Selected results of surveys on brucellosis in small ruminants and cattle in traditional farming systems in regions of The Gambia and Guinea, the associated public health risk and perception of farmers & stakeholders

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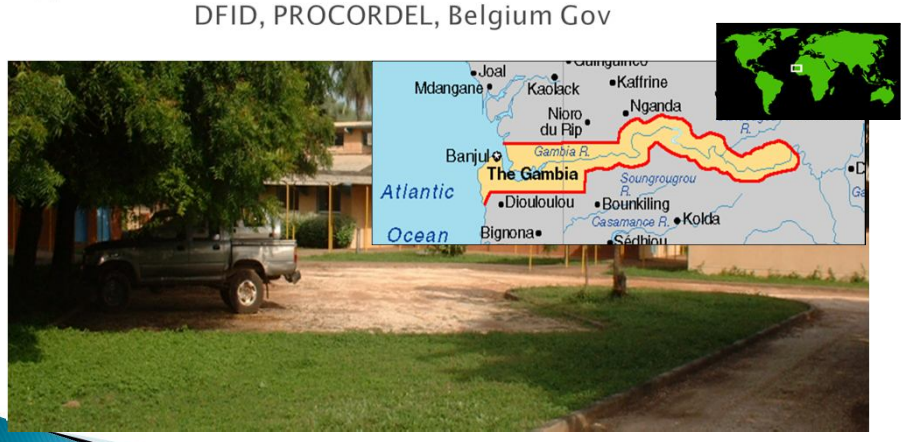
Consumer Safety and Public Health Project

at International Trypanotolerance Center, ITC
The Gambia, 2000-2010

Support: FU Berlin (iniated) and GIZ
DFID, PROCORDEL, Belgium Gov



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Consumer Safety and Public Health Project

Overall objectives and actitivities:

Public health risk, including zoonoses, derived from consumption of animal products

- Milk hygiene & Meat hygiene
- Zoonosis: Bovine tuberculosis & cysticercosis
  Rift Valley Fever
  Brucellosis (2001-2006)

Related activities: Capacity building
Training/awareness campaigns
Installation of Milk Processing Units

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Surveys on brucellosis in The Gambia and Guinea

Situation prior to the project:

→ - Elevated abortion rates observed by farmers in animals of usually unknown ethiology Brucellosis?

- Little known on perception of farmes on zoonoses

→ Little awareness & lack of diagnostic capacity of VH & PH services
Problems in man: „Flu-like“ or „malaria like“ leading symptoms
⇒ therefore not considered/detected in local health centres!

→ **Milk mainly consumed fresh or fermented**

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Surveys on brucellosis in The Gambia and Guinea

Objectives

- **To assess the current status of the brucellosis** due to *Brucella spp.* in cattle & small ruminants in selected regions of The Gambia and Guinea, by serological screening
- To investigate **potential infections in humans at risk of contact with positive animals**
- To **understand the importance & perception** of farmers and risk groups towards **brucellosis**

Steps

1. On-farm screening
   1. Cattle (2001-2003)
   2. Small ruminants (2004-2005)
2. PRA – Disease importance ranking (farmer /risk groups, 2003-4)
3. Investigations in man (2003-2005)
4. Interventions (milk processing, 2004 onwards)

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Brucellosis – on farm screening

Cattle (herds): 2001-2003

Step 1: Questionnaire
(background data on brucellosis)

Step 2: 17-20 herds/region
Sampling: up to 45 cattle per herd
(> 6 month, expected P: 10%)
& bulk milk sample)

Small ruminants (villlage herds): 2004-2005

Step 1: Questionnaire
(background data on brucellosis)

Step 2: 14-15 villages/region
Up to 59 SR (>6 mth.) per village
(expected P: 5%)
& bulk milk samples if applicable

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Brucellosis – serological screening in man and tests applied

Humans: Volunteers in each selected region and samples from local hospitals*

The Gambia: CRD

Guinea: Dubreka and Kindia

Tests applied:

Rose Bengal Plate Test (serum)
Complement Fixation Test (serum)
Milk ELISA (bulk milk already fermented)
Milk Ring test (MRT) (bulk milk)

* Case definition used

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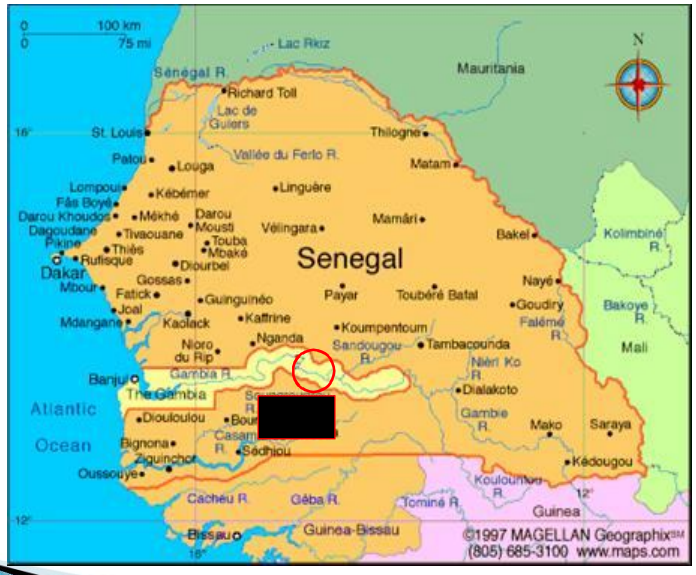
Study sites in The Gambia



