

1 Title: Systematic Review Methodology to Identify, Quantify and Describe Livestock
2 Zoonoses Based on Scientific Publications

3 INTERPRETIVE SUMMARY

4 We developed a new methodology to identify, quantify and describe livestock zoonoses based
5 on scientific publications in PubMed. We used it to conduct a review of literature from 1980
6 to date on zoonotic pathogens detected in major livestock species in those regions, where
7 zoonoses are predicted to emerge: Mexico and Central America, Amazon Basin, Congo
8 Basin, South Asia and South East Asia. We used the number of scientific publications on the
9 different zoonotic livestock-associated pathogens to measure the importance of each zoonosis.
10 The methodology created in this study will allow to asses the impact and prioritize zoonotic
11 diseases that need intervention which can be used by different stakeholders involved,
12 supporting the decision making process when a surveillance program needs to be
13 implemented.

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22 ABSTRACT

23 About 60% of human infectious diseases are zoonotic. To date, there have been several
24 approaches to create an inventory of human zoonotic diseases but information is lacking
25 regarding zoonotic diseases that affect specific livestock species in regions where diseases are
26 most likely to emerge. Most zoonoses are under-reported both by the veterinary services
27 (because many of them do not cause important losses to livestock or have no trade
28 implications) and by the public health services (because of their historically rare occurrence).
29 There are multiple data sources on zoonoses (official reporting, media, scientific publications
30 and prioritization exercises at national level), all of them subjected to strong biases. Only a
31 combination of all those sources will give an accurate picture of the situation. In this study we
32 developed an objective methodology that allows the relative quantification of the occurrence
33 of zoonoses and the livestock species affected per region by recording the number of
34 publications on each pathogen in the PubMed database as a measure of importance. We
35 performed the search in five priority regions for the emergence of disease. Influenza was the
36 most predominant cited disease in the articles retrieved from three areas in the globe. The
37 latter reflects the importance and magnitude of the H5N1 and H1N1 epidemics in those
38 regions. The methodology created in this study provides several benefits: it assess the impact
39 and prioritize livestock-zoonotic diseases that need intervention and it provides a scientifically
40 grounded estimation of the state of livestock-zoonotic diseases (sometimes neglected by the
41 official reports and the media) which will help to better design surveillance and intervention
42 strategies of zoonotic pathogens on livestock.

43 **Keywords:** zoonotic, livestock zoonoses, prioritization, PubMed, scientific publication

44 INTRODUCTION

45 The steep human population growth has posed a critical challenge for food production in
46 general and particularly for the livestock sector. As a result, the number of heads in the

47 livestock sector have increased, especially in developing countries, where the income increase
48 have boomed the demand of protein-based food e.g. meat, eggs and dairy products (Tomley
49 and Shirley 2009). The human and animal demographics interrelated with climate change,
50 increased mobility and globalization, urbanization, land degradation, drug resistance, and
51 mass animal rearing act as factors that have triggered disease emergence (Beltran-Alcrudo et
52 al., 2010). These risk factors for the emergence of disease, particularly the socioeconomic
53 ones, are particularly strong in several regions in the globe and affect the spatial distribution
54 of emerging zoonotic diseases (Jones, Patel et al. 2008). Those regions act as melting pots for
55 the emergence or reemergence of zoonotic disease challenges, e.g. the severe acute respiratory
56 syndrome (SARS) in China, the H5N1 in 1998 and H7N9 in 2013 avian influenza also in
57 China, or the pandemic H1N1 in 2009 in Mexico. Additionally, endemic zoonotic diseases
58 continue to be a problem, e.g. bovine tuberculosis, brucellosis, cysticercosis, etc. (Maudlin,
59 Eisler et al. 2009).

60 About 60% of human infectious diseases are caused by zoonotic agents (Cleaveland,
61 Laurenson et al. 2001). Zoonoses have a major impact on public health, local livelihoods
62 (particularly of the poorest) and trade. However, zoonotic agents are often underreported
63 because they may not cause important losses in livestock and thereby they get neglected by
64 the veterinary services. Moreover, some zoonoses are often not properly diagnosed by
65 medical services due to historically rare occurrence in humans or insufficient diagnostic
66 services. As a consequence, the development of methodologies that allow the quantification
67 and identification of these zoonotic pathogens is crucial.

68 The sources of information on the presence and magnitude of diseases, zoonotic or non
69 zoonotic, can be classified into four major categories: 1) internet-based reporting system that
70 capture media and rumours, e.g. ProMED, HealthMap, GPHIN, etc.; 2) Official data at
71 national (veterinary services and public health authorities), regional e.g. Southern African

72 Development Community (SADC) Livestock Information Management System (LIMS), and
73 international e.g. World Animal Health Information System (WAHIS) from the World
74 Organisation for Animal Health (OIE), global animal health information system (EMPRES-i)
75 from the Food and Agriculture Organization (FAO), or some of the World Health
76 Organization (WHO) databases; 3) the results of prioritization exercises at national level; and
77 4) Scientific literature published in journals (Figure 1). It is important to bear in mind that no
78 single source will be able to provide an exact picture, but just an estimate of the zoonoses
79 situation in one country or region, since all the above sources are subjected to strong biases.

80 There have been a number of studies which provided an inventory of the humans' pathogens
81 to quantify known zoonotic diseases using information contained in peer-reviewed
82 publications. Those combined the zoonotic disease pathogens with animal species hosts and
83 host-pathogen characteristics (Taylor, Latham et al. 2001). In this line of work, the University
84 of Liverpool created in 2011 the ENHanCED Infectious Diseases database (EID2), a database
85 that automatically extracts and analyses the metadata from nucleotide sequences from the
86 National Centre for Biotechnology Information (NCBI) which publications and obtains
87 information regarding a certain pathogen species and their hosts. However, structured
88 information regarding specific zoonotic diseases and the livestock species they affect in each
89 country/region is lacking.

90 The aim of this study is to obtain a relative quantification of zoonoses in each livestock
91 species in the regions that pose the highest risk for disease emergence. For that purpose, we
92 created a database containing the information on livestock-derived zoonoses from about ten
93 thousand peer reviewed articles retrieved from PubMed.

94

MATERIALS AND METHODS

95 As a first step, a literature review was conducted on methodologies and meta-analyses was
96 used to conduct systematic reviews on animal and human diseases (Cleaveland, Laurenson et
97 al. 2001; Taylor, Latham et al. 2001; Cowen, Garland et al. 2006).

98 Lists of zoonotic-, livestock- and region-specific- search terms were developed and used to
99 search in the title and the abstract of scientific publications in the PubMed database
100 (<http://www.ncbi.nlm.nih.gov/pubmed>) from 1 January 1980 to 28 June 2013. Only
101 manuscripts that contained terms from each of the three lists were considered. Each of the
102 lists of terms was developed as follows:

103 *Creating search terms for regions:* it was decided to restrict searches to priority regions,
104 where disease emergence has been pointed out as most likely to occur: the Amazon Basin,
105 Mexico and Central America, Congo Basin, South Asia and South East Asia. The rationale
106 behind including South East Asia is due to the steep growth in livestock production, with an
107 enormous number of animals characterized by a combination of intensive and traditional
108 backyard farming. Similar determinants occur in South Asia with an increasing population
109 and poor sanitation (Beltrán-Alcrudo et al., 2010). The same reasons applied to include the
110 regions of the Amazon Basin, Mexico and Central America and the Congo Basin countries in
111 the specific searches.

112 The search terms for each region included 1) Country names (Table 1) plus relevant
113 synonyms (e.g. Myanmar and Burma) and possible alternative spellings (e.g. Viet Nam and
114 Vietnam); 2) Gentilics, 3) Names of capitals (plus relevant synonyms e.g. Yangon and
115 Rangoon); 3) Names of the most populated cities and regions (for large countries, e.g. India,
116 China or Brazil); 4) Major dialects and languages spoken i.e. Brazilian and 5) Major
117 geographical features, such as rivers (e.g. Ganges, Amazon, Congo or Yangtze) and mountain
118 ranges.

119 The inclusion of the names of administrative regions and cities was particularly useful to
120 retrieve papers on human cases or hospital studies, where, surprisingly, the country name was
121 not included in the paper. Some names retrieved mostly articles that did not refer to the city or
122 region, often because they are the same as a common word e.g. Acre Region in Brazil or
123 Chihuahua, which retrieved mostly articles about the dog breed rather than the Mexican
124 region and city. Therefore, they were removed from the search terms list.

125 Country and city names were truncated so that slight modifications like “Uganda’s” or
126 “Beijing’s” would be retrieved. Additionally, the list of words actually being searched for
127 each truncated term was carefully checked to ensure that unrelated similar words were not
128 retrieved, e.g. entering Peru* would retrieve records about Perugia.

129 In addition, Medical Subheadings Terms (MeSH Terms), a controlled vocabulary for the
130 purpose of indexing journal articles and books in the life sciences and a thesaurus, were used to
131 retrieve articles related to geographic locations.

132 *Search terms for zoonotic livestock pathogens:* The list of 218 zoonotic pathogens included
133 bacterial (n=92), viral (n=32), parasitic (n=77), arthropodal (n=5), fungal species (n=12) and
134 prion diseases (n=1). The complete list of zoonotic agents used in the searches is included in
135 Appendix 1, and it was compiled from various sources including the Merck Veterinary
136 Manual (Kahn, Line et al. 2010), review papers on livestock (Coetzer and Tustin 2004) and
137 zoonotic diseases (Cleaveland, Laurenson et al. 2001; Taylor, Latham et al. 2001; Jones, Patel
138 et al. 2008), and lists developed by WHO, OIE, the Centres for Disease Control and
139 Prevention (CDC), the Center for Food Security & Public Health at Iowa State University and
140 the Public Health Agency of Canada. Very rare zoonoses with only a few sporadic cases were
141 excluded from the list.

142 In addition, with the complete list of terms we repeated the searches adding the term zoonotic,
143 to identify zoonotic diseases that were not retrieved by our list. We reviewed the resulting
144 articles and we added the relevant livestock-zoonotic diseases.

145 The search terms list was obtained by including for each of the 218 pathogens the disease
146 name disease synonym(s) (obtained from the Merck Veterinary Manual
147 <http://www.merckmanuals.com/vet/search.html>), the disease causing pathogen (genus and
148 species), and pathogen synonym(s), due to the common changes in pathogen taxonomy over
149 the years (compiled from the taxonomy database of the National Centre for Biotechnology
150 Information (NCBI) - <http://www.ncbi.nlm.nih.gov/taxonomy/>). Synonyms of the disease
151 names and pathogens were only included if additional relevant articles were retrieved. Useful
152 disease synonyms found include Milker's Nodule to refer to pseudopox, contagious pustular
153 dermatitis, scabby mouth or sore mouth to refer to Orf virus, ranikhet disease to refer to
154 Newcastle disease, beef or pork tapeworm to refer to *Taenia saginata* and *T. solium*, or
155 undulant fever for *Brucella melitensis*. MeSH Terms for diseases and pathogens were also
156 used.

157 Genus and species of bacteria, parasites and fungi were searched separately within the same
158 paper (e.g. *Pasteurella* AND *multocida*) to retrieve papers where *Pasteurella multocida*
159 appears as *P. multocida* because another *Pasteurella* species has been listed before.

160 General terms for the disease, (e.g. salmonellosis, listeriosis, taeniasis, schistosomiasis,
161 mammomonogamosis) were only included when most species in the genus are zoonotic.
162 Otherwise, including the general term in the search would retrieve irrelevant papers on non-
163 zoonotic agents. When a genus included both zoonotic and non-zoonotic species, the clause
164 NOT was used to exclude non-zoonotic pathogens from the search, e.g. NOT *Salmonella*
165 *bongori* NOT *Salmonella typhi*.

166 For the viruses, both the plural and singular names of the virus were searched. As with the
167 genus and species of bacteria, parasites and fungi, the virus name and the word “virus” were
168 searched separately within the same paper (e.g. West Nile AND Virus) to retrieve lists of
169 viruses (e.g. “West Nile and St Louis viruses”), where both words appeared separated in the
170 text. Exceptions were made when the virus name was a very common word, e.g. Newcastle or
171 Ganjam viruses, where Newcastle is a major town in the United Kingdom and Ganjam a goat
172 breed.

173 Additionally, we took into account slightly different form used when citing the same disease,
174 e.g. Crimean Congo Hemorrhagic fever or Crimean-Congo Hemorrhagic fever and the
175 different spelling in American English or British English, e.g. Crimean Congo Hemorrhagic
176 Fever or Crimean Congo Haemorrhagic Fever.

177 In some cases, the root of the disease was included instead of the whole word to avoid
178 common misspellings (e.g. bovine spongiform encephalopathy or contagious ecthyma) and
179 the exclusion of alternative names that are also correct e.g. Western equine encephalomyelitis
180 or Western equine encephalitis are both correct.

181 Acronyms had to be included for some diseases. Although proper scientific writing requires
182 spelling of acronyms the first time they are used in the text, it was not uncommon to find
183 bovine spongiform encephalopathy written only as BSE, Crimean-Congo Haemorrhagic
184 Fever as CCHF or Creutzfeldt Jakob disease as CJD. However, since searching for acronyms
185 lead to papers where the acronyms meant something different, e.g. BSE could also stand for
186 breast self examination or Backscatter electron, NOT clauses were included to avoid those
187 irrelevant publications.

188 Some diseases admit slight variations in their names, e.g. Wesselsbron fever also known as
189 Wesselsbron disease, Nairobi sheep disease as Nairobi disease, or West Nile fever as West

190 Nile encephalitis or West Nile disease. In these cases, all possible combinations were
191 searched.

192 In addition, to obtain all the influenza A subtypes all H and N combinations had to be
193 included, because often the term avian influenza was not mentioned.

194 *Search terms for livestock species:* Search terms were defined by the thesaurus in AGROVOC
195 for swine, poultry, bovine, small ruminants, livestock-related terminology, camelids, equine
196 and farmed wild animals. The group on livestock-related terminology includes terms that refer
197 to livestock in general rather than a specific livestock species.

198 For each livestock species, we included generic names, synonyms, scientific names, the way
199 animals of certain age, gender or castration status are named, and some major breeds, e.g.
200 Holstein for cattle or Leghorn for layers (Table 2).

201 Words referring to animal products, professions, or where those professions take place often
202 lead to relevant papers. When those terms were specific to a certain livestock group, the terms
203 were included in that group e.g. cashmere or mohair for goats, mutton, shepherd for sheep,
204 beef for cattle, pork or bacon for pig, herd, butcher or slaughterhouse.

205 MeSH Terms of livestock species, groups and products were also used.

206 Both the singular and the plural of words were entered, either by truncation (usually for the
207 longer words) or by specifying them both (for the shorter words). Short words, particularly
208 those related to livestock species, sometimes have additional meanings, e.g. cock, sow, gilt,
209 hog, boar, turkey, ram (as in RAM), hen (as in HEN), etc. The inclusion of such words would
210 lead to the retrieval of multiple irrelevant papers. This was solved by using the plural only,
211 which is used more commonly than the singular when referring to livestock.

212 The term buffalo was added only for searches outside Africa, as often water buffaloes
213 (*Bubalus bubalis*) are referred just as buffaloes. In Africa, however, the term was excluded
214 since almost all retrieved papers referred to the wild species (*Syncerus caffer*).

215 *Database construction:* Region-, zoonoses- and livestock-related search terms were combined
216 in the PubMed searches to retrieve only those records that contained terms from each the
217 three lists in the abstract or the title.

218 The searches covered the period between 1 January 1980 and 28 June 2013. The articles
219 retrieved for each region-livestock species combination were imported from a .txt file into the
220 reference manager library EndNote (EndNote® X3). Within EndNote (EndNote® X3),
221 references were categorized using the ‘smart groups’ tool by the 218 zoonotic diseases
222 (Appendix 1). Afterwards, we obtained the 10 diseases with more articles per region. Some
223 articles appeared duplicated after the combination of searches in the different databases and
224 they were deleted automatically by Endnote (EndNote® X3) after their importation.
225 Moreover, we reviewed the title and the abstract of the articles to delete “aberrant” articles
226 (articles that did not mention terms for the region and the species searched e.g. the country
227 Turkey appeared in the poultry category because it has the same word as turkey the bird).

228 RESULTS

229 In total we obtained 9,526 articles from the searches combining livestock-, region- and
230 zoonotic-disease- terms. South East Asia was the region with more articles (n=4,090)
231 followed by the Amazon Basin (n=2,640). Mexico and the region of Central America (n=791)
232 and the Congo Basin (n=924) had the fewest articles (Table 3).

233 The species with more articles in all regions combined were poultry (n=2633), bovine
234 (n=2,131) and swine (n=2,098) (Table 3).

235 For the Amazon Basin small ruminants (n=629) and bovine (n=594) had most of the
236 manuscripts. In the case of Mexico and Central America, bovine (n=286) and poultry (n=160)
237 were the species with more articles. Bovine (n=227) and poultry (n=196) were also the ones
238 with more manuscripts in the Congo Basin and in South Asia, bovine (n=295) and poultry
239 (n=258). In South East Asia, most of the manuscripts referred to poultry (n=1,642) and swine
240 (n=1,028) (Table 3).

241 The ten diseases with the most manuscripts are listed for each region in Table 4. For the
242 Amazon Basin, rabies had the most of the manuscripts (n=392) and Trypanosomiasis (n=245)
243 was the second disease. The latter was the disease with more articles in the Congo Basin
244 (n=154) and Crimean-Congo Haemorrhagic fever (n=61). Influenza A predominated in the
245 regions of Mexico and Central America (n=292), South East Asia (n=1,564) and South Asia
246 (n=206).

247 Most influenza manuscripts in Mexico (97%) were published after the 2009 outbreak of swine
248 influenza A H1N1. In the case of South Asia, 69% were published after the emergence of
249 highly pathogenic influenza (HPAI) H5N1 in 1998.

250 We also searched the articles for the farmed wild animals, but since only four papers were
251 retrieved, we decided not to present the results.

252 DISCUSSION

253 Papers on influenza predominated in the regions of South Asia, Mexico and Central America,
254 and South East Asia, which may reflect the magnitude and impact of the of the highly
255 pathogenic avian influenza (HPAI) H5N1 in South and South East Asia, and H1N1 in 2009 in
256 Mexico. This importance was translated into an increase in funding for research on influenza,
257 and hence an increase in the number of publications.

258 On the other hand, in South East Asia there was a dearth of research studies on zoonosis that
259 are considered endemic in the area like rabies, bovine tuberculosis or leptospirosis. Those are
260 usually underreported and their global burden is underestimated. For example, leptospirosis is
261 an emerging health problem in Thailand since 1996 (Tangkanakul, Smits et al. 2005).
262 However, from 1980 to 2013 we retrieved only 42 articles.

