DOES CONTROL OF ANIMAL INFECTIOUS RISKS OFFER A NEW INTERNATIONAL PERSPECTIVE?

MOLECULAR EPIDEMIOLOGY AND CHARACTERIZATION OF CAMEL GROUP A Rotaviruses in Sudan

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ABSTRACT

Group A rotaviruses from diarrheic camel calves in Sudan were characterized for VP6 subgroup specificity and for RNA electropherotype. 69% of samples could be subgrouped and most were VP6 subgroup II specificity. The characteristic group A rotavirus long RNA electropherotype with three different profiles were observed in all positive samples with sufficient quantities of RNA. To our knowledge this is the first report for the determination of camel group A rotavirus subgroup specificity.

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ROLE OF RATS IN THE EPIDEMIOLOGY OF LEPTOSPIROSIS IN MALAYSIA

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ABSTRACT

High prevalence of leptospiral infection is seen in the wildlife, domestic animals and humans in tropical Malaysia. The various species of rats found in the country play an important role in the epidemiology of leptospirosis and their distribution established specific ecological niches, often with specific prevailing leptospiral serovars. This often led to frequent outbreaks of leptospirosis in humans when people intrude into new environment through various recreational or occupational activities. These acute cases of leptospirosis seen in humans need to be diagnosed early for immediate treatment which otherwise, lead to overt disease and death. Leptospirosis is now considered as an important re-emerging disease of great public health importance in Malaysia.

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SERO-PREVALENCE OF NEWCASTLE DISEASE IN BACKYARD CHICKENS IN MID RIFT VALLEY OF OROMIA, ETHIOPIA

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ABSTRACT
Cross sectional sero-surveillance study was conducted in two districts of East showa Zone; Shashemane and Adami Tulu Jiddo Kombolcha (ATJK) representing sub humid and semi-arid Agro ecologic zones, respectively. The area is characterized by binomial rain fall with long rainy season from June -September and short rainy season from February-April. Blood samples were collected from the wing vein of scavenging unvaccinated chickens in the short rainy season. About 316 serum samples were collected and analyzed for antibody against Newcastle disease virus (NCDV) using Haemagglutination inhibition test (HI) and antibody titer of log2 was considered as positive. The sero prevalence rates were 12% in Shashamane district and 9.7 % in ATJK district. No significant difference (P<0.05) was observed in sero-prevalence rates of ND between the two districts implicating the impact Newcastle disease in backyard chickens despite of their agro ecologic location. The over all ser-prevalence prevalence rate of ND in the two districts is 11% which is some what lower than the previous findings (Serkalem T., Hagos A., and Zeleke A., (2005) Sero prevalence study of Newcastle disease in local chickens in central Ethiopia. InterJ Appl Res. Vet. Med.3 (1), 32.22% and Ashenafi H (2003): Identification major infections of local chickens of central Ethiopia, Bull.Anim.Hlth.Prod. Afr. 51, 95-101, 43.7 %) which may be due to wane up immune status of the population from the previous exposure as the disease is more common in rainy season. Temporal sero prevalence rate of the disease and associated epidemiological variables is being investigated. However there is a need to carry out some studies on the prevalence rate attributed to mesogenic and velogenic strains of NCDV and on designing appropriate vaccine delivery system to the village chickens in a sustainable way.

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RISK ASSESSMENT OF MAJOR ZOONOTIC DISEASES IN UGANDA

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ABSTRACT

Uganda, an enclave in the Great Lakes region, has prioritized animal production in the Programme for Modernization of Agriculture (PMA) put in place in 2000 to alleviate poverty. The French cooperation participates in the PMA implementation by developing activities in the dairy sector in the southwestern Mbarara region, where close to one million cattle contribute to the greatest amount of milk to Kampala, the capital city. The high prevalence of tuberculosis and brucellosis registered in cattle farming has raised public concern on the zoonotic risk of these diseases. Results presented in this study confirm high animal prevalence of both tuberculosis and brucellosis, and surveys carried out in the human population concluded that the crucial public health problem of these diseases is more pronounced in Mbarara than in Kampala, due to a lower consumption of raw milk in the capital city. Recommendations highlight on a better sensitization on the risks associated with raw milk consumption, particularly within pastoral farming where brucellosis prevalence is the highest. The risk for humans to contract tuberculosis from Mycobacterium bovis is low, but further investigation must focus on the role of M. tuberculosis and M. other than tuberculosis in the animal-humans transmission of this major disease in the context of a high prevalence of HIV infection.

