

REPUBBLICA ITALIANA



Regione Siciliana

ASSESSORATO DELLA SALUTE

*Dipartimento Attività Sanitarie ed
Osservatorio Epidemiologico*

BRUCELLOSIS in Sicily: eradication program



Bruxelles, 7-8 settembre 2010

SERVIZIO 9 – SANITÀ VETERINARIA

Dirigente: Dott. Pietro Schembri



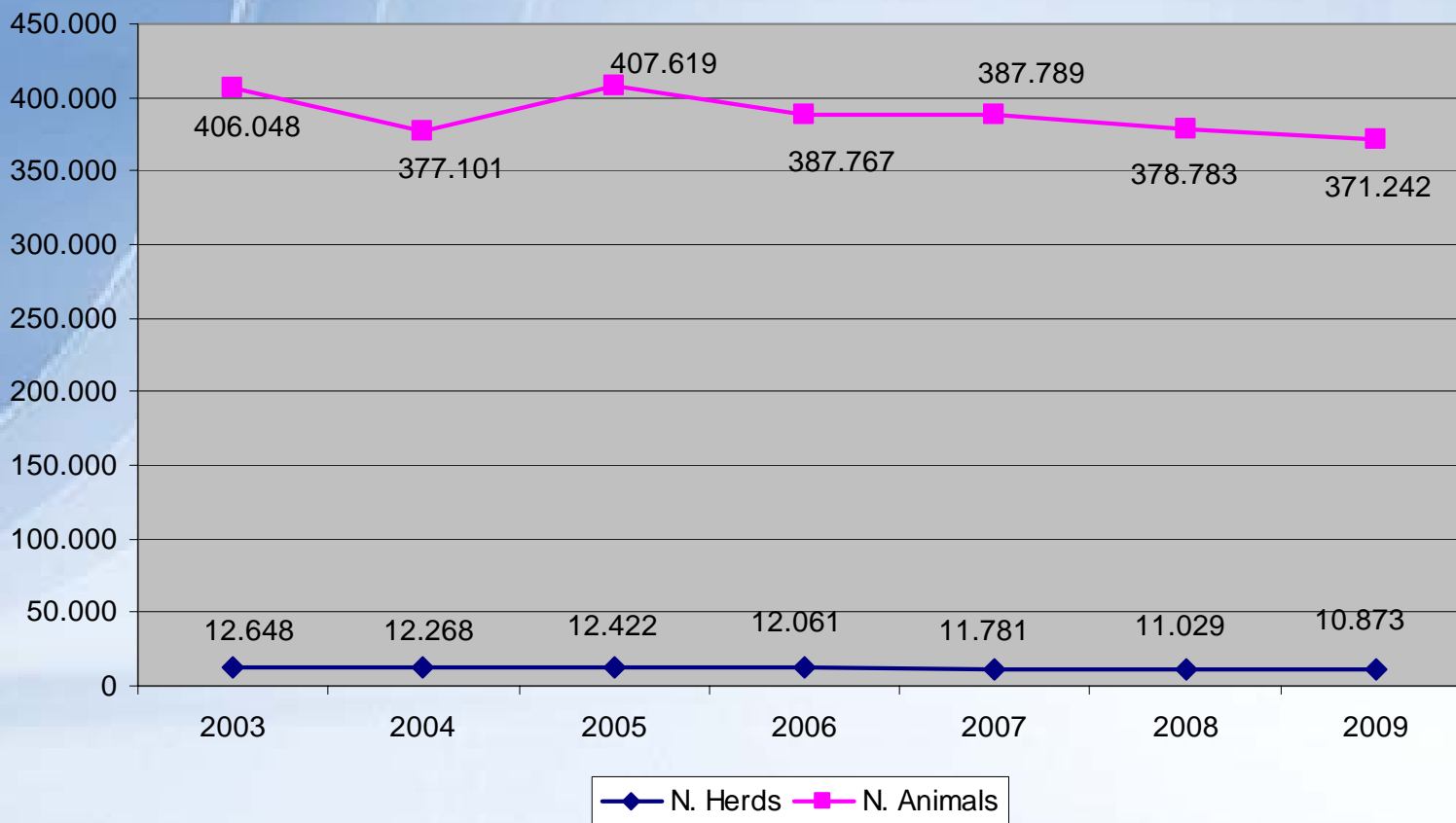
Number and distribution of cattle and buffaloes at 31 of July 2010



ASP	Cattle / Buffaloes	
	Herds	Animals
AG	527	10.999
CL	227	8.716
CT	655	29.305
EN	1.473	55.836
ME	2.169	59.141
PA	2.491	80.103
RG	1.670	78.490
SR	918	36.746
TP	339	5.495
Total	10.469	364.831



Cattle and buffaloes herds and animals from 2003 to 2009





Number and regional distribution of sheep and goats at 31 of July 2010

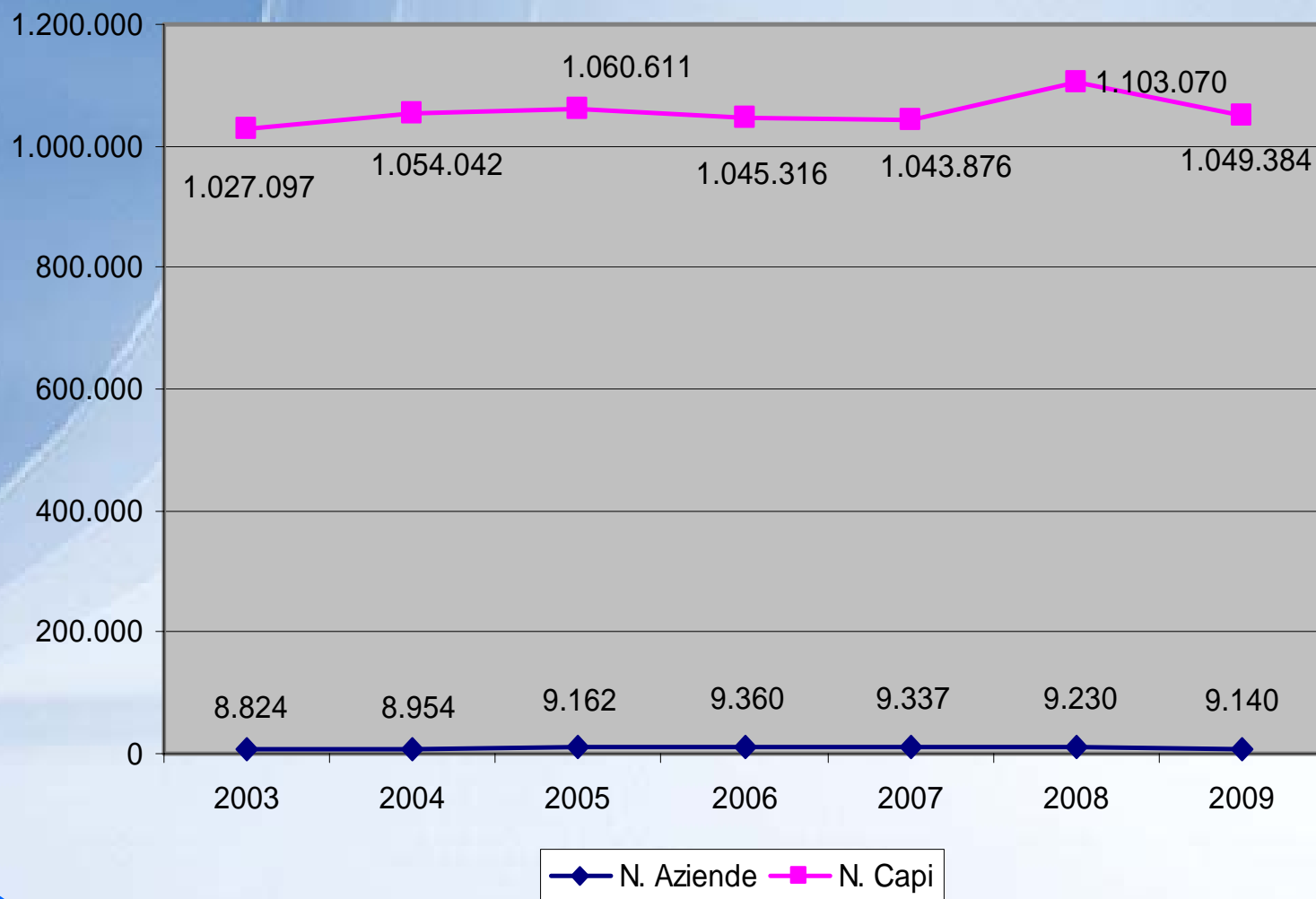


ASP	SHEEP & GOATS	
	Herds	Animals
AG	1.114	144.641
CL	504	86.489
CT	686	108.686
EN	1.218	139.380
ME	1.791	159.747
PA	2.254	216.443
RG	684	33.159
SR	470	34.946
TP	667	101.454
Total	9.388	1.024.945



Sheep & Goats

herds and animals from 2003 to 2009





Brucellosis in Sicily

Historical Criticism

- a) Problems in animal identification
- b) No monitoring
- c) Inadequate monitoring of animal movements (transhumance)
- d) High regional Prevalence and Incidence (incompatible with eradication and monitoring of infection)

*Year 2008: **SANAN** (from 2006 to 2008)*

- e) High % of OBF & Vaccinated Herds (> 80% Sheep/Goats >88% Bovine)
- f) Testing intervals (in infected and OBF herds)
- g) Infection in localized herds and areas (19% of bovine herds and 36% of sheep and goat herds infected during the three years resulted positive for the three consecutive years)

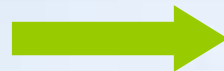


Brucellosis in Sicily



CRITICAL POINTS

- a) Problems in animal identification
- b) No monitoring
- c) Inadequate monitoring of animal movements (transhumance)
- d) Infection in localized herds and areas



COUNTER-MEASURES

Electronic identification

Implementation of SANAN (systematic monitoring of activities, periodic evaluation of field operations)

Regulation and monitoring of transhumance (Regional guidelines, BDN-National data base, no exemptions, etc)

Problematic Herds and/or Areas



Brucellosis in Sicily

2009: Contingency plan

Basic activity:

- a) 100% monitoring of bovine and sheep and goat breeding herds;
- b) Strict respect for testing intervals in herds;
- c) Electronic identification:
 - of all heads in infected herds;
 - of all vaccinated heads;
 - of all heads in movement (transhumance);
- d) Implementazione of the Information System **SANAN**;
- e) Updating of National Database;



Brucellosis in Sicily

2009: Contingency plan

Exceptional activity:

- a) Identification and management of **“problematic herds”** (among those which every year had one or more positive heads for three consecutive years);
- b) Identification and management of the **“problematic areas”** (among those areas:
 - where the PH are more than 10% of all those present;
 - where is recorded a significant increase of incidence;
 - included in 25th percentile with high incidence
- c) Identification of infection cluster (epidemiological unit based on epidemiological, time and space indicators)

Collateral activity:

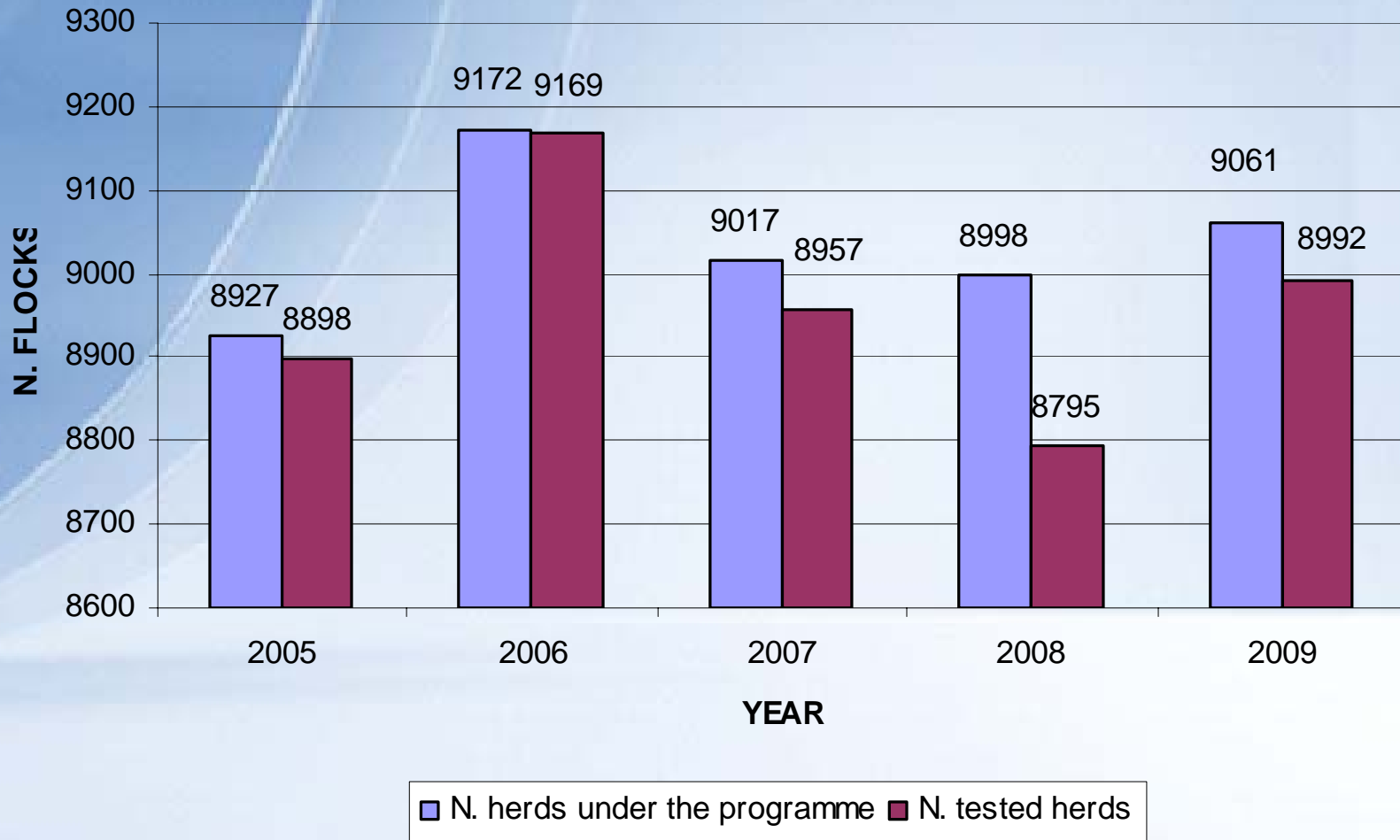
- d) Implementation of grazing anagraph;
- e) Implementation of records of movement to and from grazing.



