



# The occurrence of porcine *Toxoplasma gondii* infections in smallholder production systems in Uganda

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# Background – pig production in Uganda

- Dynamic and rapidly growing sector
- Popular among smallholders
- High per capita consumption
- 70% consumed in urban areas
- Lack of data on (zoonotic) pig diseases



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**Most pork in Kampala is unsafe - health experts**

**Health risk.** The KCCA health team says most of the pork on the market is prepared in unhygienic places, right from the slaughter chamber.

**KAMPALA.** Majority of pork supplied in Kampala for human consumption is contaminated, the Kampala Capital City Authority public health department has warned.

Dr Emilia Ahimbisliwe, the KCCA senior veterinary officer, said the pork sold in the city is increasingly becoming risky for human consumption, citing the reported unhygienic nature in which meat is being slaughtered, transported and prepared.

"A big percentage of pigs slaughtered in Kampala are not cleared for human consumption," Dr Ahimbisliwe told journalists in Kampala yesterday.

He warned that loyal pork consumers face the danger of contracting epilepsy or running mad among other related ailments.

"The city is littered with illegal pork abattoirs in various suburbs including Nsambya- Kanswanyi Zone, Kinawataka and Wambuzi in Lubaga Division," he said.

Dr Ahimbisliwe said pork contains tape worms which cause epilepsy when consumed without excellent preparation and warned consumers against feasting on meat which is not thoroughly cooked.

**INSPECTED FIGURE**

**50 per cent**

The percentage of animals that KCCA says it gets to inspect, of the 200 slaughtered daily.

**Compromising notes**

The judge set June 29 to be the two parties sort out any contentious issues before they call a hearing date.

Core to this case is that Mwonzha allegedly earned a very meagre fee for judges because was higher while at the same time taking allowance as IGJ became higher than that of judge.

Ms Mwonzha denies all allegations.

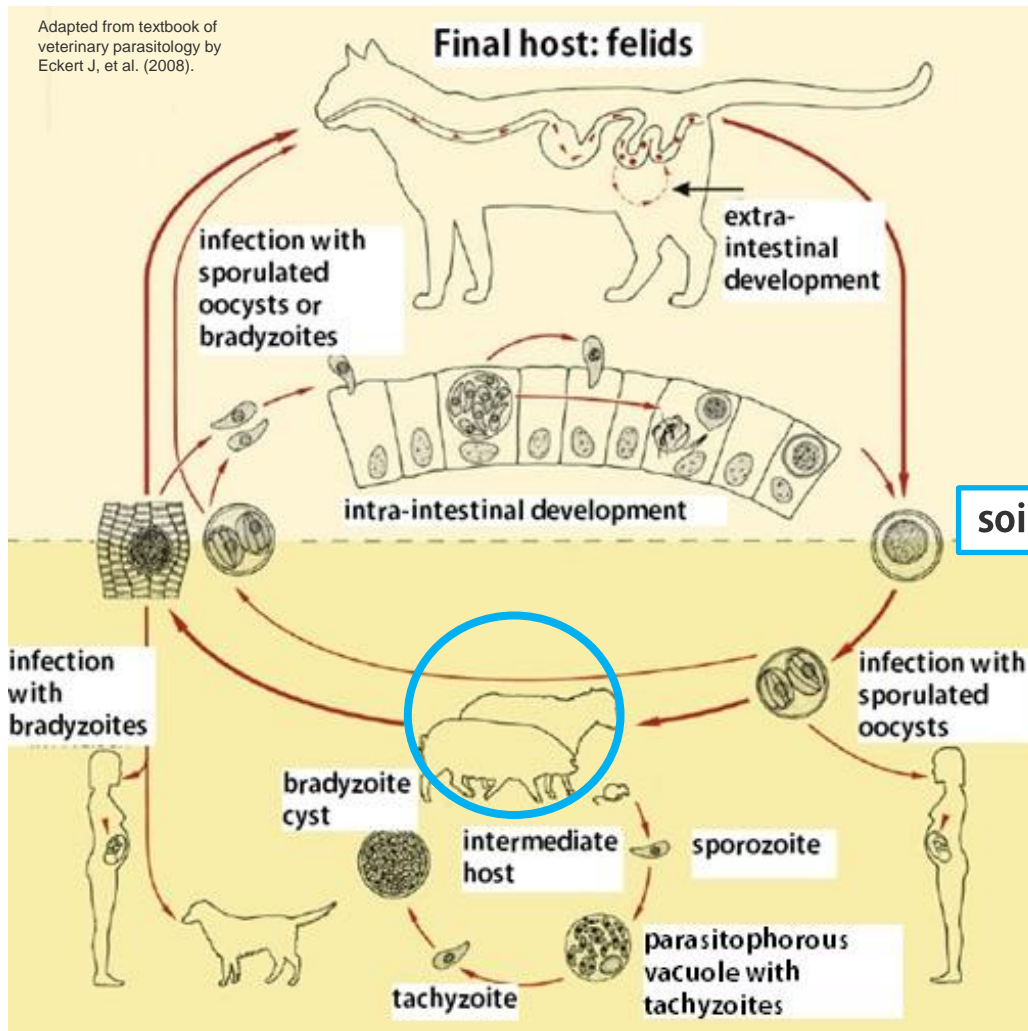
Earlier, Mr Nungwala exp to Justice Mwaruziwa that is a case of delimitation, the be fewer issues to sort out next meeting, scheduled for 29.