263 Trypanosomiasis was the disease with more articles in the Congo Basin. This may have been
264 influenced by the research projects funded by FAO and WHO to support human African
265 trypanosomiasis endemic countries in their efforts to control the disease (Simarro, Cecchi et
266 al. 2010).

267 Rabies represented the disease with more articles in the Amazon Basin, where it is a
268 burdening disease. Of particular importance is the increasing prevalence in the last years of
269 livestock cases of rabies transmitted by vampire bats. This maybe related with the
270 encroachment of agricultural activities in bat habitats (Fernandes, da Costa et al. 2013). The
271 information available on the incidence of many zoonotic diseases is often poor because of the
272 lack of proper reporting by national authorities. This is explained by several factors.
273 Veterinary authorities often neglect those livestock diseases that do not have a significant
274 impact on livestock production or do not imply international trade restrictions. Similarly,
275 public health authorities may not be familiar with the diagnosis of zoonotic diseases that
276 affect mostly those communities with little or no access to the public health system, either
277 because of remoteness, low education/awareness and/or lack of financial means to pay for the
278 assistance. As a result, the underreporting and misdiagnosis of zoonotic diseases by public
279 health authorities is not uncommon. For instance, in Brazil, most of the rabies victims
280 reported in the outbreaks of 2004 lived in extreme poverty, with no electricity or access to the
281 medical health system. Therefore, not all clinical cases were actually reported (Fernandes, da
282 Costa et al. 2013).

283 Moreover, in Thailand, it has been estimated that 65% of the deaths occur outside the
284 hospitals and the information regarding the cause of death is obtained through relatives
285 (Polprasert, Rao et al. 2010). Underreporting of livestock diseases by farmers to government
286 is often the consequence of lack of compensation or any recovery measure in place, together
287 with mandatory culling of animals and movement restrictions in some cases, which leaves the
288 farmer with hardly any incentive for reporting.

289 At the governmental level, if the notification of disease involves trade restrictions or negative
290 impacts on tourism, veterinary and public health services may decide not to report them to the
291 international community. This is particularly the case in countries that are under military
292 regime, dictatorship, or non-transparent governments, e.g. we found only 17 articles published
293 in Myanmar out of a total 4,090 retrieved for South East Asia.

294 Because of all of the above reasons, to estimate the importance and magnitude of zoonoses, it
295 is crucial to find access, not only to official sources of information, but to all other alternative
296 sources on disease occurrence (media, blogs, scientific publications and prioritization
297 exercises at national level). All these sources are subjected to strong biases. For example,
298 international reports, such as those from WAHIS will only focus on few animal diseases with
299 impact on trade, while media reports and blogs will focus on those events that may be more
300 attractive to the public, because of its rareness, fatality rate, etc. and covering mostly human
301 events. Furthermore, the results of prioritization exercises are country specific, costly and
302 time-consuming. Therefore, only a combination of all of them will give the most accurate
303 picture of the situation. One advantage of looking at scientific publications is that it allows
304 covering both veterinary and medical publications, and other related disciplines, e.g.
305 socioeconomic studies.

306 The methodology presented in this paper looks into one of these sources, which has often
307 been overlooked for this type of prioritization exercises. It measures the relative importance
308 of zoonoses from the perspective of the research community. This should be a reflection of
309 the real occurrence of these zoonoses, since reported outbreaks in livestock, cases in humans,
310 serological studies and other proofs of the presence of disease will lead to the allocation of
311 funds for research in that specific disease, or to the publishing of the results. Of course, this
312 relationship between real occurrence and amount of scientific publications will be just an
313 estimate. Some of the most important biases that we have identified are:

314 We used only PubMed in this study and it lacks literature from some regional journals,
315 conference proceedings and gray literature. To improve and broaden the search we are
316 repeating the zoonotic-livestock species-regional specific searches in three different
317 databases: AGRIS, CAB Abstracts and AGRICOLA. These databases are less focused on
318 human medicine and we expect to retrieve more articles from regional journals with lower
319 impact factor.

320 The number of existing peer-reviewed papers was biased towards those diseases attracting
321 more research funding, which is mainly influenced by trade issues and public health
322 importance (i.e. zoonoses). As a result, one single event in time with high international
323 repercussion because of the threatening effects of its international spread can lead to an
324 unprecedented amount of publications on the topic that overrepresents the actual magnitude of
325 the event. Such was the case in Mexico with the influenza A H1N1 outbreak that occurred in
326 2009. Almost 97% of the manuscripts in the Mexico and Central America region were
327 published between 2009 and 2011.

328 The amount of scientific publications is strongly dependent on the research capacity of each
329 country or region. For example, countries in Southeast Asia invested much more on research

330 (and therefore published more peer reviewed papers) than those countries in the Congo Basin.
331 This implies that comparisons across regions may not be valid. However, comparing different
332 diseases within the same region was a valid approach.

333 Research in non-transparent countries is likely to be government-controlled and, therefore, the
334 occurrence of some diseases may be hidden.

335 Although data from peer-reviewed papers would ensure the validity and quality of data,
336 timeliness will be poor due to the long time to publish peer-reviewed papers especially those
337 manuscripts with many collaborating agencies.

338 This study represents a demonstration of a new methodology that could be used to quickly
339 assess the status of zoonoses in a certain region or country. The results of this study intend to
340 be a proof-of-concept on how this methodology could be easily used in other regions or
341 specific countries. In addition, the scope of diseases covered or livestock species affected
342 could be easily expanded and updated in the future to the needs or circumstances in a different
343 context (for instance to wildlife).

344 The results of the present study have several significant applications which include:

345 It will help to assess the impact and prioritize diseases that need intervention in a certain area
346 and livestock species. In addition, this methodology will provide scientifically grounded
347 information on diseases neglected by the official and media reports which will help to better
348 design surveillance of zoonotic pathogens in livestock e.g. identify relevant livestock species
349 affected.

350 Moreover, it offers raw data that will allow to identify and monitor changes in disease
351 incidence, geographic distribution, new species being affected, etc (when analyzing the
352 changes of incidence over time); It provides the basis data to perform a time series analysis

353 and analyse the trends of the zoonotic diseases over time combined with livestock and region
354 information. In this line of work, it will help to identify and detect emergent zoonoses.
355 Another application will be the establishment of a number of publications threshold
356 associated with the emergence of disease. This will be particularly useful to predict the
357 emergence of disease. If official data about outbreaks is combined with the publication date of
358 the articles of this outbreak will give an estimation of the duration of the peer reviewing
359 process.

360 The information obtained from this study will provide scientifically grounded information to
361 share with donors, policy makers and other stakeholders that will raise awareness on the
362 potential risk of zoonotic diseases and will help to allocate efficiently funds in surveillance

363 Furthermore, the results obtained of this study has generated a database of publications
364 (bibliography on the EndNote libraries) on zoonoses by country and livestock species affected
365 that will help different stakeholders to get information with regards about the zoonotic
366 situation in a certain area and livestock species.

367 Additionally, the search terms that we included stand on their own as a thesaurus of terms that
368 can be used by different actors of the scientific community, agencies and institutions to
369 retrieve specific livestock-zoonotic-region specific articles from PubMed.

370 CONCLUSION

371 To our knowledge, this systematic review is the first study to provide a solid scientifically
372 grounded overview about the zoonotic diseases disaggregated by animal species and region.
373 From that point of view, it provides significant information about the livestock zoonotic
374 diseases in areas that have socio-economic, environmental and ecological factors which act as
375 determinants for the appearance of emerging zoonotic diseases.

376 We suggest improving the accessibility of the created methodology and results of this study
377 by national, regional and international surveillance programs focused on zoonotic diseases.
378 The results of this methodology will help to assess the impact and prioritize diseases that need
379 intervention and will provide information on diseases neglected by the official and media
380 reports which will support the better design of surveillance programs for zoonotic diseases.

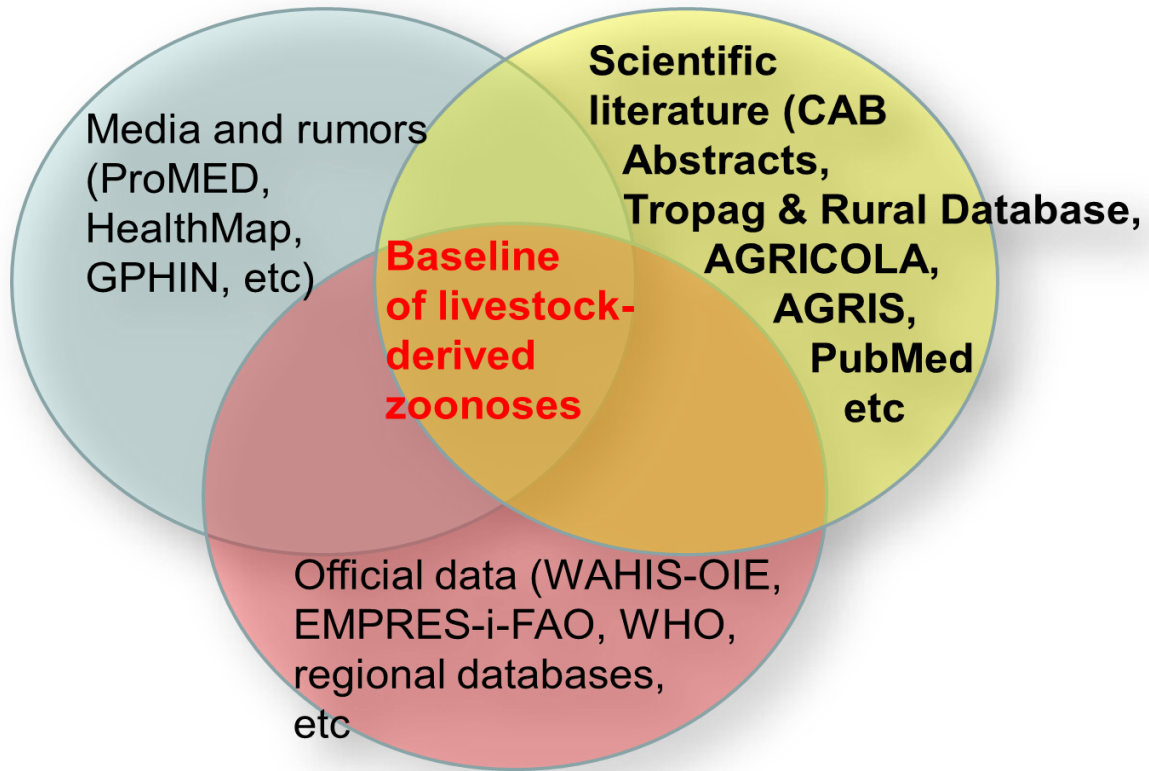
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AKNOWLEDGEMENTS

382 We would like to thank Fernando Aguado Criado from the University Complutense of Madrid
383 for his enthusiastic help preparing the EndNote libraries and his constructive critics on the
384 manuscript.

385

386 Figure 1. Categories of the sources of information on the presence and magnitude of disease
 387 (zoonotic or non zoonotic)



388

389 Table 1. The regions and countries included in the study

Mexico	and	Amazon Basin	Congo Basin	South Asia	South East Asia
Central America					
Belize		Bolivarian	Central African	People's	Malaysia
		Republic of	Republic	Republic of	
		Venezuela		Bangladesh	
Republic of		Co-operative	Democratic	Republic of	Kingdom of
Costa Rica		Republic of	Republic of	India	Cambodia

	Guyana	Congo		
Republic of El Salvador	Federative Republic of Brazil	Democratic republic of Sao Tome and Principe	Democratic Republic of Nepal	Lao People's Democratic Republic
Republic of Guatemala	Plurinational state of Bolivia	Republic of Angola	Kingdom of Bhutan	Nation of Brunei
Republic of Honduras	Guiana	Burundi	Islamic Republic of Pakistan	People's Republic of China
Republic of Panama	Republic of Colombia	Republic of Congo		Republic of Indonesia
United Mexican States	Republic of Ecuador	Republic of Equatorial Guinea		Republic of the Philippines
Nicaragua	Suriname	Republic of Uganda		Republic of the Union of Myanmar
	Peru	United Republic of Tanzania		Socialist Republic of Vietnam
		Rwanda		Papua New

Guinea

Thailand

Singapore

390

391 Table 2. Major livestock groups included in the searches

Species group	Search terms
Camelid	Llama, alpaca, dromedary camel and bactrian camel
Bovine	Cattle, zebu cattle, water buffalo, yak, banteng and farmed bison
Equine	Horse, donkey mule and hinnie
Swine	Pig and farmed wild boar
Poultry	Chicken, duck, turkey, goose, quail, partridge, pheasant, guineafowl, pigeon and ratite (ostrich, emu and rhea)
Rabbits and rodents	Rabbit
Small ruminant	Sheep and goat
Animal related terminology	e.g. domestic ruminant, livestock, herd, flock, milk, bone meal, dung, leather, meat, wool, egg, etc.
Other farmed wild animals	Farmed deer, reindeer and elk and domesticated elephant

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Table 3. Frequency of manuscripts retrieved in the PubMed engine published between 1980 and 2013 on zoonotic livestock animal diseases by region and domestic animal species group

	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelids	R&R ²	R.A.T. ³	total
Amazon	377	417	377	629	594	70	152	22	2,638
Mexico	68	104	160	120	286	3	35	14	790
Congo Basin	35	352	196	69	227	20	21	4	924
South Asia	68	197	258	188	295	17	43	19	1,085
South East									
Asia	164	1,028	1,642	293	729	14	187	32	4,089
Total	712	2,098	2,633	1,299	2,131	124	438	91	9,526

¹ Small ruminants

² Rabbits and rodents

³ Related animal terminology

Table 4. Ten diseases with the most manuscripts on zoonotic livestock pathogens by livestock species group and region from 1980 to 2013 retrieved from PubMed

Pathogen	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelid	R&R ²	R.A.T. ³	total
Amazon Basin									
Rabies	88	54	81	81	56	11	12	2	385
Trypanosomiasis	35	24	28	43	89	3	22	0	245
Influenza A	44	65	75	26	5	3	1	1	220
Tuberculosis	6	19	20	20	54	3	0	0	123
Fascioliasis	5	7	28	28	46	5	2	0	121
Leptospirosis	15	11	19	19	30	0	0	1	95
Echinococcosis	0	8	21	21	16	8	0	1	75
Hepatitis E	3	27	18	18	2	0	0	3	71
VEE ⁴	41	4	2	1	11	0	0	0	59
Orf virus	3	0	0	39	3	4	0	0	49
South East Asia									
	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelid	R&R ²	R.A.T. ³	Total

Influenza A	44	334	1,106	10	41	0	28	1	1,564
Schistosomiasis	6	41	3	18	188	1	53	2	312
Salmonellosis	3	43	100	7	40	0	18	0	211
<i>Escherichia coli</i>	2	30	42	17	45	0	28	9	173
Hepatitis E	1	77	11	0	0	0	17	0	108
Streptococcosis	0	103	0	1	13	0	7	0	124
Staphylococcosis	0	38	13	2	31	0	11	9	104
Trypanosomiasis	19	9	0	7	57	5	3	0	100
Nipah virus	9	72	1	1	0	0	2	0	85
Echinococcosis	3	6	0	46	22	4	0	0	81

Mexico and

Central America	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelid	R&R ²	R.A.T. ³	Total
Influenza A	3	183	75	0	26	0	4	0	291
Salmonellosis	0	31	33	1	26	0	0	0	91
VEE ⁴	38	0	0	0	36	0	0	0	74
West Nile Virus	40	0	10	0	8	0	0	0	58

Tuberculosis	0	2	0	2	39	0	0	0	43
Trypanosomiasis	1	0	13	2	9	0	10	0	35
Newcastle	0	0	16	0	0	0	0	0	16
<i>Escherichia coli</i>	0	0	0	0	16	0	3	0	19
Leptospirosis	0	0	1	0	12	0	0	0	14
screwworm	0	1	2	6	4	0	0	0	13
Congo Basin	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelid	R&R ²	R.A.T. ³	Total
<i>Trypanosoma</i>	4	30	0	26	90	4	0	0	154
Crimean Congo									
Hemorrhagic fever	1	6	13	32	1	0	8	0	61
Tuberculosis	0	5	0	2	43	0	0	0	50
<i>Salmonella</i>	3	8	14	3	8	0	0	1	37
<i>Taenia</i>	0	18	0	2	4	0	1	0	25
<i>Echinococcus</i>	0	2	0	7	10	2	0	0	21
<i>Babesia</i>	1	0	0	1	11	0	0	0	13
Rift Valley Fever	5	2	0	7	0	0	1	0	15

<i>Cryptosporidium</i>	1	1	0	1	8	0	0	0	11
Q fever	0	0	3	3	4	0	0	0	10
South Asia	Equine	Swine	Poultry	Small rum ¹	Bovine	Camelid	R&R ²	R.A.T. ³	Total
Influenza A	13	62	127	0	4	0	0	0	206
BSE ⁵	0	0	0	38	57	0	0	0	95
Tuberculosis	0	6	0	28	45	0	2	0	81
Salmonellosis	0	6	27	8	23	0	2	1	67
<i>Mycobacterium avium</i>	0	3	0	24	23	0	0	0	50
Japanese Encephalitis	8	29	8	0	0	0	3	0	48
<i>Staphylococcus aureus</i>	0	0	0	12	29	0	5	0	46
<i>Escherichia coli</i>	0	1	9	5	21	0	7	0	43
Newcastle Disease	0	0	41	0	0	0	0	0	41
<i>Echinococcus</i>									
<i>granulosus</i>	0	6	0	26	0	7	0	0	39

¹ Small ruminants

² Rabbits and rodents

³ Related animal terminology

⁴ Venezuelan equine encephalitis

⁵ Bovine spongiform encephalitis

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APPENDIX 1: list of 218 zoonotic diseases presented in the livestock species which were the focus of this study