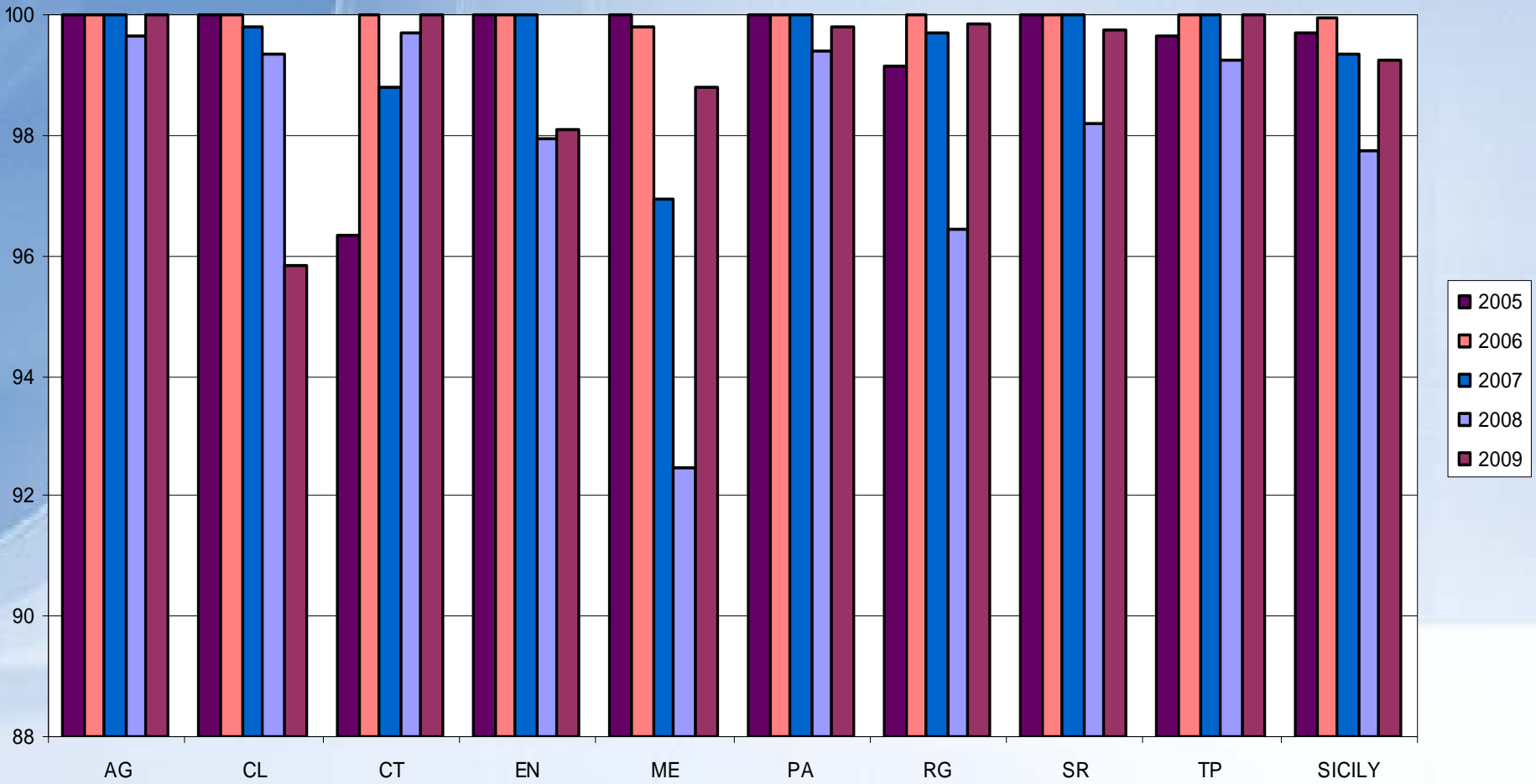
SHEEP AND GOATS BRUCELLOSIS

Results of the eradication programme

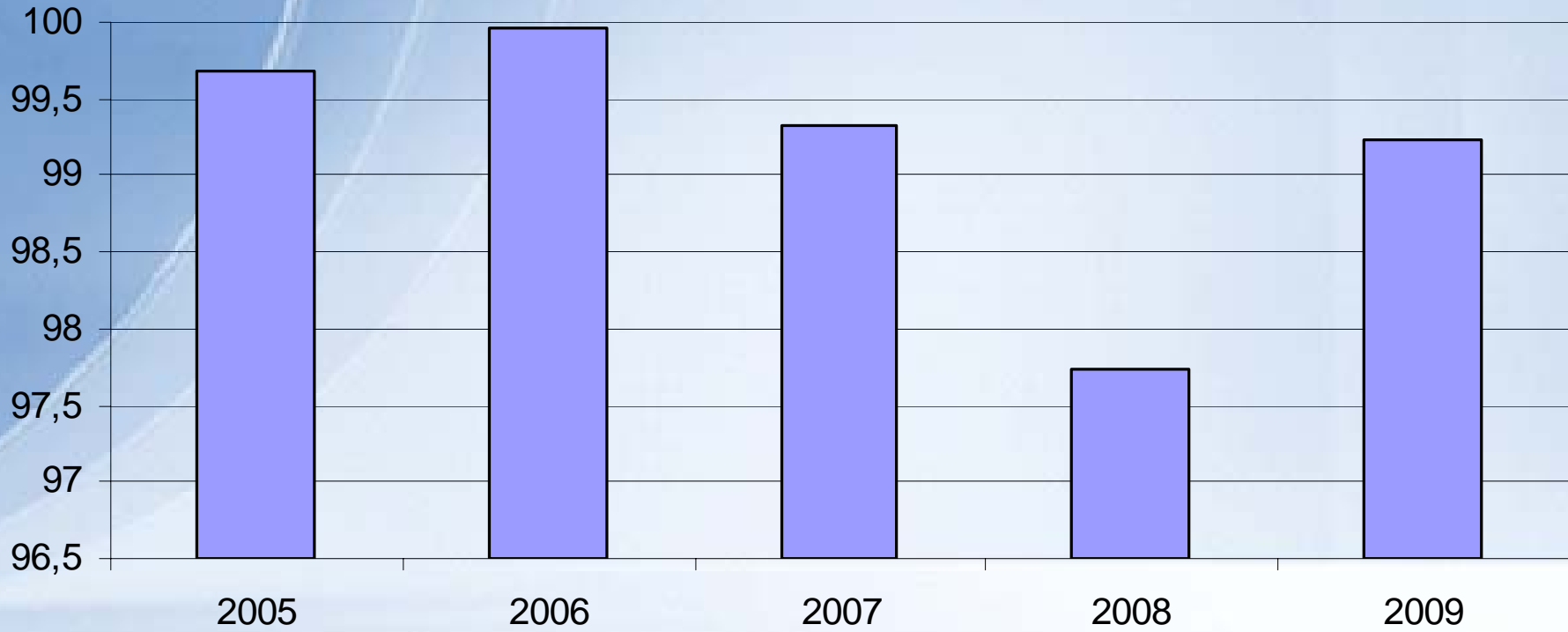
TRENDS IN HERDS TESTING



% TRENDS IN HERDS COVERAGE

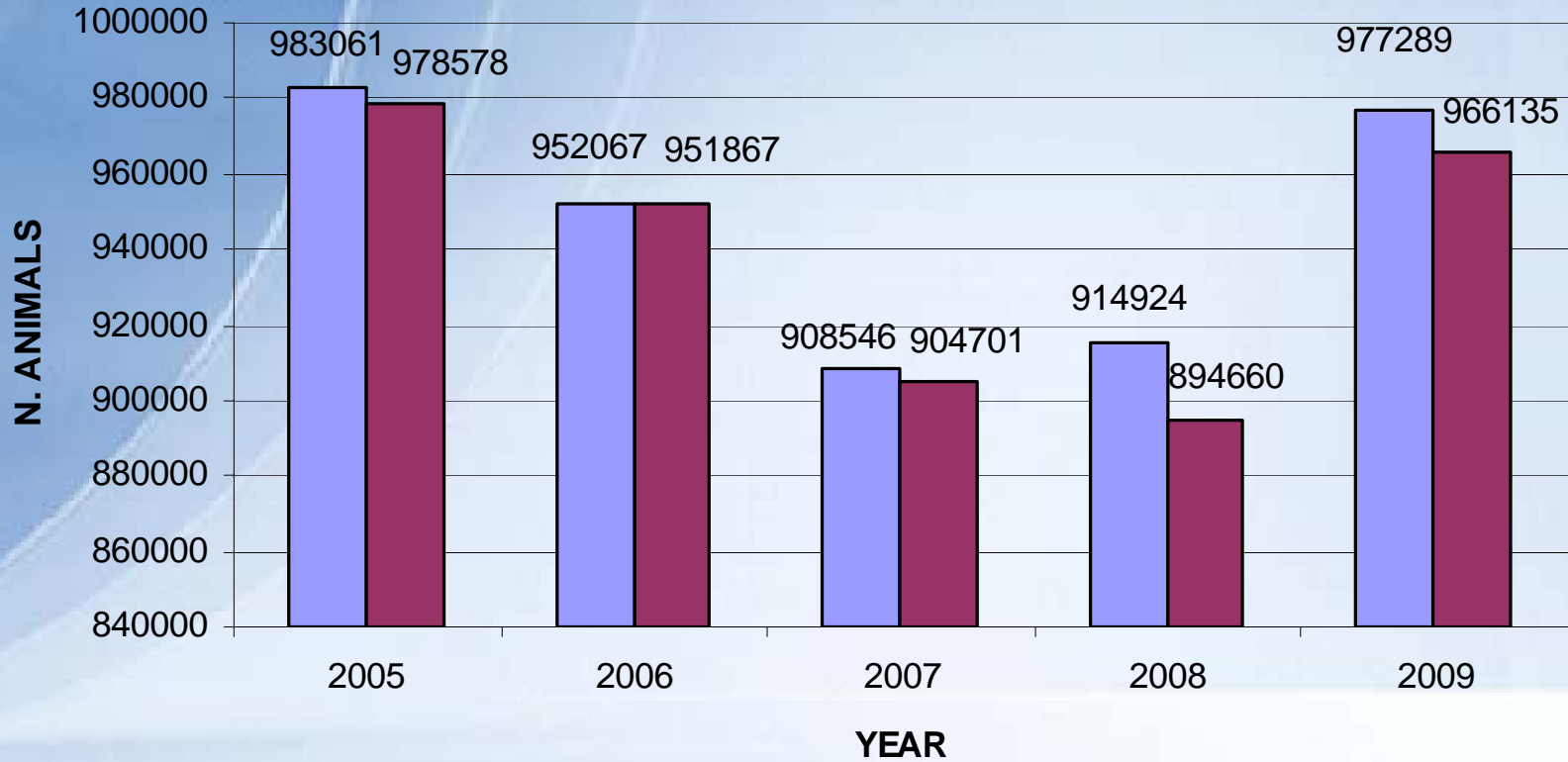


% HERDS COVERAGE



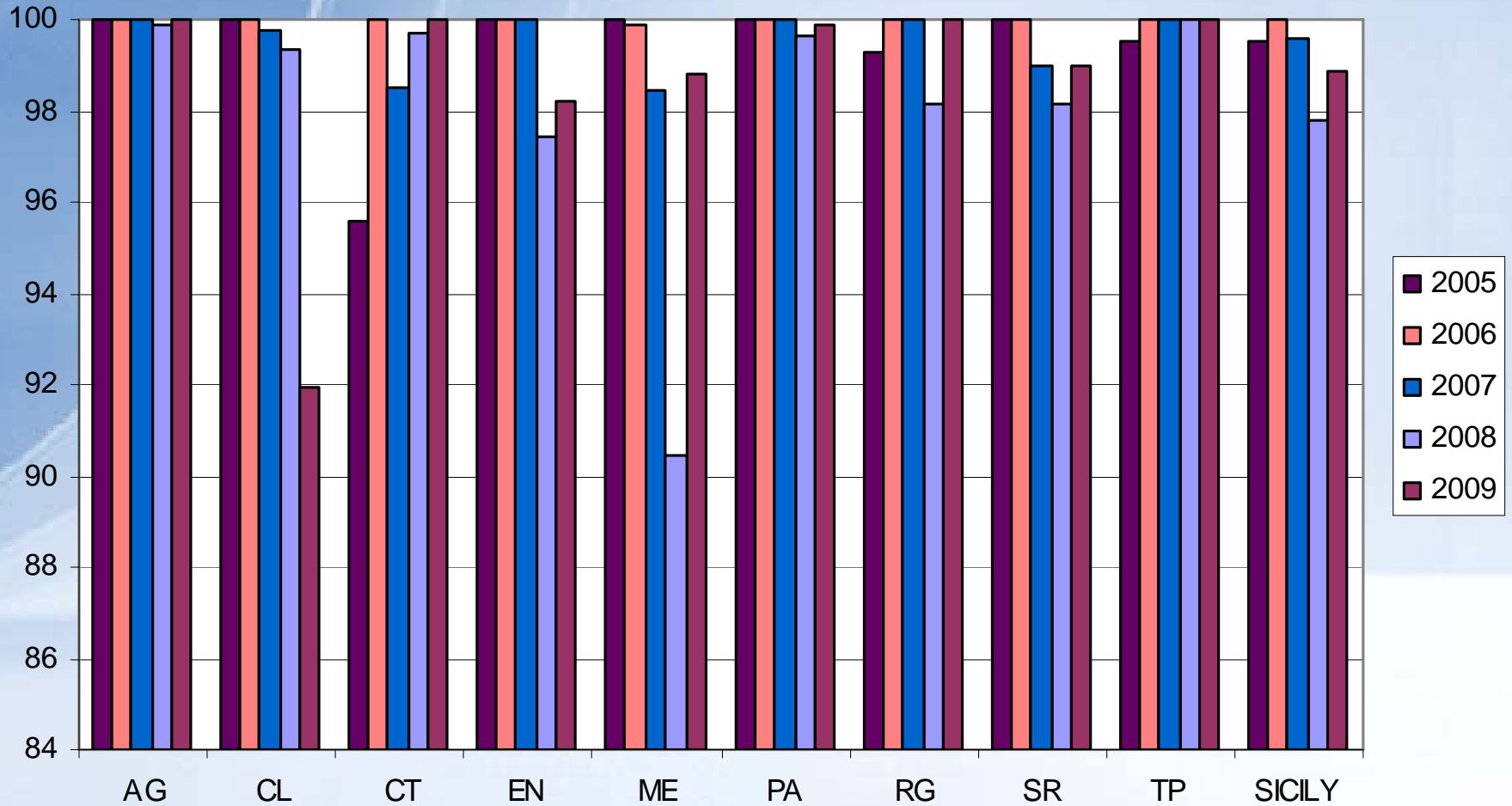
■ % HERDS COVERAGE

TRENDS IN ANIMALS TESTING

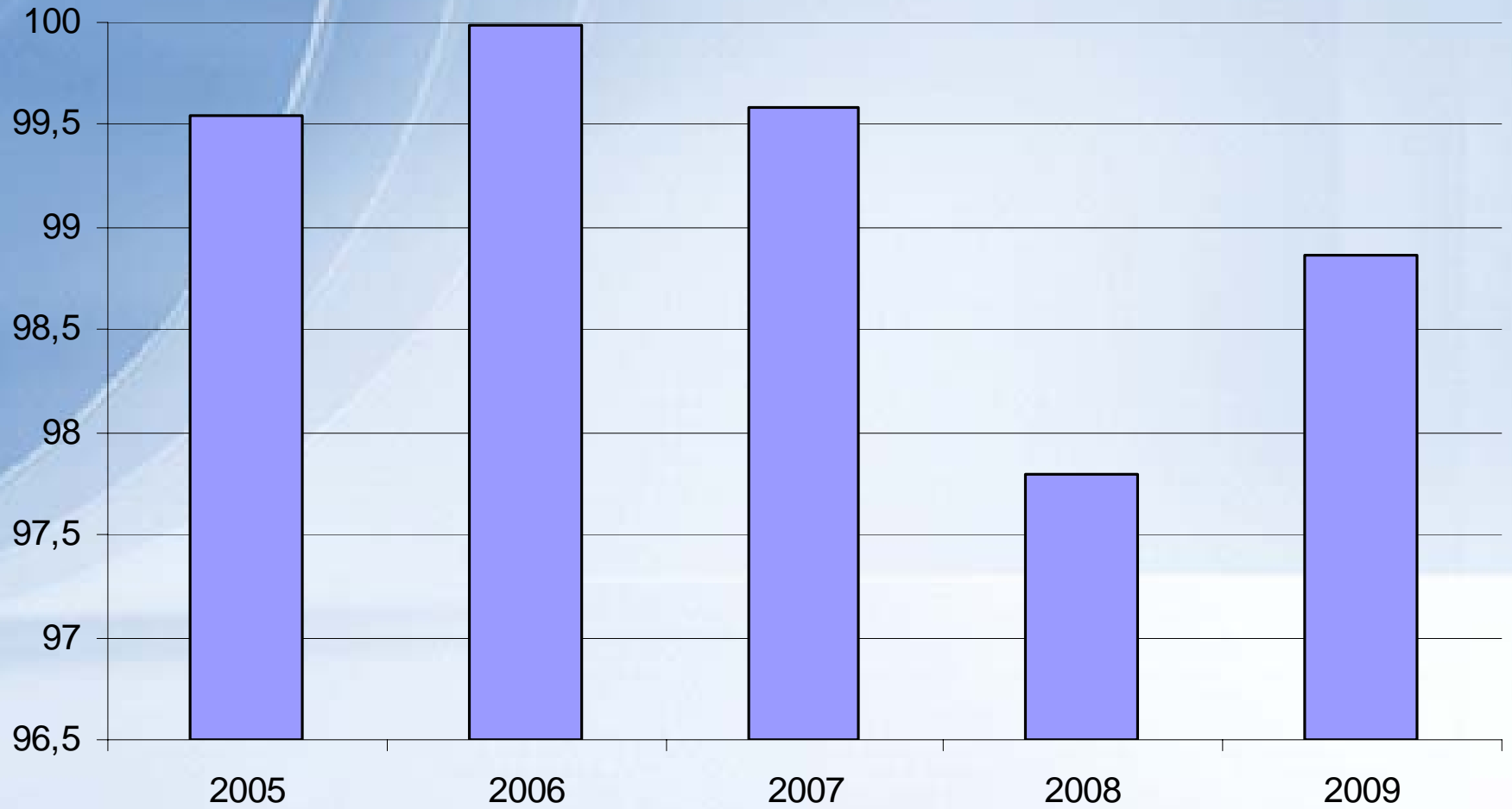


■ N. ANIMALS TO BE TESTED ■ N. TESTED ANIMALS

TRENDS IN ANIMAL TESTING



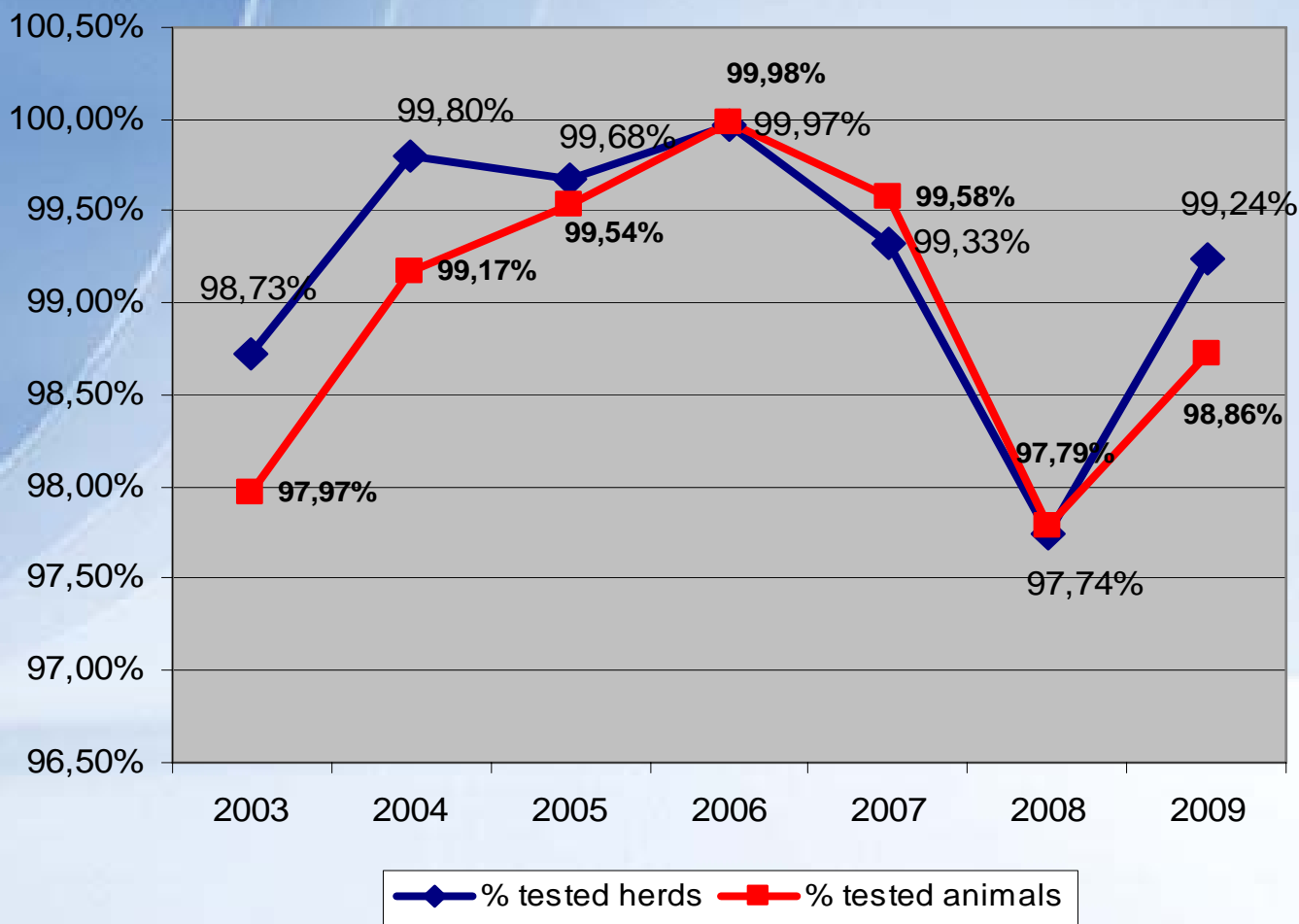
% ANIMAL COVERAGE





Sheep and goats brucellosis

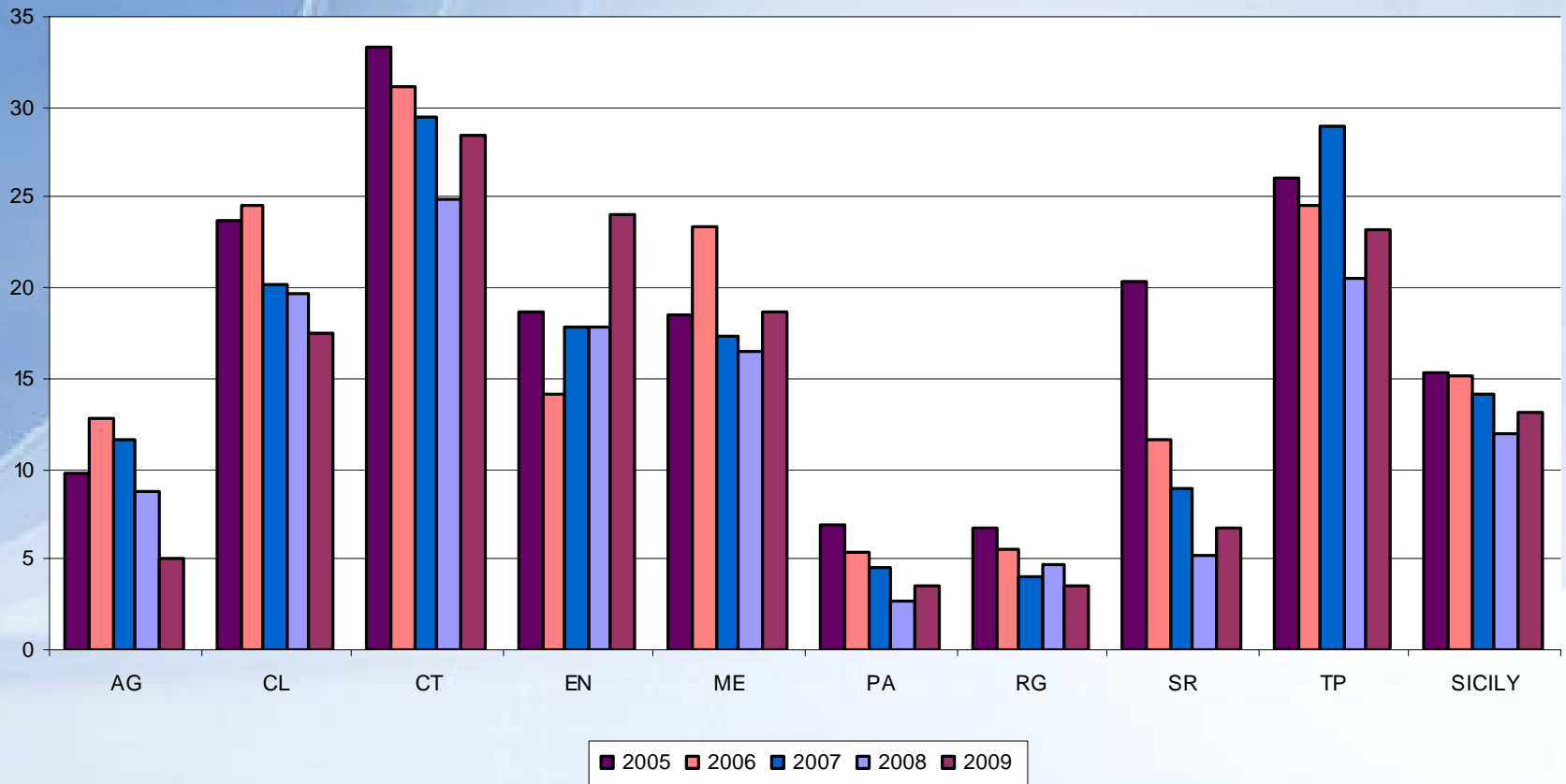
Territory Coverage



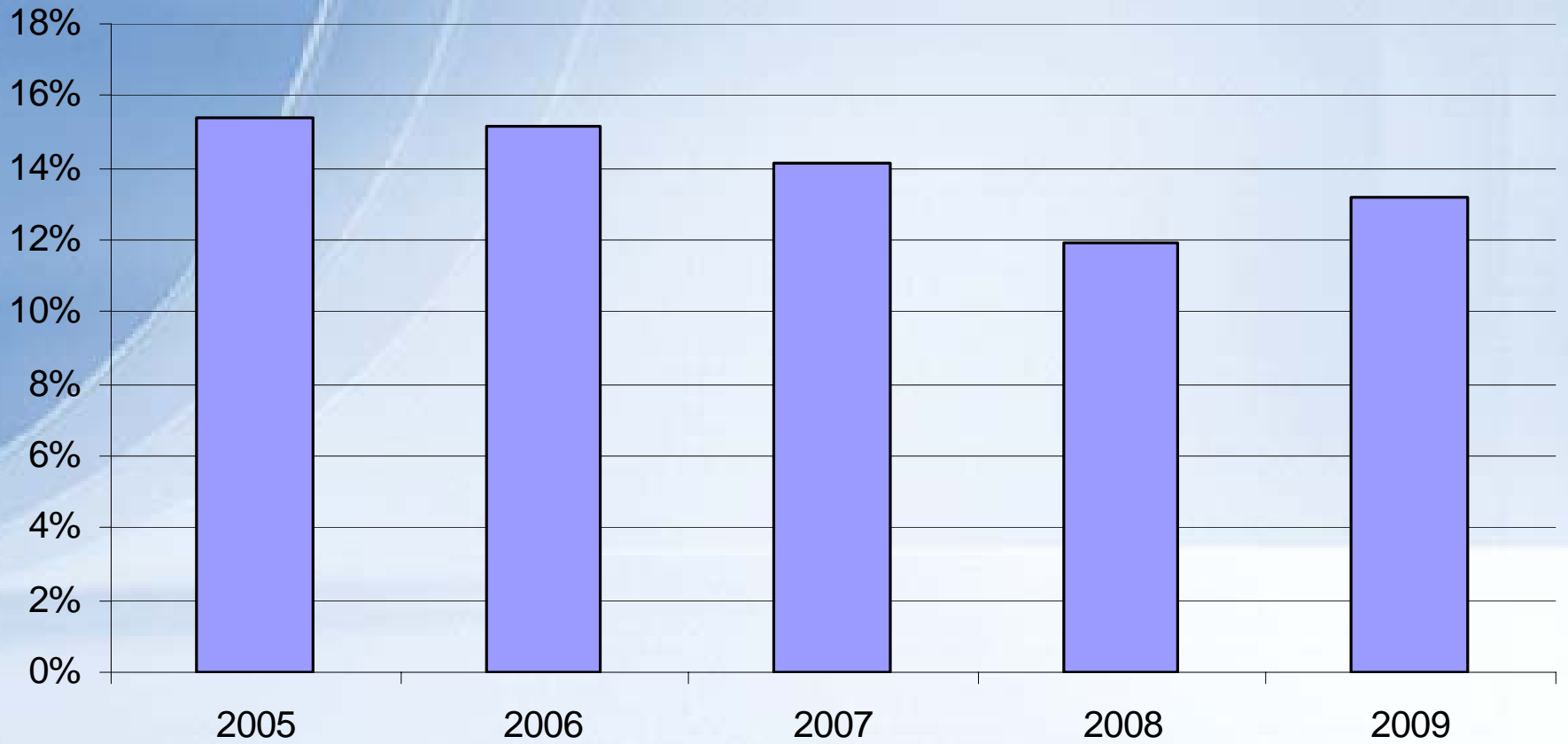
% HERDS PREVALENCE (2005-2009)

ASP	2005	2006	2007	2008	2009
AG	9,68	12,72	11,60	8,70	5,02
CL	23,65	24,65	20,22	19,61	17,54
CT	33,28	31,11	29,42	24,96	28,50
EN	18,73	14,10	17,81	17,88	24,04
ME	18,46	23,46	17,39	16,54	18,63
PA	6,93	5,33	4,58	2,67	3,58
RG	6,69	5,57	4,06	4,65	3,49
SR	20,43	11,66	8,96	5,24	6,67
TP	26,12	24,65	28,97	20,60	23,20
SICILY	15,37	15,18	14,15	11,96	13,19

% HERDS PREVALENCE (2005 - 2009)