Mr Nungwala said the petition does not deny that the two articles in content added that the articles were ten out of qualified privies involves some parliament members and that the accused made were a fair comment.

**SEEKING JUSTICE**

Ms Mwonzha, currently the Haki High Court resident judge, drops paper to court weeks this year among others orders stopping him from publishing any further defamatory statements against her.

# Background – *Toxoplasma gondii*



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soil, runoff water, vegetables

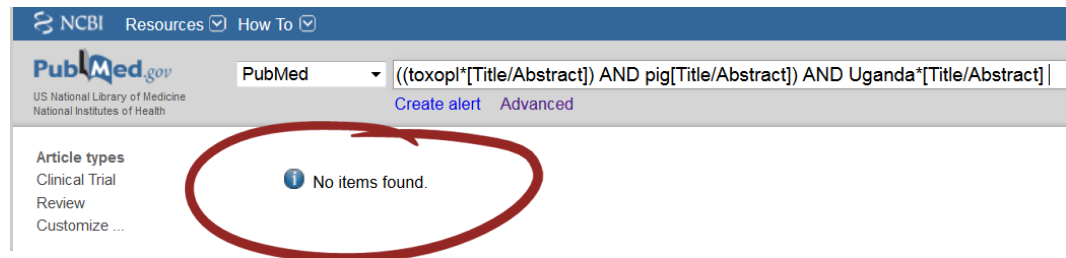
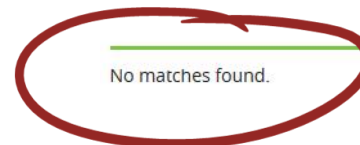
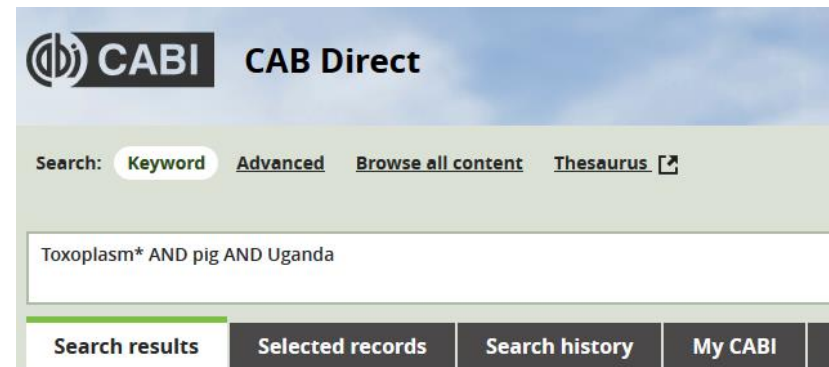
congenital  
immuno-compromised  
recrudescence of infection