Bacterial diseases (n=92)	Genus	Species
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Actinobacillosis	<i>Actinobacillus</i>	<i>equuli</i>
	<i>Actinobacillus</i>	<i>lignieresii</i>
	<i>Actinobacillus</i>	<i>pleuropneumoniae</i>
	<i>Actinobacillus</i>	<i>suis</i>
Actinomycosis	<i>Actinomyces</i>	<i>israelii</i>
	<i>Actinomyces</i>	<i>naeslundii</i>
Aeromoniasis	<i>Aeromonas</i>	<i>carviae</i>
	<i>Aeromonas</i>	<i>sobria</i>
Anaplasmosis	<i>Anaplasma</i>	<i>phagocytophilum</i>
	<i>Arcanobacterium</i>	<i>haemoliticum</i>
	<i>Arcanobacterium</i>	<i>pyogenes</i>
	<i>Arcobacter</i>	<i>butzelri</i>
	<i>Arcobacter</i>	<i>cryaerophilus</i>
	<i>Arcobacter</i>	<i>cibarius</i>
Anthrax	<i>Bacillus</i>	<i>anthracis</i>
	<i>Bacteriodes</i>	<i>fragilis</i>
	<i>Bordetella</i>	<i>parapertussis</i>
	<i>Borrelia</i>	<i>burgdorferi</i>
Brucellosis	<i>Brucella</i>	<i>abortus</i>
	<i>Brucella</i>	<i>suis</i>
	<i>Brucella</i>	<i>melitensis</i>
Campylobacteriosis	<i>Campylobacter</i>	<i>jejuni</i>
	<i>Campylobacter</i>	<i>coli</i>
	<i>Campylobacter</i>	<i>hyointestinalis</i>
Chlamydiosis	<i>Chlamydia</i>	<i>abortus</i>

	<i>Chlamydia</i>	<i>trachomatis</i>
Chlamydiosis	<i>Clamydophila</i>	<i>pneumoniae</i>
	<i>Clamydophila</i>	<i>abortus</i>
Psittacosis(ornithosis)	<i>Chlamydia</i>	<i>psittaci</i>
Clostridial disease	<i>Clostridium</i>	<i>perfringens</i> type a
	<i>Clostridium</i>	<i>perfringens</i> type c
Clostridial disease	<i>Clostridium</i>	<i>septicum</i>
	<i>Clostridium</i>	<i>novyi</i>
	<i>Clostridium</i>	<i>dificile</i>
Tetanus	<i>Clostridium</i>	<i>tetani</i>
	<i>Corynebacterium</i>	<i>pseudotuberculosis</i>
	<i>Corynebacterium</i>	<i>ulcerans</i>
	<i>Corynebacterium</i>	<i>bovis</i>
	<i>Corynebacterium</i>	<i>renale</i>
	<i>Corynebacterium</i>	<i>pilosum</i>
	<i>Corynebacterium</i>	<i>cystitidis</i>
Q fever	<i>Coxiella</i>	<i>burnetii</i>
Enterococcosis	<i>Enterococcus</i>	<i>avium</i>
	<i>Enterococcus</i>	<i>durans</i>
	<i>Enterococcus</i>	<i>faecalis</i>
	<i>Enterococcus</i>	<i>faecium</i>
	<i>Enterococcus</i>	<i>hirae</i>
Enterohemorrhagic Escherichia coli	<i>Escherichia</i>	<i>coli</i> O157
	<i>Escherichia</i>	<i>coli</i> O26:H11

	<i>Escherichia</i>	<i>coli</i> O111:H8
	<i>Escherichia</i>	<i>coli</i> O104:H21
	<i>Escherichia</i>	<i>coli</i> O48:H21
Erysipeloid	<i>Erysipelothrix</i>	<i>rhusiopathiae</i>
Erlichiosis	<i>Erlichia</i>	<i>phagocytophila</i>
Tularemia	<i>Francisella</i>	<i>tularensis</i>
	<i>Fusobacterium</i>	<i>necrophorum</i>
	<i>Hafnia</i>	<i>alvei</i>
Leptospirosis	<i>Leptospira</i> spp.	
Listeriosis	<i>Lysteria</i>	<i>monocytogenes</i>
	<i>Lysteria</i>	<i>ivanovii</i>
Paratuberculosis	<i>Mycobacterium</i>	<i>avium</i>
Tuberculosis	<i>Mycobacterium</i>	<i>bovis</i>
	<i>Mycobacterium</i>	<i>caprae</i>
	<i>Mycobacterium</i>	<i>microti</i>
Eperythrozoonosis	<i>Mycoplasma</i>	<i>suis</i>
Pasteurellosis	<i>Pasterurella</i>	<i>multocida</i>
	<i>Pasterurella</i>	<i>haemolytica</i>
Glanders	<i>Burkholderia</i>	<i>mallei</i>
	<i>Pseudomonas</i>	<i>mallei</i>
Meloidosis	<i>Burkholderia</i>	<i>pseudomallei</i>
	<i>Pseudomonas</i>	<i>pseudomallei</i>
	<i>Pseudomonas</i>	<i>aeruiginosa</i>
	<i>Rhodococcus</i>	<i>equi</i>
Salmonellosis	<i>Salmonella</i>	<i>eneterica</i>

	<i>Salmonella</i>	<i>cholerasuis</i>
Staphylococcosis	<i>Staphylococcus</i>	<i>aureus</i>
	<i>Staphylococcus</i>	<i>warneri</i>
Streptococcosis	<i>Streptococcus</i>	<i>pyogenes</i>
	<i>Streptococcus</i>	<i>agalactiae</i>
	<i>Streptococcus</i>	<i>suis</i>
	<i>Streptococcus</i>	<i>equi</i>
	<i>Streptococcus</i>	<i>dysgalactiae</i>
	<i>Streptococcus</i>	<i>porcinus</i>
	<i>Streptococcus</i>	<i>bovis</i>
	<i>Streptococcus</i>	<i>zooepidemicus</i>
	<i>Streptococcus</i>	<i>canis</i>
	<i>Streptococcus</i>	<i>acidominimus</i>
	<i>Streptococcus</i>	<i>uberis</i>
	<i>Streptococcus</i>	<i>pneumoniae</i>
Yersiniosis	<i>Yersinia</i>	<i>pseudotuberculosis</i>
	<i>Yersinia</i>	<i>enterocolitica</i>
Fungal diseases (n=12)	Genus	species
	<i>Absidia</i>	<i>corymbifera</i>
	<i>Acremonium</i>	<i>kiliense</i>
Actinomycosis	<i>Actinomyces</i>	<i>israelii</i>
Coccidioidomycosis	<i>Coccidioides</i>	<i>immitis</i>
	<i>Coccidioides</i>	<i>posadasii</i>
Cryptococcosis	<i>Cryptococcus</i>	<i>neoformans</i>
Dermatophilosis	<i>Dermatophilus</i>	<i>congolensis</i>

Ringworm	<i>Microsporium spp.</i>	
	<i>Trichophyton spp.</i>	
	<i>Epidermophyton spp.</i>	
Nocardiosis	<i>Nocardia</i>	<i>asteroides</i>
Pneumocystis pneumonia	<i>Pneumocystis</i>	<i>carini</i>
Rhinosporidiosis	<i>Rhinosporidium</i>	<i>seeberi</i>
<hr/>		
Parasitic diseases <i>N=77</i>	Genus	species
<hr/>		
Bovine babesiosis	<i>Babesia</i>	<i>bovis</i>
	<i>Babesia</i>	<i>divergens</i>
	<i>Babesia</i>	<i>microti</i>
Equine piroplasmiasis	<i>Babesia</i>	<i>cavalli</i>
	<i>Theileria</i>	<i>equi</i>
Balantidiasis	<i>Balantidium</i>	<i>coli</i>
	<i>Blastocystis</i>	<i>hominis</i>
Clonorchiasis	<i>Clonorchis</i>	<i>sinensis</i>
Cryptosporidiosis	<i>Cryptosporidium</i>	<i>parvum</i>
Dicrocoeliasis	<i>Dicrocoelium</i>	<i>dendriticum</i>
Dientamoebiasis	<i>Dientamoeba</i>	<i>fragilis</i>
Echinococcosis	<i>Echinococcus</i>	<i>granulosus</i>
	<i>Echinostoma</i>	<i>malayanum</i>
	<i>Entamoeba</i>	<i>polecki</i>
	<i>Eurytoma</i>	<i>pancreaticum</i>
Fasciolosis	<i>Fasciola</i>	<i>hepatica</i>
	<i>Fasciola</i>	<i>indica</i>
	<i>Fasciolopsis</i>	<i>buski</i>

Gastrodiscoidiasis	<i>Gastrodiscoides</i>	<i>hominis</i>
Giardiasis	<i>Giardia</i>	<i>intestinalis</i>
	<i>Giardia</i>	<i>duodenalis</i>
	<i>Giardia</i>	<i>enteritis</i>
	<i>Giardia</i>	<i>lambia</i>
	<i>Gnathostoma</i>	<i>doloresi</i>
	<i>Gnathostoma</i>	<i>hispidum</i>
Gongylonemiasis	<i>Gongylonema</i>	<i>pulchrum</i>
Haemonchosis	<i>Haemonchus</i>	<i>contortus</i>
<i>Hirundiniasis</i>	<i>Limnatis</i>	<i>nilotica</i>
Macracanthorhynchosis	<i>Macracanthorhynchus</i>	<i>hirudinaceus</i>
Mammomonogamiasis	<i>Laryngeus</i>	<i>nasciola</i>
	<i>Marshallagia</i>	<i>marshalli</i>
	<i>Metagonimis</i>	<i>yokogawai</i>
	<i>Metastrongylus</i>	<i>elongatus</i>
	<i>Micronema</i>	<i>deletrix</i>
Moniezia infection	<i>Moniezia</i>	<i>expansa</i>
	<i>Nematodirus</i>	<i>abnormalis</i>
	<i>Oesophagostomums</i>	<i>aculeatum</i>
	<i>Opisthorchis</i>	<i>sinensis</i>
	<i>Opisthorchis</i>	<i>felineus</i>
	<i>Opisthorchis</i>	<i>nover</i>
	<i>Orientobilharzia</i>	<i>turkestanica</i>
	<i>Ostertagia</i>	<i>ostertagi</i>
	<i>Paragonimus</i>	<i>kellicotti</i>

	<i>Paragonimus</i>	<i>westermani</i>
	<i>Paragonimus</i>	<i>africanus</i>
	<i>Paragonimus</i>	<i>caliensis</i>
	<i>Paragonimus</i>	<i>ohirai</i>
	<i>Paragonimus</i>	<i>uterobilateralis</i>
	<i>Parascaris</i>	<i>equorum</i>
Larva migrans	<i>Pedolera</i>	<i>strongyloides</i>
Sarcosporidiosis	<i>Sarcocystis</i>	<i>suihominis</i>
	<i>Sarcocystis</i>	<i>hominis</i>
Schistosomiasis	<i>Schistosoma</i>	<i>mansoni</i>
	<i>Schistosoma</i>	<i>japonicum</i>
	<i>Schistosoma</i>	<i>mattheei</i>
	<i>Schistosoma</i>	<i>intercalatum</i>
	<i>Schistosoma</i>	<i>spindle</i>
	<i>Schistosoma</i>	<i>mekongi</i>
	<i>Setaria equina</i>	<i>equina</i>
<i>Sparganosis</i>	<i>Spirometra</i>	
	<i>Strongyloides</i>	<i>ransomi</i>
	<i>Strongyloides</i>	<i>westeri</i>
	<i>Strongyloides</i>	<i>papillosus</i>
Asian taeniasis	<i>Taenia</i>	<i>asiatica</i>
Taeniasis (pork tapeworm)	<i>Taenia</i>	<i>solium</i>
	<i>Taenia</i>	<i>multiceps</i>
	<i>Taenia</i>	<i>ovis</i>
	<i>Taenia</i>	<i>hydatigena</i>

Taeniasis (beef tapeworm)	<i>Taenia</i>	<i>saginata</i>
	<i>Taeniarhynchus</i>	<i>saginatus</i>
	<i>Teladorsagia</i>	<i>circumcincta</i>
Thelaziasis	<i>Thelazia</i>	<i>rhodesii</i>
Trichinellosis	<i>Trichinella</i>	<i>spiralis</i>
Trichomonosis	<i>Trichomonas</i>	<i>foetus</i>
Trypanosomiasis	<i>Trypanosoma</i>	<i>gambiense</i>
	<i>Trypanosoma</i>	<i>cruzi</i>
	<i>Trypanosoma</i>	<i>evansi</i>
	<i>Trypanosoma</i>	<i>rhodesiense</i>

Viral diseases n=32

Borna disease virus	Borna disease virus
Bovine ephemeral fever	Bovine ephemeral virus
camelpox	camelpox
Contagious ecthyma	Contagious ecthyma
Cowpox virus	Cowpox virus
Orf virus	Orf virus
Crimean-Congo haemorrhagic fever	Crimean-Congo haemorrhagic fever
Ganjam virus	Ganjam virus
Getah virus	Getah virus
Hendra virus	Hendra virus
Hepatitis E	Hepatitis E
Influenza A	Influenza A
Influenza C	Influenza C

Japanese encephalitis virus	Japanese encephalitis virus	
Kokobera virus	Kokobera virus	
Kairi virus	Kairi virus	
Louping ill	Louping ill	
Nairobi sheep disease	Nairobi sheep disease	
Newcastle	Newcastle disease	
Nipah virus	Nipah virus	
pseudocowpox	pseudocowpox	
Milkers node virus	Milkers node virus	
Rabies	Rabies	
Rift valley fever virus	Rift valley fever virus	
St. Louis encephalitis virus	St. Louis encephalitis virus	
Vaccinia virus	Vaccinia virus	
Venezuelan equine encephalitis	Venezuelan equine encephalitis	
Eastern equine encephalitis	Eastern equine encephalitis	
Western equine encephalitis	Western equine encephalitis	
Vesicular stomatitis	Vesicular stomatitis	
Wesselsbron fever	Wesselsbron fever	
West Nile virus	West Nile Virus	
Arthropodal diseases	<i>N=5</i>	
Scabies	<i>Sarcoptes</i>	
Red mites	<i>Dermanyssus</i>	<i>gallinae</i>
New world screwworm	<i>Cochliomyia</i>	<i>hominivorax</i>
Old world screwworm	<i>Chrsomoya</i>	<i>bezziana</i>
	<i>Tunga</i>	<i>penetrans</i>

Prion Diseases

N=1

Bovine spongiform
encephalopathy

Bovine spongiform encephalopathy

APPENDIX 2: Search terms for region, zoonotic diseases and animal species

Bacterial diseases n=92		
Actinobacilosis	<i>Actinobacillus equuli</i> , <i>A. lignieresii</i> , <i>A. pleuropneumoniae</i> , <i>A. suis</i>	(actinobacillus[TITLE/ABSTRACT] AND (equuli [TITLE/ABSTRACT] OR lignieresii [TITLE/ABSTRACT] OR pleuropneumoniae [TITLE/ABSTRACT] OR suis[TITLE/ABSTRACT])) OR (actinobacillus equuli [MeSH Terms] OR (actinobacillus lignieresii [MeSH Terms]) OR (actinobacillus pleuropneumoniae [MeSH Terms] OR (actinobacillus suis [MeSH Terms]))
Actinomycosis	<i>Actinomyces israelii</i> , <i>A. naeslundii</i>	(actinomyces[TITLE/ABSTRACT] AND (israelii[TITLE/ABSTRACT] OR naeslundii[TITLE/ABSTRACT])) OR (actinomyces[TITLE/ABSTRACT] AND (israeli[TITLE/ABSTRACT] OR naeslundii[TITLE/ABSTRACT])) OR (actinomyces israelii [MeSH Terms]) OR (actinomyces naeslundii [MeSH Terms])
Aeromoniasis	<i>Aeromonas carviae</i> , <i>A. sobria</i>	(aeromonas[TITLE/ABSTRACT] AND (caviae[TITLE/ABSTRACT] OR sobria[TITLE/ABSTRACT])) OR

		(aeromonas caviae [MeSH Terms]) OR (aeromonas sobria [MeSH Terms])
Anaplasmosis	<i>Anaplasma phagocytophilum</i>	Anaplasma[TITLE/ABSTRACT] AND phagocytophilum[TITLE/ABSTRACT]) OR (Anaplasma phagocytophilum [MeSH Terms])
<i>Arcanobacterium</i>	<i>Arcanobacterium haemolyticum,</i> A. <i>pyogenes</i>	arcanobacterium[TITLE/ABSTRACT] AND (haemolyticum[TITLE/ABSTRACT] OR pyogenes[TITLE/ABSTRACT]) OR (arcanobacterium haemolyticum[MeSH Terms]) OR (arcanobacterium pyogenes[MeSH Terms])
<i>Arcobacter</i>	<i>Arcobacter butzelri</i> (old name <i>Campylobacter butzelri</i>), A. <i>cryaerophilus,</i> A. <i>cibarius</i>	(arcobacter[TITLE/ABSTRACT] AND (butzleri[TITLE/ABSTRACT] OR (campylobacter[TITLE/ABSTRACT] AND butzeri[TITLE/ABSTRACT]) OR (arcobacter[TITLE/ABSTRACT] AND (cyaerophilus[TITLE/ABSTRACT] OR cibarius[TITLE/ABSTRACT]))) OR (arcobacter butzleri[MeSH Terms]) OR (campylobacter butzeri[MeSH Terms] OR (arcobacter cyaerophilus [MeSH Terms]) OR (arcobacter cibarius [MeSH Terms])
Anthrax	<i>Bacillus anthracis</i>	anthrax[TITLE/ABSTRACT] OR (bacillus[TITLE/ABSTRACT] AND

		anthracis[TITLE/ABSTRACT]) OR anthrax [MeSH Terms] OR (bacillus anthracis [MeSH Terms])
	<i>Bacteriodes fragilis</i>	(bacteroides[TITLE/ABSTRACT] AND fragilis[TITLE/ABSTRACT]) OR (bacteroides fragilis [MeSH Terms])
	<i>Bordetella parapertussis</i>	(bordetella[TITLE/ABSTRACT] AND parapertussis[TITLE/ABSTRACT]) OR (bordetella parapertussis [MeSH Terms])
	<i>Borrelia burgdorferi</i>	(lyme disease[TITLE/ABSTRACT]) OR (borrelia[TITLE/ABSTRACT] AND burgdorferi[TITLE/ABSTRACT]) OR lyme borreliosis[TITLE/ABSTRACT] OR lyme arthritis[TITLE/ABSTRACT] OR (lyme disease[MeSH Terms]) OR (borrelia burgdorferi[MeSH Terms])
Brucellosis	<i>Brucella abortus, B. suis, B melitensis</i>	(brucella[TITLE/ABSTRACT] AND (abortus [TITLE/ABSTRACT] OR melitensis[TITLE/ABSTRACT] OR suis[TITLE/ABSTRACT])) OR malta fever [TITLE/ABSTRACT] OR undulant fever [TITLE/ABSTRACT] OR (brucella abortus [MeSH Terms]) OR (brucella melitensis[MeSH Terms]) OR (brucella suis [MeSH Terms])