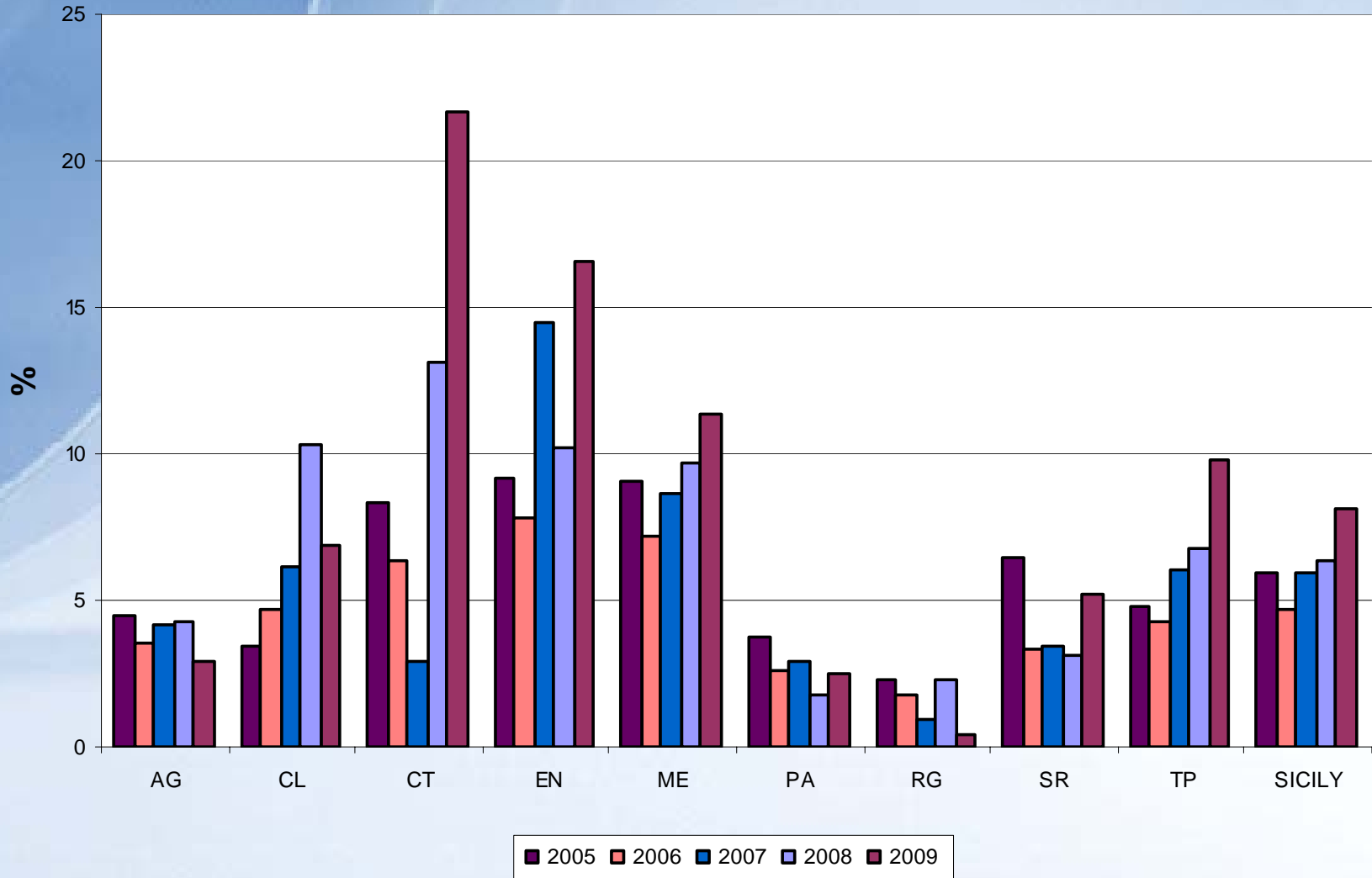
HERDS PREVALENCE



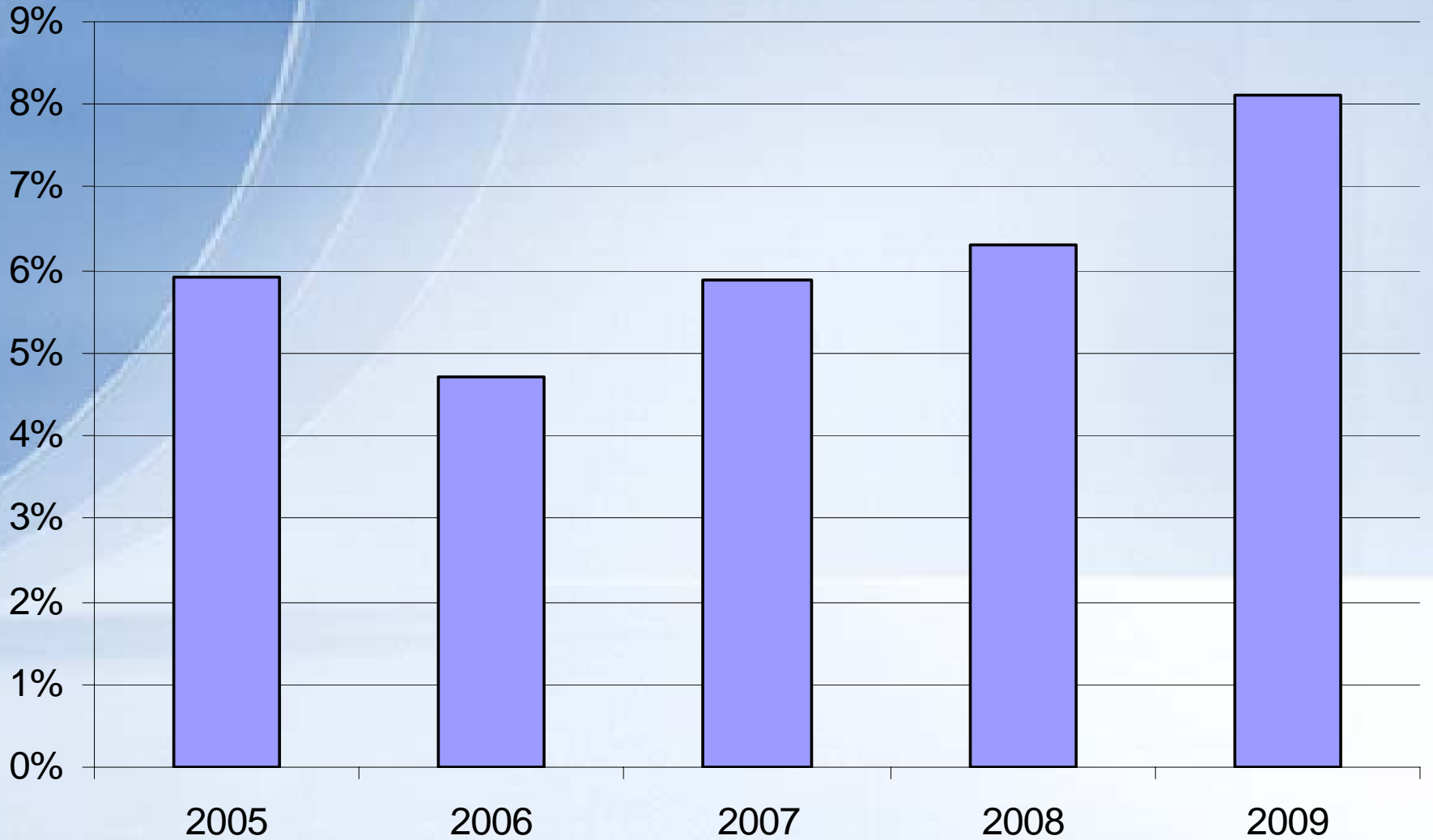
% HERDS INCIDENCE (2005 - 2009)

ASP	2005	2006	2007	2008	2009
AG	4,48	3,59	4,13	4,22	2,94
CL	3,45	4,65	6,15	10,34	6,83
CT	8,36	6,35	2,9	13,13	21,65
EN	9,13	7,77	14,5	10,19	16,58
ME	9,04	7,19	8,66	9,72	11,37
PA	3,72	2,6	2,95	1,79	2,55
RG	2,34	1,8	0,97	2,24	0,46
SR	6,45	3,37	3,48	3,14	5,19
TP	4,79	4,24	6,01	6,72	9,83
SICILY	5,92	4,72	5,89	6,31	8,11

DISTRIBUTION OF HERDS INCIDENCE



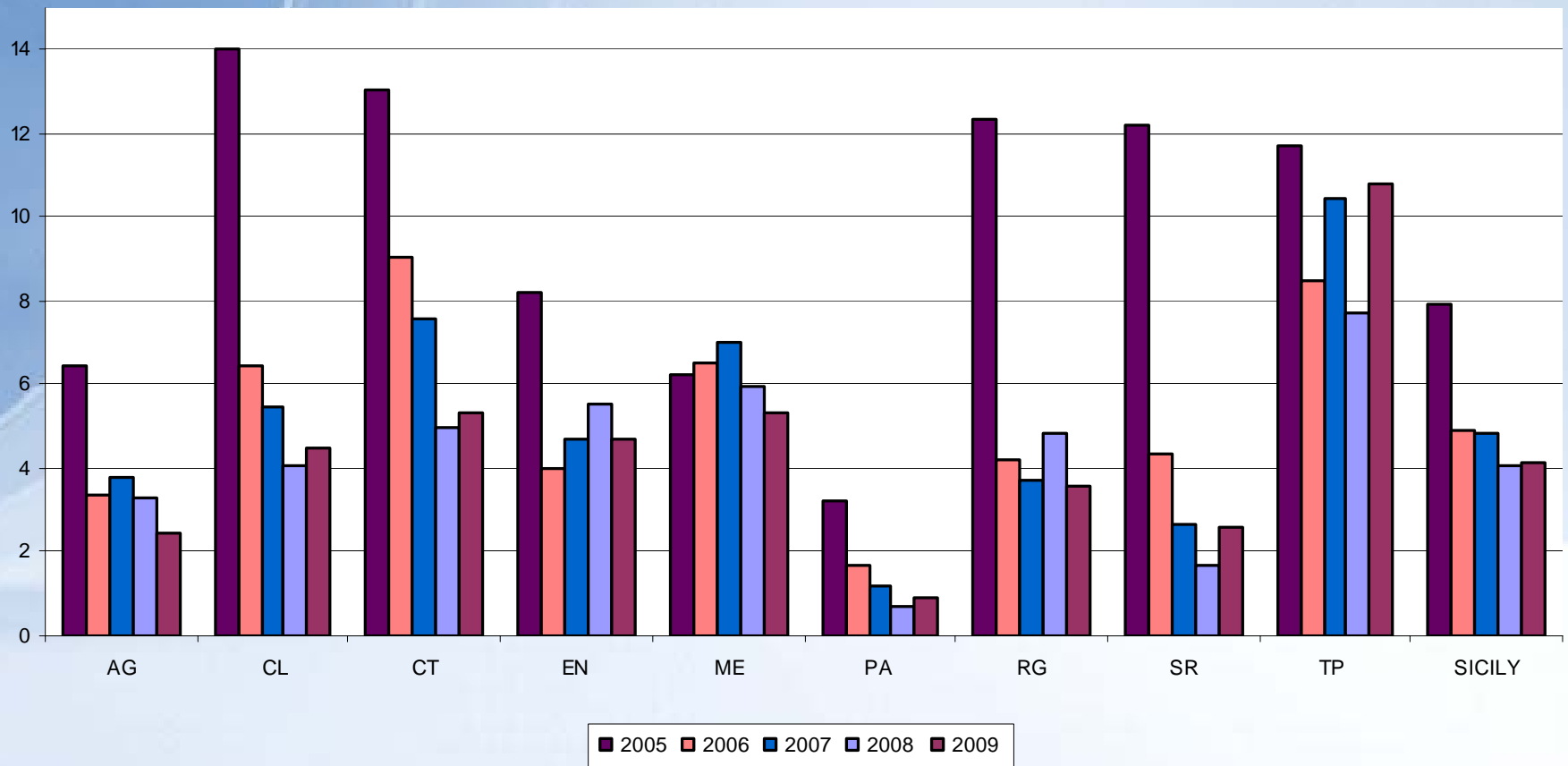
HERDS INCIDENCE



% ANIMAL PREVALENCE

ASP	2005	2006	2007	2008	2009
AG	6,47	3,33	3,78	3,31	2,42
CL	14,03	6,47	5,44	4,09	4,51
CT	13,01	9,01	7,58	4,96	5,35
EN	8,19	3,98	4,68	5,55	4,72
ME	6,21	6,55	7,02	5,95	5,32
PA	3,21	1,71	1,18	0,69	0,93
RG	12,32	4,24	3,69	4,81	3,55
SR	12,18	4,33	2,68	1,67	2,56
TP	11,74	8,46	10,41	7,74	10,76
SICILY	7,90	4,88	4,86	4,07	4,11