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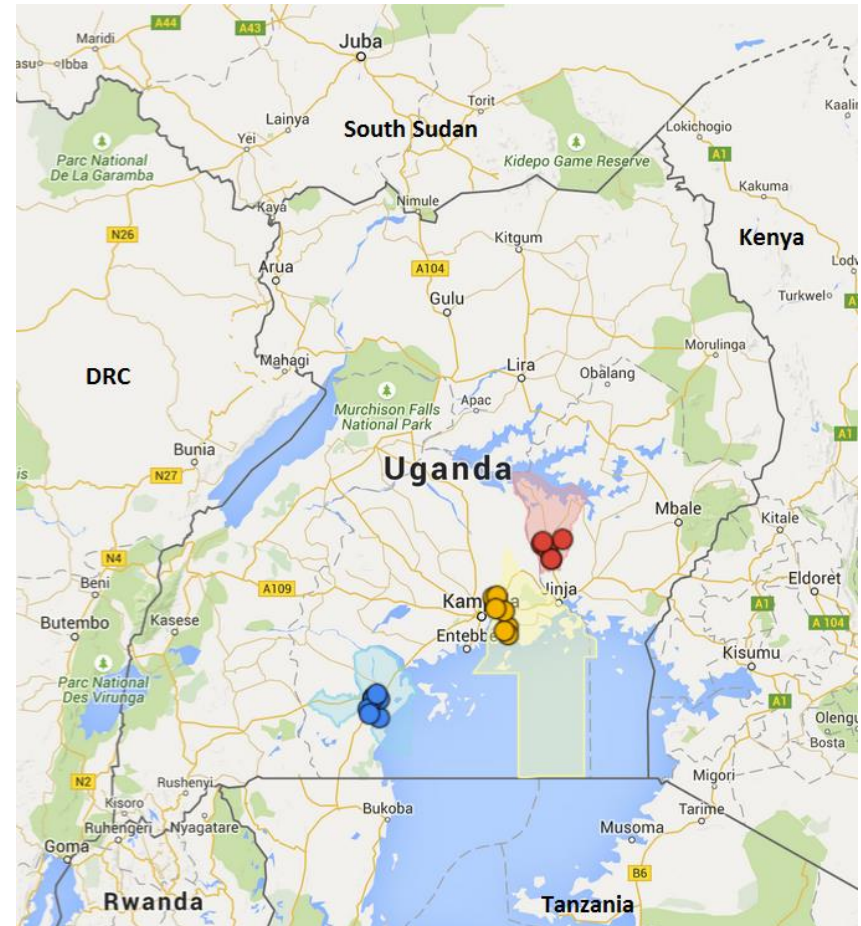
# Objectives

- To determine the seroprevalence of *T. gondii* in pigs in Uganda
- To identify risk factors for infection in pigs



# Methods

- Part of a multi-pathogen assessment (Dione et al.)
- Cross-sectional survey April-July 2013
- >1,200 HH randomly selected
- Serum 1 pig / farm
- Structured questionnaire on management & biosecurity practices



22 villages sampled in 3 districts of Uganda: Kamuli (6, red); Masaka (9, blue), Mukono (7, yellow) © google maps/ Kristina Roesel/ILRI