Campilobacteriosis	<i>Campylobacter jejuni, C. coli, C hyointestinalis</i>	(campylobacter[TITLE/ABSTRACT] AND (jejuni[TITLE/ABSTRACT] OR coli[TITLE/ABSTRACT] OR fetus[TITLE/ABSTRACT] OR hyointestinalis[TITLE/ABSTRACT]) or (campylobacter jejuni[MeSH Terms]) OR (campylobacter coli[MeSH Terms]) OR (campylobacter fetus [MeSH Terms]) OR (campylobacter hyointestinalis [MeSH Terms]) OR (Vibrio [TITLE/ABSTRACT] AND jejuni[TITLE/ABSTRACT])OR (Vibrio [TITLE/ABSTRACT] AND hepaticus [TITLE/ABSTRACT]) OR (Campylobacter [TITLE/ABSTRACT] AND fetus [TITLE/ABSTRACT] AND subsp. Jejuni[TITLE/ABSTRACT])
Chlamydiosis	<i>Chlamydia abortus, C. trachomatis</i>	(chlamydia[TITLE/ABSTRACT] AND (abortus[TITLE/ABSTRACT] OR trachomatis[TITLE/ABSTRACT]) OR (chlamydia abortus [MeSH Terms] OR (chlamydia trachomatis[MeSH Terms])
Clamydiosis	<i>Clamydophila pneumoniae, C. abortus</i>	(chlamydophila[TITLE/ABSTRACT] AND (pneumoniae[TITLE/ABSTRACT] OR abortus[TITLE/ABSTRACT])) OR (chlamydophila pneumoniae[MeSH Terms])

		OR (chlamydophila abortus[MeSH Terms])
Psittacosis(ornithosis)	<i>Chlamydia psittaci</i>	psittacosis OR (chlamydophila[TITLE/ABSTRACT] AND psittaci[TITLE/ABSTRACT]) OR (chlamydia[TITLE/ABSTRACT] AND psittaci[TITLE/ABSTRACT]) OR avian chlamydiosis[TITLE/ABSTRACT] OR ornithosis[TITLE/ABSTRACT] OR parrot fever[TITLE/ABSTRACT] OR (Chlamydophila[TITLE/ABSTRACT] AND psittaci [TITLE/ABSTRACT]) OR (Rickettsiaformis[TITLE/ABSTRACT] AND psittacosis[TITLE/ABSTRACT]) OR (Rickettsia[TITLE/ABSTRACT] AND psittaci[TITLE/ABSTRACT]) OR (Ehrlichia[TITLE/ABSTRACT] AND psittaci[TITLE/ABSTRACT]) OR (Chlamydozoon [TITLE/ABSTRACT] AND psittaci[TITLE/ABSTRACT]) OR (Rickettsia psittaci[MeSH Terms]) OR (Chlamydia psittaci [MESH TERMS])
Clostridial disease	<i>Clostridium perfringens type a, C perfringens type c</i>	(enterotoxigenic[TITLE/ABSTRACT] AND clostridium[TITLE/ABSTRACT] AND perfringens[TITLE/ABSTRACT]) OR (clostridium[TITLE/ABSTRACT] AND

		<p>perfringens[TITLE/ABSTRACT] AND type a[TITLE/ABSTRACT]) OR</p> <p>(clostridium[TITLE/ABSTRACT] AND perfringens[TITLE/ABSTRACT] AND type c[TITLE/ABSTRACT]) OR OR</p> <p>(clostridium perfringens[MESH TERMS])</p> <p>OR (Clostridium [TITLE/ABSTRACT] AND plagarum [TITLE/ABSTRACT]) OR (Bacterium [TITLE/ABSTRACT] AND welchii [TITLE/ABSTRACT]) OR (Bacillus [TITLE/ABSTRACT] AND perfringens [TITLE/ABSTRACT]) OR (Clostridium [TITLE/ABSTRACT] AND plagarum [TITLE/ABSTRACT])</p>
Clostridial disease	<i>Clostridium septicum, C. Novyi</i>	<p>Clostridium [TITLE/ABSTRACT] AND (septicum [TITLE/ABSTRACT] OR novyi [TITLE/ABSTRACT]) OR (Clostridium septicum [MESH TERMS]) OR (Clostridium novyi [MESH TERMS]) OR (Vibrio[TITLE/ABSTRACT] AND septicus[TITLE/ABSTRACT]) OR (Bacillus [TITLE/ABSTRACT] AND septicus[TITLE/ABSTRACT])</p>
	<i>Clostridium difcile</i>	<p>(clostridium[TITLE/ABSTRACT] AND difficile[TITLE/ABSTRACT]) OR</p>

		(clostridium difficile[MESH TERMS])
Tetanus	<i>Clostridium tetani</i>	Tetanus[TITLE/ABSTRACT] OR (Clostridium [TITLE/ABSTRACT] AND tetani [TITLE/ABSTRACT]) OR (Clostridium tetani [MESH TERMS]) OR (Bacillus[TITLE/ABSTRACT] AND tetani[TITLE/ABSTRACT])
	<i>Corynebacterium pseudotuberculosis, C. ulcerans, C. bovis. C renale, C pilosum, C. cystitidis</i>	(corynebacterium[TITLE/ABSTRACT] AND (pseudotuberculosis[TITLE/ABSTRACT] OR ulcerans[TITLE/ABSTRACT] OR bovis[TITLE/ABSTRACT] OR renale[TITLE/ABSTRACT] OR pilosum[TITLE/ABSTRACT] OR cystitidis[TITLE/ABSTRACT])) OR (corynebacterium pseudotuberculosis[MESH TERMS]) OR (corynebacterium ulcerans[MESH TERMS]) OR (corynebacterium bovis[MESH TERMS]) OR (corynebacterium renale[MESH TERMS]) OR (corynebacterium pilosum[MESH TERMS]) OR (corynebacterium cystitidis[MESH TERMS])
Q fever	<i>Coxiella burnetii</i>	Q fever[TITLE/ABSTRACT] OR

		(coxiella[TITLE/ABSTRACT] AND burnetii[TITLE/ABSTRACT]) OR (coxiella burnetii[MESH TERMS]) OR (coxiella [TITLE/ABSTRACT] AND burneti [TITLE/ABSTRACT]) OR (Rickettsia[TITLE/ABSTRACT] AND diaporica[TITLE/ABSTRACT]) OR (Rickettsia [TITLE/ABSTRACT] AND burneti[TITLE/ABSTRACT])
Enterococosis	<i>Enterococcus avium</i> , <i>E. durans</i> , <i>E. faecalis</i> , <i>E. faecium</i> , <i>E. hirae</i>	(enterococcus[TITLE/ABSTRACT] AND (avium[TITLE/ABSTRACT] OR durans[TITLE/ABSTRACT] OR faecalis[TITLE/ABSTRACT] OR faecium[TITLE/ABSTRACT] OR hirae[TITLE/ABSTRACT]) OR (enterococcus avium[MESH TERMS]) OR (enterococcus durans[MESH TERMS]) OR (enterococcus faecalis[MESH TERMS]) OR (enterococcus faecium[MESH TERMS]) OR (enterococcus hirae[MESH TERMS])
Enterohemorrhagic Escherichia coli	<i>Escherichia coli</i> <i>O157</i> , <i>E. coli O26:H11</i> , <i>E. coli O111:H8</i> , <i>E. coli O104:H21</i> , <i>E. coli</i>	(Escherichia [TITLE/ABSTRACT] AND coli[TITLE/ABSTRACT] AND (O157[TITLE/ABSTRACT] OR O26[TITLE/ABSTRACT] OR O111[TITLE/ABSTRACT] OR

	<i>O48:H21</i>	O104[TITLE/ABSTRACT] OR O48[TITLE/ABSTRACT])) OR (enterococcus avium[MESH TERMS] OR (enterococcus durans[MESH TERMS]) OR (enterococcus faecalis[MESH TERMS])OR (enterococcus faecium[MESH TERMS]) OR(enterococcus hirae[MESH TERMS])
Erysipeloid	<i>Erysipelothrix rhusiopathiae</i>	erysipeloid[TITLE/ABSTRACT] OR (erysipelothrix[TITLE/ABSTRACT] AND rhusiopathiae[TITLE/ABSTRACT] OR (erysipelothrix rhusiopathiae[MESH TERMS]) OR (Erysipelothrix[TITLE/ABSTRACT] AND porci[TITLE/ABSTRACT] OR (Erysipelothrix [TITLE/ABSTRACT] AND murisepticus[TITLE/ABSTRACT]) OR (Erysipelothrix[TITLE/ABSTRACT] AND insidiosa[TITLE/ABSTRACT]) OR (Erysipelothrix[TITLE/ABSTRACT] AND erysipeloides[TITLE/ABSTRACT]) OR (Bacterium[TITLE/ABSTRACT] AND rhusiopathiae[TITLE/ABSTRACT]) OR (Bacillus[TITLE/ABSTRACT] AND rhusiopathiae [TITLE/ABSTRACT])OR (Bacillus [TITLE/ABSTRACT] AND

		insidiosus[TITLE/ABSTRACT])
Erlichiosis	<i>Ehrlichia phagocytophila</i>	(Ehrlichia[TITLE/ABSTRACT] AND phagocytophila[TITLE/ABSTRACT]) OR (Ehrlichia phagocytophila[MESH TERMS])
Tularemia	<i>Francisella tularensis</i>	tularemia[TITLE/ABSTRACT] OR (francisella[TITLE/ABSTRACT] AND tularensis[TITLE/ABSTRACT]) OR (francisella tularensis[MESH TERMS]) OR (Pasteurella [TITLE/ABSTRACT] AND tularensis [TITLE/ABSTRACT]) OR (Francisella [TITLE/ABSTRACT] AND tularense[TITLE/ABSTRACT]) OR (Brucella [TITLE/ABSTRACT] AND tularensis[TITLE/ABSTRACT]) OR (Bacterium[TITLE/ABSTRACT] AND tularense[TITLE/ABSTRACT]) OR (Pasteurella[TITLE/ABSTRACT] AND tularensis[TITLE/ABSTRACT] OR (Francisella[TITLE/ABSTRACT] AND tularense[TITLE/ABSTRACT]) OR (Brucella[TITLE/ABSTRACT] AND tularensis[TITLE/ABSTRACT]) OR (Bacterium[TITLE/ABSTRACT] AND tularense[TITLE/ABSTRACT]) OR francicella[TITLE/ABSTRACT] AND

		tularensis[TITLE/ABSTRACT] OR francisella[TITLE/ASBTRACT] AND tularensis[TITLE/ABSTRACT]
	<i>Fusobacterium necrophorum</i>	(fusobacterium[TITLE/ABSTRACT] AND necrophorum[TITLE/ABSTRACT]) OR (fusobacterium necrophorum[MESH TERMS])
	<i>Hafnia alvei</i>	(hafnia[TITLE/ABSTRACT] AND alvei[TITLE/ABSTRACT]) OR (hafnia alvei[MESH TERMS])
Leptospirosis	<i>Leptospira spp.</i>	leptospirosis[TITLE/ABSTRACT] OR leptospira[TITLE/ABSTRACT] OR weil's disease[TITLE/ABSTRACT] OR weil's syndrome[TITLE/ABSTRACT] OR leptospirosis[MESH TERMS] OR leptospira[MESH TERMS] OR weil's disease[MESH TERMS] OR weil's syndrome[MESH TERMS]
Listeriosis	<i>Listeria monocytogenes, L ivanovii</i>	listeria[TITLE/ABSTRACT] AND (monocytogenes[TITLE/ABSTRACT] OR ivanovii[TITLE/ABSTRACT])) OR (listeria monocytogenes[MESH TERMS]) OR (listeria ivanovii[MESH TERMS])
	<i>L. monocytogenes type1/2 b</i>	Listeria[TITLE/ABSTRACT] AND monocytogenes[TITLE/ABSTRACT] AND

		(type 1b[TITLE/ABSTRACT] OR type 2b[TITLE/ABSTRACT])
Paratuberculosis	<i>Mycobacterium avium</i>	paratuberculosis[TITLE/ABSTRACT] OR (mycobacterium[TITLE/ABSTRACT] AND (avium[TITLE/ABSTRACT])) OR johne's disease[TITLE/ABSTRACT] OR paratuberculosis[MESH TERMS] OR (mycobacterium avium[MESH TERMS]) OR johne's disease[MESH TERMS] OR (Mycobacterium[TITLE/ABSTRACT] AND paratuberculosis[TITLE/ABSTRACT]) OR (Mycobacterium [TITLE/ABSTRACT] AND johnei[TITLE/ABSTRACT]) OR (Mycobacterium[TITLE/ABSTRACT] AND enteritidis[TITLE/ABSTRACT]) OR (Darmtuberculose[TITLE/ABSTRACT]) OR (Bacterium[TITLE/ABSTRACT] AND paratuberculosis[TITLE/ABSTRACT]) OR (Bacillus[TITLE/ABSTRACT] AND paratuberculosis[TITLE/ABSTRACT])
Tuberculosis	<i>Mycobacterium bovis, M. caprae, M. microti</i>	bovine tuberculosis[TITLE/ABSTRACT] OR (mycobacterium[TITLE/ABSTRACT] AND (bovis[TITLE/ABSTRACT] OR caprae[TITLE/ABSTRACT] OR microti[TITLE/ABSTRACT])) OR bovine

		tuberculosis[TITLE/ABSTRACT] OR (mycobacterium (bovis [MeSH Terms])OR (mycobacterium caprae[MeSH Terms]) OR (mycobacterium microti[MeSH Terms])
Eperythrozoonosis	<i>Mycoplasma suis</i>	Eperythrozoonosis[TITLE/ABSTRACT] OR (Mycoplasma[TITLE/ABSTRACT] AND suis[TITLE/ABSTRACT]) OR (Eperythrozoonosis[MESH TERMS]) OR (Mycoplasma suis[MESH TERMS]) OR (Mycoplasma [TITLE/ABSTRACT] AND haemosuis[TITLE/ABSTRACT]) OR (Eperythrozoön [TITLE/ABSTRACT] AND suis [TITLE/ABSTRACT]) OR (Candidatus [TITLE/ABSTRACT] AND Mycoplasma [TITLE/ABSTRACT] AND haemosuis [TITLE/ABSTRACT])
Pasteurellosis	<i>Pasterurella multocida, P. haemolytica</i>	(pasteurella[TITLE/ABSTRACT] AND (multocida[TITLE/ABSTRACT] OR haemolytica[TITLE/ABSTRACT]) OR avian cholera[TITLE/ABSTRACT] OR avian hemorrhagic septicemia[TITLE/ABSTRACT] OR fowl cholera[TITLE/ABSTRACT] OR (pasteurella multocida[MESH TERMS]) OR

		(pasteurella haemolytica[MESH TERMS]) OR avian cholera[MESH TERMS] OR avian hemorrhagic septicemia[MESH TERMS] OR fowl cholera[MESH TERMS]
Glanders	<i>Burkholderia mallei</i> <i>Pseudomonas mallei</i>	glanders[TITLE/ABSTRACT] OR (burkholderia[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR (pseudomonas[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR glanders[MESH TERMS] OR (burkholderia mallei[MESH TERMS]) OR (pseudomonas mallei[MESH TERMS]) OR (Pfeifferella[TITLE/ABSTRACT]AND mallei[TITLE/ABSTRACT]) OR (Malleomyces[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR (Loefflerella[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR (Bacillus[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR (Actinobacillus[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT]) OR (Acinetobacter[TITLE/ABSTRACT] AND mallei[TITLE/ABSTRACT])
Meloidosis	<i>Burkholderia</i>	meloidosis[TITLE/ABSTRACT] OR

	<i>pseudomallei</i> , <i>Pseudomonas</i> <i>pseudomallei</i>	(burkholderia[TITLE/ABSTRACT] AND pseudomallei[TITLE/ABSTRACT]) OR whitmore disease[TITLE/ABSTRACT] OR melioidosis[TITLE/ABSTRACT] OR (burkholderia[TITLE/ABSTRACT] AND pseudomallei[TITLE/ABSTRACT]) OR whitmore disease[MESH TERMS] OR (Pseudomonas[TITLE/ABSTRACT] AND pseudomallei[TITLE/ABSTRACT]) OR (Malleomyces[TITLE/ABSTRACT] AND pseudomallei[TITLE/ABSTRACT]) OR (Loefflerella[TITLE/ABSTRACT] AND pseudomallei[TITLE/ABSTRACT]) OR (Bacterium[TITLE/ABSTRACT] AND whitmori[TITLE/ABSTRACT])
	<i>Pseudomonas</i> <i>aeruginosa</i>	(pseudomonas [TITLE/ABSTRACT] AND aeruginosa[TITLE/ABSTRACT]) OR (pseudomonas aeruginosa[MESH TERMS])
	<i>Rhodococcus equi</i>	(rhodococcus[TITLE/ABSTRACT] AND equi[TITLE/ABSTRACT]) OR (rhodococcus equi[MESH TERMS])
Salmonellosis	<i>Salmonella enterica</i> , <i>S choleraesuis</i>	(Salmonellosis [TITLE/ABSTRACT] OR (salmonella [TITLE/ABSTRACT] AND enteric [TITLE/ABSTRACT] OR

		<p>choleraesuis [TITLE/ABSTRACT])) NOT salmonella bongori [TITLE/ABSTRACT] NOT salmonella typhi [TITLE/ABSTRACT] OR (Salmonellosis [MESH TERMS] OR (salmonella enterica [MESH TERMS]) OR (salmonella choleraesuis [MESH TERMS]) NOT salmonella bongori [MESH TERMS] NOT salmonella typhi [MESH TERMS] OR (Salmonella[TITLE/ABSTRACT] AND enterica[TITLE/ABSTRACT] AND ser. Choleraesuis[TITLE/ABSTRACT]) OR (Salmonella[TITLE/ABSTRACT] AND choleraesuis[TITLE/ABSTRACT]) OR (Bacillus[TITLE/ABSTRACT] AND cholerae-suis[TITLE/ABSTRACT])</p>
Staphilococcosis	<i>Staphylococcus aureus, S. warneri</i>	<p>(staphylococcus[TITLE/ABSTRACT] AND (aureus[TITLE/ABSTRACT] OR warneri[TITLE/ABSTRACT])) OR (staphylococcus aureus[MESH TERMS]) OR (staphylococcus warneri[MESH TERMS])</p>
Streptococcosis	<i>Streptococcus pyogenes,</i>	<p>(streptococcus[TITLE/ABSTRACT] AND (pyogenes[TITLE/ABSTRACT] OR</p>