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RISK FACTORS FOR BRUCELLA SPECIES INFECTION IN CATTLE FROM SMALLHOLDER FARMS IN ZIMBABWE

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ABSTRACT

A cross sectional study was conducted to investigate herd-level risk factors for Brucella species infection in cattle from smallholder farms selected from six areas representative of the five distinct agro-ecological zones of Zimbabwe. Farms (n = 203) and cattle (n = 1440) were selected using a two stage stratified sampling procedure. Data on potential risk factors were collected using standard questionnaires. Sera were tested using Rose Bengal test and the competitive ELISA. Sera positive on both tests were regarded as positive for antibodies to Brucella species. A positive farm was defined as one in which at least one sero-positive animal was detected. Multivariable logistic and negative binomial regression models were used to analyse the data. 52 (24.99%) of the 203 farms were identified as positive. In the multivariable logistic regression analysis, keeping mixed Bos indicus/Bos taurus breeds and increased stocking densities were found to be important risk factors for exposure to Brucella species (OR= 8.48, 95% CI: 2.72, 26.47 and OR= 1.42, 95% CI: 1.15, 1.77 respectively). The significance of these and other herd-level risk factors in the spread of Brucella species infection in smallholder cattle farms in Zimbabwe are discussed in detail.

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DERMATITES OF EQUIDES, PRODUCED BY ACARIANS AND HEMATOMPHAGUES INSECTS

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ABSTRACT

During 2002-2005, was investigated 148 horses and donkeys from the N-E, N-V and N areas of Romania. The clinical examination revealed on 39 of the animals dermatitis of mouth, ears, legs and abdomen. From this on 12% we identified ectoparasites. The ectoparasites were: Boophylus calcaratus (32,5%) and Ixodes ricinus (67,5%). All the animals parasitised with ectoparasites were examined for the presence of haemoparasites. But on any blood samples of animals we have not found haemoparasites. After clinical examination, we collected of the all 39 horses and donkeys the skin scrapings samples and faecals to establish of the aethiological agent of dermatitis. From the all fecal samples,12 were positive for eggs, characteristic for big and little Strongylus. All the skin scrapings samples was negative for acarians eggs. Identification of the aethiological agent of the dermatitis was based on first of clinical examination on then combined with skin scrapings, blood smears, faecal samples and finely control of the hematopagues insects population because, we considered that this insects are responsibille of dermatitis. We collected insects samples from the animals areas investigated. The microscopical examination of the insects samples revealed the present of the species: Tabanus, Culex, Culicooides, Anopheles and Simulium. From all collected insects, Culicooides represented 80% from the total populations insects. For this reason we considered that this insect may be a possible responsible of this dermatites.

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SURVEY ON THE CONTAMINATION OF MILK CHAIN IN PERIURBAN AREA OF NIAMEY

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ABSTRACT

Low hygiene quality in milk chain is a relevant problem which restrains local production and contributes to spread zoonotic diseases through the consumption of raw milk. A survey on the contamination of milk chain in periurban cattle farming was performed in Niamey (Niger). 290 milk samples were collected from 82 different herds to verify critical points of milk chain transport to evaluate the contamination levels. Total coliform, fecal coliform, Escherichia coli, Staphylococcus aureus, S-reducing Clostridia spp., Salmonella spp. and Lysteria spp. were analysed. Significant increase of the bacterial contamination was recorded: the mesophilic bacteria count growths from udder (1.8*10^5 UFC) to tank in the processing unit (4.4*10^6 UFC). Fecal coliform count increases from udder (1.9*10^2 UFC) to milking pail (4.5*10^3 UFC), while E. coli contamination growths from udder (1*10 UFC) to milk churn (7.7*10^2 UFC). The results show that the contamination from zoonotic bacteria grows significantly during the milk chain and in particular in the first two steps (from the udder to the milking pail). A training program to improve the food safety and the local dairy production is suggested for the actors of milk chain.