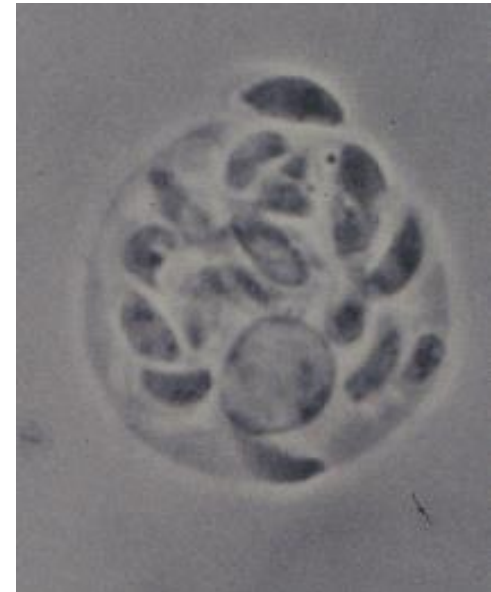
# Methods

## Serology

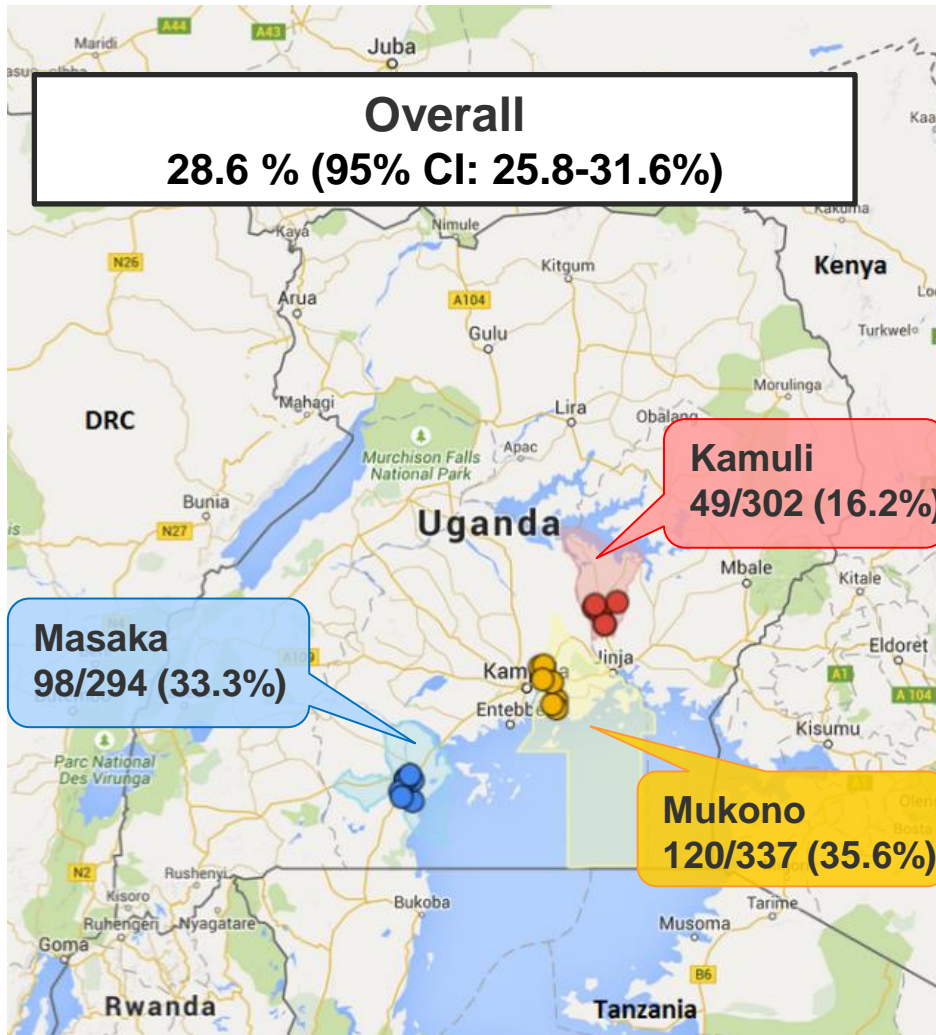
- PrioCHECK® Toxoplasma Ab porcine ELISA  
(Prionics, CH-Schlieren)  
Se=98.9%/ Sp=92.7% (Basso et al., 2013)
- FLI inhouse ELISA TgSAG1 p30  
Se=92.8%/ Sp=98.3% (Pardini et al., 2012)

## Statistics

- Kappa statistics
- Descriptive
- Risk factors: multivariate stepwise regression



# Results – seroprevalence



- (Village) herd prevalence = 100.0%
- Significant differences across districts ( $p=0.01$ )
- Substantial agreement between commercial and inhouse ELISA: Cohen's kappa = 0.7697

# Results – risk factors

- Univariate analysis
  - 39 variables on pig farm management and self-reported biosecurity practices
  - 9 variables  $p < 0.05$   
pig age, farm setting, feeding on crop residues, drinking water source, cats on the farm, location where pigs are slaughtered, foot bath present, terminal cleaning, prompt disposal of dead animals
- Multivariate analysis: 15 variables  $p < 0.15$  included, controlled for pig age



# Discussion & outlook

- Similar findings in Ugandan goats (Bisson et al., 2000)
- Further research needed to estimate risk to consumers:
  - Genotype, tissue cyst burden
  - Source of infection for pigs?
  - In-depth research on management practices and their impact on porcine infection, e.g. disposal of dead animals, or foot bath
  - Other sources of infection for humans? (soil, water, leafy vegetables)
- Need for sensitization of raw pork handlers and vulnerable population (pregnant women during antenatal care; HIV and cancer patients)

# Acknowledgements

**giz**



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PROGRAM ON  
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PROGRAM ON  
Livestock and Fish



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# Thank you for your attention!

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