ANIMAL PREVALENCE



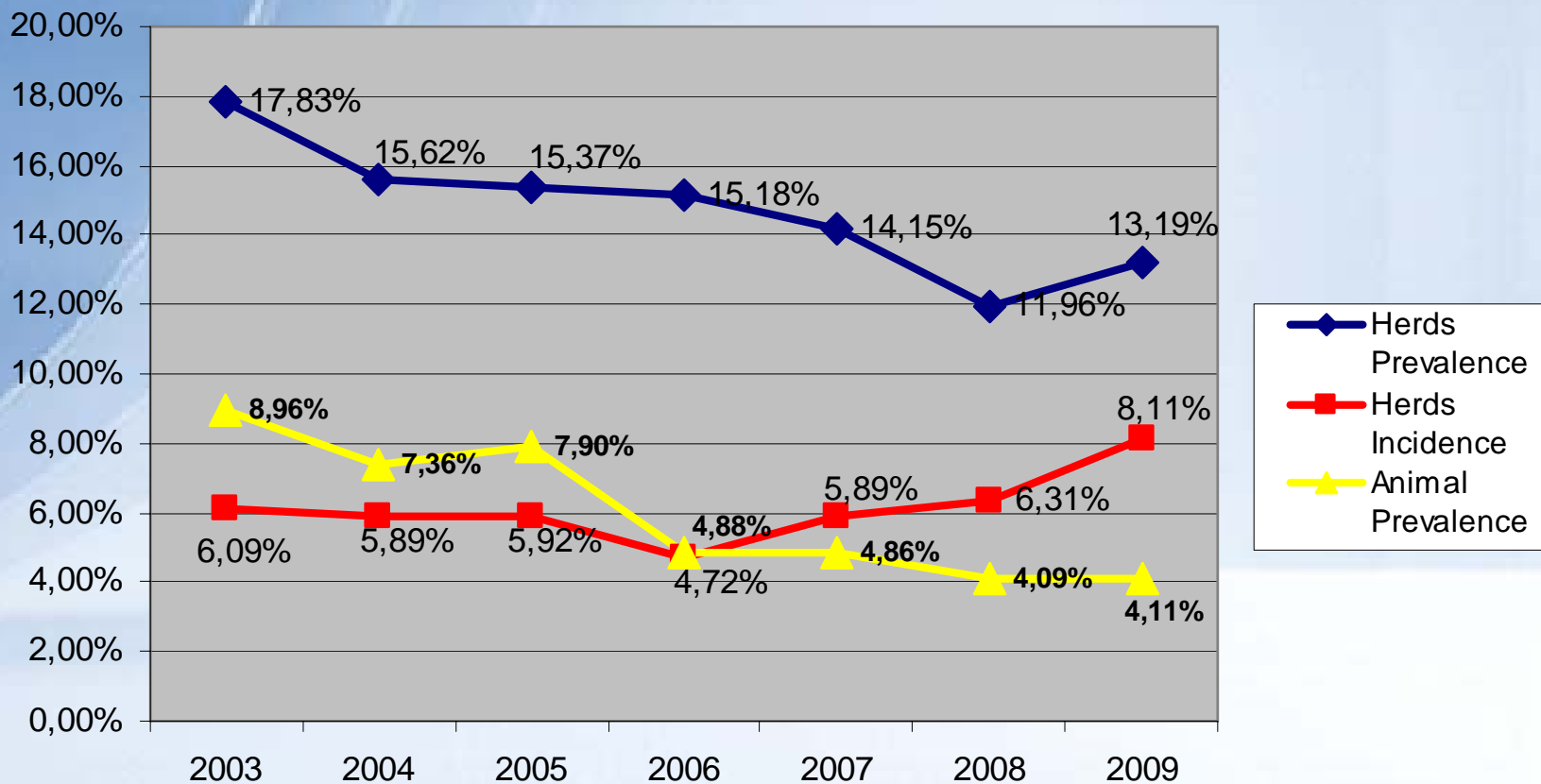
ANIMAL PREVALENCE



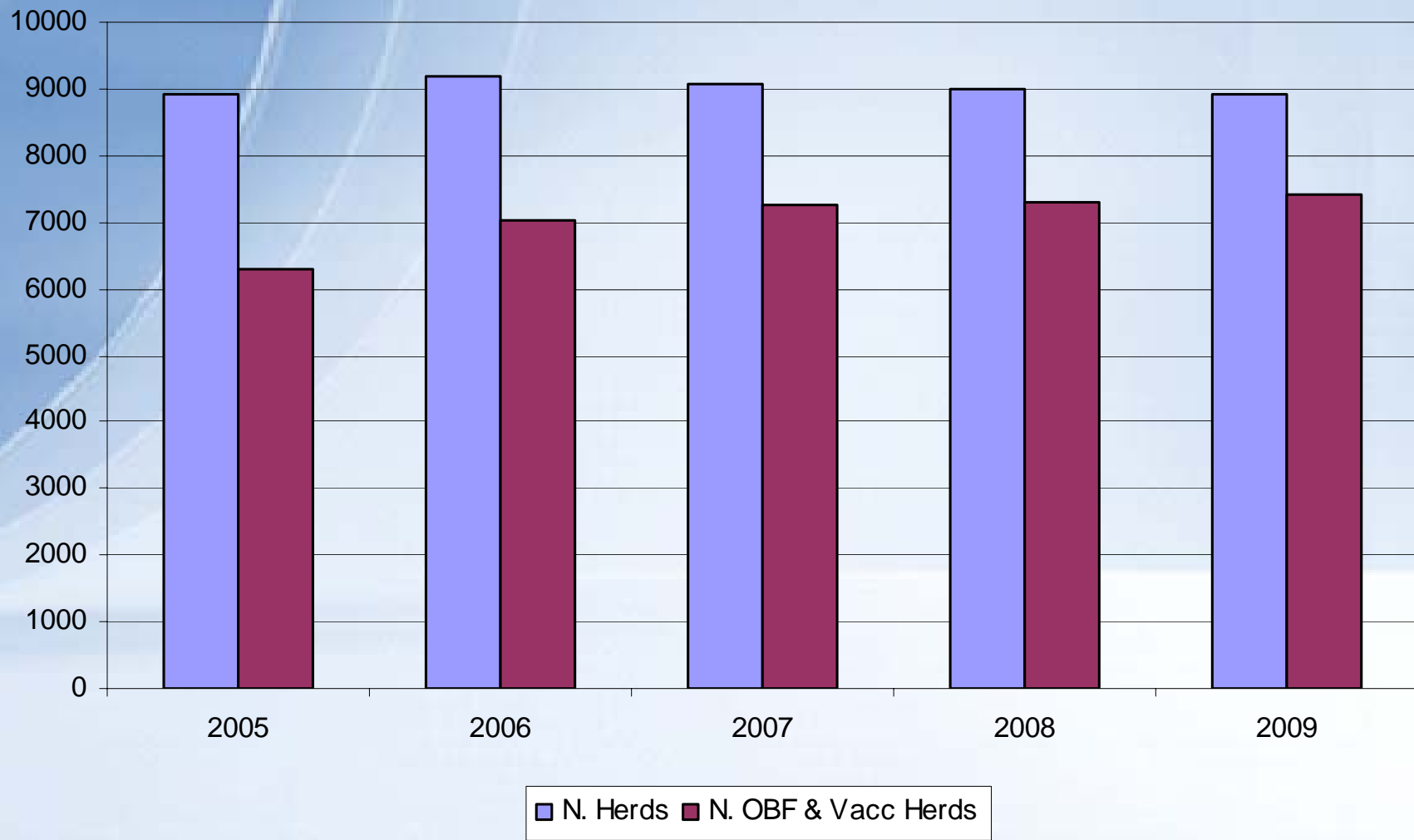


Sheep and Goats Brucellosis

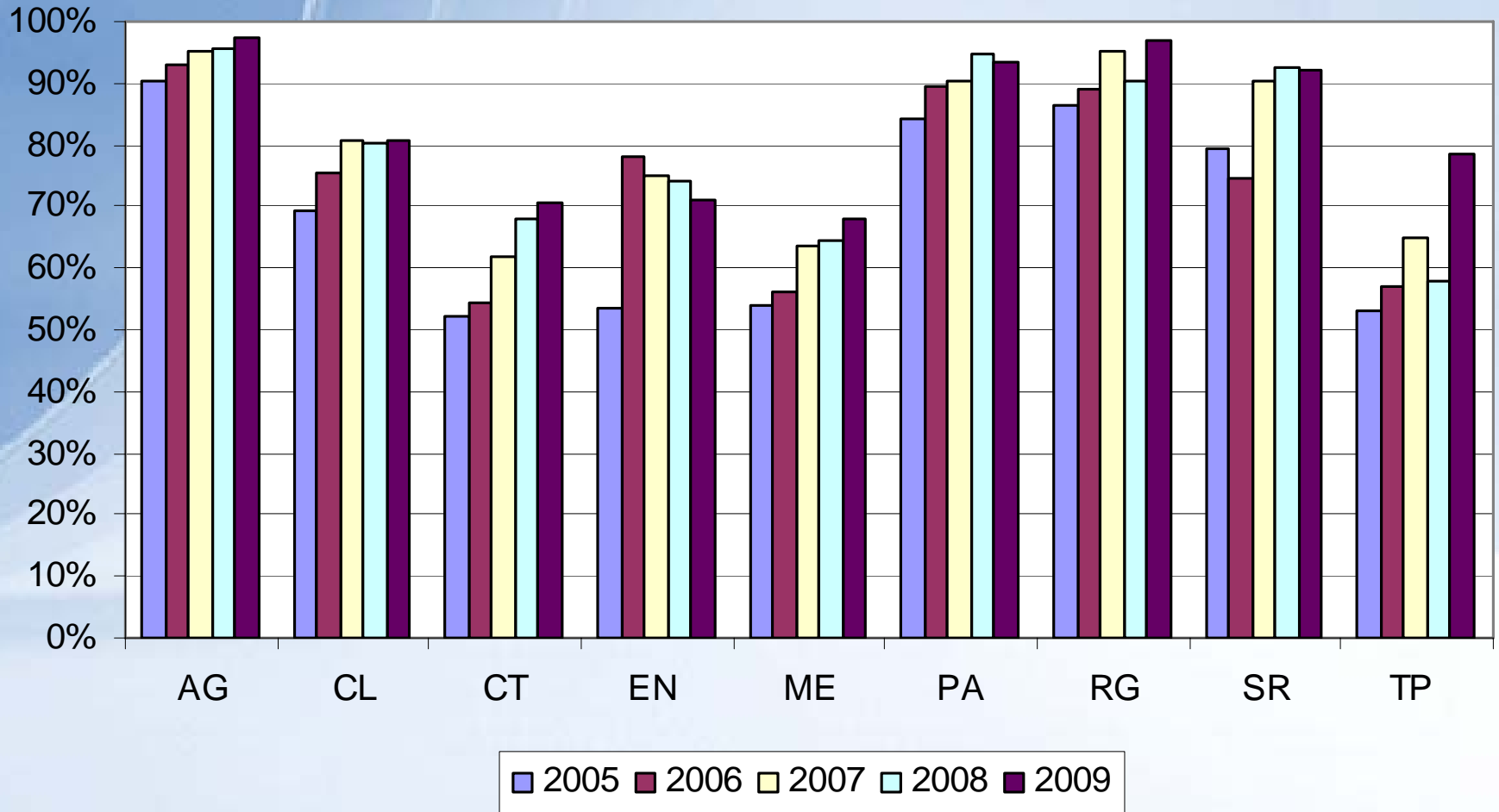
Prevalence - Incidence



N. OF OBF AND VACCINATED HERDS



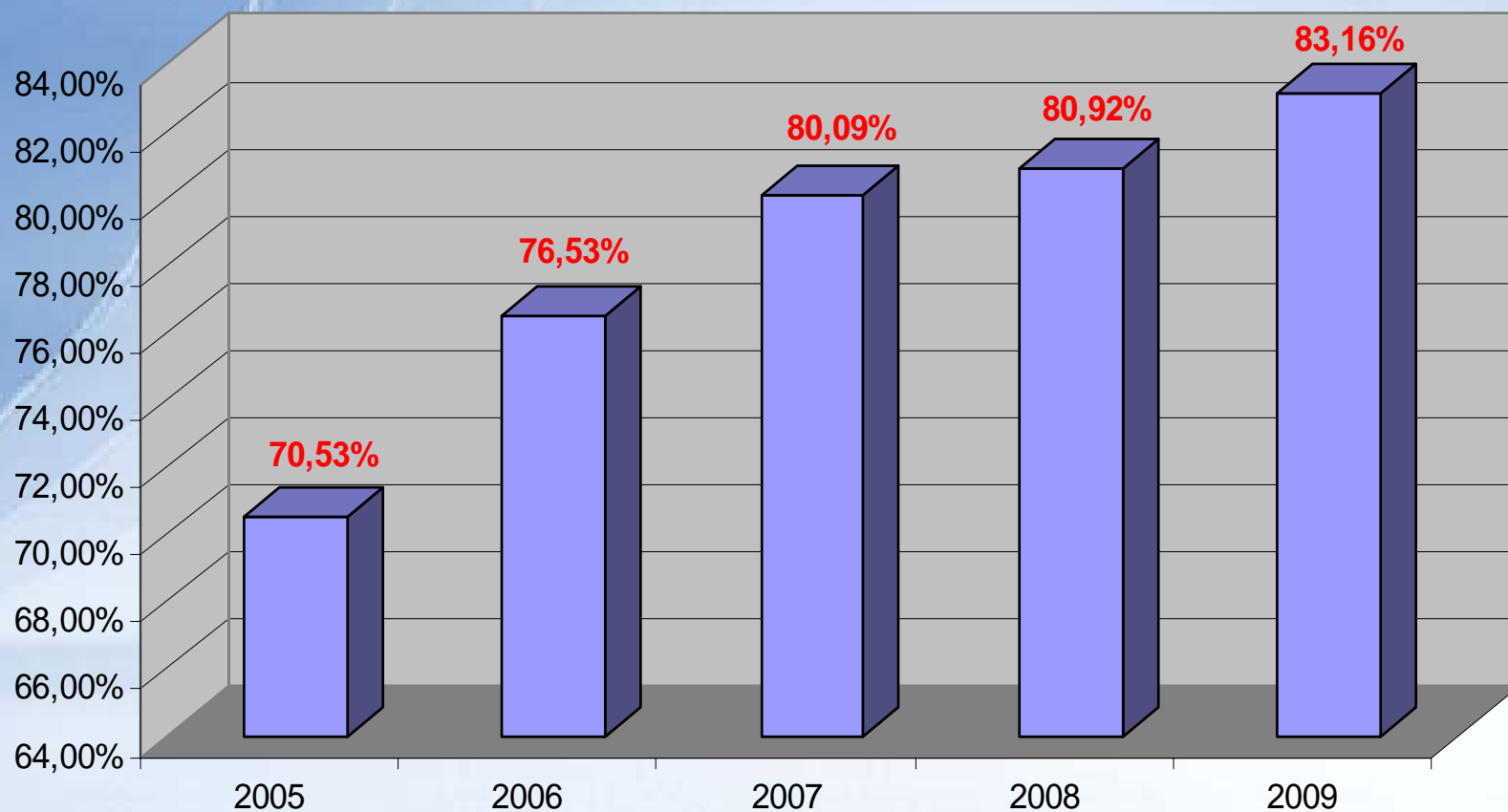
% DISTRIBUTION OF O.B.F. AND V. HERDS





Sheep and Goats Brucellosis

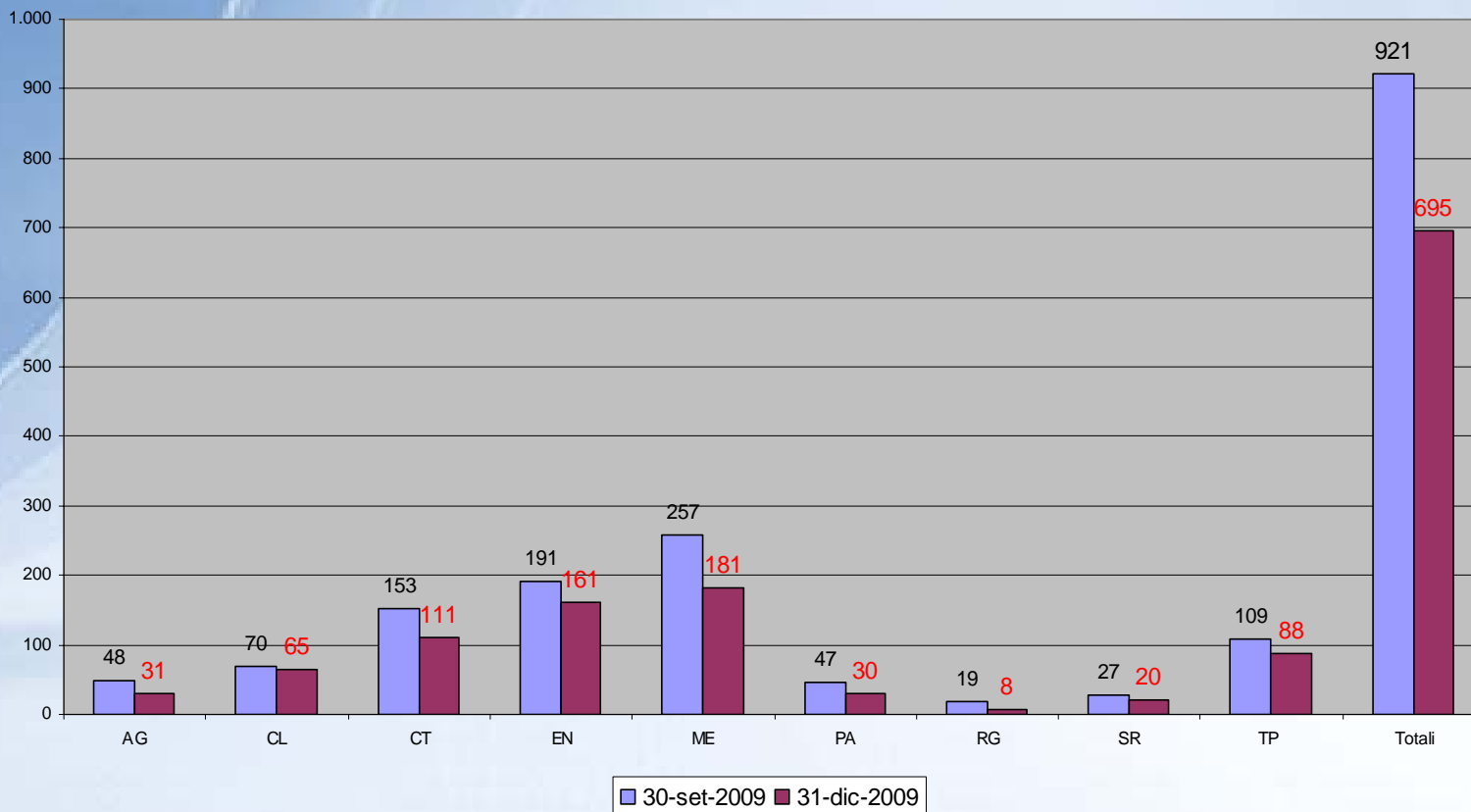
% Vaccinated and OBF Herds





Sheep and Goats Brucellosis

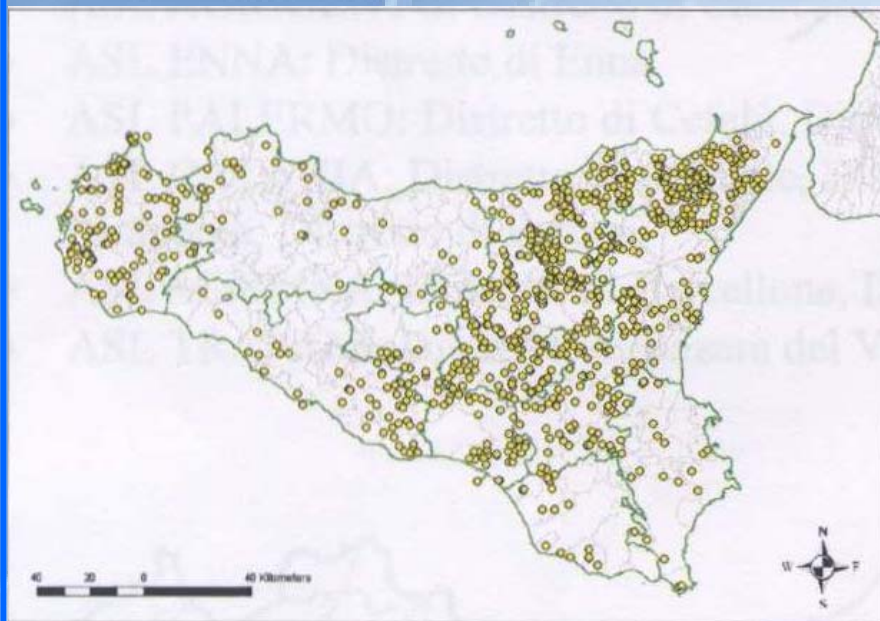
Problematic Herds





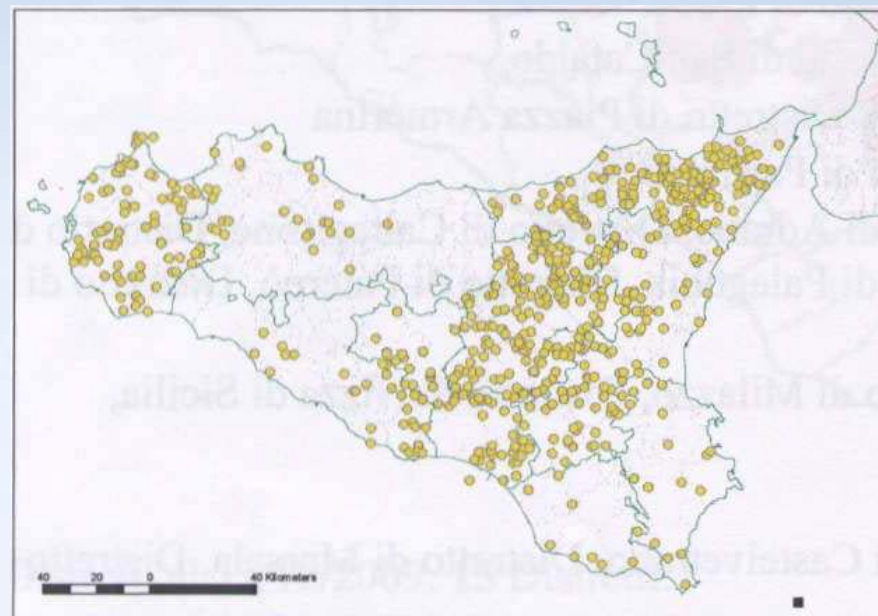
Sheep and Goats Brucellosis

Problematic Herds 2009



30 of September 2009

n. 921



31 of December 2009

n. 695

-226 = -24,54%



Sheep and Goats Brucellosis

Goals and results

2008

P Herds	I Herds	P Animals	% OBF & Vacc. Herds	N. Probl. Herds
11,96%	6,31%	4,07%	81%	921

2009: Contingency plan

(introduced on July 3th 2009 started on september 1th 2009)

	P Herds	I Herds	P Animals	% OBF & Vacc. Herds	N. Probl. Herds
Obiettivi				> ?	-20% \pm (5) = 737
Risultati	13,19%	8,11%	4,11%	83%	695 = -24,54%



Sheep and Goats Brucellosis

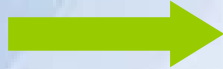
Main target: Progressive Eradication

Goals 2010-2012

OBF & Vacc. Herds

Probl. Herds

2010



90% (± 1)

-75% (± 5)

2011



95% (± 1)

- 15% (± 5)

2012



98% (± 1)

- 10% (± 5)

?



Brucellosis in Sicily

2010

Cross analysis of informative system (BDN-SANAN)

Veterinary activities

- a) Herd testing intervals (shortage of official veterinarians?)