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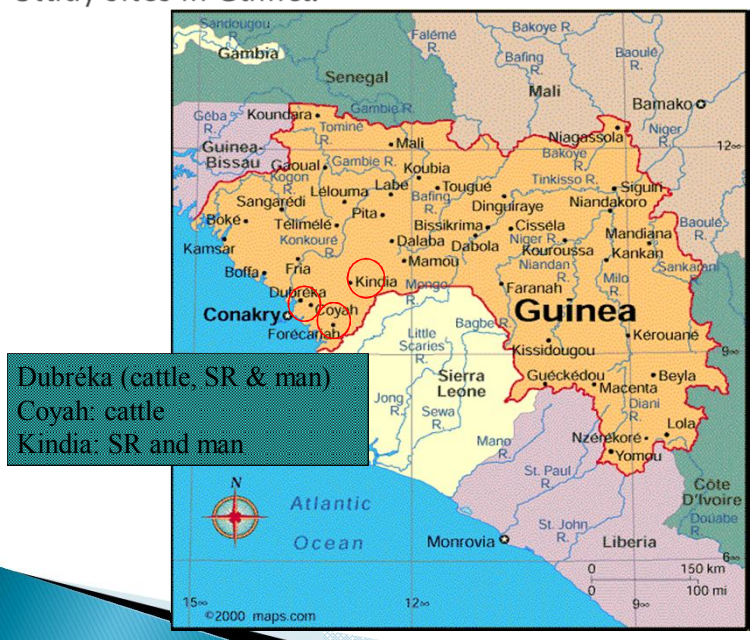
Study sites in Guinea



Dubréka (cattle, SR & man)
Coyah: cattle
Kindia: SR and man

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Bovine brucellosis – results cattle

Results	The Gambia	Guinea	
	CRD	Dubreka	Coyah
Herds sampled	20	17	18
Cattle sampled	465	749	810
Individual animal prevalence (%)	1.1[a]	**12.7[b]**	5.9[a]
Herd prevalence based on serum (%)	15.0[a]	**94.1[a]**	**83.3[a]**
Herd prevalence based on bulk milk (%)	**15**	**80**	Not applied.
Percentage of herds with „Within herd prevalence“ ≥ 10%	1	10	5

Seropositivity and **abortion history** for cattle: **Odds ratio: 8.0** (4.9,1.7)
Seropositivity increased with **herd size** and **age** of cattle.

[a:b]: Differences between districts (<0.05)

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Brucellosis in SR – results

Results brucellosis	The Gambia		Guinea	
	Lower Saloum (CRD)	Niamina Dankunku (CRD)	Dubreka	Kindia
Herds sampled	15	14	15	15
Sheeps sampled	306	303	110	178
Individual animal prevalence in % CI)	0	0	**2.8 (±3.0)**	**2.2 (±2.1)**
Village herd prevalence (%)	0	0	**23.1 (±21.3)**	**13.3 (±17,1)**
Goats sampled	302	387	159	106
Individual animal prevalence in %(CI)	0.3 (±2.0)	0[1]	**1.9 (±2.0)**	**11.3 (±6.0)**
Village herd prevalence (%)	6.7 (±3.8)	0	**14.3 (±17.7)**	**35.7 (±24.2)**

Odds Ratio for factor seropositivity and abortions for sheep: 7.6 (1.1; 36.6) and for goats:10.8 (0.90; 75.2)

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Brucellosis results in man

Results for brucellosis in man	The Gambia		Guinea			
	CRD Lower Saloum	CRD Niamina Dankunku	Dubreka Hospital*	Dubreka farmers/ herders	Kindia hospital*	Kindia farmers/ herders
Samples	34	30	100	38	100	44
RBT+ve	0	0	15.0	18.4	29.0	22.7
CFT+ve	**0**	**0**	**12.0**	**13.1**	**10.0**	**18.2**

* Patients with „malaria like“ symptoms

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Perception on zoonoses (brucellosis) of farmers and risk groups

The problem

- Previous studies focused mainly on the animal health aspect
- Perception of livestock owners and risk groups on zoonoses have been rarely investigated in the past

Period and location:

2003 The Gambia (CRD)
Guinea (Dubreka & Coyah)

Methology: PRA (owners, herders and milk vendors)
Special tools applied: Disease importance ranking
Questionnaires (owners, butchers, veterinary and PH authorities)