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SEROPREVALENCE OF BRUCELLOSIS, CHLAMYDIOsis AND Q FEVER IN DAIRY CATTLE IN THE PERIURBAN AREA OF NIAMEY

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ABSTRACT

Zoonoses represent a public health problem throughout the world, particularly in the developing countries, where the control is restricted because of inadequate infrastructure and financial resources. Additionally, there is a lack of information on their significance and distribution. A cross-sectional study was performed in the dairy cattle of the periurban area of Niamey (Niger). 404 blood samples were collected from animals of different ages and different breeds (Azawak, Djelli, Bororo and their crossbreds) in 8 villages. Blood sera were submitted to serological analyses using the Complement Fixation Test for Chlamydia psittaci and Brucella abortus and ELISA for Coxielia burnetii (Q fever) to calculate the epidemiological index of prevalence for each disease and to identify the risk for human health. Mean seroprevalences for brucellosis, Q fever and chlamydiosis were 0.99%, 4.72% and 0.24%, respectively. Coxiella seroprevalence was higher in adult cattle (7%), Brucella and Chlamydia in the calves (2.4% and 3.5%, respectively). These results need to be taken into consideration to implement future livestock upgrading programs; further investigation is needed to better understand the epidemiology of zoonotic diseases in Niamey area and to evaluate the consequence for the population.

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SEROPREVALENCE OF BRUCELLOSIS, CHLAMYDIOSIS AND Q FEVER IN SMALL RUMINANTS IN THE PERIURBAN AREA OF NIAMEY

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ABSTRACT

The small ruminant husbandry represents a traditional and fundamental component of animal production in developing countries, as economic, social and food issues. Five-hundred and fifty blood samples of sheep and goats were collected in the urban area of Niamey (Niger) to investigate the seroprevalence of three important zoonotic diseases (brucellosis, chlamydiosis and q-fever). Samples were kept at 5°C till centrifugation and the plasma was stored at -20°C. Plasma samples were analysed with the ELISA test for q-fever, concerning brucellosis and chlamydiosis complement fixation test was used. Serological analyses show no cases of brucellosis, fourteen q-fever affected animals and only one case of chlamydiosis. In conclusion, the results confirm about the low level of contamination from the zoonotic diseases investigated in this study; however further investigations are required to improve the sampling.

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THE ROLES OF HUSBANDRY AND RESPIRATORY INFECTIONS ON THE PRODUCTIVITY OF SMALL RUMINANTS IN NORTHERN CAMEROON

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ABSTRACT

The role of husbandry practice and incidence of respiratory pathogens (Mycoplasma capricolum subsp. capripneumoniae [MCC], Pasteurella multocida [MP] and Peste des Petits Ruminants [PPR]) in the occurrence of respiratory symptoms, morbidity, mortality and destocking rates were investigated among randomly selected 13 flocks consisting of 300 goats and 200 sheep in the Northern provinces of Cameroon. The variables investigated were introduction of new stock into flock, morbidity, mortality, destocking, routine TCRV vaccination and rearing of small ruminants with other animals. Introduction of new stock was not commonly practiced by flock owners and animals in the flocks received routine TCRV vaccination. Slaughtering and sale of sick animals were the commonest means of destocking and these correlated positively with morbidity and mortality rates in all the flocks investigated. Attempts at recovery of respiratory pathogens from nasal swabs obtained from the experimental animals yielded the following isolates: Mycoplasma (small colony) from 27% of goats and 0% of sheep; MP from 18% of goats and 5% of sheep; Mycoplasma (large colony) from 6% of goats and 10% of sheep. None of the swabs yielded PPR isolate. The difference in the pathogen recovery rate between sheep and goat was significant and correlated positively with the occurrence of respiratory symptoms, morbidity and mortality in most of the flocks and locations studied. The occurrence of respiratory pathogens may be an important factor in the productivity of small ruminants in northern Cameroon.