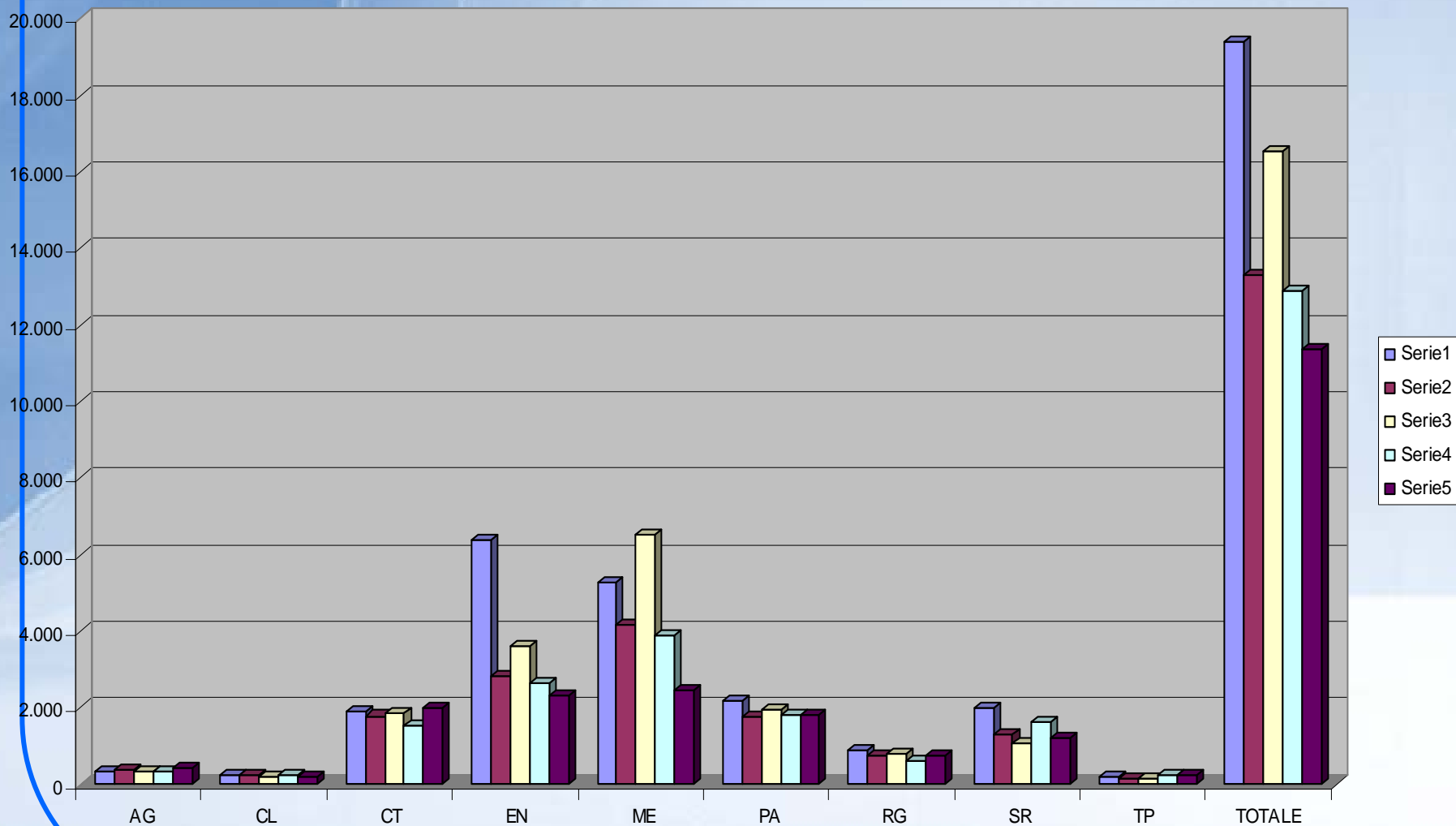
Herd Management

- b) Notifications of cattle rustling and/or loss
- c) Herd calving rate

Comparison with epidemiological data related other diseases

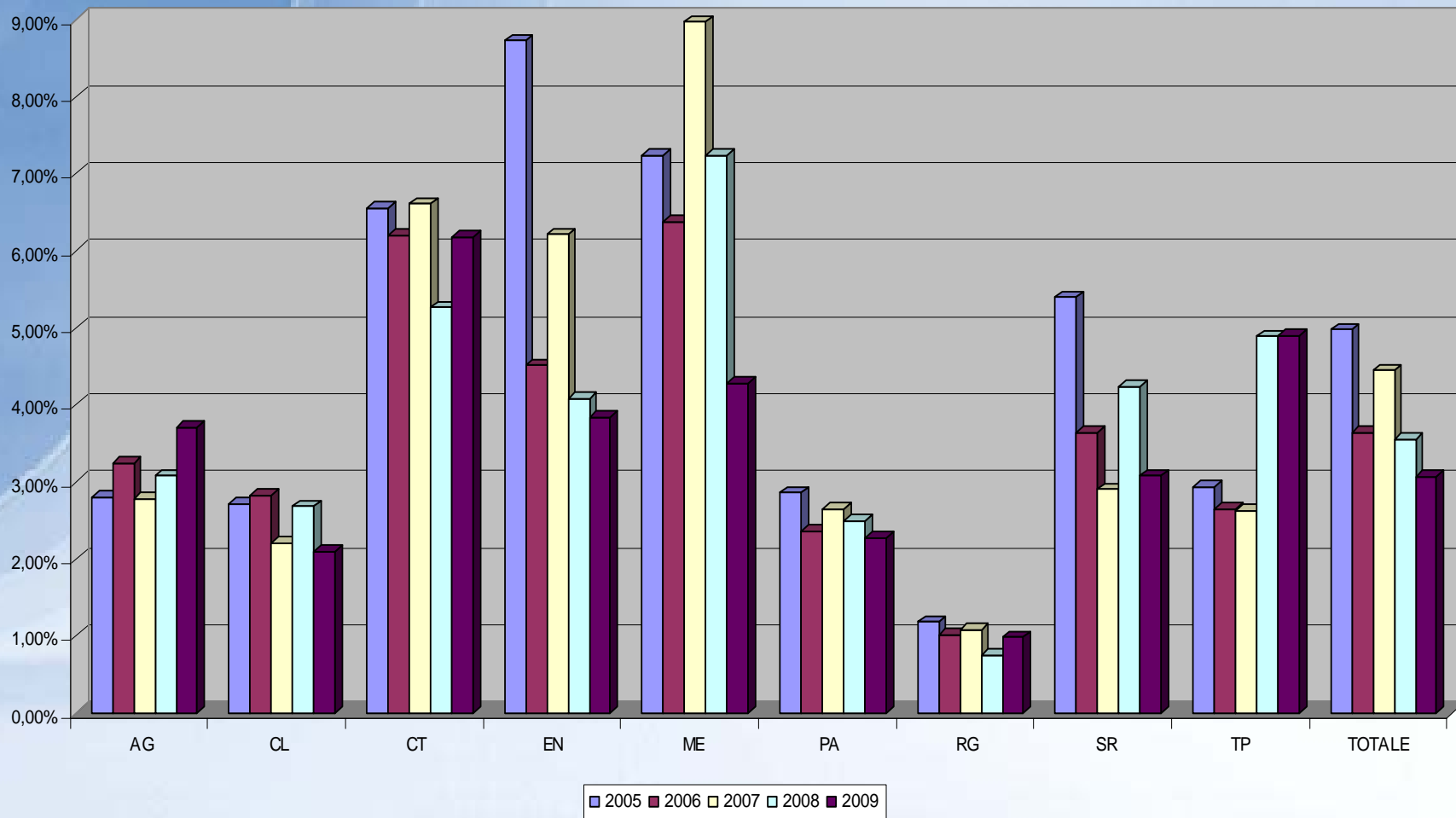


cattle rustling and/or loss



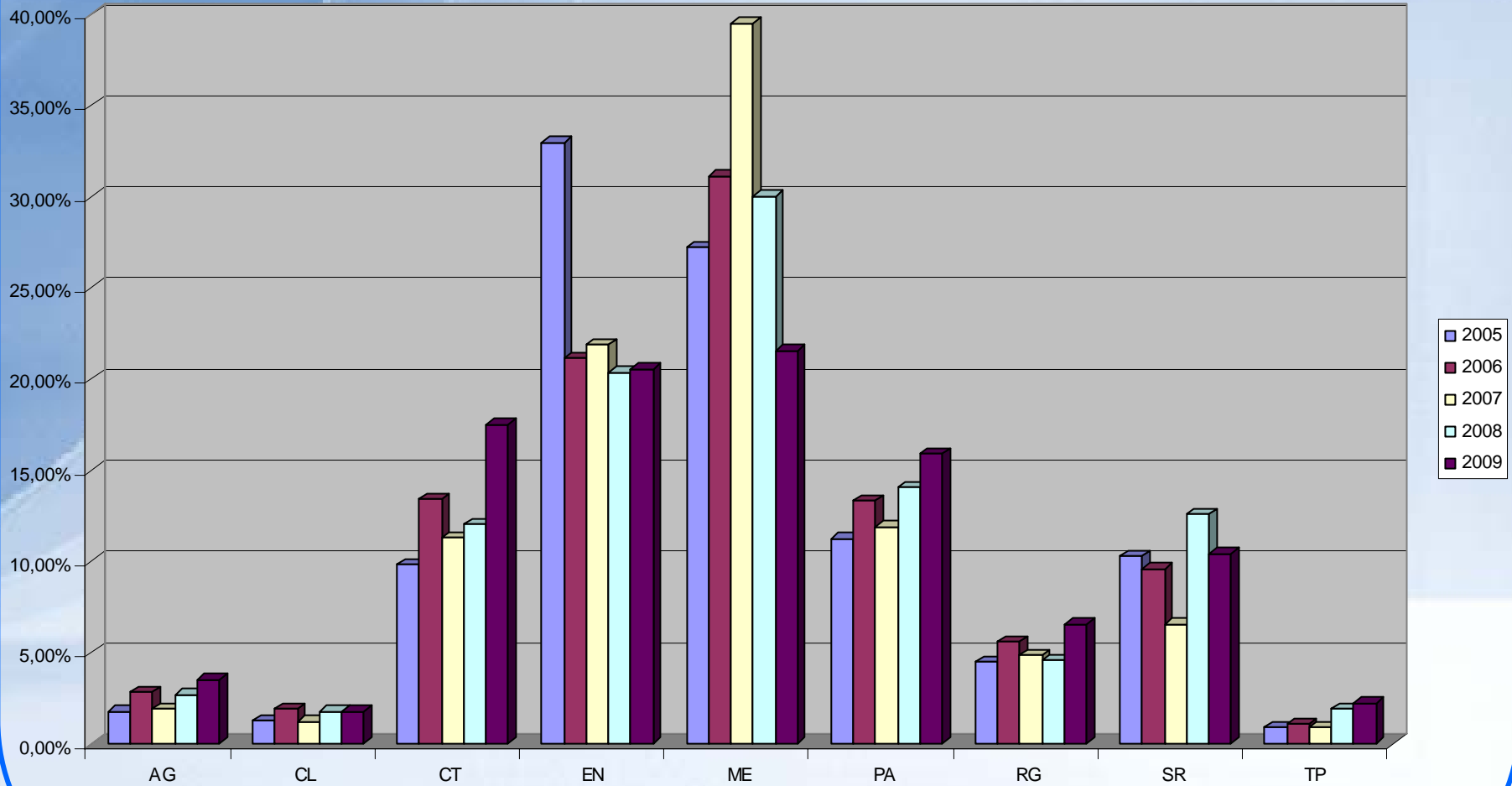


cattle rustling and/or loss





cattle rustling and/or loss





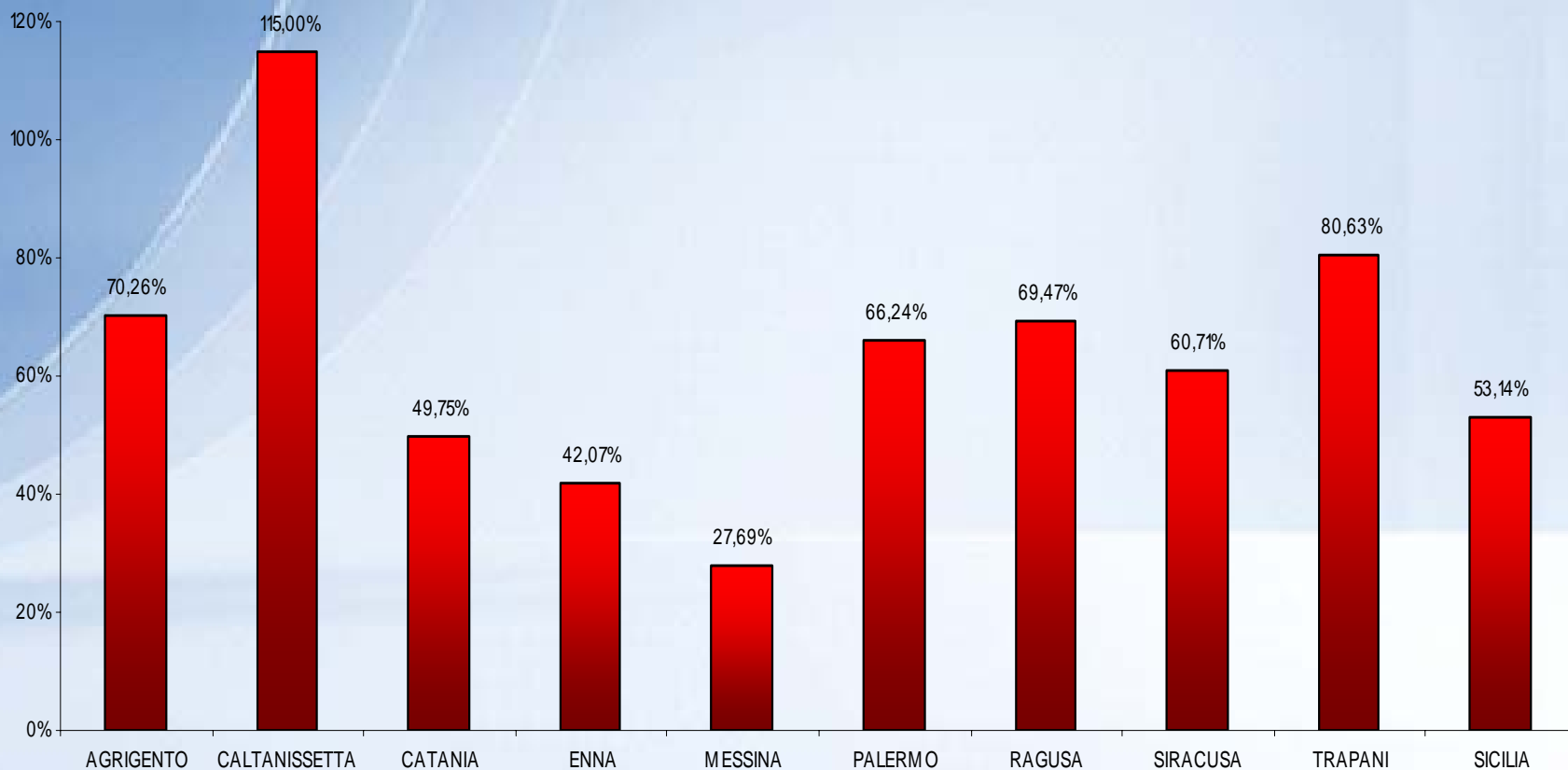
Herd calving rate (2007)

ASP	%
AG	70,26
CL	115,00
CT	49,75
EN	42,07
ME	27,69
PA	66,24
RG	69,47
SR	60,71
TP	80,63
SICILY	53,14



Herd calving rate (2007)

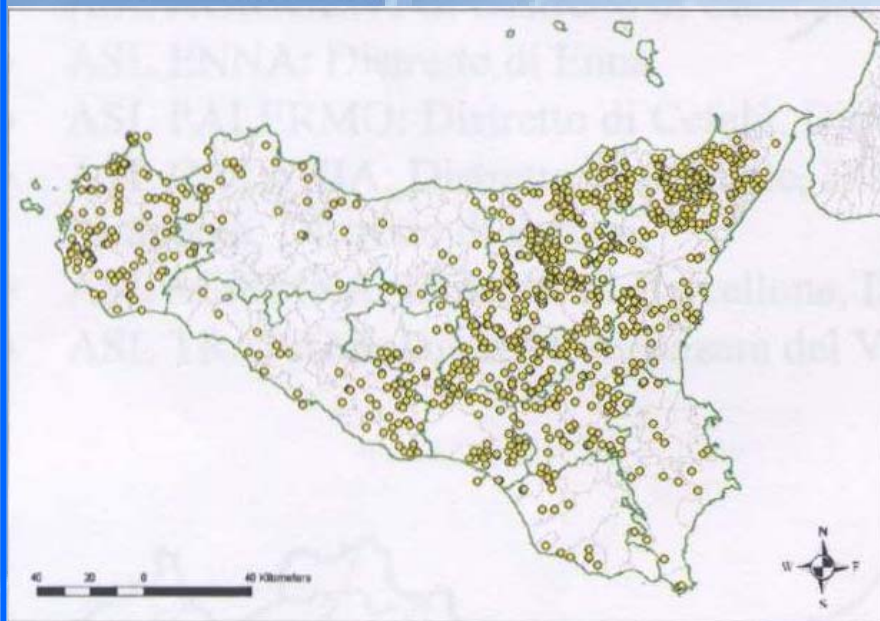
% NASCITE REGISTRATE IN BDN AL 31/12/2007





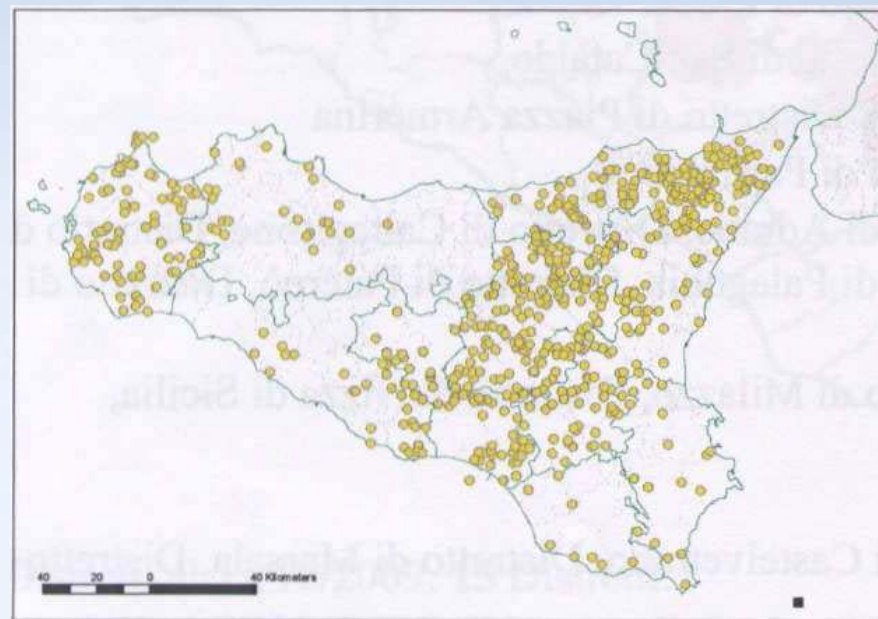
Sheep and Goats Brucellosis

Problematic Herds 2009



30 of September 2009

n. 921



31 of December 2009

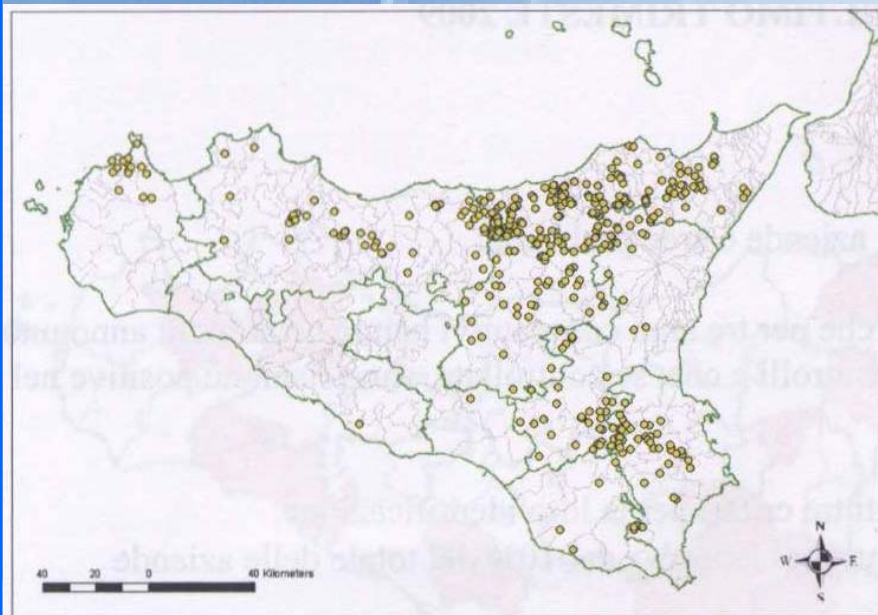
n. 695

-226 = -24,54%

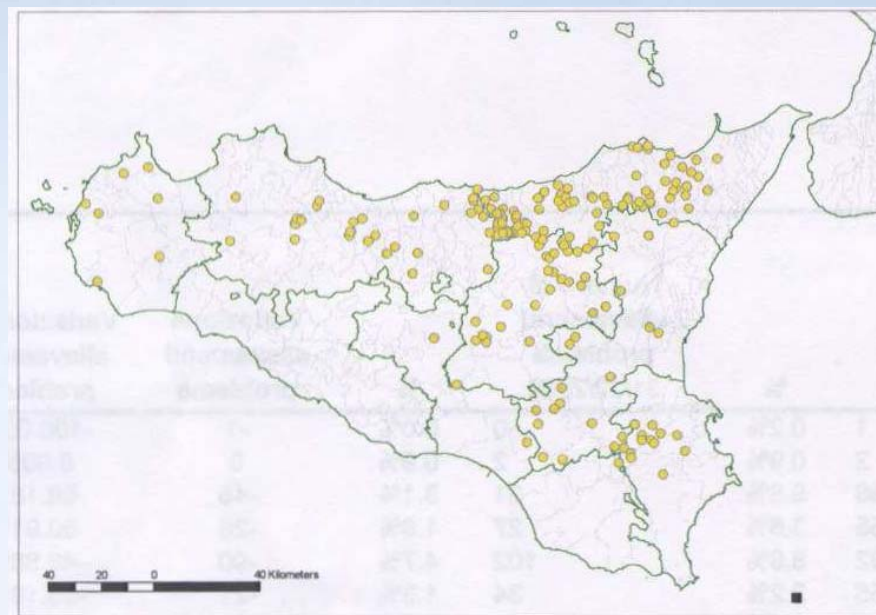


Bovine Brucellosis

Problematic Herds 2009



30 of september 2009
n. 436

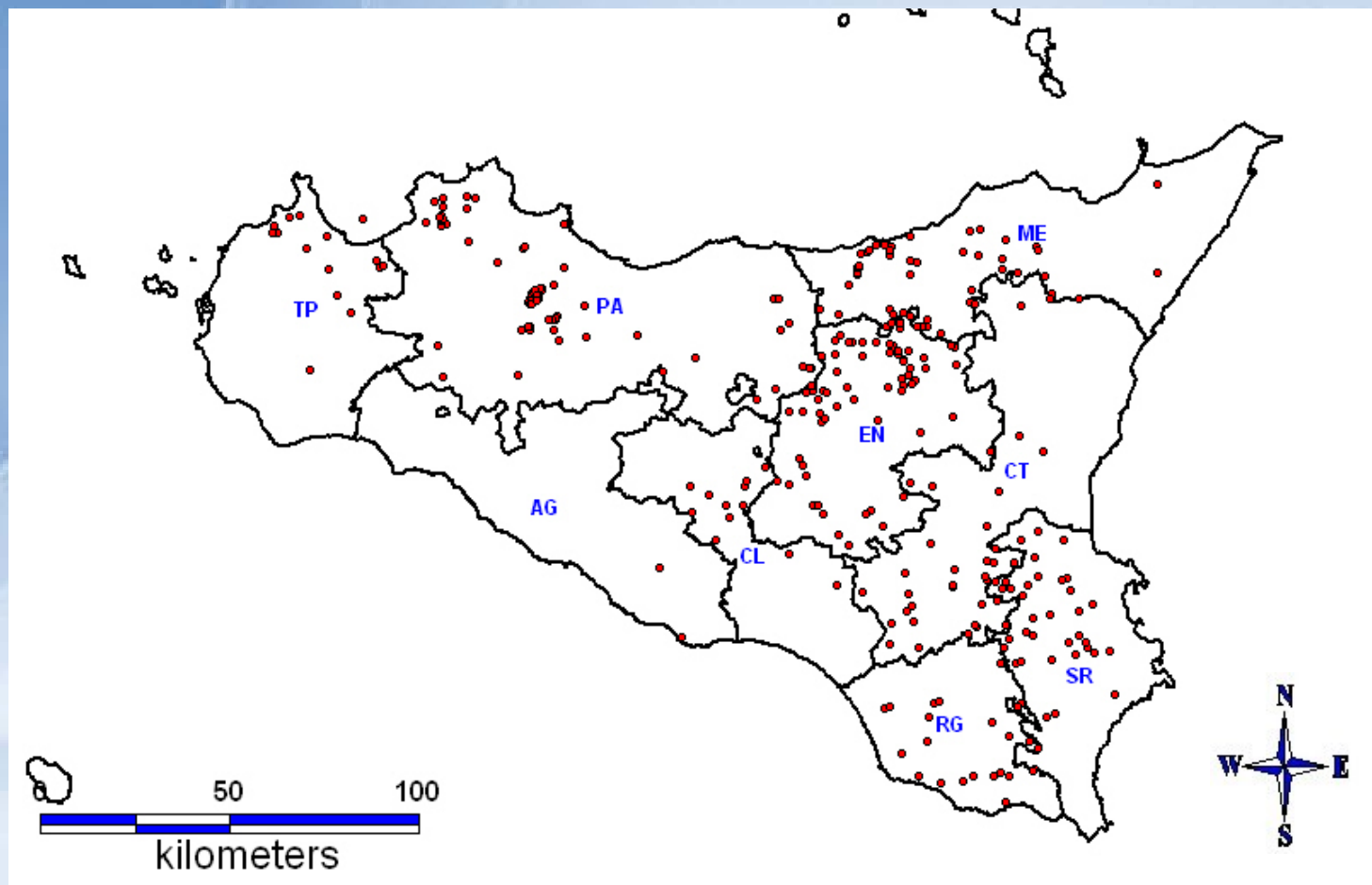


31 of december 2009
n. 207

-229 = -52,52%

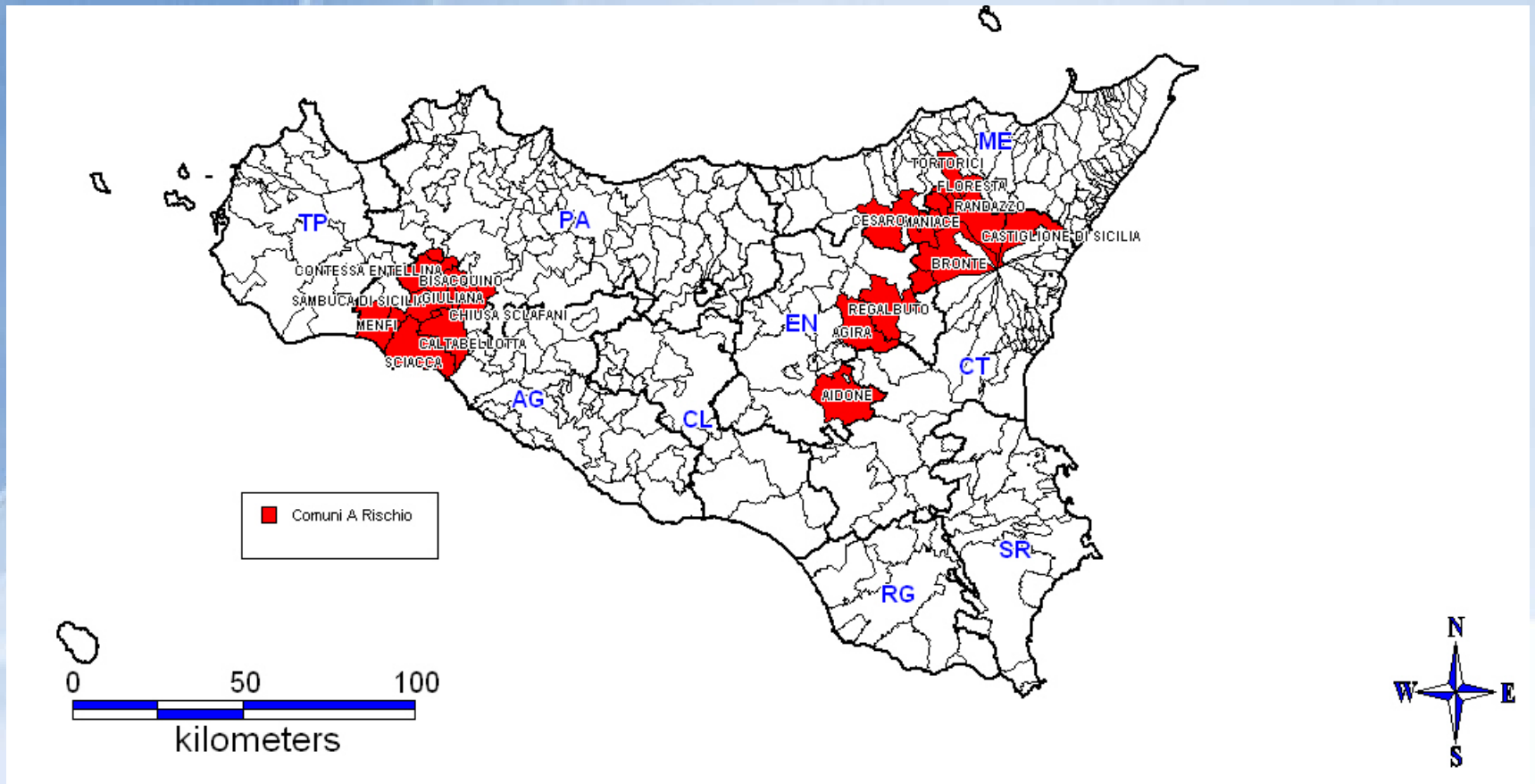


TB Outbreaks 2009



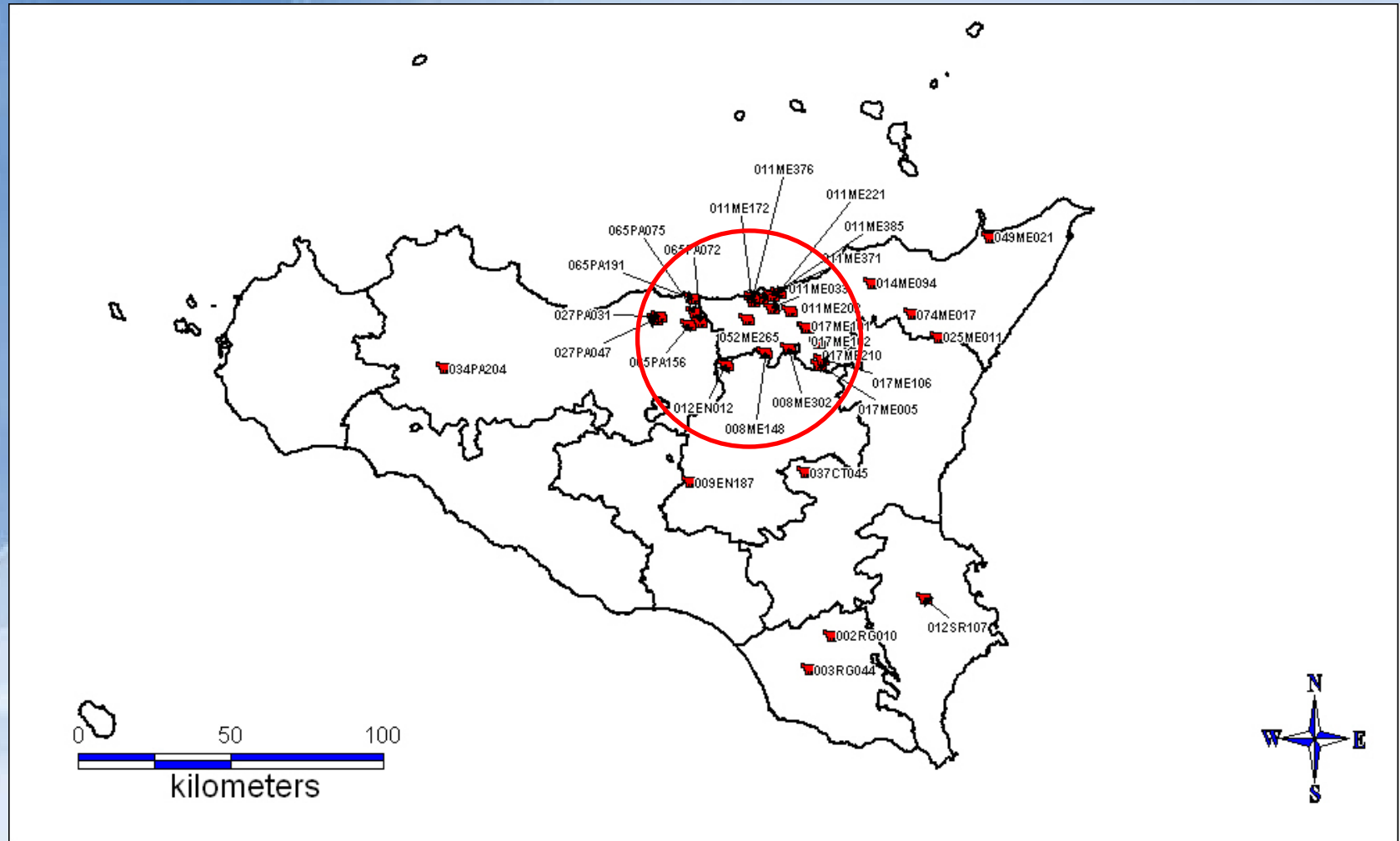


Anthrax: problem areas





LEUKOSIS: Outbreaks 2009





Brucellosis in Sicily

Specific measures

Primary:

a) Improvement of monitoring:

BEV Sicily (monthly) & three-monthly reports (activity indices)

Involvement of General Directions

b) Regional controls:

On the effectiveness of field activities (health status, implementation of the information system);

On auditing activities run by the provincial veterinary authorities on field activities

Secondary:

a) Technical training (valutazione collegiale, condivisione, etc..);

b) Involvements of farmers

c) Evaluation of problematic herds (with or within health problems)



Brucellosis in Sicily

Evaluation of problematic herds

- with health problems
- with no-health problems



Brucellosis in Sicily

Years 2011 - 2012

Remodeling of the contingency plan based on:

- a) New criticism arising from cross analysis of Information systems;
- b) New regional epidemiological situation;

Diversification of operations according to local health level attained:

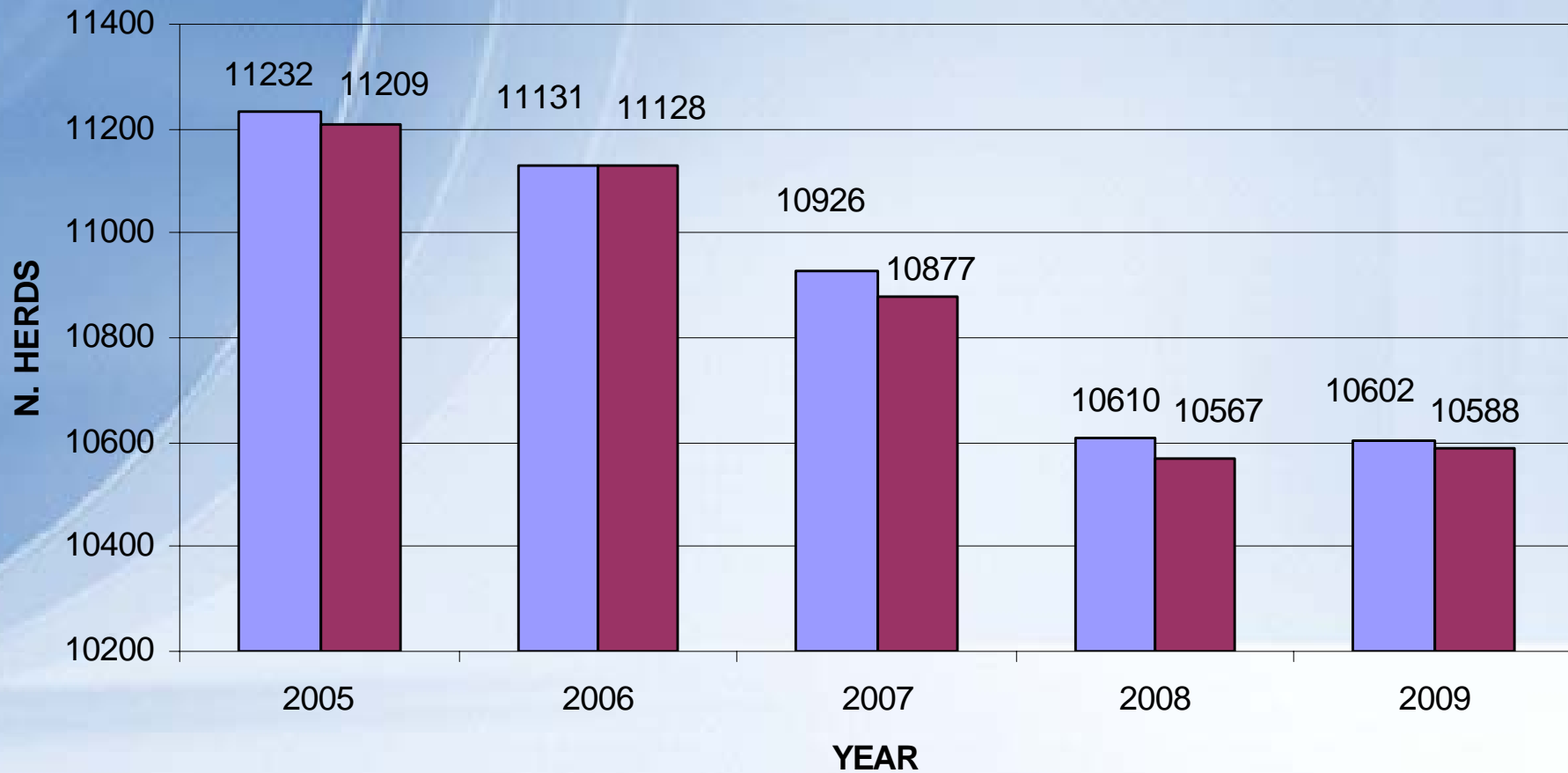
- Areas close to eradication (AG-RG-PA) Stamping Out
- Areas with non-compliant evolution (CT-EN-ME) Vaccination (?)
- Areas with intermediate evolution (CL-SR-TP) case by case assessment



BOVINE BRUCELLOSIS

Results of the eradication programme

TRENDS IN HERDS TESTING



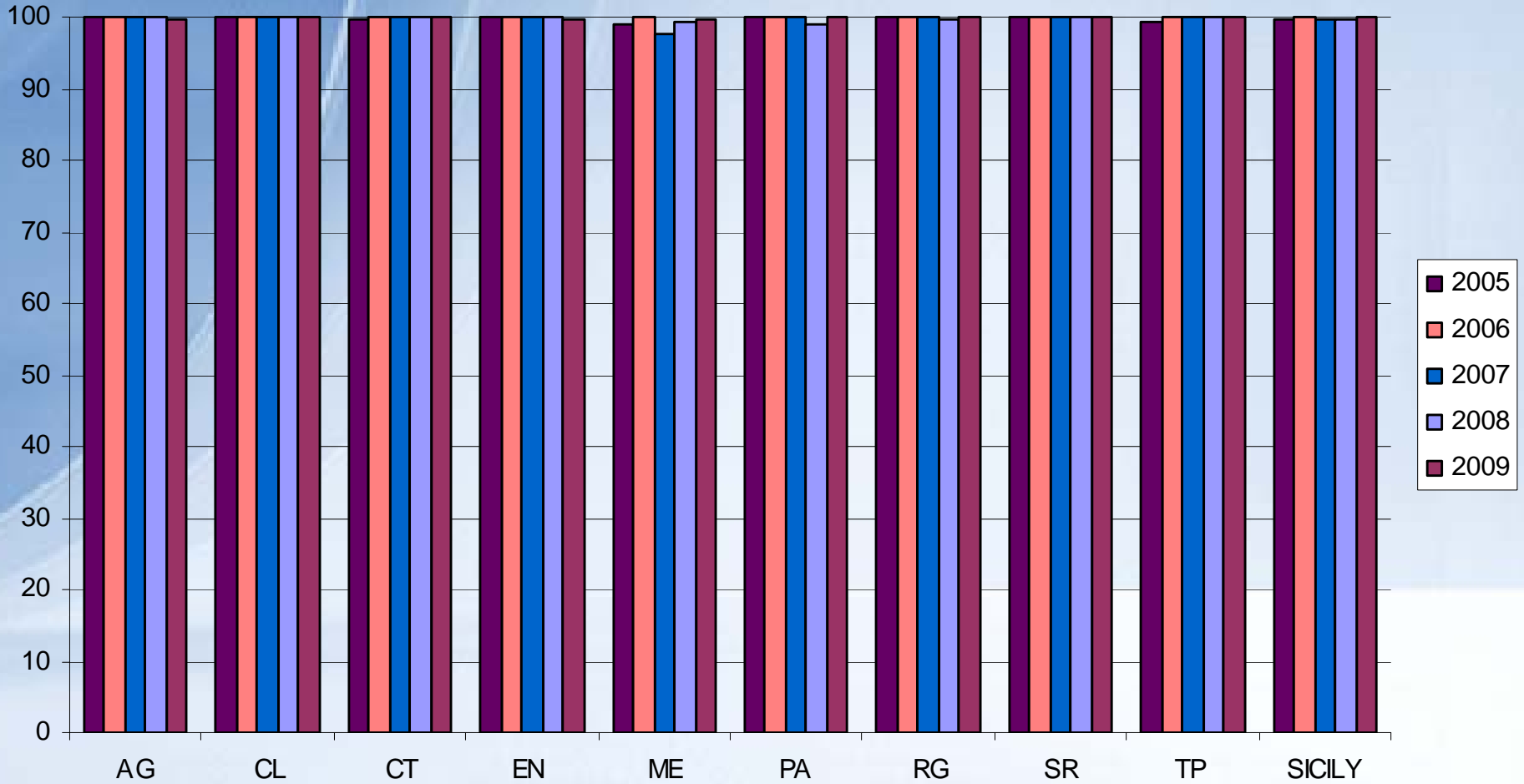
■ N. HERDS UNDER THE PROGRAMME

■ N. TESTED HERDS

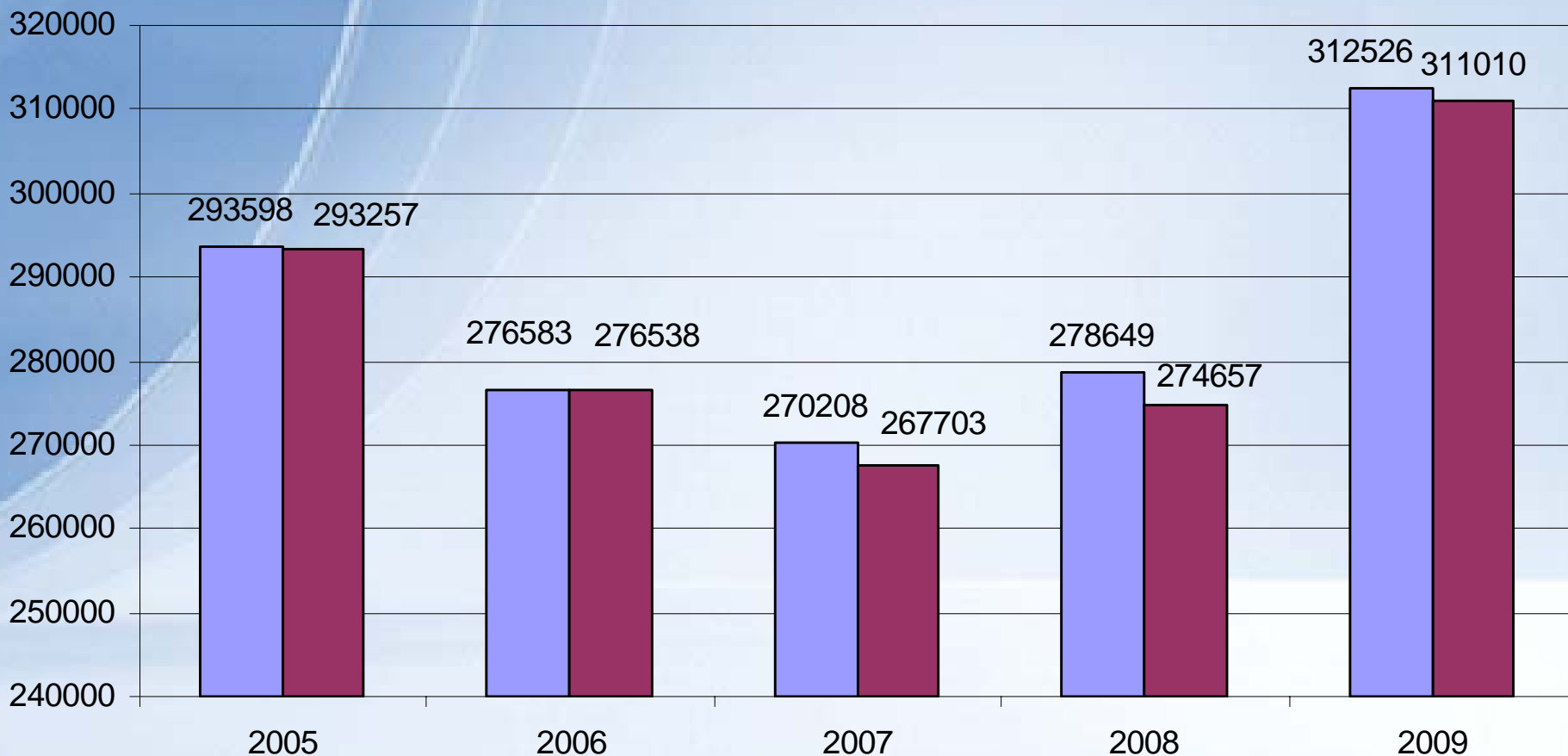
% HERDS COVERAGE



% TRENDS IN HERDS COVERAGE



TRENDS IN ANIMALS TESTING

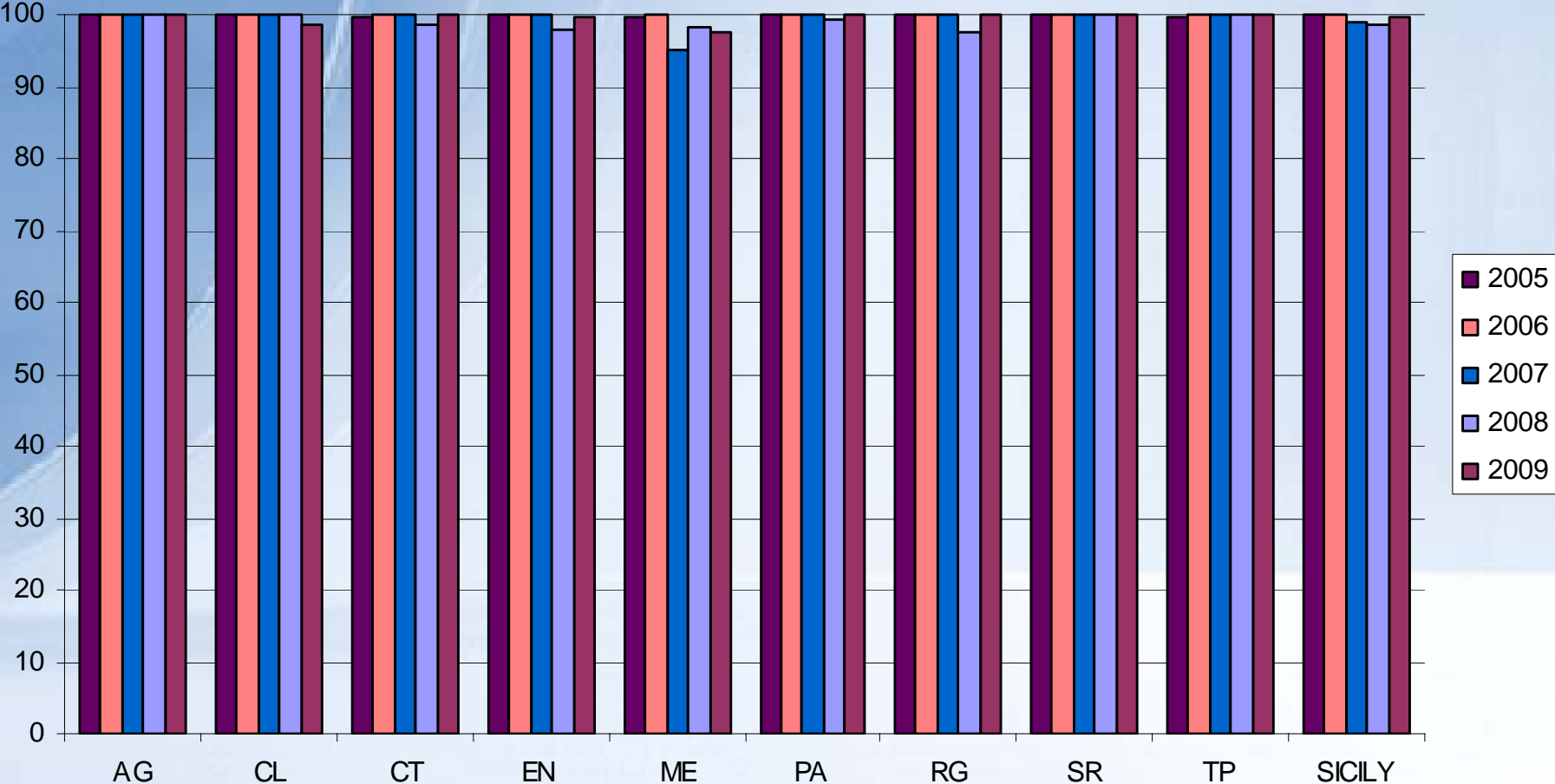


■ N. ANIMALS TO BE TESTED ■ N. TESTED ANIMALS

% ANIMAL COVERAGE



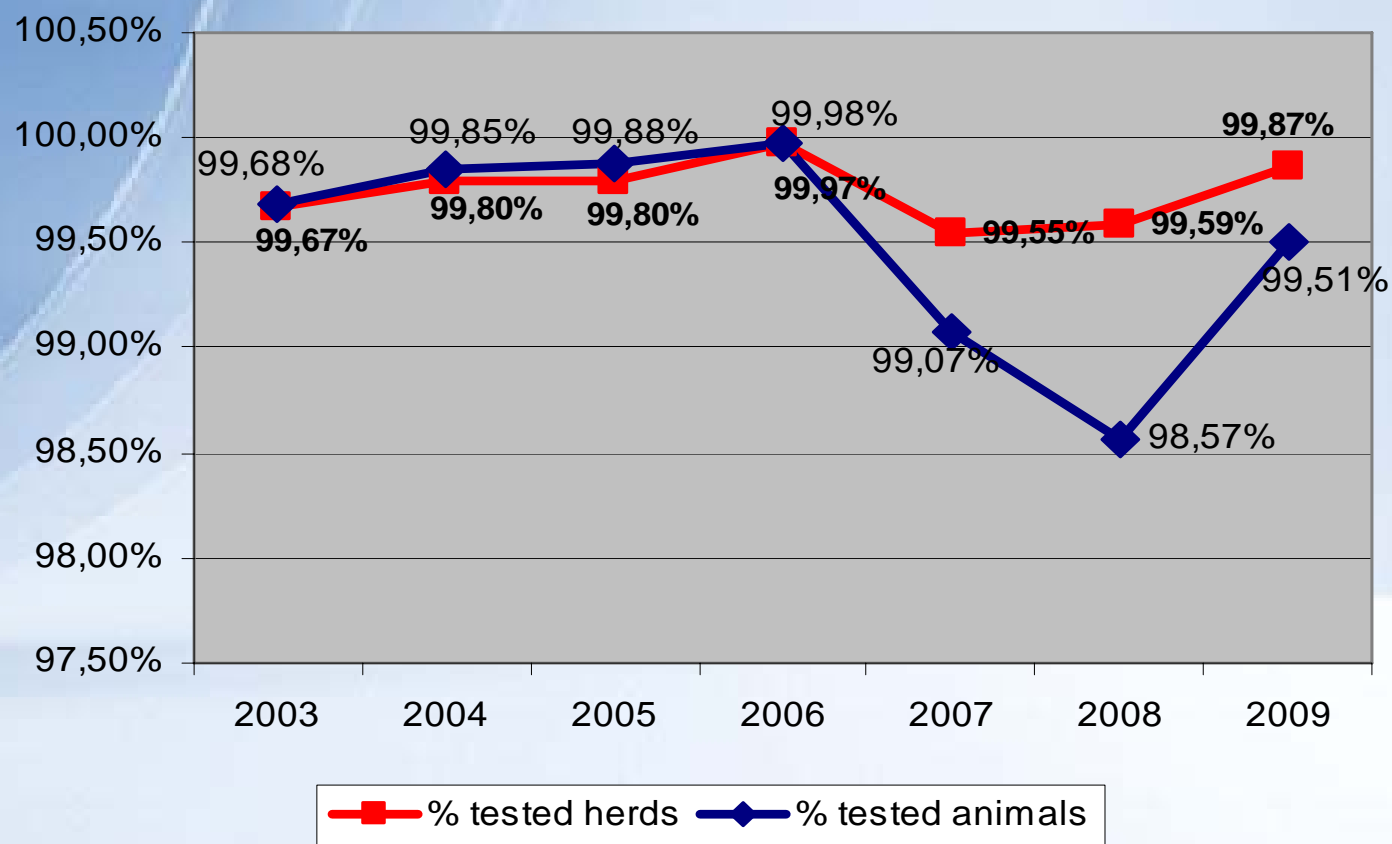
% TRENDS IN ANIMAL TESTING





Bovine Brucellosis

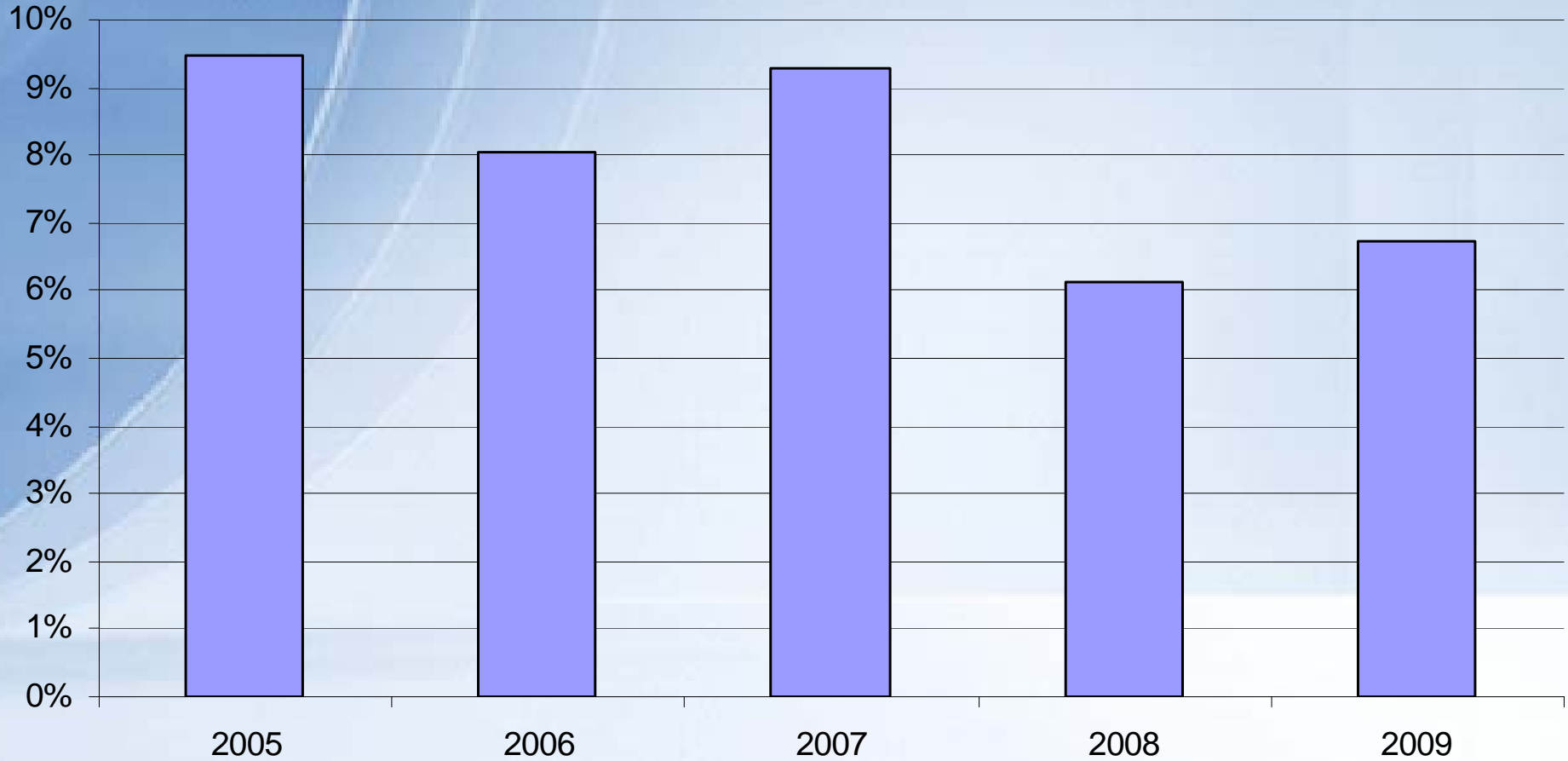
Territory Coverage



% HERDS PREVALENCE (2005 - 2009)