	<p><i>Streptococcus</i> <i>agalactiae, S. suis,</i> <i>S. equi, S.</i> <i>dysgalactiae, S.</i> <i>porcinus, S. bovis, S.</i> <i>zooepidemicus, S.</i> <i>canis, S.</i> <i>acidominimus, S.</i> <i>uberis</i></p>	<p>agalactiae[TITLE/ABSTRACT] OR suis[TITLE/ABSTRACT] OR equi[TITLE/ABSTRACT] OR dysgalactiae[TITLE/ABSTRACT] OR porcinus[TITLE/ABSTRACT] OR bovis[TITLE/ABSTRACT] OR zooepidemicus[TITLE/ABSTRACT] OR canis[TITLE/ABSTRACT] OR acidominimus[TITLE/ABSTRACT] OR uberis[TITLE/ABSTRACT])) OR (streptococcus pyogenes[MESH TERMS]) OR (streptococcus agalactiae[MESH TERMS]) OR (streptococcus suis[MESH TERMS]) OR (streptococcus equi[MESH TERMS]) OR (streptococcus dysgalactiae[MESH TERMS]) OR (streptococcus porcinus[MESH TERMS]) OR (streptococcus bovis[MESH TERMS]) OR (streptococcus zooepidemicus[MESH TERMS]) OR (streptococcus canis[MESH TERMS]) OR (streptococcus acidominimus[MESH TERMS]) OR (streptococcus uberis[MESH TERMS]) OR (Streptococcus[TITLE/ABSTRACT] AND scarlatinae[TITLE/ABSTRACT]) OR</p>
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		<p>(Streptococcus[TITLE/ABSTRACT] AND hemolyticus) OR</p> <p>(Streptococcus[TITLE/ABSTRACT]AND erysipelatos[TITLE/ABSTRACT]) OR</p> <p>(Micrococcus[TITLE/ABSTRACT] AND scarlatinae[TITLE/ABSTRACT]) OR</p> <p>(Streptococcus[TITLE/ABSTRACT] AND mastitidis[TITLE/ABSTRACT]) OR</p> <p>(Streptococcus[TITLE/ABSTRACT] AND difficilis[TITLE/ABSTRACT]) OR</p> <p>(Streptococcus[TITLE/ABSTRACT] AND difficile[TITLE/ABSTRACT]) OR</p> <p>(Streptococcus[TITLE/ABSTRACT] AND pseudogalactiae[TITLE/ABSTRACT])</p>
	<p><i>Streptococcus pneumoniae</i></p>	<p>(Streptococcus[TITLE/ABSTRACT] AND pneumoniae[TITLE/ABSTRACT]) OR</p> <p>(Micrococcus[TITLE/ABSTRACT] AND pneumonia[TITLE/ABSTRACT]) OR</p> <p>(Streptococcus[TITLE/ABSTRACT] AND equines[TITLE/ABSTRACT]) OR</p> <p>(Diplococcus[TITLE/ABSTRACT] AND pneumonia[TITLE/ABSTRACT] AND Bovis[TITLE/ABSTRACT]) OR</p> <p>(Micrococcus pneumoniae[MeSH Terms])</p>

		OR (Streptococcus equines[MeSH Terms]) OR (Diplococcus pneumonia[MeSH Terms]) OR (Diplococcus Bovis[MeSH Terms]) OR (Streptococcus pneumoniae[MeSH Terms])
Yersiniosis	<i>Yersinia pseudotuberculosis, Y. enterocolitica</i>	(yersinia[TITLE/ABSTRACT] AND (pseudotuberculosis[TITLE/ABSTRACT] OR enterocolitica[TITLE/ABSTRACT])) OR (yersinia pseudotuberculosis[MESH TERMS]) OR (yersinia enterocolitica[MESH TERMS])
Fungal diseases	<i>N=12</i>	
	<i>Absidia corymbifera</i>	(Absidia[TITLE/ABSTRACT] AND corymbifera[TITLE/ABSTRACT]) OR (Absidia corymbifera[MESH TERMS])
	<i>Acremonium kiliense</i>	(Acremonium[TITLE/ABSTRACT] AND kiliense[TITLE/ABSTRACT]) OR (Acremonium kiliense[MESH TERMS])
Actinomycosis	<i>Actinomyces israelii</i>	(Actinomyces[TITLE/ABSTRACT] AND israelii[TITLE/ABSTRACT]) OR (Actinomyces israelii [MESH TERMS])
Coccidioidomycosis	<i>Coccidioides immitis</i>	(Coccidioides[TITLE/ABSTRACT] AND immitis[TITLE/ABSTRACT]) OR (Coccidioides immitis[MESH TERMS])
	<i>Coccidioides</i>	(Coccidioides[TITLE/ABSTRACT] AND

	<i>posadasii</i>	posadasii[TITLE/ABSTRACT]) OR (Coccidioides posadasii[MESH TERMS])
Cryptococcosis	<i>Cryptococcus neoformans</i>	(Cryptococcus[TITLE/ABSTRACT] AND neoformans[TITLE/ABSTRACT]) OR (Cryptococcus neoformans[MESH TERMS])
Dermatophilosis	<i>Dermatophilus congolensis</i>	(Dermatophilus[TITLE/ABSTRACT] AND congolensis[TITLE/ABSTRACT]) OR (Dermatophilus congolensis[MESH TERMS]) OR (Dermatophilus[TITLE/ABSTRACT] AND dermatonomus[TITLE/ABSTRACT])
Ringworm	<i>Microsporum spp., Trichophyton spp., Epidermophyton spp.</i>	Ringworm[TITLE/ABSTRACT] OR Microsporum[TITLE/ABSTRACT] OR Trichophyton[TITLE/ABSTRACT] OR Epidermophyton[TITLE/ABSTRACT] OR Ringworm[MESH TERMS] OR Microsporum[MESH TERMS] OR Trichophyton[MESH TERMS] OR Epidermophyton[MESH TERMS]
Nocardiosis	<i>Nocardia asteroides</i>	(Nocardia[TITLE/ABSTRACT] AND asteroides[TITLE/ABSTRACT]) OR (Nocardia asteroides[MESH TERMS])
Pneumocystis	<i>Pneumocystis carinii</i>	(Pneumocystis[TITLE/ABSTRACT] AND

pneumonia		pneumonia[TITLE/ABSTRACT]) OR (Pneumocystis[TITLE/ABSTRACT] AND carinii[TITLE/ABSTRACT]) OR (Pneumocystis pneumonia[MESH TERMS]) OR (Pneumocystis carinii[MESH TERMS]) OR (pneumocystis [title/abstract] AND carini [title/abstract])
Rhinosporidiosis	<i>Rhinosporodidium seeberii</i>	(Rhinosporidium[TITLE/ABSTRACT] AND seeberi[TITLE/ABSTRACT]) OR (Rhinosporidium seeberi[MESH TERMS]) OR (rhinosporidium[TITLE/ABSTRACT] AND seeberii[TITLE/ABSTRACT])
Parasitic diseases	<i>N=77</i>	
Bovine babesiosis n=3	<i>Babesia bovis, B divergens, B microti</i>	(babesia[TITLE/ABSTRACT] AND (bovis[TITLE/ABSTRACT] OR divergens[TITLE/ABSTRACT] OR microti[TITLE/ABSTRACT])) OR (babesia bovis[MeSH Terms]) OR (babesia divergens[MeSH Terms]) OR (babesia microti[MeSH Terms])
Equine piroplasmosis	<i>Babesia cavalli, Theileria equi</i>	(babesia[TITLE/ABSTRACT] AND caballi[TITLE/ABSTRACT]) OR (theileria[TITLE/ABSTRACT] AND equi[TITLE/ABSTRACT]) OR equinepiroplasmosis[TITLE/ABSTRACT]

		OR (babesia caballi[MESH TERMS]) OR (theileria equi[MESH TERMS]) OR equine piroplasmosis[MESH TERMS]
Balantidiasis	<i>Balantidium coli</i>	balantidiasis[TITLE/ABSTRACT] OR (balantidium[TITLE/ABSTRACT] AND coli[TITLE/ABSTRACT]) OR balantidiasis[MESH TERMS] OR (balantidium coli[MESH TERMS])
	<i>Blastocystis hominis</i>	(blastocystis[TITLE/ABSTRACT] AND hominis[TITLE/ABSTRACT]) OR (blastocystis hominis[MESH TERMS])
Clonorchiasis	<i>Clonorchis sinensis</i>	clonorchiasis[TITLE/ABSTRACT] OR (clonorchis[TITLE/ABSTRACT] AND sinensis[TITLE/ABSTRACT]) OR clonorchiasis[MESH TERMS] OR (clonorchis sinensis[MESH TERMS])
Cryptosporidiosis	<i>Cryptosporidium parvum</i>	cryptosporidiosis[TITLE/ABSTRACT] OR (cryptosporidium[TITLE/ABSTRACT] AND parvum[TITLE/ABSTRACT]) OR cryptosporidiosis[MESH TERMS] OR (cryptosporidium parvum[MESH TERMS])
Dicrocoeliasis	<i>Dicrocoelium dendriticum</i>	dicrocoeliasis[TITLE/ABSTRACT] OR (dicrocoelium[TITLE/ABSTRACT] AND dendriticum[TITLE/ABSTRACT]) OR

		dicrocoeliasis[MESH TERMS] OR (dicrocoelium dendriticum[MESH TERMS])
Dientamoebiasis	<i>Dientamoeba fragilis</i>	dientamoebiasis[TITLE/ABSTRACT] OR (dientamoeba[TITLE/ABSTRACT] AND fragilis[TITLE/ABSTRACT]) OR dientamoebiasis[MESH TERMS] OR (dientamoeba fragilis[MESH TERMS])
Echinococcosis	<i>Echinococcus granulosus</i>	(echinococcosis[TITLE/ABSTRACT] OR hydatidosis[TITLE/ABSTRACT]) OR (echinococcus[TITLE/ABSTRACT] AND granulosus[TITLE/ABSTRACT]) OR echinococciasis[TITLE/ABSTRACT] OR hydatid disease[TITLE/ABSTRACT] OR cystic hydatid disease [TITLE/ABSTRACT] OR (echinococcosis[MESH TERMS] OR hydatidosis[MESH TERMS]) OR (echinococcus granulosus[MESH TERMS]) OR echinococciasis[MESH TERMS] OR hydatid disease[MESH TERMS] OR cystic hydatid disease [MESH TERMS]
	<i>Echinostoma malayanum</i>	(echinostoma[TITLE/ABSTRACT] AND malayanum[TITLE/ABSTRACT]) OR (echinostoma malayanum[MESH TERMS])
	<i>Entamoeba polecki</i>	(entamoeba[TITLE/ABSTRACT] AND

		polecki[TITLE/ABSTRACT]) OR (entamoeba polecki[MESH TERMS])
	<i>Eurytoma pancreaticum</i>	(eurytoma[TITLE/ABSTRACT] AND pancreaticum[TITLE/ABSTRACT]) OR (eurytoma pancreaticum[MESH TERMS])
Fasciolosis	<i>Fasciola hepatica, f . indica</i>	fascioliasis[TITLE/ABSTRACT] OR (fasciola[TITLE/ABSTRACT] AND (hepatica[TITLE/ABSTRACT] OR indica[TITLE/ABSTRACT])) OR fascioliasis[MESH TERMS] OR (fasciola hepatica[MESH TERMS]) OR (fasciola indica[MESH TERMS])
	<i>Fasciolopsis buski</i>	(fasciolopsis[TITLE/ABSTRACT] AND buski[TITLE/ABSTRACT]) OR (fasciolopsis buski[MESH TERMS])
Gastrodiscoidiasis	<i>Gastrodiscoides hominis,</i>	gastrodiscoidiasis[TITLE/ABSTRACT] OR (gastrodiscoides[TITLE/ABSTRACT] AND hominis[TITLE/ABSTRACT]) OR gastrodiscoidiasis[MESH TERMS] OR (gastrodiscoides hominis[MESH TERMS])
Giardiasis	<i>Giardia intestinalis, G duodenalis, G enteritis, Giardia lamblia</i>	(giardia[TITLE/ABSTRACT] AND (intestinalis[TITLE/ABSTRACT] OR lamblia[TITLE/ABSTRACT] OR duodenalis[TITLE/ABSTRACT] OR enteritis[TITLE/ABSTRACT])) OR

		lambliasis[TITLE/ABSTRACT] OR (giardia intestinalis[MESH TERMS]) OR (Giardia lamblia[MESH TERMS]) OR (giardia duodenalis[MESH TERMS]) OR (giardia enteritis[MESH TERMS]) OR lambliasis[MESH TERMS]
	<i>Gnathostoma doloresi, G hispidum</i>	(gnathostoma[TITLE/ABSTRACT] AND (doloresi[TITLE/ABSTRACT] OR hispidum[TITLE/ABSTRACT])) OR (gnathostoma doloresi[MESH TERMS] OR (gnathostoma hispidum[MESH TERMS]))
Gongylonemiasis	<i>Gongylonema pulchrum</i>	gongylonemiasis[TITLE/ABSTRACT] OR (gongylonema[TITLE/ABSTRACT] AND pulchrum[TITLE/ABSTRACT]) OR gongylonemiasis[MESH TERMS] OR (gongylonema pulchrum[MESH TERMS])
Haemonchosis	<i>Haemonchus contortus</i>	haemonchosis[TITLE/ABSTRACT] OR (haemonchus[TITLE/ABSTRACT] AND contortus [TITLE/ABSTRACT]) OR haemonchosis[MESH TERMS] OR (haemonchus contortus [MESH TERMS])
<i>Hirundiniasis</i>	<i>Limnatis nilotica</i>	hirudiniasis[TITLE/ABSTRACT] OR (limnatis[TITLE/ABSTRACT] AND nilotica [TITLE/ABSTRACT]) OR hirudiniasis[MESH TERMS] OR (limnatis

		nilotica [MESH TERMS])
Macracanthorhynchosis	<i>Macracanthorhynchus hirudinaceus</i>	(macracanthorhynchus[TITLE/ABSTRACT] AND hirudinaceus [TITLE/ABSTRACT]) OR (macracanthorhynchus hirudinaceus[MESH TERMS])
Mammomonogamiasis	<i>Laryngeus nasciola</i>	mammomonogamiasis[TITLE/ABSTRACT] OR mammomonogamosis[TITLE/ABSTRACT] OR syngamosis [TITLE/ABSTRACT] OR syngamiasis [TITLE/ABSTRACT] OR (mammomonogamus AND (laryngeus[TITLE/ABSTRACT] OR nascicola [TITLE/ABSTRACT])) OR mammomonogamiasis[MESH TERMS] OR mammomonogamosis[MESH TERMS] OR syngamosis[MESH TERMS] OR syngamiasis[MESH TERMS] OR (laryngeus nascicola[MESH TERMS]))
	<i>Marshallagia marshalli</i>	(marshallagia[TITLE/ABSTRACT] AND marshalli [TITLE/ABSTRACT]) OR (marshallagia marshalli[MESH TERMS])
	<i>Metagonimus yokogawai</i>	(metagonimus[TITLE/ABSTRACT] AND yokogawai [TITLE/ABSTRACT]) OR (metagonimus yokogawai [MESH TERMS])
	<i>Metastrongylus</i>	(metastrongylus[TITLE/ABSTRACT] AND

	<i>elongatus</i>	elongatus [TITLE/ABSTRACT]) OR (metastrongylus elongatus [MESH TERMS])
	<i>Micronema deletrix</i>	(micronema[TITLE/ABSTRACT] AND deletrix [TITLE/ABSTRACT]) OR (micronema deletrix[MESH TERMS])
Moniezia infection	<i>Moniezia expansa</i>	moniezia infection[TITLE/ABSTRACT] OR (moniezia[TITLE/ABSTRACT] AND expansa [TITLE/ABSTRACT]) OR moniezia infection[MESH TERMS] OR (moniezia expansa[MESH TERMS])
	<i>Nematodirus abnormalis</i>	(nematodirus[TITLE/ABSTRACT] AND abnormalis [TITLE/ABSTRACT]) OR (nematodirus abnormalis[MESH TERMS])
	<i>Oesophagostomums aculeatum</i>	(oesophagostomum[TITLE/ABSTRACT] AND aculeatum [TITLE/ABSTRACT]) OR (oesophagostomum aculeatum [MESH TERMS])
	<i>Opisthorchis sinensis, O felineus, O nover</i>	(opisthorchis[TITLE/ABSTRACT] AND (sinensis [TITLE/ABSTRACT]) OR felineus[TITLE/ABSTRACT] OR nover [TITLE/ABSTRACT])) OR (opisthorchis sinensis [MESH TERMS]) OR (opisthorchis felineus[MESH TERMS]) OR (opisthorchis nover[MESH TERMS])

	<i>Orientobilharzia turkestanica</i>	(orientobilharzia[TITLE/ABSTRACT] AND turkestanica [TITLE/ABSTRACT]) OR (orientobilharzia turkestanica [MESH TERMS])
	<i>Ostertagia ostertagi</i>	(ostertagia[TITLE/ABSTRACT] AND ostertagi [TITLE/ABSTRACT]) OR (ostertagia ostertagi[MESH TERMS])
	<i>Paragonimus kellicotti, P westermani, P africanus, P caliensis, P ohirai, P uterobilateralis</i>	(paragonimus[TITLE/ABSTRACT] AND (kellicotti [TITLE/ABSTRACT]) OR westermani [TITLE/ABSTRACT] OR africanus[TITLE/ABSTRACT] OR caliensis[TITLE/ABSTRACT] OR ohirai [TITLE/ABSTRACT] OR uterobilateralis [TITLE/ABSTRACT])) OR (paragonimus kellicotti[MESH TERMS]) OR (paragonimus westermani[MESH TERMS]) OR (paragonimus africanus[MESH TERMS]) OR (paragonimus caliensis[MESH TERMS]) OR (paragonimus ohirai[MESH TERMS]) OR (paragonimus uterobilateralis [MESH TERMS])
	<i>Parascaris equorum</i>	(parascaris[TITLE/ABSTRACT] AND equorum [TITLE/ABSTRACT]) OR (parascaris equorum[MESH TERMS])

	<i>Pedolera strongyloides</i>	(pelodera[TITLE/ABSTRACT] AND strongyloides [TITLE/ABSTRACT]) OR (pelodera strongyloides[MESH TERMS])
Sarcosporidiosis	<i>Sarcocystis sui hominis, S hominis,</i>	sarcocystosis[TITLE/ABSTRACT] OR (sarcocystis[TITLE/ABSTRACT] AND (sui hominis [TITLE/ABSTRACT] OR hominis[TITLE/ABSTRACT])) OR (sarcosporidiosis[TITLE/ABSTRACT] OR (sarcocystosis sui hominis[MESH TERMS] OR (sarcocystis hominis[MESH TERMS] OR sarcosporidiosis[MESH TERMS]
Schistosomiasis N=6	<i>Schistosoma mansoni, S japonicum, S mattheei, S intercalatum, S spindle, S mekongi</i>	schistosomiasis[TITLE/ABSTRACT] OR (schistosoma[TITLE/ABSTRACT] AND (mansoni [TITLE/ABSTRACT] OR japonicum[TITLE/ABSTRACT] OR mattheei[TITLE/ABSTRACT] OR intercalatum [TITLE/ABSTRACT] OR spindle[TITLE/ABSTRACT] OR mekongi[TITLE/ABSTRACT])) OR schistosomiasis [MESH TERMS] OR (schistosomamansoni[MESH TERMS] OR (schistosoma japonicum[MESH TERMS] OR (schistosoma mattheei[MESH TERMS] OR (schistosoma intercalatum[MESH TERMS] OR (schistosoma spindle [MESH