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AVIAN INFLUENZA IN NIGERIA: INCREASING SPREAD WITH POTENTIALS FOR ENDEMICITY

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ABSTRACT

In February 2006, Highly Pathogenic Avian Influenza (HPAI) [H5N1] was reported for the first time in Nigeria. As of July 2006, the disease had spread across over 40% of the entire country affecting 14 of Nigeria’s 36 States and over 50 cities had become infected. To date, the disease continues to spread widely and over 21 (60%) of the States have been affected. The disease has seriously affected the poultry industry, with over two million birds killed or culled, and the consumption of poultry and poultry products continue to decline radically since confirmation of the initial outbreak in the country. Phylogenetic analysis of the Nigerian strains hypothesizes that at least three different introduction of HPAI virus occurred in the country more or less simultaneously. This could be explained by mixed scenario involving wild bird and commercial origin possibly through illegal importation of poultry or poultry products. The Nigerian outbreak opened the floor for new risk/threats in other African countries. For instance, one month after the Nigerian outbreak, Niger confirmed an outbreak close to its border with Nigeria. Presently, the disease has been detected in Egypt, Cameroon, Burkina Faso, Sudan, Ivory Coast and Djibouti The occurrence of the H5N1 virus in the African continent is of major concern, putting at immediate risk the livelihood of millions of people relying on poultry production for income generation and source of protein. The disease continues to spread in Nigeria and has been reported in commercial and village poultry flocks as well as in wild and migratory birds.

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LONG-TERM STORAGE OF ANIMAL BLOOD ON FILTER PAPERS FOR DIRECT DETECTION AND GENOTYPING OF VIRUSES

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ABSTRACT

In tropical countries, the diagnosis of viral infections of humans or animals is often hampered by the necessity to maintain a cold chain for the sample preservation up to the laboratory. Here, we describe the use of filter papers for rapid sample collection, and the molecular detection and genotyping of viruses when stored over long periods at elevated temperatures. Infected blood was collected on filter papers, dried and stored at different temperatures (22, 32 and 37°C) for various period of time (up to 9 months). Two animal viruses, African swine fever, a large double-stranded DNA virus and Peste des Petits Ruminants, a negative single-stranded RNA virus were used to validate the method. Filter papers, with dried blood containing virus or control plasmid DNA, were cut in small 5 mm² pieces and added directly to the PCR tube for conventional PCR. Nucleic acid from both viruses could still be detected after 3 months at 32°C. Moreover, the DNA virus could be detected at least 9 months after conservation at 37°C. PCR products obtained from the filter papers were sequenced and phylogenetic analysis carried out. The results were consistent with published sequences, demonstrating that this method can be used for virus genotyping.

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RISK ANALYSIS AND CONTINGENCY PLANS: THE BEST OPTION TO IMPROVE PREVENTIVE AND CONTROL MEASURES

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ABSTRACT

Free trade of animals and animal products in our global world makes it difficult to keep away from the incursion of diseases. In the veterinary field, risk analysis has become commonly used to determine and manage the associated risk of animal and animal products transactions. Contingency plans try to summarize effectively all the measures to prevent and control an outbreak. Their effectiveness will depend on the accuracy and completeness of the information and on the accuracy and applicability of the measures suggested. It seems logical to carry out a risk analysis of the region in the first place to integrate in a contingency plan the regional critical points identified. However, and despite the increasing popularity of risk analysis in veterinary science, most contingency plans do not consider the specific characteristics of the region/country where it will be applied, reducing its usefulness. Regional risk-based plans are being developed for OIE Notifiable diseases and distributed among official veterinarians who not only will be able to reduce the risk of entrance and spread with specific preventive measures, but also will know how to control effectively an outbreak reducing as much as possible its consequences.