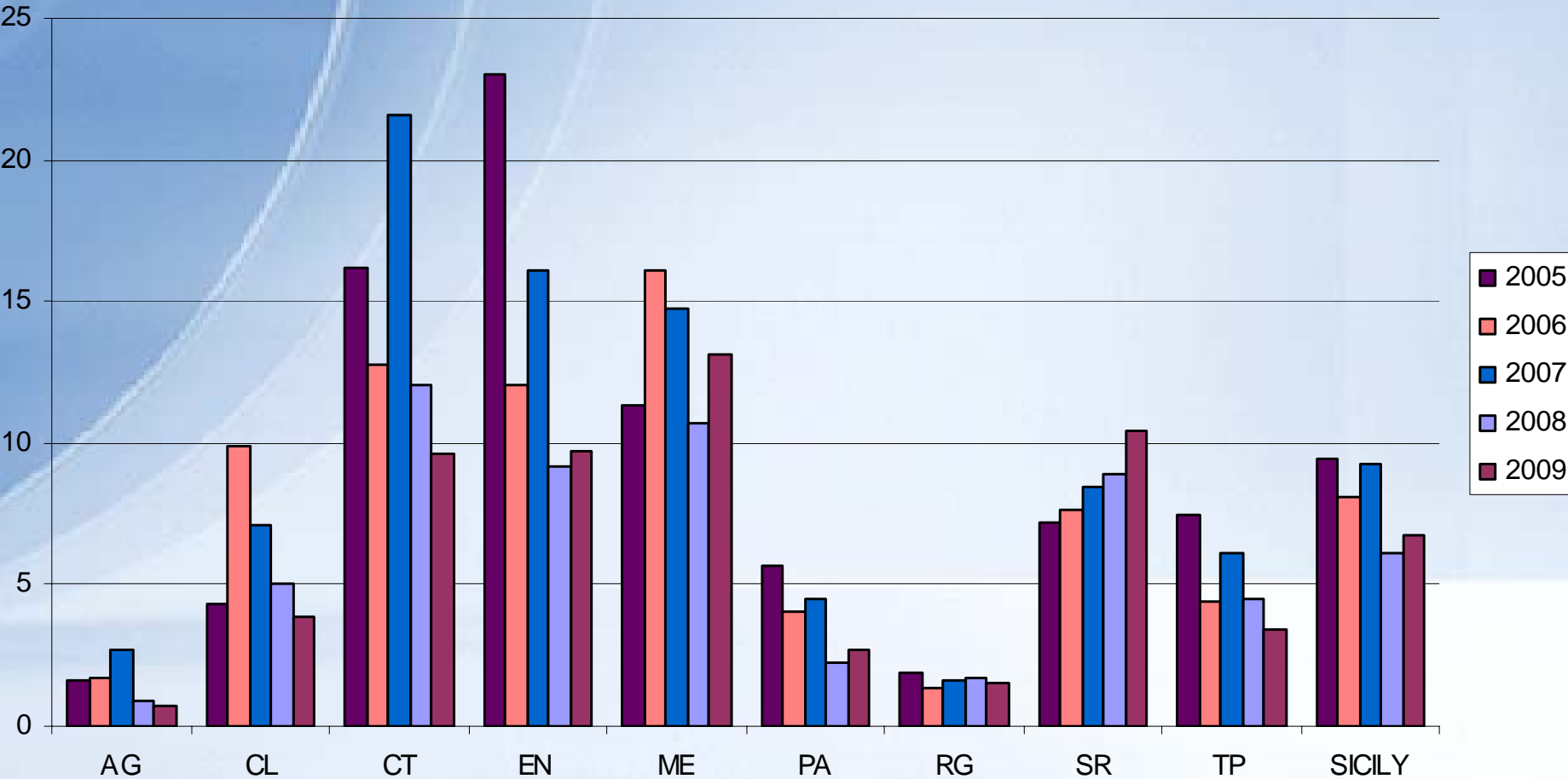
ASP	2005	2006	2007	2008	2009
AG	1,58	1,72	2,69	0,87	0,70
CL	4,29	9,89	7,09	5,06	3,88
CT	16,15	12,76	21,58	12,01	9,62
EN	23,06	12,03	16,14	9,17	9,75
ME	11,30	16,11	14,77	10,66	13,10
PA	5,67	4,04	4,53	2,28	2,73
RG	1,86	1,33	1,66	1,73	1,53
SR	7,19	7,62	8,49	8,90	10,40
TP	7,49	4,41	6,14	4,49	3,43
SICILY	9,47	8,06	9,28	6,12	6,72

% HERDS PREVALENCE



■ HERDS PREVALENCE

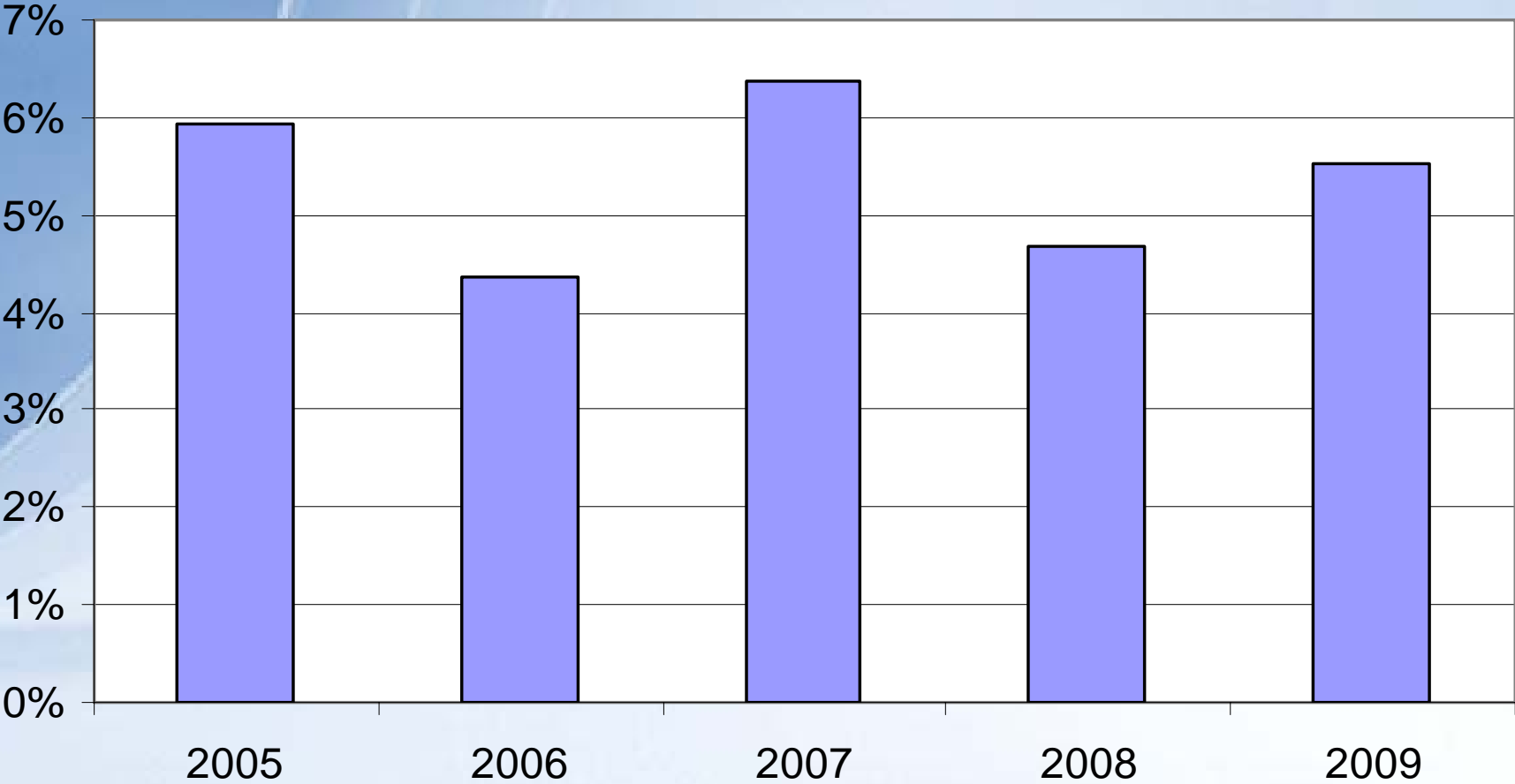
% HERDS PREVALENCE



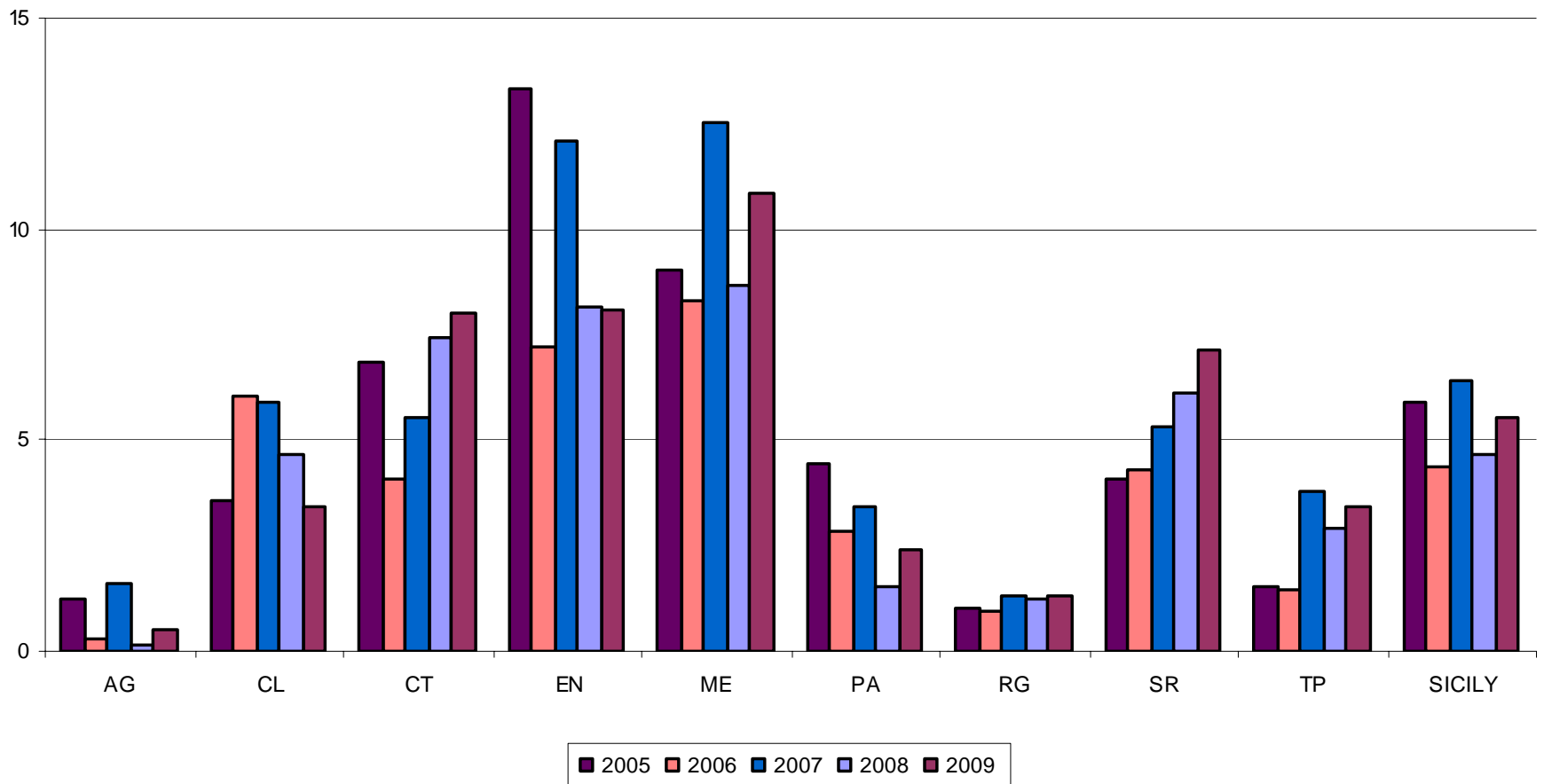
% HERDS INCIDENCE

ASP	2005	2006	2007	2008	2009
AG	1,26	0,31	1,58	0,17	0,53
CL	3,57	6,08	5,91	4,64	3,45
CT	6,81	4,08	5,5	7,45	7,99
EN	13,29	7,22	12,07	8,13	8,09
ME	9,04	8,29	12,54	8,65	10,83
PA	4,45	2,86	3,4	1,52	2,41
RG	1,02	0,93	1,3	1,25	1,34
SR	4,08	4,31	5,32	6,13	7,14
TP	1,5	1,47	3,8	2,88	3,43
SICILY	5,93	4,35	6,38	4,68	5,51

HERD INCIDENCE



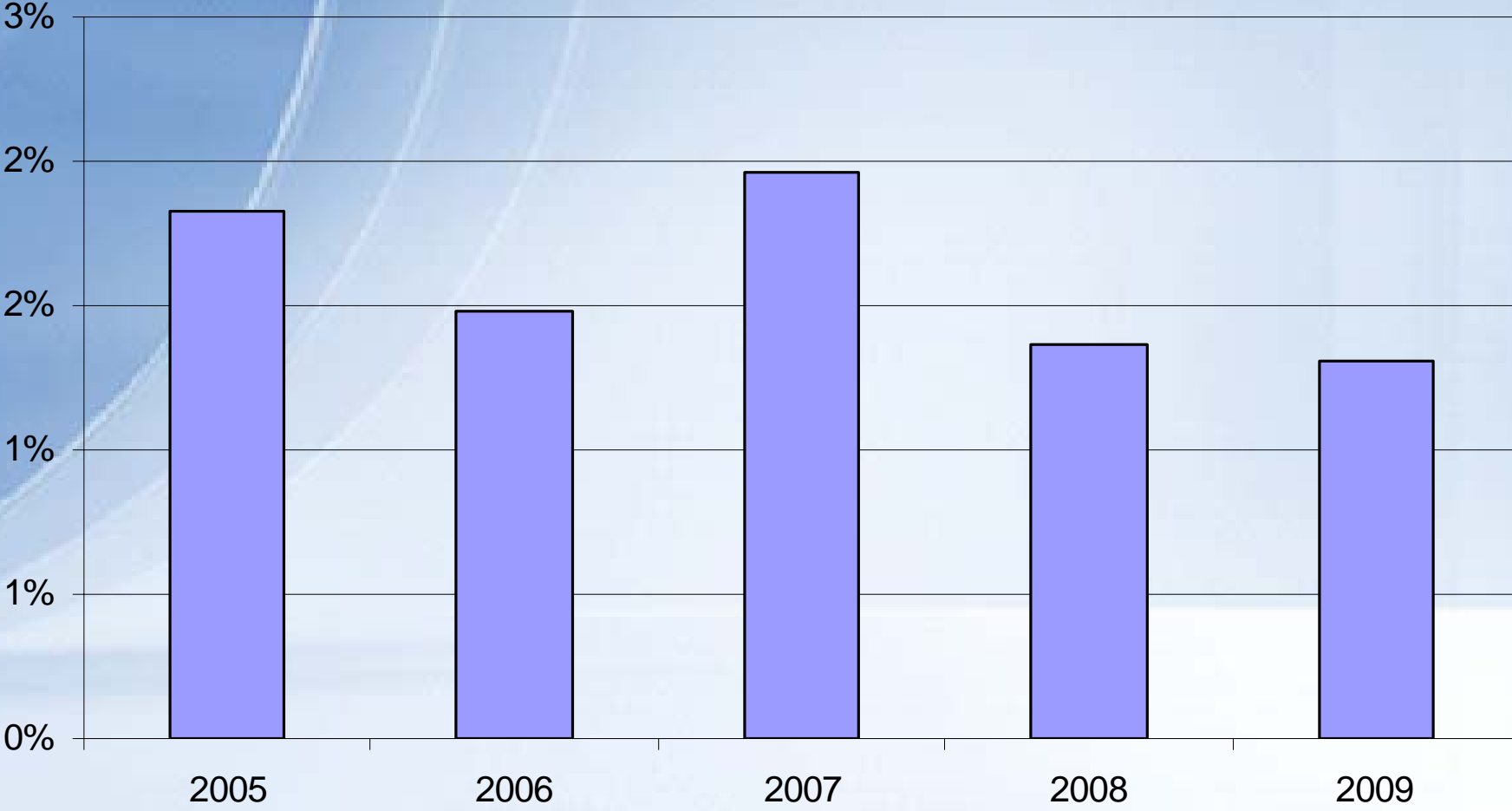
DISTRIBUTION OF HERD INCIDENCE



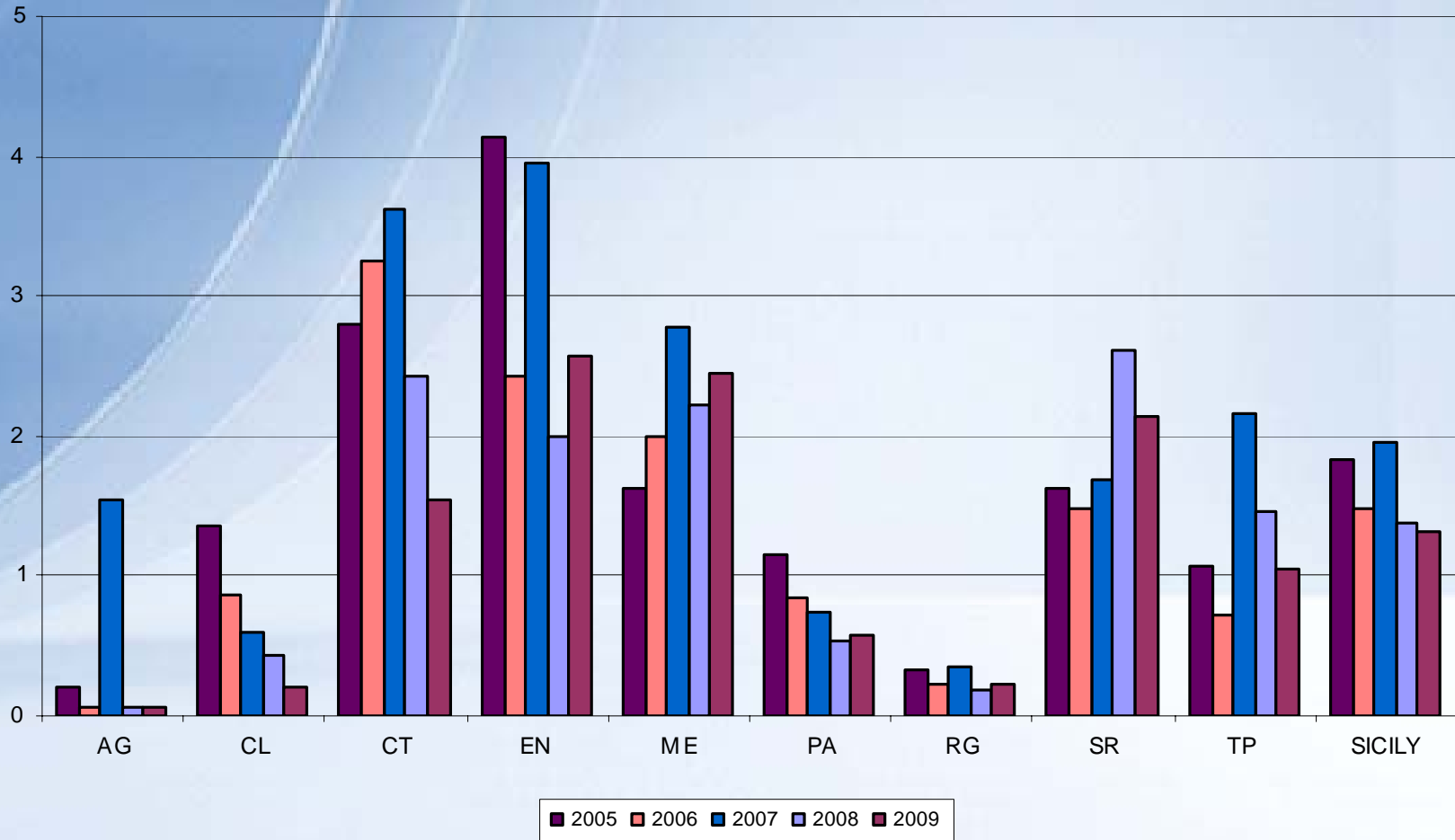
% ANIMAL PREVALENCE

ASP	2005	2006	2007	2008	2009
AG	0,21	0,07	1,55	0,06	0,07
CL	1,36	0,86	0,59	0,43	0,21
CT	2,80	3,25	3,62	2,42	1,54
EN	4,14	2,43	3,96	2,00	2,58
ME	1,62	2,00	2,78	2,23	2,45
PA	1,16	0,85	0,75	0,53	0,58
RG	0,33	0,22	0,35	0,19	0,23
SR	1,62	1,48	1,68	2,62	2,13
TP	1,07	0,71	2,17	1,47	1,05
SICILY	1,83	1,48	1,96	1,37	1,31