		TERMS]) OR (schistosoma mekongi[MESH TERMS])
	<i>Setaria equina</i>	(setaria[TITLE/ABSTRACT] AND equina [TITLE/ABSTRACT]) OR (setaria equina[MESH TERMS])
<i>Sparganosis</i>	<i>Spirometra</i>	sparganosis[TITLE/ABSTRACT] OR spirometra [TITLE/ABSTRACT] OR sparganosis[MESH TERMS] OR spirometra[MESH TERMS]
	<i>Strongyloides ransomi, S westeri, S papillosus</i>	(strongyloides[TITLE/ABSTRACT] AND (ransomi [TITLE/ABSTRACT] OR westeri[TITLE/ABSTRACT] OR papillosus[TITLE/ABSTRACT])) OR (strongyloides[MESH TERMS] AND (ransomi[MESH TERMS] OR westeri [MESH TERMS] OR papillosus[MESH TERMS]))
Asian taeniasis	<i>Taenia asiatica</i>	Taenia [TITLE/ABSTRACT] AND asiatica [TITLE/ABSTRACT] OR Taenia asiatica [MESH TERMS]
Taeniasis* (pork tapeworm)	<i>Taenia solium,</i>	neurocysticercosis[TITLE/ABSTRACT] OR (taenia[TITLE/ABSTRACT] AND (solium[TITLE/ABSTRACT])) OR neurocysticercosis[MESH TERMS] OR (taenia solium[MESH TERMS])

	<i>Taenia multiceps</i>	(taenia[TITLE/ABSTRACT] AND multiceps[TITLE/ABSTRACT]) OR (taenia multiceps[MESH TERMS])
	<i>Taenia ovis</i>	(taenia[TITLE/ABSTRACT] AND ovis[TITLE/ABSTRACT]) OR (taenia ovis[MESH TERMS])
	<i>Taenia hydatigena</i>	(taenia[TITLE/ABSTRACT] AND hydatigena[TITLE/ABSTRACT]) OR (taenia hydatigena[MESH TERMS])
		pork tapeworm*[TITLE/ABSTRACT] OR Cysticercus cellulosae[TITLE/ABSTRACT] OR pork tapeworm[MESH TERMS] OR (Cysticercus cellulosae[MESH TERMS])
Taeniasis(beef tapeworm)	<i>Taenia saginata</i>	(taenia[TITLE/ABSTRACT] AND saginata [TITLE/ABSTRACT]) OR beef tapeworm*[TITLE/ABSTRACT] OR (taenia saginata [MESH TERMS]) OR beef tapeworm*[MESH TERMS]
	<i>Taeniarhynchus saginatus</i>	(taeniarhynchus[TITLE/ABSTRACT] AND saginatus [TITLE/ABSTRACT]) OR (taeniarhynchus saginatus [MESH TERMS])
	<i>Teladorsagia circumcincta</i>	(teladorsagia[TITLE/ABSTRACT] AND circumcincta [TITLE/ABSTRACT]) OR (teladorsagia circumcincta [MESH TERMS])

Thelaziasis	<i>Thelazia rhodesii</i>	(thelazia[TITLE/ABSTRACT] AND rhodesii [TITLE/ABSTRACT]) OR (thelazia rhodesii[MESH TERMS])
Trichinellosis	<i>Trichinella spiriosis</i>	(Trichinella [TITLE/ABSTRACT] AND spiriosis [TITLE/ABSTRACT]) OR Trichinella spiriosis[MESH TERMS]
Trichomonosis	<i>Trichomonas foetus</i>	(Trichomonas [TITLE/ABSTRACT] AND foetus [TITLE/ABSTRACT]) OR Trichomonas foetus [MESH TERMS]
Trypanosomiasis	<i>Trypanosoma gambiense, T. cruzi, T. evansi</i>	(Trypanosom*[TITLE/ABSTRACT] AND gambiense[TITLE/ABSTRACT]) OR (Trypanosom*[TITLE/ABSTRACT] AND cruzi[TITLE/ABSTRACT]) OR Chagas[TITLE/ABSTRACT] OR sleeping sickness[TITLE/ABSTRACT] OR Human African trypanosome*[TITLE/ABSTRACT] OR trypanosoma [TITLE/ABSTRACT] AND evansi [TITLE/ABSTRACT]) OR (Trypanosoma gambiense[MESH TERMS]) OR (Trypanosoma cruzi [MESH TERMS]) OR Chagas disease [MESH TERMS] OR sleeping sickness[MESH TERMS] OR Human African trypanosomiasis[MESH TERMS] OR (trypanosoma evansi [MESH TERMS])

	<i>Trypanosoma rhodesiense</i>	(Trypanosom*[TITLE/ABSTRACT] AND rhodesiense[TITLE/ABSTRACT]) OR (Trypanosoma rhodesiense[MeSH Terms])
Arthropodal diseases	N=5	
Scabies	<i>Sarcoptes</i>	Sarcoptic[TITLE/ABSTRACT] OR Sarcoptes[TITLE/ABSTRACT] OR Scabies[TITLE/ABSTRACT] OR Scabies[MESH TERMS]
Red mites	<i>Dermanyssus gallinae</i>	Red mite*[TITLE/ABSTRACT] OR (Dermanyssus[TITLE/ABSTRACT] AND gallinae [TITLE/ABSTRACT]) OR Red mite[MESH TERMS] OR (Dermanyssus gallinae [MESH TERMS])
New world screwworm	<i>Cochliomyia hominivorax</i>	New world screwworm[TITLE/ABSTRACT] OR (Cochliomyia[TITLE/ABSTRACT] AND hominivorax [TITLE/ABSTRACT]) OR (Cochliomyia hominivorax [MESH TERMS])
Old world screwworm	<i>Chrsomoya bezziana</i>	Old world screwworm[TITLE/ABSTRACT] OR (Chrysomya[TITLE/ABSTRACT] AND bezziana[TITLE/ABSTRACT]) OR

		(Chrysomya bezziana[MESH TERMS])
	<i>Tunga penetrans</i>	(Tunga[TITLE/ABSTRACT] AND penetrans [TITLE/ABSTRACT]) OR (Tunga penetrans[MESH TERMS])
Prion Diseases	N=1	
Bovine spongiform encephalopathy		Bovine spongiform[TITLE/ABSTRACT] OR (Variant[TITLE/ABSTRACT] AND Creutzfeld*[TITLE/ABSTRACT] AND Jakob[TITLE/ABSTRACT]) OR (Variant[TITLE/ABSTRACT] AND CJD[TITLE/ABSTRACT]) OR BSE[TITLE/ABSTRACT] OR Mad cow*[TITLE/ABSTRACT] OR BSE[TITLE/ABSTRACT] NOT Breast self examination [TITLE/ABSTRACT] NOT Basolateral sorting endosome [TITLE/ABSTRACT] NOT Backscatter electron [TITLE/ABSTRACT] NOT Boiling solven extraction [TITLE/ABSTRACT] NOT Boswellia serrate extracts [TITLE/ABSTRACT] NOT Belthe-Salpeter equation [TITLE/ABSTRACT] NOT Bojesodok-eum [TITLE/ABSTRACT] NOT

		Brain extraction algorithms [TITLE/ABSTRACT] NOT Beck self-esteem scales [TITLE/ABSTRACT] OR (bovine spongiform encephalopathy[mesh terms])
Viral diseases	N=32	
Borna disease virus	Borna disease virus	(borna[TITLE/ABSTRACT] AND disease[TITLE/ABSTRACT]) OR (borna[TITLE/ABSTRACT] AND virus [TITLE/ABSTRACT]) OR (borna disease[MESH TERMS])
Bovine ephemeral fever		Bovine[TITLE/ABSTRACT] AND ephemeral[TITLE/ABSTRACT] AND fever[TITLE/ABSTRACT] OR bovine ephemeral fever virus [MESH TERMS]
camelpox	camelpox	camelpox [TITLE/ABSTRACT] OR camelpox virus[MESH TERMS]
Contagious ecthyma	Contagious ecthyma	(bovine[TITLE/ABSTRACT] AND papular stomatitis[TITLE/ABSTRACT]) OR contagious ecthyma[TITLE/ABSTRACT] OR ecthyma contag*[TITLE/ABSTRACT] OR contagious ecthyma[MESH TERMS]
Cowpox virus	Cowpox virus	Cow[TITLE/ABSTRACT] AND POX [TITLE/ABSTRACT] OR

		cowpox*[TITLE/ABSTRACT] OR Cowpox virus [MESH TERMS]
Orf virus	Orf virus	Orf virus*[TITLE/ABSTRACT]) OR (Orf disease[TITLE/ABSTRACT]) OR (Orf[TITLE/ABSTRACT] AND parapox*[TITLE/ABSTRACT]) OR contagious pustular dermatitis[TITLE/ABSTRACT] OR scabby mouth[TITLE/ABSTRACT] OR sore mouth[TITLE/ABSTRACT] OR orf infection*[TITLE/ABSTRACT] OR human orf[TITLE/ABSTRACT] OR contagious pustular dermatitis[MESH TERMS] OR orf virus[MESH TERMS]
Crimean Congo haemorrhagic fever	Crimean Congo haemorrhagic fever	(crimea*[TITLE/ABSTRACT] AND hemorrhagic [TITLE/ABSTRACT] AND congo[TITLE/ABSTRACT] AND fever[TITLE/ABSTRACT]) OR (crimean congo haemorrhagic fever[MESH TERMS])
Ganjam virus	Ganjam virus	(ganjam[TITLE/ABSTRACT] AND virus*[TITLE/ABSTRACT]) OR (ganjam virus[MESH TERMS])
Getah virus	Getah virus	(getah[TITLE/ABSTRACT] AND virus*[TITLE/ABSTRACT]) OR (getah virus[MESH TERMS])

Hendra virus	Hendra virus	hendra[TITLE/ABSTRACT] OR hendra virus[MESH TERMS]
Hepatitis E	Hepatitis E	hepatitis e[TITLE/ABSTRACT] OR hepatitis e [MESH TERMS]
Influenza	Influenza	H1n*[TITLE/ABSTRACT] OR H2N*[TITLE/ABSTRACT] OR h3n*[TITLE/ABSTRACT] OR h4n*[TITLE/ABSTRACT] OR h5n*[TITLE/ABSTRACT] OR h6n*[TITLE/ABSTRACT] OR h7n*[TITLE/ABSTRACT] OR H8N*[TITLE/ABSTRACT] OR H9N*[TITLE/ABSTRACT] OR H10N*[TITLE/ABSTRACT] OR H11N*[TITLE/ABSTRACT] OR H12N*[TITLE/ABSTRACT] OR H13N*[TITLE/ABSTRACT] OR H14N*[TITLE/ABSTRACT] OR H15N*[TITLE/ABSTRACT] OR H16N*[TITLE/ABSTRACT]
influenza		swine flu[TITLE/ABSTRACT] OR avian influenza*[TITLE/ABSTRACT] OR avian flu[TITLE/ABSTRACT] OR bird flu[TITLE/ABSTRACT] OR fowl plague*[TITLE/ABSTRACT]

Influenza A	Influenza A	Influenza A [TITLE/ABSTRACT]
Influenza C	Influenza C	Influenza c [TITLE/ABSTRACT] or swine influenza*[TITLE/ABSTRACT] OR influenza c[TITLE/ABSTRACT]
Japanese encephalitis virus	Japanese encephalitis virus	japanese encephalitis[TITLE/ABSTRACT] OR japanese B encephalitis[TITLE/ABSTRACT] OR japanese encephalitis[MESH TERMS] OR japanese encephalitis virus[MESH TERMS]
Kokobera virus	Kokobera virus	kokobera[TITLE/ABSTRACT]
Kairi virus	Kairi virus	kairi[TITLE/ABSTRACT] AND virus*[TITLE/ABSTRACT]
Louping ill	Louping ill	louping ill[TITLE/ABSTRACT] OR louping ill[MESH TERMS]
Nairobi sheep disease	Nairobi sheep disease	nairobi sheep disease*[TITLE/ABSTRACT] OR nairobi sheep disease[MESH TERMS]
Newcastle	Newcastle disease	newcastle disease[TITLE/ABSTRACT] OR newcastle virus*[TITLE/ABSTRACT] OR newcastle disease[MESH TERMS]
Nipah virus	Nipah virus	nipah*[TITLE/ABSTRACT] OR nipah virus[MESH TERMS]
pseudocowpox	pseudocowpox	pseudocowpox*[TITLE/ABSTRACT] OR pseudo cowpox[TITLE/ABSTRACT] OR pseudocowpox virus[MESH TERMS]
Milkers node virus	Milkers node virus	Milker's Nod*[TITLE/ABSTRACT]

Rabies	Rabies	rabies*[TITLE/ABSTRACT] OR lyssa*[TITLE/ABSTRACT] OR rabies[MESH TERMS]
Rift valley fever virus	Rift valley fever virus	rift valley fever [TITLE/ABSTRACT] OR rift valley fever [MESH TERMS]
St. Louis encephalitis virus	St. Louis encephalitis virus	((St. louis[TITLE/ABSTRACT] OR Saint louis[TITLE/ABSTRACT] OR St louis[TITLE/ABSTRACT]) AND (encephalitis[TITLE/ABSTRACT] ORencephalomyelitis[TITLE/ABSTRACT])) OR St. Louis encephalitis virus[mesh terms]
Vaccinia virus	Vaccinia virus	Vaccinia Virus [TITLE/ABSTRACT] OR VACV [TITLE/ABSTRACT] OR Bovine Vaccinia [TITLE/ABSTRACT] OR Vaccinia Virus [MESH TERMS]
Venezuelan equine encephalitis	Venezuelan equine encephalitis	(venezuelan equine[TITLE/ABSTRACT] AND encep*[TITLE/ABSTRACT]) OR (venezuelan[TITLE/ABSTRACT] AND equine encep*[TITLE/ABSTRACT]) OR (Venezuelan equine encephalitis[MESH TERMS])
Eastern equine encephalitis	Eastern equine encephalitis	(eastern equine[TITLE/ABSTRACT] AND encep*[TITLE/ABSTRACT]) OR (eastern

		[TITLE/ABSTRACT] AND equine encep*[TITLE/ABSTRACT]) OR (eastern equine encephalitis[MESH TERMS])
Western equine encephalitis	Western equine encephalitis	(western equine[TITLE/ABSTRACT] AND encep*[TITLE/ABSTRACT]) OR (western[TITLE/ABSTRACT] AND equine encep*[TITLE/ABSTRACT]) OR (western equine encephalitis[MESH TERMS])
Vesicular stomatitis	Vesicular stomatitis	vesicular stomatitis [TITLE/ABSTRACT] OR vesicular stomatitis [MESH TERMS]
Wesselsbron fever	Wesselsbron fever	wesselsbron*[TITLE/ABSTRACT] OR wesselsbron fever[MESH TERMS]
West Nile virus	West Nile Virus	west nile[TITLE/ABSTRACT] AND fever[TITLE/ABSTRACT]) OR (west nile[TITLE/ABSTRACT] AND enceph*[TITLE/ABSTRACT]) OR west nile disease[TITLE/ABSTRACT] OR (west nile[TITLE/ABSTRACT] AND virus*[TITLE/ABSTRACT]) OR (west nile[TITLE/ABSTRACT] AND WN[TITLE/ABSTRACT]) OR west nile outbreak*[TITLE/ABSTRACT] OR west nile infection*[TITLE/ABSTRACT] OR west nile virus [MESH TERMS]

Search term for the regions that were the focus of this study

Region	country	search
amazon	amazon	amazon[Title/Abstract] OR amazon'[Title/Abstract] OR amazon's[Title/Abstract] OR amazone[Title/Abstract] OR amazonean[Title/Abstract] OR amazones[Title/Abstract] OR amazonia[Title/Abstract] OR amazonia's[Title/Abstract] OR amazonian[Title/Abstract] OR amazonian'[Title/Abstract] OR amazonic[Title/Abstract] OR amazonies[Title/Abstract] OR amazons[Title/Abstract] OR amazons'[Title/Abstract] OR amazon*[TITLE/ABSTRACT]
	Brasil	Brazil[TITLE/ABSTRACT] OR Brazilian*[TITLE/ABSTRACT] OR Brasilia [TITLE/ABSTRACT] OR Acre [TITLE/ABSTRACT] OR roraima [TITLE/ABSTRACT] OR Rondônia [TITLE/ABSTRACT] OR Alagoas [TITLE/ABSTRACT] OR Amapá [TITLE/ABSTRACT] OR Belo Horizonte [TITLE/ABSTRACT] OR Ceará [TITLE/ABSTRACT] OR Curitiba [TITLE/ABSTRACT] OR OR Espírito Santo [TITLE/ABSTRACT] OR Goiás [TITLE/ABSTRACT]

		<p>OR Goiânia [TITLE/ABSTRACT] OR Manaus [TITLE/ABSTRACT] OR Maranhão[TITLE/ABSTRACT] OR Piauí [TITLE/ABSTRACT] OR Mato Grosso [TITLE/ABSTRACT] OR Mato grosso do sul [TITLE/ABSTRACT] OR Minas Gerais [TITLE/ABSTRACT] OR Paraíba [TITLE/ABSTRACT] OR Paraná [TITLE/ABSTRACT] OR Pernambuco [TITLE/ABSTRACT] OR Porto Alegre [TITLE/ABSTRACT] OR Recife [TITLE/ABSTRACT] OR Rio de Janeiro [TITLE/ABSTRACT] OR Santa Catarina [TITLE/ABSTRACT] OR São Paulo [TITLE/ABSTRACT] OR Sergipe [TITLE/ABSTRACT] OR Tocantins [TITLE/ABSTRACT] OR Salvador [TITLE/ABSTRACT] OR Fortaleza [TITLE/ABSTRACT] OR Belo horizonte [TITLE/ABSTRACT] OR manaus [TITLE/ABSTRACT] OR recife [TITLE/ABSTRACT] OR porto alegre [TITLE/ABSTRACT] OR campinas [TITLE/ABSTRACT] OR Sao Luís [TITLE/ABSTRACT] OR Maceió [TITLE/ABSTRACT] OR Rio Branco [TITLE/ABSTRACT] OR Brazil[MeSH Terms]</p>
	Bolivia	<p>Bolivia[TITLE/ABSTRACT] OR bolivia's[Title/Abstract] OR Bolivian[TITLE/ABSTRACT] OR bolivians[Title/Abstract] OR La Paz [TITLE/ABSTRACT] OR Bolivia [MeSH Terms] OR Cochabamba [TITLE/ABSTRACT]</p>