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RETAINING LOW PATHOGENIC CHARACTERISTIC OF AVIAN INFLUENZA H9N2 ISOLATES BASED ON GENETIC MARKERS OF SURFACE PROTEINS

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ABSTRACT

Influenza A viruses possess two virion surface glycoproteins including haemagglutinin (HA) and neuraminidase (NA). Through HA glycoprotein, virus particles bind to cell surface receptors to initiate virus penetration. The NA plays an important role in viral replication and promotes virus release from infected cells and facilitates virus spread throughout the body. To find out any genomic changes that might be occurred on antigenic proteins of avian influenza circulating viruses, we have genetically analyzed the NA and HA genes of six Avian Influenza (AI) viruses H9N2 subtype isolated from different parts of Iran. A comparison of deduced amino acid sequences of NA gene, showed some amino acid substitutions among the local AI isolates. However no insertions or shortening in the stalk region of the genes were observed. Mutation in Glu 119 as a marker for enzyme sensitivity reduction to the antiviral drugs was not observed. Based on the results, no significant mutations in NA genes of the viruses isolated during the period of the study occurred and our findings are in agreement with results of previous study of the viruses indicated a low pathogen character for the isolates on the basis of amino acid sequence of HA cleavage site and experimental infection.

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MULTIPLE GASTROINTESTINAL HELMINTHOSES OF FOOD ANIMALS AND THEIR PUBLIC HEALTH SIGNIFICANCE IN WEST CAMEROON

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ABSTRACT

Livestock offers to the poor important socio-economic, cultural or religious pathways out of poverty in Cameroon and other poor countries. However, animal parasitisms continue to constrain livestock productivity, agricultural development, human welfare and poverty alleviation due to the ineffectiveness, costliness or inappropriateness of control programmes. Many of these diseases are zoonoses. Thus the impact of the interactions of human/animal/environment/disease factors and interplay between them needs to be better understood. In this context, faecal samples of food animals and their human handlers in West-Cameroon were examined to study the prevalence and types of gastrointestinal helminthoses. Between 85 – 98% of food animals and all the humans had one or more parasites with nematodes being the main parasites. Also, 62 – 85% of animals and about 20.03% of human had mixed infestations. Goats were most infested followed by sheep, horse, pigs and cattle. The dual and triple types of parasite associations were most (P<0.05) frequent. Ascaris, Ancylostoma, Strongyloides and Trichuris spp observed in human samples were also recorded in the animals. Multiple gastrointestinal parasitisms are present in livestock and climate, differential susceptibility of animals to parasites and management influenced the parasitic diversity in the study area. These results are of veterinary/public health importance.

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MULTIPLE GASTROINTESTINAL HELMINTHOSES OF DOGS IN WEST CAMEROON

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ABSTRACT
A survey of dogs in West Cameroon was carried out to study the prevalence and type of multiple gastrointestinal helminthoses. A total of 93.61% of dogs had one or more gastrointestinal parasites; nematodes were the main parasites. The most prevalent were Ancylostoma spp, Toxocara canis and Uncinaria stenocephala in single and diverse parasitic infestations, occurring together and or in combination with other species. The prevalence of infestations increased with age and male dogs usually harboured 1.51 times more infestations than their female counterparts while the intensity decreased with increased in age. A total of 75.74% of infested dogs had mixed infestations and seven types of diverse parasitic associations were identified. The dual (38.30%) and triple (22.13%) types of parasite associations were most (P<0.05) frequent. In all, significantly more (P<0.05) male dogs and older dogs harboured single or multiple parasite associations but no difference (P>0.01) was observed between sexes within age groups. The geographical location and climate, free roaming or high scavenging nature of dogs, irresponsible dog ownership altitudes and differential susceptibility of dogs to parasites influenced parasitic diversity in the study area. The results of this work are of veterinary and public health importance.

