribbean (Table 1).

Table 1

Bovine Population in the Americas

Region	Number of countries*	Population (thousands)	%
TOTAL	45	436,227	100.0
North America	3	141,653	32.5
Central America	7	10,933	2.5
Caribbean	21	9,371	2.1
South America	14	274,270	62.9

Source: *Animal Health Yearbook 1992*. FAO/OIE/WHO. 1993

* Countries and territories

Based on the frequency of the disease reported by the countries, three epidemiological categories can be constructed:

Category A includes the brucellosis-free countries and corresponds to those reporting no confirmed cases of the disease in their territory. This category includes the

¹Pan American Institute for Food Protection and Zoonoses (INPPAZ) OPS/OMS

Bahamas, Belize, Bermuda, British Virgin Islands, Canada, Dominica, French Guiana, Grenada, Guyana, Haiti, the Malvinas (Falkland) Islands, Montserrat, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, and Trinidad and Tobago.

Next, *Category B* consists of the countries reporting suspected cases without definitive confirmation or the occurrence of isolated cases of bovine brucellosis and those reporting substantial segments of their territories as disease-free as a result of the activities carried out in their plans of eradication. This group consists of Antigua and Barbuda, Barbados, Cuba, Jamaica, Saint Vincent and the Grenadines, the United States of America, and Uruguay.

Finally, *Category C* is comprised of the countries reporting outbreaks of the disease that range from rare sporadic cases to a high number of infected animals, either localized or throughout the territory. Included in this category are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, and Venezuela.

This classification was used to prepare Table 2, which shows the animal population of the countries and territories in the three categories in each of the regions. Not included were Aruba, Cayman Islands, Guadeloupe, Martinique, and the Netherlands Antilles, since the sources consulted contain no information on them with respect to this disease.

The bovine population of the countries in Category C is 71.1%, while that of the brucellosis-free countries is 3.0%. The bovine population in Category B is 25.9%.

According to the epidemiological category, regional differences can be observed in the distribution of these populations. Indeed, while the bovine population in Category B is located chiefly in North America and the Caribbean, the bovine population in Category C is concentrated in Central and South America.

A significant number of the Caribbean countries are disease-free; however, they have a low animal population. On the other hand, the majority of the countries of South America, which have 60.8% of the cattle, are included in Category C.

Table 2

**Distribution of Cattle Population According to Epidemiological
Categories of Countries, Territories, and Regions. The Americas, 1993**

Region	Epidemiological Category						Total	
	A		B		C		Countries	Cattle ^(a)
	Countries	Cattle ^(a)	Countries	Cattle ^(a)	Countries	Cattle ^(a)		
TOTAL	16	13,107	7	113,085	18	309,929	41	436,121
North America	1	11,289 ^(b)	1	98,904	1	31,460	3	141,653
Central America	1	51	0	0	6	10,882	7	10,933
Caribbean	11	1,608	5	5,292	1	2,365	16	9,265
South America	3	159	1	8,889	10	265,222	14	274,270

(a) in thousands

(b) includes the bovine population of the U.S. Virgin Islands

(c) includes the bovine population of the Malvinas (Falkland Islands)

Source: *World Animal Health 1993*, OIE, 1994

Animal Health Yearbook 1992, FAO/OIE/WHO, 1993

INPPAZ: Survey of the Countries, 1994

In Category C, the countries vary widely in terms of the frequency and distribution of the disease. However, for a number of them, the available information on the bovine brucellosis situation is only partial, biased, incomplete, or not current and, in some cases, information on important areas is lacking. It has therefore been deemed preferable not to attempt further differentiation.

To learn about the principal sanitary intervention activities carried out by the countries in Categories B and C, information was processed on the programs to combat brucellosis; the areas covered were its status as a reportable disease, vaccination, slaughter, certification of disease-free properties, and diagnosis.

1. Programs to Combat Brucellosis

Table 3 presents the status of the programs for control or eradication of brucellosis in the 26 countries reporting the presence of the disease.