	Peru	<p>Peru[TITLE/ABSTRACT] OR</p> <p>Peru's[TITLE/ABSTRACT] OR</p> <p>Peruvian[TITLE/ABSTRACT] OR</p> <p>Peruvians[TITLE/ABSTRACT] OR Lima</p> <p>[TITLE/ABSTRACT] OR Peru [MeSH Terms] OR</p> <p>Ancash [TITLE/ABSTRACT] OR Cuzco</p> <p>[TITLE/ABSTRACT]OR Tacna [TITLE/ABSTRACT] OR</p> <p>Obes [TITLE/ABSTRACT]</p>
	Colombia	<p>Colombia [TITLE/ABSTRACT] OR</p> <p>Colombia*[TITLE/ABSTRACT] OR</p> <p>Bogota*[TITLE/ABSTRACT] OR Colombia [MeSH</p> <p>Terms] OR Antioquia [TITLE/ABSTRACT] OR Boyaca</p> <p>[TITLE/ABSTRACT] OR cauca [TITLE/ABSTRACT]</p> <p>OR Choco [TITLE/ABSTRACT] OR Cundinamarca</p> <p>[TITLE/ABSTRACT] OR Guainia [TITLE/ABSTRACT]</p> <p>OR Guaviare [TITLE/ABSTRACT]] OR La guajira</p> <p>[TITLE/ABSTRACT] OR Narino [TITLE/ABSTRACT]</p> <p>OR Valle del Cauca [TITLE/ABSTRACT] OR Medellín</p> <p>[TITLE/ABSTRACT] OR Popayan [TITLE/ABSTRACT]</p> <p>OR Monteria [TITLE/ABSTRACT] OR Riohacha</p> <p>[TITLE/ABSTRACT] OR Cucuta [TITLE/ABSTRACT]</p> <p>OR Mocoa [TITLE/ABSTRACT]</p>
	Ecuador	<p>Ecuador[TITLE/ABSTRACT] OR</p> <p>Ecuador's[TITLE/ABSTRACT] OR</p> <p>Ecuadorian*[TITLE/ABSTRACT] OR</p>

		<p>Quito[TITLE/ABSTRACT] OR Guayaquil</p> <p>[TITLE/ABSTRACT] OR Ecuador [MeSH Terms] OR</p> <p>Guayas [TITLE/ABSTRACT]</p>
	Venezuela	<p>Venezuela [TITLE/ABSTRACT] OR</p> <p>Venezuela*[TITLE/ABSTRACT] OR</p> <p>Caracas[TITLE/ABSTRACT] OR Venezuela [MeSH</p> <p>Terms] Anzoátegui [TITLE/ABSTRACT] OR Aragua</p> <p>[TITLE/ABSTRACT] OR Carabobo</p> <p>[TITLE/ABSTRACT] OR Táchira [TITLE/ABSTRACT]</p> <p>OR Ciudad Bolívar [TITLE/ABSTRACT]OR</p> <p>Barquisimeto [TITLE/ABSTRACT] OR Maturín</p> <p>[TITLE/ABSTRACT] OR</p> <p>Maracaibo[TITLE/ABSTRACT]</p>
Guianas	French Guiana	<p>French Guiana [TITLE/ABSTRACT] OR French</p> <p>Guianese[TITLE/ABSTRACT] OR Cayenne</p> <p>[TITLE/ABSTRACT] OR French Guiana [MeSH Terms]</p>
	British Guiana	<p>British Guiana [TITLE/ABSTRACT] OR guyanese</p> <p>[TITLE/ABSTRACT] OR Georgetown</p> <p>[TITLE/ABSTRACT] OR Bartica [TITLE/ABSTRACT]</p> <p>OR English Guiana [MeSH Terms]</p>
	Suriname	<p>Suriname [TITLE/ABSTRACT] OR Surinamese</p> <p>[TITLE/ABSTRACT] OR Paramaribo</p> <p>[TITLE/ABSTRACT] OR Suriname [MeSH Terms]</p>

Congo Basin	Angola	Angola [Title/Abstract] OR Angola*[Title/Abstract] OR Angolan*[Title/Abstract] OR Luanda[Title/Abstract] OR Angola [MeSH Terms]
	Burundi	Burundi*[Title/Abstract] OR Burundian [TITLE/ABSTRACT] OR Bujumbura[Title/Abstract] OR Burundi [MeSH Terms]
	Central African Republic	Central African*[Title/Abstract] OR Bangui*[Title/Abstract] OR Central Africa Republic [MeSH Terms]
	Democratic Republic of Congo	Congo[Title/Abstract] OR Congolese[Title/Abstract] OR Kongo[Title/Abstract] OR Congo [MeSH Terms]
	Equatorial Guinea	Equatorial Guinea*[Title/Abstract] OR Malabo[Title/Abstract] OR Bioko[Title/Abstract] OR Equatorial [MeSH Terms]
	Rwanda	Rwand*[Title/Abstract] OR Kigali*[Title/Abstract] OR Rwand [MeSH Terms]
	Sao Tome and Principe	Sao tome*[Title/Abstract] OR Sao Tome and principe [MeSH Terms]
	Tanzania	Tanzania*[Title/Abstract] OR Dar es Salaam*[Title/Abstract] OR Tanzania [MeSH Terms] OR Iringa[Title/Abstract] OR Kilimanjaro[Title/Abstract] OR Mbeya[Title/Abstract] OR Morogoro[Title/Abstract] OR Tanga[Title/Abstract] OR Zanzibar[Title/Abstract]
	Uganda	Uganda*[Title/Abstract] OR Kampala*[Title/Abstract] OR

		Entebbe[Title/Abstract] OR Mbarara*[Title/Abstract] OR Kinshasa*[Title/Abstract] OR Uganda [MeSH Terms]
Central America	Costa Rica	Costa Rica[TITLE/ABSTRACT] OR costa Rican [TITLE/ABSTRACT] OR San José [TITLE/ABSTRACT] OR Costa Rica [MeSH Terms]
	Belize	Belize [TITLE/ABSTRACT] OR belize*[TITLE/ABSTRACT] OR belize city[TITLE/ABSTRACT] OR Belizean [TITLE/ABSTRACT] OR Belize [MeSH Terms]
	Guatemala	Guatemala [TITLE/ABSTRACT] OR Guatemala*[TITLE/ABSTRACT] OR Alta verapaz [TITLE/ABSTRACT] OR Guatemala [MeSH Terms]
	Honduras	Honduras [TITLE/ABSTRACT] OR hondura*[Title/abstract] OR Catracho [TITLE/ABSTRACT] OR Tegucigalpa [TITLE/ABSTRACT] OR Honduras [MeSH Terms] OR Intibucá [TITLE/ABSTRACT] OR Islas de la Bahía [TITLE/ABSTRACT]
	Nicaragua	Nicaragua [TITLE/ABSTRACT] OR Nicaragua*[TITLE/ABSTRACT] OR Managua [TITLE/ABSTRACT] OR Nicaragua [MeSH Terms]
	Panama	Panama [TITLE/ABSTRACT] OR Panamanian [TITLE/ABSTRACT] OR panama city [TITLE/ABSTRACT] OR Panama[MeSH Terms]

	El Salvador	<p>El Salvador [TITLE/ABSTRACT] OR Salvador*[TITLE/ABSTRACT] OR San Salvador [TITLE/ABSTRACT] OR Santa Ana [TITLE/ABSTRACT] OR Sonsonate [TITLE/ABSTRACT] OR la Libertad [TITLE/ABSTRACT] OR Cuscatlán [TITLE/ABSTRACT] Or Cojutepeque [TITLE/ABSTRACT] OR san Vicente [TITLE/ABSTRACT] OR San Miguel [TITLE/ABSTRACT] OR La Unión [TITLE/ABSTRACT] OR El Salvador [MeSH Terms]</p>
Mexico	Mexico	<p>Mexico*[TITLE/ABSTRACT] OR Mexican*[TITLE/ABSTRACT] OR Veracruz [TITLE/ABSTRACT] OR Mexico [MeSH terms] OR Guanajuato [TITLE/ABSTRACT] OR Chiapas [TITLE/ABSTRACT] OR Tamaulipas [TITLE/ABSTRACT] OR San Luis Potosi [TITLE/ABSTRACT] OR Queretaro [TITLE/ABSTRACT] OR Tlaxcala [TITLE/ABSTRACT] OR Nayarit [TITLE/ABSTRACT] OR Campeche [TITLE/ABSTRACT] OR Colima [TITLE/ABSTRACT] OR Culiacán [TITLE/ABSTRACT] OR Tijuana [TITLE/ABSTRACT] OR Puebla [TITLE/ABSTRACT] OR Guadalajara [TITLE/ABSTRACT] OR Ciudad Juarez [TITLE/ABSTRACT] OR Zapopan [TITLE/ABSTRACT]</p>

		OR Monterrey [TITLE/ABSTRACT] OR Nezahualcóyotl [TITLE/ABSTRACT] OR Ecatepec De Morelos [TITLE/ABSTRACT] OR Naucalpan de Juárez [TITLE/ABSTRACT] OR Toluca [TITLE/ABSTRACT] OR Chihuahua [TITLE/ABSTRACT] OR Querétaro [TITLE/ABSTRACT] OR Aguascalientes [TITLE/ABSTRACT] OR Acapulco [TITLE/ABSTRACT] OR Hermosillo [TITLE/ABSTRACT] OR San Luis Potosí [TITLE/ABSTRACT] OR Morelia [TITLE/ABSTRACT] OR Tlalnepantla de Baz [TITLE/ABSTRACT] OR Cancun[Title/Abstract]
South Asia	Bangladesh	Bangla*[Title/Abstract] OR Dhaka[Title/Abstract]
	Ganges	Ganges[Title/Abstract]
	India	India[Title/Abstract] OR Indian[Title/Abstract] OR India’*[Title/Abstract] OR Delhi[Title/Abstract] OR Andhra Pradesh[Title/Abstract] OR Arunachal Pradesh[Title/Abstract] OR Assam[Title/Abstract] OR Bihar[Title/Abstract] OR Chhattisgarh[Title/Abstract] OR Goa[Title/Abstract] OR Gujarat[Title/Abstract] OR Haryana[Title/Abstract] OR Himachal Pradesh[Title/Abstract] OR Jammu and Kashmi[Title/Abstract] OR Jharkhand[Title/Abstract] OR Karnataka[Title/Abstract] OR Kerala[Title/Abstract] OR Madhya Pradesh[Title/Abstract] OR Maharashtra[Title/Abstract] OR Manipur[Title/Abstract]

		<p>OR Meghalaya[Title/Abstract] OR</p> <p>Mizoram[Title/Abstract] OR Nagaland[Title/Abstract] OR</p> <p>Orissa[Title/Abstract] OR Punjab[Title/Abstract] OR</p> <p>Rajasthan[Title/Abstract] OR Sikkim[Title/Abstract] OR</p> <p>Tamil Nadu[Title/Abstract] OR Tripura[Title/Abstract] OR</p> <p>Uttar Pradesh[Title/Abstract] OR</p> <p>Uttarakhand[Title/Abstract] OR West</p> <p>Bengal[Title/Abstract] OR Mumbai[Title/Abstract] OR</p> <p>Bangalore[Title/Abstract] OR Kolkata[Title/Abstract] OR</p> <p>Chennai[Title/Abstract] OR Hyderabad[Title/Abstract] OR</p> <p>Ahmedabad[Title/Abstract] OR Pune[Title/Abstract] OR</p> <p>Surat[Title/Abstract] OR Kanpur[Title/Abstract] OR</p> <p>Jaipur[Title/Abstract] OR Lucknow[Title/Abstract] OR</p> <p>Nagpur[Title/Abstract] OR Patna[Title/Abstract] OR</p> <p>Indore[Title/Abstract] OR Thane[Title/Abstract] OR</p> <p>Bhopal[Title/Abstract]</p>
	Nepal	<p>Nepal*[Title/Abstract] OR Kathmandu[Title/Abstract] OR</p> <p>Nepal [MeSH Terms]</p>
	Bhutan	<p>bhutan [Title/Abstract] OR</p> <p>Bhutanese*[TITLE/ABSTRACT] OR Timphu</p> <p>[Title/Abstract] OR bhutan [MeSH Terms]</p>
	Pakistan	<p>Pakistan [Title/Abstract] OR Pakistani [</p> <p>TITLE/ABSTRACT] OR Karachi [Title/Abstract] OR</p> <p>Pakistan [MeSH Terms] OR Islamabad [Title/Abstract] OR</p> <p>Sindh [Title/Abstract] OR Lahore [Title/Abstract] OR</p>

		Punjab [Title/Abstract] OR Balochistan [Title/Abstract] OR Sargodha [Title/Abstract] OR Bahawalpur [Title/Abstract] OR Sukkur [Title/Abstract] OR Gujrat [Title/Abstract] OR Kasur[Title/Abstract]
Southeast Asia	Brunei	Brunei*[Title/Abstract] OR Brunei [MeSH Terms] OR Bandar Seri Begawan [TITLE/ABSTRACT]
	China	China[Title/Abstract] OR China's[Title/Abstract] OR Chinese[Title/Abstract] OR Hong Kong[Title/Abstract] OR Beijing[Title/Abstract] OR Hebei[Title/Abstract] OR Inner [TITLE/ABSTRACT] OR Macau[Title/Abstract] OR Macao[Title/Abstract] OR Tianjin[Title/Abstract] OR Shanxi[Title/Abstract] OR China [MeSH Terms]
	Cambodia	Cambodia*[Title/Abstract] OR Khmer[Title/Abstract] OR Phnom Pehn[Title/Abstract] OR Cambodia [MeSH Terms]
	Lao People's Democratic Republic	Lao[Title/Abstract] OR Laos[Title/Abstract] OR Laotian*[Title/Abstract] OR Laos [MeSH Terms] OR Vientane[TITLE/ABSTRACT]
	Malaysia	Malaysia*[Title/Abstract] OR Malay[Title/Abstract] OR Kuala Lumpur[Title/Abstract] OR Malaysia [MeSH Terms]
	Mekong	Mekong[Title/Abstract] OR Mekong Valley [MesH Terms]
	Myanmar	Burma*[Title/Abstract] OR Myanmar*[Title/Abstract] OR Burmese[Title/Abstract] OR Yangon[Title/Abstract] OR Rangoon[Title/Abstract] OR Burma [MeSH Terms]
	Philippines	Philippines*[Title/Abstract] OR Filipino*[Title/Abstract]

		<p>OR Filipina*[Title/Abstract] OR Manila[Title/Abstract]</p> <p>OR quezon city [Title/Abstract] OR national capital region [Title/Abstract] OR davao region [Title/Abstract] OR central visayas [Title/Abstract] OR zamboanga peninsula [Title/Abstract] OR calabarzón [Title/Abstract] OR northern Mindanao [Title/Abstract] OR western visayas[Title/Abstract] OR central Luzon [Title/Abstract] OR Caloocan [Title/Abstract] OR davao city [Title/Abstract] OR cebu city [Title/Abstract] OR antipolo [Title/Abstract] OR pasig [Title/Abstract] OR taguig [Title/Abstract] OR Cagayan de oro [Title/Abstract] OR Paranaque [Title/Abstract] OR das marinas [Title/Abstract] OR las pinas [Title/Abstract] OR Makati [Title/Abstract] OR bacoor [Title/Abstract] OR Bacolod [Title/Abstract] OR muntinlupa [Title/Abstract] Philippines [MeSH Terms]</p>
	Vietnam	<p>Vietnam[TITLE/ABSTRACT] OR</p> <p>Vientiane*[Title/Abstract] OR Vietnam*[Title/Abstract] OR Viet Nam[Title/Abstract] OR Hanoi[Title/Abstract] OR Ho Chi Minh[Title/Abstract] OR Vietnam [MeSH Terms]</p>
	Yangtze	<p>Yangtze[Title/Abstract]</p>
	Indonesia	<p>Indonesia[TITLE/ABSTRACT] OR</p> <p>Indonesia*[TITLE/ABSTRACT] OR Indonesian [Title/Abstract] OR Indonesia [MeSH Terms] OR Java</p>

		<p>[Title/Abstract] OR Javanese [Title/Abstract] OR Sumatra [Title/Abstract] OR Sumatera Utara [Title/Abstract] OR West Sumatra [Title/Abstract] OR South Sumatra [Title/Abstract] OR Sumatera Selatan [Title/Abstract]Jakarta [Title/Abstract] OR Bandung [Title/Abstract] OR Semarang [Title/Abstract] OR Bali [Title/Abstract] Or Kupang [Title/Abstract] OR Kalimantan [Title/Abstract] OR South Kalimantan [Title/Abstract]OR East Kalimantan [Title/Abstract] OR Kalimantan Timur [Title/Abstract] OR Manado [Title/Abstract] OR Gorontalo [Title/Abstract] OR Gorontalo city [Title/Abstract] OR Central Sulawesi [Title/Abstract] OR Sulawsi Tengah [Title/Abstract] OR Palu [Title/Abstract]</p>
	<p>Papua New Guinea</p>	<p>Papua New Guinea [TITLE/ABSTRACT] OR Port Moresby [TITLE/ABSTRACT] OR papua new guinean [TITLE/ABSTRACT] OR papua new guinea [MeSH Terms] OR Gumine [Title/Abstract] OR Karimui-Nomana district [Title/Abstract] OR Karimui [Title/Abstract] OR Eastern Highlands province [Title/Abstract] OR Goroka [Title/Abstract] OR Mount Hagen district [Title/Abstract] OR Mount Hagen [Title/Abstract] OR West Sepik [Title/Abstract] Or Aitape [Title/Abstract] OR Nuku district [Title/Abstract] OR Nuku [Title/Abstract]</p>

	Thailand	Thailand [TITLE/ABSTRACT] OR Thai*[Title/Abstract] OR Bangkok [Title/Abstract] OR Thailand [MeSH Terms] OR Thailand [MeSH Terms] OR Chiang Mai [TITLE/ABSTRACT] OR Nakhom Ratchaisma [TITLE/ABSTRACT] OR Surat tani [TITLE/ABSTRACT] OR Khon Kaen [TITLE/ABSTRACT] OR PHitsanulok [TITLE/ABSTRACT] OR Chiang Rai [TITLE/ABSTRACT] OR Chonburi [TITLE/ABSTRACT] OR Chiang mai [TITLE/ABSTRACT] OR Nakhom Sawan [TITLE/ABSTRACT]
	Singapore	Singapore*[Title/Abstract] OR Bandar Seri Begawan [Title/Abstract] OR Singapore [MeSH Terms]