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THE BURSITIS DISEASE IN THE IMPORTED CHICKEN IN BENIN: HISTOLOGICAL DIAGNOSTIC

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ABSTRACT

Many cases of Gumboro disease have been underlined in the imported chickens (including chicks for future laying) breeding in 2003 and 2005. It is the first time that disease has been diagnosed in Benin Republic with histological method. The classical lesions of that viral disease, revealed by the histological diagnose confirmed its presence in the series of chickens vaccinated in 2003 with TAD Gumbobro vaccine of Laprovet laboratory, Paris-France. The persistence of that biological ailment raised the immune status problem of one day chicks imported from different horizons (France, Belgium, Italy, Ghana, and Nigeria) or from local incubating centres. For their different breeding practices breeders of imported chickens are then sharply addressed to.

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SEROLOGICAL SURVEY OF PESTE DES PETITS RUMINANTS IN NORTH WEST MALI


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ABSTRACT
In July 2005 a survey was carried out to estimate the seroprevalence against peste des petites ruminants (PPR) in North West Mali (Koulikoro region, Nara ‘cercle’ that borders with Mauritania). Eight villages were randomly selected among all the villages in the ‘cercle’ and within each village a convenient sample of 20 sheep and 20 goats was selected from the ‘village flock’. Sex and estimated age were recorded for each animal. Out of 310 valid samples 120 (37%) had detectable antibodies against PPR. The within flock prevalence ranged between 8% and 82%. Overall, 44% of goats and 34% of sheep were seropositive. The seroprevalence increased with the age: 16% among 1 year old animals, 20% in the 2 year group and 40% in the 3 year and more than 3 year groups. These results, obtained in a non-vaccinated population, demonstrate the recent and intense circulation of PPRV among small ruminants in the area and point at PPR as one of the health constrains in this production system.

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RESPONSE TO HIGHLY PATHOGENIC AVIAN INFLUENZA THREAT - KENYA'S EXPERIENCE

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ABSTRACT

Highly Pathogenic Avian Influenza (HPAI) is becoming a priority disease all over the world due to its epidemic nature and its socio-economic implications. The reality of HPAI hit Africa in 2006 when it was first reported and with subsequent spread to several African countries. To respond effectively to the global threat of HPAI, Kenya set out to determine the HPAI status and assess the risk of infection. Based on emerging information on HPAI from the countries that had experienced the disease, subjective risk analysis was carried out and risk factors were determined. To determine the country’s disease status, an early warning system was put in place whereby passive surveillance coupled with outbreak investigations were routinely done. Targeted surveillance and participatory disease search were undertaken in domestic birds and pigs high risk areas in May 2006. In wild birds, strategic surveillance was done. So far, results from surveillance activities indicate the country is free from HPAI. All the 2700 samples collected from these activities were negative for HPAI. The risk of introduction of the disease into the country is however high after the reporting of the disease by a neighboring country and the fact that Kenya is located within the migratory pathway of birds from Asia and Europe. If the disease incursion is to be averted, there is need for the country to have a HPAI contingency plan, continue to work in close collaboration with the relevant stakeholders who include government departments, development partners and international bodies.

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RISK ANALYSIS OF THE INTRODUCTION AND SPREAD OF HONEYBEE DISEASES IN SPAIN

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ABSTRACT

As a consequence of commercial globalization, countries are in constant risk of introduction of new/re-emerging diseases into their territory. This way, to be able to determine the disease-risks to which a production system as beekeeping is exposed to, it is ideal to rely on an epidemiological model that evaluates the probability of entry and diffusion in Spain of the pathogenic agents which concern the honeybees, helping to increase the models of biosecurity and sanitary policy that guarantee commercial exchanges of products of bees with a higher health safety. The aim of this work was to create an epidemiological model that allows to value the risk of entry and diffusion, to the Spanish territory, of all honeybee diseases taking into account the characteristics of the causal agents involved, forms of transmission, as well as the historical prevalence, both in Spain and in other surrounding countries. Finally, the different scenarios through which harmful agents can enter are emphasized, constituting the basis for the development of the probabilistic epidemiological model.

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