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Perception on zoonoses (brucellosis) of farmers and risk groups

Top three diseases or symptoms as ranked by farmers

Cattle:
The Gambia: Diarrhoea (unspecific), Trypanosomoses, H.S.
Guinea: Diarrhoea (unspecific), Lumpy Skin, Foot problems (unspecific)

Small ruminants:
The Gambia: Diarrhoea (unspecific), PPR, Pastorellosis,
Guinea: PPR, Abortion, Foot problems (unspecific)

Observations on chronic infections:

Hygroma: only ranked high (no. 2) in Guinea

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Perception on zoonoses (brucellosis) of farmers and risk groups

Farmers' ways of dealing with milk from cows with a history of abortion or observed hygroma

Consuming as milk:	77% (The Gambia)	73% (Guinea)
Proportion of heat treatment:	9% (The Gambia)	0% (Guinea)*

Observations by veterinary health authorities on most important zoonoses:

The Gambia:	RVF, rabies, C. bovis
Guinea:	brucellosis, anthrax and rabies

Observation on zoonoses & brucellosis by public health authorities

Rabies was highest ranked (even in the high prevalence areas for brucellosis)

Patients with **"brucellosis or flu -like"** infections are only tested for malaria if laboratory facilities are available. **No differential diagnosis**, e.g. brucellosis

Knowledge of personnel on brucellosis was **poor**, **laboratory tests** were **not performed** or **usually not known** in any of the locations visited.

* Strong cultural resistance against heat treatment of milk

Recommendation for control

	Method	Chance to implement
The Gambia:	Test and Slaughter	low
Guinea:	Vaccination	very low
	Test and Slaughter	low
The Gambia and Guinea	**Control** of **animal movement**	low
	Hygienic measures on farm	moderate
	Increase of **PH awareness**	good
	Education of farmers	good
	Promotion **milk processing**	good

Reenforcement of collaboration between VH and PH services

Goverments /donors approached for further funding possibilities:

No funds for control, not among priority zoonoses (Government, GIZ, USAID, DFID despite or even because of emerging funds for AI)

FAO – TCP supported introduction of milk processing units

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Surveys on brucellosis in The Gambia and Guinea

Conclussions:

Results for brucellosis vary by country/region

PH risk related to **brucellosis** clearly documented

Risk + Hazard for **man** (due to consumer preferences, unpasteurised milk)

Low perception of farmers and stakeholders on zoonoses (brucellosis)

Little interest from **Goverment/donors** to support control – neglected Zoonoses

Successfull introduction of **milk porcessing units**

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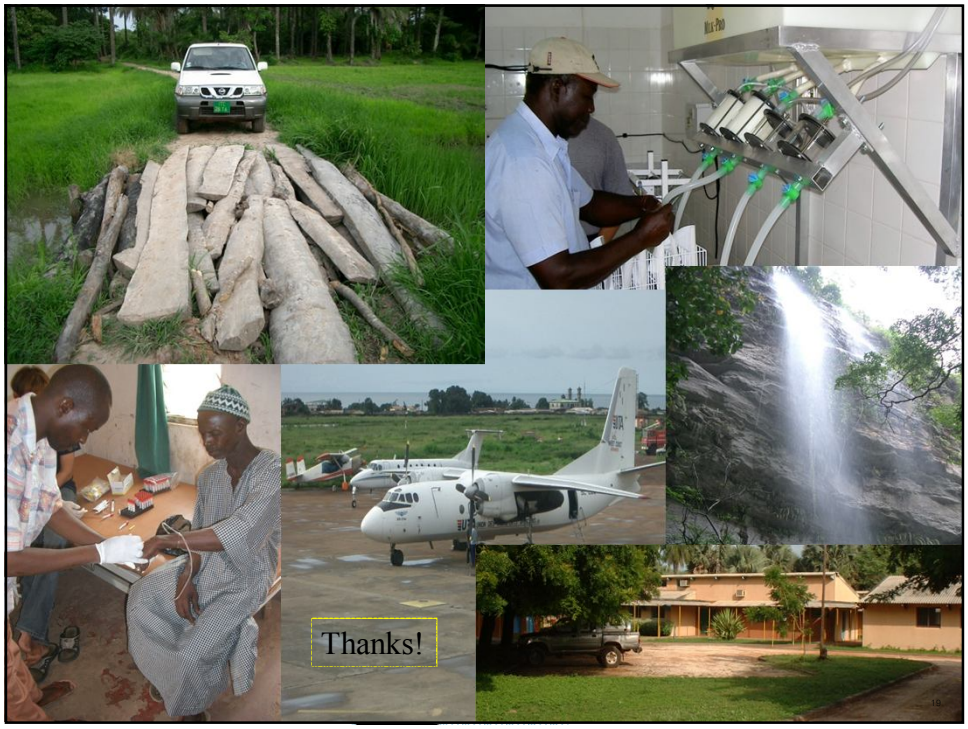
Thanks!