Table 3

**Infected Countries and Cattle* Under Programs to Combat Brucellosis,
by type of Program and Region**

Region	Program Coverage					
	National Program		Limited Program		No Program	
	Countries	Cattle	Countries	Cattle	Countries	Cattle
TOTAL	16	258,210	6	159,663	4	1,579
North America	2	130,216	0	0	0	0
Caribbean	3	7,478	0	0	3	1,487
Central America	4	7,606	2	2,900	0	0
South America	7	112,910	4	156,763	1	92

* In thousands

Source:

World Animal Health 1993. IOE. 1994

Animal Health Yearbook 1992. FAO/IOE/WHO. 1993

INPPAZ: Survey of the Countries. 1994

Sixteen of the countries that are not free of infection and 61.6% of the bovine population are under national programs to combat brucellosis. With regard to these latter, the percentages by region range in coverage from 100% in North America to 41.9% in South America.

2. Status as a Reportable Disease

The designation of brucellosis as a reportable disease is recognized as basic to the adoption of sanitary measures. The information provided by the countries in this regard and found in the *Animal Health Yearbook 1992* and *World Animal Health 1993* is summarized in Table 4.

Table 4

**Mandatory Reporting of Bovine Brucellosis
in Infected Countries, by Region**

Mandatory Reporting	Region			
	North America	Caribbean	Central America	South America
Yes	2	1	4	9
No	0	5	2	3

Source: *World Animal Health* 1993. IOE. 1994.
Animal Health Yearbook 1992. FAO/IOE/WHO. 1993

It is probable that some of the countries of the group without mandatory reporting have regulations in this regard. Moreover, where mandatory reporting does exist, in most cases it has not led to good record-keeping on the occurrence of the disease in the field.

3. Vaccination

Vaccination as a tool for prevention has been an integral part of many programs to combat disease. Its use by the countries is shown in Table 5.

Brucellosis vaccination is targeted for use only in calves in 12 of the 15 countries with programs who report its use. However, its application in adult animals is not as widespread, since only three countries report using it in their programs. Only one country, Panama, has prohibited vaccination because of its low prevalence of the disease.

Table 5

**Brucellosis-Infected Countries and Use
in Programs to Combat Brucellosis, by Region.**

Vaccine Use	Region			
	North America	Caribbean	Central America	South America
Not reported	0	4	2	4
Prohibited	0	0	1	0
Only in calves	1	0	2	9
In calves and adult cattle	1	1	0	1

Source: *World Animal Health 1993*. IOE. 1994
Animal Health Yearbook 1992. FAO/IOE/WHO. 1993
 INPPAZ: Survey of the Countries. 1994

4. Slaughter

The countries' situation with regard to the slaughter of positive reactors to the brucellosis tests is provided in Table 6, indicating whether all or only some of these animals are dispatched. Somewhat more than half of the countries (56%) report the elimination of some animals as part of their programs to combat brucellosis.

Table 6

**Brucellosis-Infected Countries by Extent of Slaughter
of Positive Reactors and by Region**

Extent of Slaughter	Region			
	North America	Caribbean	Central America	South America
All	0	3	5	2
Some	1	0	0	0
None	1	3	1	6

Source: *World Animal Health 1993*. IOE. 1994
Animal Health Yearbook 1992. FAO/IOE/WHO. 1993

5. Certification of Disease-Free Properties

The use of this herd-based strategy in the effort to combat brucellosis is presented in Table 7. The table was prepared from the responses to an INPPAZ survey by 17 of the countries with confirmed cases of the disease, with 12 of them reporting some system for the certification of disease-free properties.

Table 7

Certification of Disease-Free Properties in
Brucellosis-Infected Countries, by Region

Certification of Disease-Free Property	Region			
	North America	Caribbean	Central America	South America
Yes	1	1	3	7
No	0	0	1	4
No response	1	5	2	1

Source: INPPAZ: Survey of the Countries. 1994

6. Diagnosis

With regard to laboratory diagnosis, all the countries report both mandatory and voluntary diagnostic testing. From the surveys it can be observed that screening tests are generally more available than confirmatory tests.

7. Conclusions

From the above, it can be observed that the struggle against brucellosis in the Americas has been more effective in North America. Not only is a significant portion of the disease-free bovine population located here, but the greatest proportion of the animal population in Category B as well, with the certain expectation of becoming disease-free.

Central and South America, in contrast, exhibit varying degrees of endemicity. Moreover, the programs to combat brucellosis are applied only partially in these regions, without resorting to all the prevention and control tools available today, which deprives them of effectiveness and efficiency. An in-depth review of the strategies and organization of the struggle against this disease appears to be necessary if this situation is to be reversed.