Geographic distribution of ruminant brucellosis, Upper Egypt

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Introduction

➢ Brucellosis is endemic in Egypt and prevalence may be increasing (Refai 2002).

➢ The official National control programme currently in place consists of:
  1- test of females older than 6 months of age and slaughter of the seropositive.
  2- voluntary vaccination of calves using *Brucella abortus* S19 vaccine and *Brucella meletensis* Rev 1 vaccine for lambs and kids.

➢ There are no data on the distribution of brucellosis among ruminant species in Upper Egypt (Abdel-Hafeez, 1996), which is required for applying a sound control programme.

➢ The Egyptian-Spanish project for the control of brucellosis in the Upper Egypt 2005-2008 was the last bilateral project that was integrated within the National Egyptian control policies in place aiming at serologically testing of 10% of all ruminant population in Upper Egypt every year and vaccination of young ruminants.

Aim

Describe the geographic distribution of brucellosis among different ruminant species in Upper Egypt .

Materials and Methods

➢ **Data:**.
Results from the Egyptian-Spanish project of serological tests against *Brucella* spp (2005-2008) for different ruminant species in Upper Egypt were obtained.

➢ **Limitations:**
probabilistic selection of predefined number of animals was not insured.

➢ **Suggestions:**
Using the household flocks/herds as unit of analysis instead of individual animals. This may reduce the potential for bias due to aggregation of individual animal samples within certain households.

➢ **Analysis:**
Choropleth map displaying geographic distribution of proportions of households with serologically positive animals against *Brucella* spp in the study area using Arc GIS 9.2 (ESRI 2006).

Spatial autocorrelation of seropositive status of households (houses with more than 3 animals) at district level for each ruminant species using Univariate Moran's I and Identification of cluster detected using LISA .These tests were done using GeoDa 0.9.5-i.5 (Luc Anselin and The Reagents of the University of Illinois, 1998-2004).

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Results

➢ In the study area, northern governorates (Beni Sueif and Al Minia) showed the highest proportions of households with serologically positive cases. There was a declining proportion of the seropositive cases toward the south of the study (Figure1).

➢ Global cluster detection and identification indicated that there was a positive spatial correlation between the proportion of positive herds/flocks of different ruminant species in Upper Egypt area.
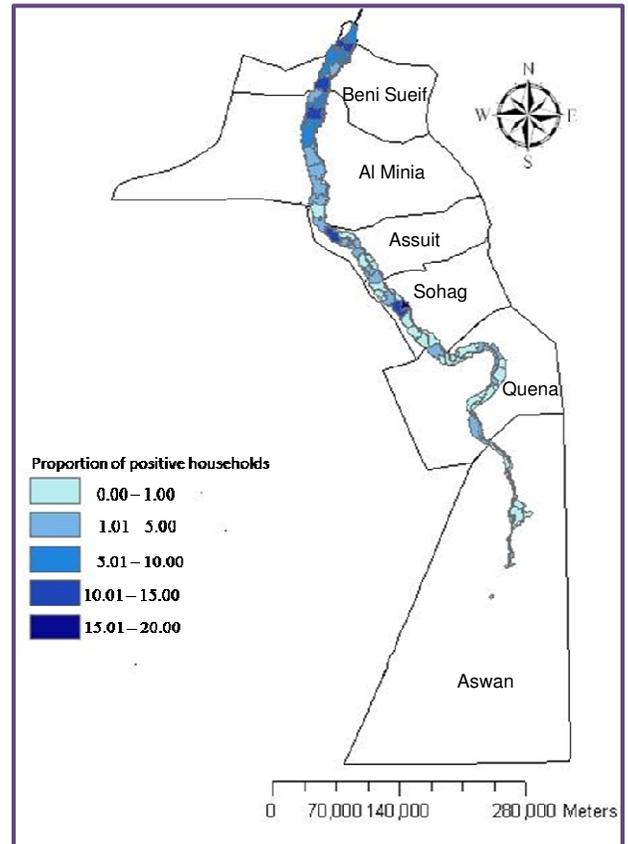
Proportion of positive households
0.00 – 1.00
1.01 5.00
5.01 – 10.00
10.01 – 15.00
15.01 – 20.00

0   70,000 140,000   280,000 Meters

Figure 1: Proportions of households with serologically positive ruminant species in different districts in Upper Egypt.

Conclusion

Ruminant brucellosis is heterogeneously distributed in Upper Egypt, with a higher prevalence in Northern governorates. Seropositivity of susceptible species against *Brucella* spp is spatially correlated indicating that interspecies transmission occurs.

References
Refai MK. Brucellosis in animals and man in Egypt. *Egyptian Journal of Veterinary Science* 2003; 37: 1-31.
Abdel-Hafeez MM. A serological study on brucella infection among cattle in Assiut governorate. *Assiut Veterinary Medical Journal* 1996; 36:1-5.