Search terms for the nine livestock species groups included in the study

Species group	Animal species	Search terms
camelids	Llamas	Llama*[TITLE/ABSTRACT] OR Lama glama [TITLE/ABSTRACT] OR llama [MeSH Terms]
	alpacas	alpaca*[TITLE/ABSTRACT] OR alpaca [MeSH Terms]
	dromedary camel	dromedar*[TITLE/ABSTRACT] OR dromedary camel [MeSH Terms]
	camels	Camel [TITLE/ABSTRACT] OR

		Camels[TITLE/ABSTRACT] OR dromedar*[TITLE/ABSTRACT] OR Camelid*[TITLE/ABSTRACT] OR camels [MeSH Terms]
	bactrian camel	Bactrian [TITLE/ABSTRACT] OR Camelid*[TITLE/ABSTRACT] OR Bactrian camel [MeSH Terms]
bovine	banteng	banteng*[TITLE/ABSTRACT] OR banteng [MeSH Terms]
	Cattle	Buffalo*[TITLE/ABSTRACT] OR <i>Bos taurus</i> [TITLE/ABSTRACT] OR bovine* [TITLE/ABSTRACT] OR calves[TITLE/ABSTRACT] OR calf[TITLE/ABSTRACT] OR Cattle*[TITLE/ABSTRACT] OR cattle [MeSH Terms] OR heifer*[TITLE/ABSTRACT] OR cows[TITLE/ABSTRACT] OR cow[TITLE/ABSTRACT] OR cow'*[TITLE/ABSTRACT] OR cows'*[TITLE/ABSTRACT] OR <i>Bos indicus</i> [TITLE/ABSTRACT] OR beef [TITLE/ABSTRACT] OR steer[TITLE/ABSTRACT] OR steers[TITLE/ABSTRACT] OR bulls[TITLE/ABSTRACT] OR veal[TITLE/ABSTRACT] OR Holstein*[TITLE/ABSTRACT] OR

		cattleman[TITLE/ABSTRACT]
	Farmed bison	farmed bison*[TITLE/ABSTRACT] OR bison farm*[TITLE/ABSTRACT] OR domestic bison*[TITLE/ABSTRACT] OR bison production*[TITLE/ABSTRACT] OR farmed bison water[TITLE/ABSTRACT] OR buffalo [MeSH Terms]
	Water buffalo	beefalo*[TITLE/ABSTRACT] OR Murrah buffalo*[TITLE/ABSTRACT] OR Water buffalo*[TITLE/ABSTRACT] OR River buffalo*[TITLE/ABSTRACT] OR Swamp buffalo*[TITLE/ABSTRACT] OR carabaos[TITLE/ABSTRACT] OR bubalus bubalus[TITLE/ABSTRACT] OR bubalis[TITLE/ABSTRACT] OR bos bubalus[TITLE/ABSTRACT] OR water buffalo [MeSH Terms]
	yak	Yak [TITLE/ABSTRACT] OR Yaks [TITLE/ABSTRACT] OR Yak'*[TITLE/ABSTRACT] OR Yaks'*[TITLE/ABSTRACT] OR Bos Grundiens[TITLE/ABSTRACT] OR yak water buffaloe [MeSH Terms]
	zebu	zebu*[TITLE/ABSTRACT] OR zebu [MeSH Terms]
Small	Sheep	cashmere*[TITLE/ABSTRACT] OR

ruminant		<p>Ewe[TITLE/ABSTRACT] OR</p> <p>Ewes[TITLE/ABSTRACT] OR</p> <p>Ewe'*[TITLE/ABSTRACT] OR</p> <p>Ewes'*[TITLE/ABSTRACT] OR</p> <p>Hogget*[TITLE/ABSTRACT] OR</p> <p>Lambing*[TITLE/ABSTRACT] OR lamb</p> <p>meat[TITLE/ABSTRACT] OR lambs</p> <p>[TITLE/ABSTRACT] OR</p> <p>Merino*[TITLE/ABSTRACT] OR</p> <p>mohair[TITLE/ABSTRACT] OR</p> <p>mutton*[TITLE/ABSTRACT] OR</p> <p>ovine*[TITLE/ABSTRACT] OR <i>Ovis aries</i></p> <p>[TITLE/ABSTRACT] OR Rams[TITLE/ABSTRACT]</p> <p>OR Sheep[TITLE/ABSTRACT] OR</p> <p>shepherd*[TITLE/ABSTRACT] OR</p> <p>sheep'*[TITLE/ABSTRACT] OR</p> <p>sheeps'*[TITLE/ABSTRACT] OR sheepmeat</p> <p>[TITLE/ABSTRACT] OR sheep [MeSH Terms] OR</p> <p>Wethers[TITLE/ABSTRACT] OR small</p> <p>ruminants[TITLE/ABSTRACT]</p>
	goats	<p>Small ruminant*[TITLE/ABSTRACT] OR Goat</p> <p>[TITLE/ABSTRACT] OR Goats [TITLE/ABSTRACT]</p> <p>OR Goat'*[TITLE/ABSTRACT] OR</p> <p>Goats'*[TITLE/ABSTRACT] OR</p> <p>goatling*[TITLE/ABSTRACT] OR</p>

		<p>goatowner*[TITLE/ABSTRACT] OR</p> <p>goats'[TITLE/ABSTRACT] OR</p> <p>goatskin*[TITLE/ABSTRACT] OR</p> <p>goat*[TITLE/ABSTRACT] OR</p> <p>billies[TITLE/ABSTRACT] OR Capra</p> <p>hircus[TITLE/ABSTRACT] OR</p> <p>cabrito*[TITLE/ABSTRACT] OR</p> <p>goatmeat[TITLE/ABSTRACT] OR</p> <p>Chevon[TITLE/ABSTRACT] OR</p> <p>goatherd*[TITLE/ABSTRACT] OR</p> <p>caprine[TITLE/ABSTRACT] OR goats [MeSH Terms]</p>
Equine	Horse	<p>Horse [TITLE/ABSTRACT] OR</p> <p>Horses[TITLE/ABSTRACT] OR</p> <p>horse*[TITLE/ABSTRACT] OR</p> <p>horses*[TITLE/ABSTRACT] OR</p> <p>horsebite[TITLE/ABSTRACT] OR</p> <p>horsebreeding[TITLE/ABSTRACT] OR</p> <p>horseman*[TITLE/ABSTRACT] OR</p> <p>horsemen[TITLE/ABSTRACT] OR</p> <p>horsemen's[TITLE/ABSTRACT] OR</p> <p>horserac*[TITLE/ABSTRACT] OR</p> <p>horses'[TITLE/ABSTRACT] OR</p> <p>horsewom*[TITLE/ABSTRACT] OR equid</p> <p>[TITLE/ABSTRACT] OR equids</p> <p>[TITLE/ABSTRACT] OR equine</p>

		<p>[TITLE/ABSTRACT] OR equines</p> <p>[TITLE/ABSTRACT] OR foal [TITLE/ABSTRACT]</p> <p>OR foals [TITLE/ABSTRACT] OR</p> <p>stallion*[TITLE/ABSTRACT] OR</p> <p>Racehorse*[TITLE/ABSTRACT] OR</p> <p>Mare[TITLE/ABSTRACT] OR</p> <p>Mares[TITLE/ABSTRACT] OR</p> <p>throughbred*[TITLE/ABSTRACT] OR</p> <p>Thoroughbred*[TITLE/ABSTRACT] OR</p> <p>standardbred*[TITLE/ABSTRACT] OR</p> <p>filly[TITLE/ABSTRACT] OR</p> <p>fillies[TITLE/ABSTRACT] OR</p> <p>Gelding*[TITLE/ABSTRACT] OR</p> <p>colt[TITLE/ABSTRACT] OR horse [MeSH Terms]</p>
	Donkey, mule	<p>donkey*[TITLE/ABSTRACT] OR equus</p> <p>asinus[TITLE/ABSTRACT] OR equus</p> <p>caballus[TITLE/ABSTRACT] OR</p> <p>Mule[TITLE/ABSTRACT] OR</p> <p>Mules[TITLE/ABSTRACT] OR donkey mule [MeSH Terms] OR donkey [MeSH Terms] OR mule [MeSH Terms]</p>
	hinnie	<p>Hinny[TITLE/ABSTRACT] OR</p> <p>Hinnies[TITLE/ABSTRACT]</p>
	ponnies	<p>Pony[TITLE/ABSTRACT] OR</p> <p>Ponnies[TITLE/ABSTRACT]</p>

Poultry	Chicken	Poultry*[TITLE/ABSTRACT] OR Fowl[TITLE/ABSTRACT] OR Fowls[TITLE/ABSTRACT] OR Poulties[TITLE/ABSTRACT] OR domestic bird*[TITLE/ABSTRACT] OR farm bird*[TITLE/ABSTRACT] OR farmed bird*[TITLE/ABSTRACT] OR bird production[TITLE/ABSTRACT] OR Layers [TITLE/ABSTRACT] OR broiler*[TITLE/ABSTRACT] OR chick [TITLE/ABSTRACT] OR chicks [TITLE/ABSTRACT] OR chick’*[TITLE/ABSTRACT] OR chicks’*[TITLE/ABSTRACT] OR gallus [TITLE/ABSTRACT] OR pullet*[TITLE/ABSTRACT] OR poult [TITLE/ABSTRACT] OR poults [TITLE/ABSTRACT] OR chicken[TITLE/ABSTRACT] OR chickens[TITLE/ABSTRACT] OR chicken’*[TITLE/ABSTRACT] OR chickens’*[TITLE/ABSTRACT] OR Rooster*[TITLE/ABSTRACT] OR cocks[TITLE/ABSTRACT] OR fighting cock[TITLE/ABSTRACT] OR cock
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		<p>fight*[TITLE/ABSTRACT] OR</p> <p>Capon[TITLE/ABSTRACT] OR</p> <p>Capons[TITLE/ABSTRACT] OR</p> <p>caponiz*[TITLE/ABSTRACT] OR</p> <p>caponis*[TITLE/ABSTRACT] OR</p> <p>Hens[TITLE/ABSTRACT] OR</p> <p>Hens'*[TITLE/ABSTRACT] OR</p> <p>Hen'*[TITLE/ABSTRACT] OR OR</p> <p>Leghorn*[TITLE/ABSTRACT] OR poultry [MeSH Terms]</p>
	duck	<p>Duck[TITLE/ABSTRACT] OR</p> <p>Ducks*[TITLE/ABSTRACT] OR</p> <p>Duck'*[TITLE/ABSTRACT] OR</p> <p>Duckling*[TITLE/ABSTRACT] Or</p> <p>Muscovy*[TITLE/ABSTRACT] OR</p> <p>Drakes[TITLE/ABSTRACT] OR farmed</p> <p>mallard*[TITLE/ABSTRACT] OR mallard</p> <p>farm*[TITLE/ABSTRACT] OR captive</p> <p>mallard*[TITLE/ABSTRACT] OR domestic</p> <p>mallard*[TITLE/ABSTRACT] OR Cairina</p> <p>moschata[TITLE/ABSTRACT] OR duck [MeSH Terms]</p>
	turkeys	<p>turkeys*[TITLE/ABSTRACT] OR Meleagris</p> <p>gallopavo [TITLE/ABSTRACT] OR turkey [MeSH Terms]</p>

guineafowl	guinea fowl[TITLE/ABSTRACT] OR guineafowl*[TITLE/ABSTRACT] OR Numida meleagris[TITLE/ABSTRACT]
goose	goose[TITLE/ABSTRACT] OR goose's[TITLE/ABSTRACT] OR geese*[TITLE/ABSTRACT] OR gosling*[TITLE/ABSTRACT] OR goose[MeSH Terms]
quail	quail [TITLE/ABSTRACT] OR quails[TITLE/ABSTRACT] OR quail'*[TITLE/ABSTRACT] OR quails'*[TITLE/ABSTRACT] OR quail [MeSH Terms]
pheasant	pheasant[TITLE/ABSTRACT] OR pheasants[TITLE/ABSTRACT] OR Phasianus colchicus[TITLE/ABSTRACT] OR pheasant [MeSH Terms]
pigeon	pigeon[TITLE/ABSTRACT] OR pigeons[TITLE/ABSTRACT] OR pigeon'*[TITLE/ABSTRACT] OR pigeons'*[TITLE/ABSTRACT] OR pigeon [MeSH Terms]
ratite	squab*[TITLE/ABSTRACT] OR ostrich*[TITLE/ABSTRACT] OR emu[TITLE/ABSTRACT] OR emus[TITLE/ABSTRACT] OR

		<p>rhea[TITLE/ABSTRACT] OR</p> <p>rheas[TITLE/ABSTRACT] OR</p> <p>partridge*[TITLE/ABSTRACT] OR ostrich [MeSH Terms] OR emus [MeSH Terms] OR rhea [MeSH Terms]</p>
Other farmed wild mammals	Other farmed wild mammals	<p>farmed reindeer[TITLE/ABSTRACT] OR reindeer</p> <p>farm*[TITLE/ABSTRACT] OR farmed deer[TITLE/ABSTRACT] OR deer</p> <p>farm*[TITLE/ABSTRACT] OR domestic reindeer[TITLE/ABSTRACT] OR domestic deer[TITLE/ABSTRACT] OR reindeer production[TITLE/ABSTRACT] OR deer production[TITLE/ABSTRACT] OR semidomestic reindeer*[TITLE/ABSTRACT] OR semidomesticated reindeer[TITLE/ABSTRACT] OR semidomesticated deer*[TITLE/ABSTRACT] OR semidomestic reindeer*[TITLE/ABSTRACT] OR elk</p> <p>farm*[TITLE/ABSTRACT] OR domesticated elk*[TITLE/ABSTRACT] OR domestic elk*[TITLE/ABSTRACT] OR elk production*[TITLE/ABSTRACT] OR domesticated elephant*[TITLE/ABSTRACT]</p>
Generic	Generic animal-	domestic ruminant*[TITLE/ABSTRACT] OR

<p>animal- related terminology</p>	<p>related terminology</p>	<p>ruminant farm*[TITLE/ABSTRACT] OR farmed ruminant*[TITLE/ABSTRACT] OR Ruminant production*[TITLE/ABSTRACT] OR Livestock*[TITLE/ABSTRACT] OR Livestock [MeSH Terms] OR Herd[TITLE/ABSTRACT] OR Herds[TITLE/ABSTRACT] OR Flock[TITLE/ABSTRACT] OR Flocks[TITLE/ABSTRACT] OR Cheese*[TITLE/ABSTRACT] OR Cheese [MeSH Terms] OR milk[TITLE/ABSTRACT] OR milk [MeSH Terms] OR yoghurt*[TITLE/ABSTRACT] OR yogurt[TITLE/ABSTRACT] OR yoghurt [MeSH Terms] OR kefir[TITLE/ABSTRACT] OR kefir [MeSH Terms] OR buttermilk[TITLE/ABSTRACT] OR sour cream[TITLE/ABSTRACT] OR Ghee[TITLE/ABSTRACT] OR Butter[TITLE/ABSTRACT] OR butter [MeSH Terms] OR Smetana[TITLE/ABSTRACT] OR Smetana [MeSH Terms] OR Quark[TITLE/ABSTRACT] OR Quark[MeSH Terms] OR Paneer [TITLE/ABSTRACT] OR Smen[TITLE/ABSTRACT] OR Kumis OR Airag[TITLE/ABSTRACT] OR leather[TITLE/ABSTRACT] OR meat[TITLE/ABSTRACT] OR Meats[TITLE/ABSTRACT] OR</p>
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		<p>wool[TITLE/ABSTRACT] OR bone meal[TITLE/ABSTRACT] OR dung[TITLE/ABSTRACT] OR Sausage*[TITLE/ABSTRACT] OR Hamburger*[TITLE/ABSTRACT] OR Mayonnaise[TITLE/ABSTRACT] OR Omelette*[TITLE/ABSTRACT] OR slaughterman[TITLE/ABSTRACT] OR abattoir[TITLE/ABSTRACT] OR sluaughterhouse[TITLE/ABSTRACT] OR butcher[TITLE/ABSTRACT]</p>
rabbits	rabbits	<p>rabbit [TITLE/ABSTRACT] OR rabbit'*[TITLE/ABSTRACT] OR Rabbits[TITLE/ABSTRACT] OR Rabbits'*[TITLE/ABSTRACT] OR rabbit [MeSH Terms] OR Oryctolagus[TITLE/ABSTRACT] OR cuy[TITLE/ABSTRACT] OR cane rat[TITLE/ABSTRACT]</p>
swine	swine	<p>Pig [TITLE/ABSTRACT] OR Pigs [TITLE/ABSTRACT] OR Pig'*[TITLE/ABSTRACT] OR Pigs'*[TITLE/ABSTRACT] OR pigger*[TITLE/ABSTRACT] OR pigmeat*[TITLE/ABSTRACT] OR swine [TITLE/ABSTRACT] OR</p>

		<p>swine*[TITLE/ABSTRACT] OR</p> <p>swines*[TITLE/ABSTRACT] OR</p> <p>porcine[TITLE/ABSTRACT] OR</p> <p>swineherd*[TITLE/ABSTRACT] OR</p> <p>swineries*[TITLE/ABSTRACT] OR</p> <p>swinery*[TITLE/ABSTRACT] OR Sus domesticus [TITLE/ABSTRACT] OR suid [TITLE/ABSTRACT] OR suids [TITLE/ABSTRACT] OR</p> <p>pork[TITLE/ABSTRACT] OR</p> <p>swines[TITLE/ABSTRACT] OR Sus domesticus[TITLE/ABSTRACT] OR</p> <p>suid[TITLE/ABSTRACT] OR</p> <p>suids[TITLE/ABSTRACT] OR</p> <p>pork[TITLE/ABSTRACT] OR</p> <p>pork*[TITLE/ABSTRACT] OR</p> <p>pork's*[TITLE/ABSTRACT] OR</p> <p>piglet*[TITLE/ABSTRACT] OR</p> <p>sows[TITLE/ABSTRACT] OR</p> <p>gilts[TITLE/ABSTRACT] OR</p> <p>hogs[TITLE/ABSTRACT] OR wild boar</p> <p>farm*[TITLE/ABSTRACT] OR domestic wild</p> <p>boar*[TITLE/ABSTRACT] OR wild boar</p> <p>production[TITLE/ABSTRACT] OR farmed wild</p> <p>boar[TITLE/ABSTRACT] OR</p> <p>bacon[TITLE/ABSTRACT] OR</p>
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		lard[TITLE/ABSTRACT] OR Chorizo*[TITLE/ABSTRACT] OR ham[TITLE/ABSTRACT] OR pigs[mesh terms]
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