ANIMAL PREVALENCE



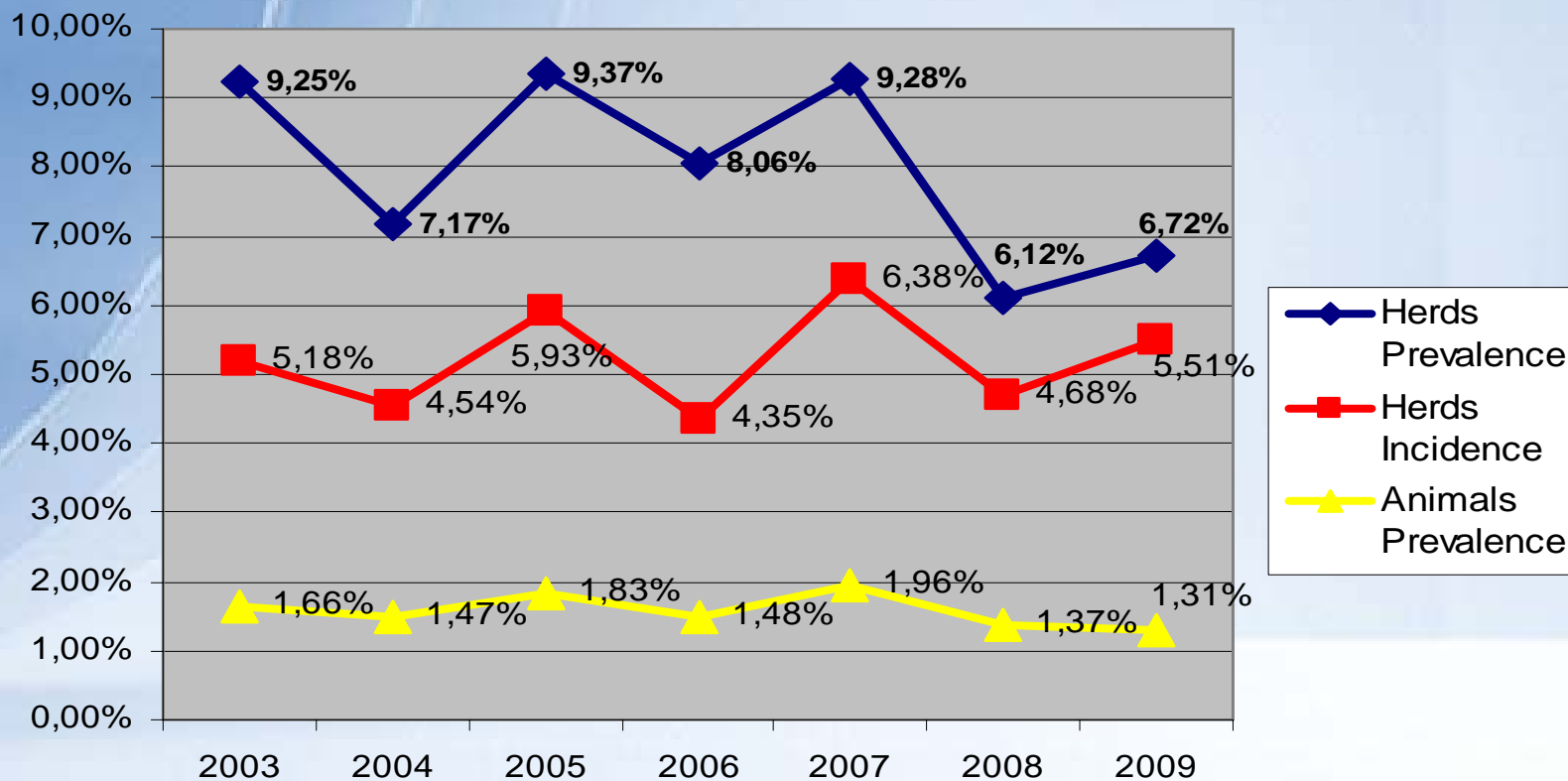
% ANIMAL PREVALENCE



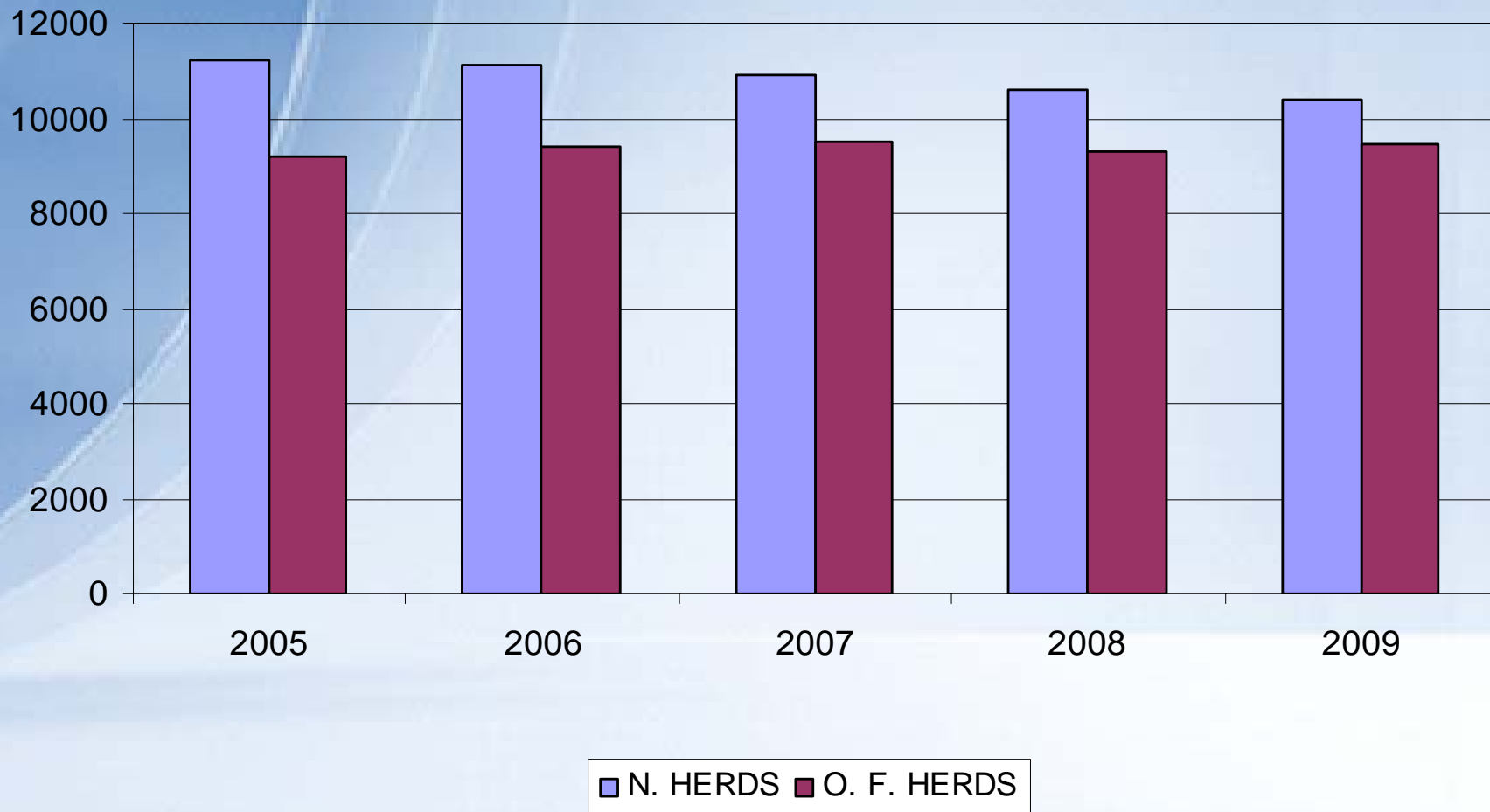


Bovine Brucellosis

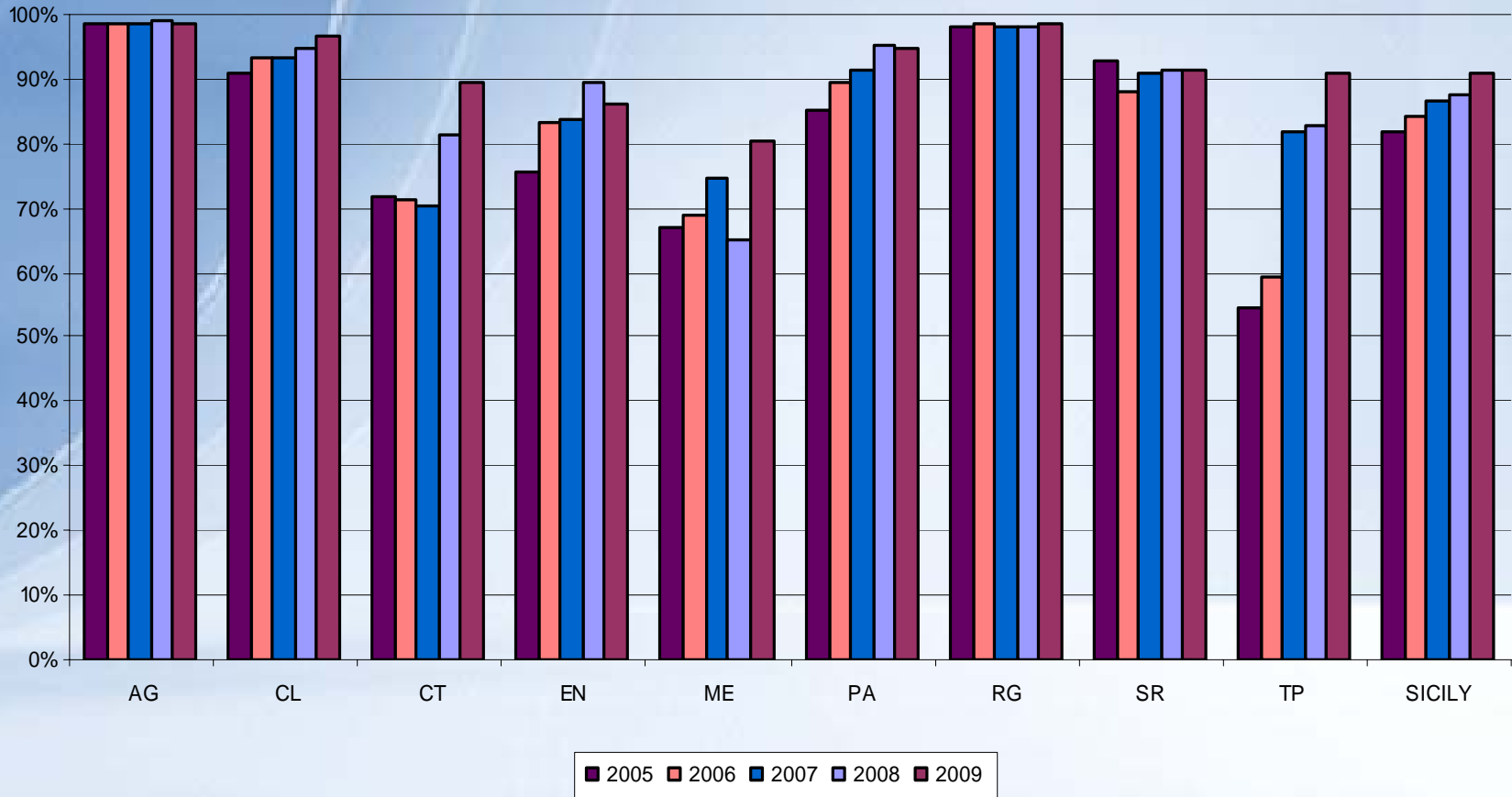
Prevalence - Incidence



N. OF OFFICIALLY FREE HERDS



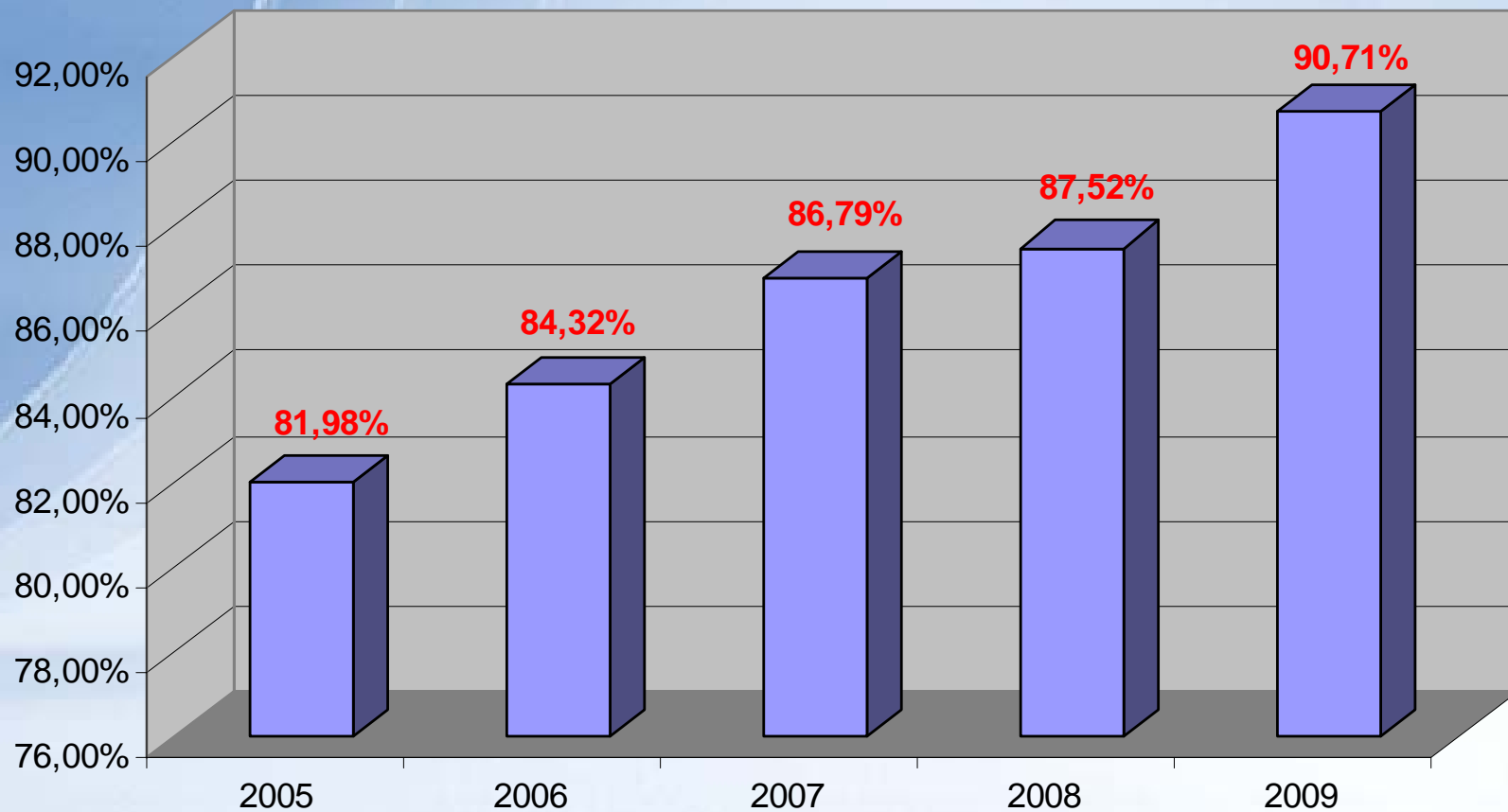
PERCENTAGE DISTRIBUTION OF O. F. HERDS





Bovine Brucellosis

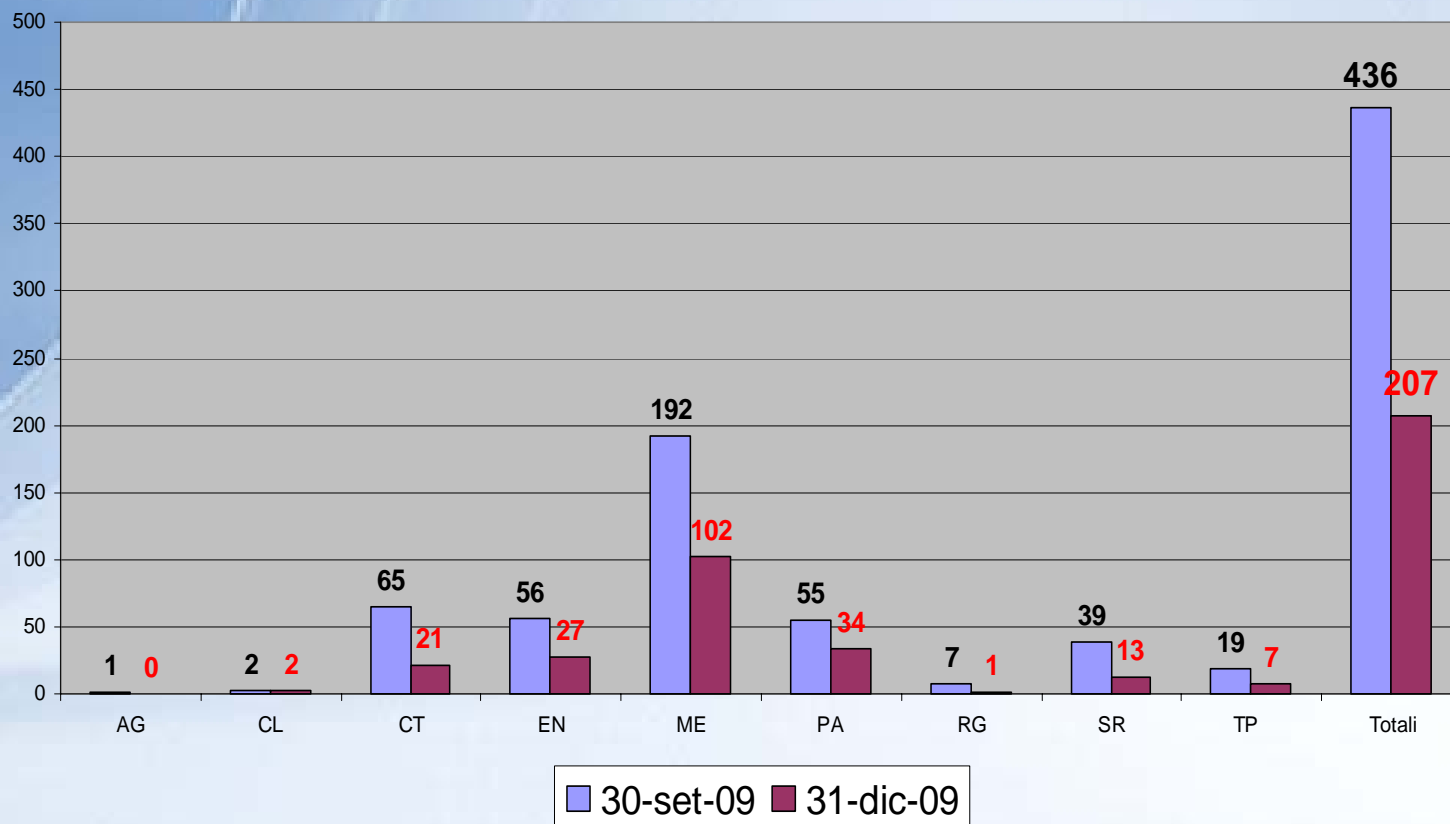
% OBF Herds





Bovine Brucellosis

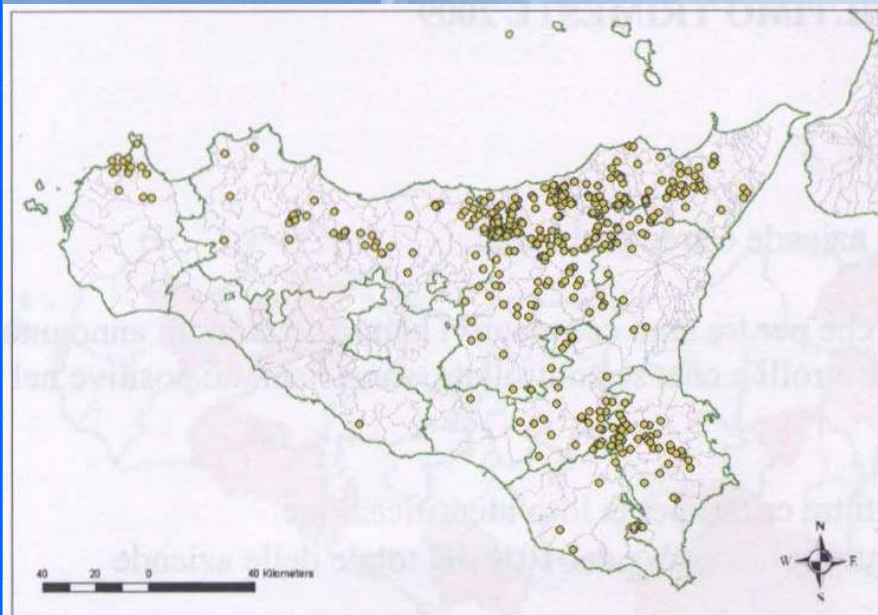
Problematic Herds



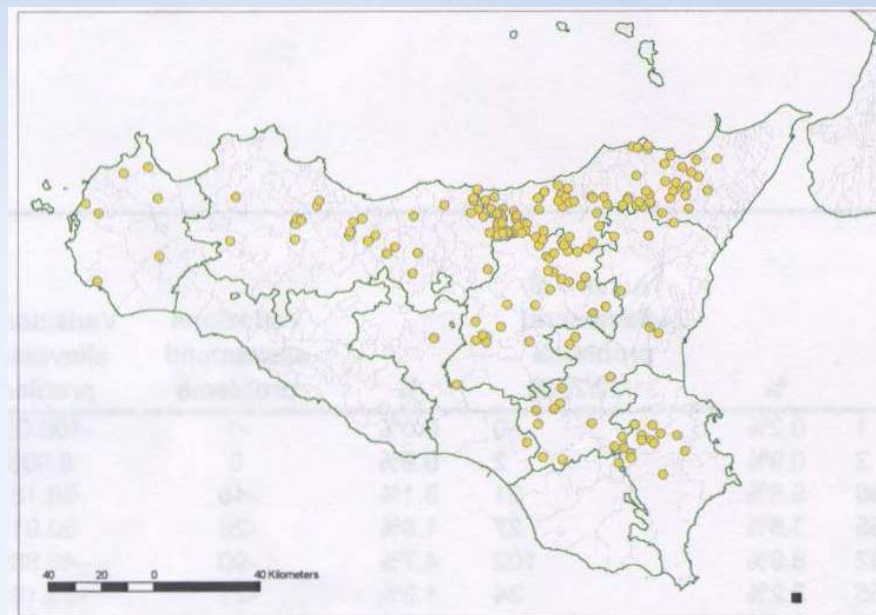


Bovine Brucellosis

Problematic Herds 2009



30 of september 2009
n. 436



31 of december 2009
n. 207

-229 = -52,52%



Bovine Brucellosis

Goals and results

Situazione di partenza (2008)

P Herds	I Herds	P Animals	% OBF & Vacc. Herds	N. Probl. Herds
6,12%	4,68%	1,37%	88%	436

Piano Straordinario (2009)

(emanato il 3 luglio 2009 avviato il 1 settembre 2009)

	P Herds	I Herds	P Animals	% OBF & Vacc. Herds	N. Probl. Herds
Obiettivi				> ?	-20% \pm (5) = 349
Risultati	6,72%	5,51%	1,31%	91%	207 = -52,52%



Bovine Brucellosis

Main target: Progressive Eradication

Goals 2010-2012

OBF & Vacc. Herds

Probl. Herds

2010



94% (± 1)

-75% (± 5)

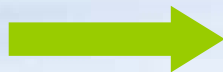
2011



97% (± 1)

- 15% (± 5)

2012



99% (± 1)

- 10% (± 5)

?



... Thanks
for your
attention