

TSE's

Kleine herkauwers

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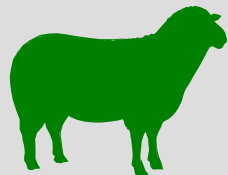
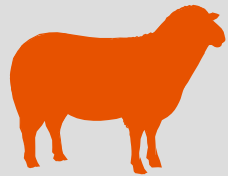
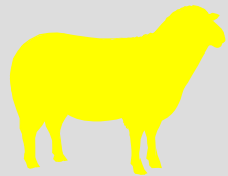
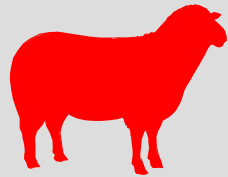
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PrP allele variants in sheep

codon	112	127	136	137	138	141	143	151	154	171	176	211
wt/ARQ	M	G	A	M	S	L	H	R	R	Q	N	R
112T	T	G	A	M	S	L	H	R	R	Q	N	R
127S	M	S	A	M	S	L	H	R	R	Q	N	R
VRQ	M	G	V	M	S	L	H	R	R	Q	N	R
136T	M	G	T	M	S	L	H	R	R	Q	N	R
137T	M	G	A	T	S	L	H	R	R	Q	N	R
138N	M	G	A	M	N	L	H	R	R	Q	N	R
141F	M	G	A	M	S	F	H	R	R	Q	N	R
143R	M	G	A	M	S	L	R	R	R	Q	N	R
151C	M	G	A	M	S	L	H	C	R	Q	N	R
AHQ	M	G	A	M	S	L	H	R	H	Q	N	R
ARR	M	G	A	M	S	L	H	R	R	R	N	R
ARH	M	G	A	M	S	L	H	R	R	H	N	R
171K	M	G	A	M	S	L	H	R	R	K	N	R
176K	M	G	A	M	S	L	H	R	R	Q	K	R
211Q	M	G	A	M	S	L	H	R	R	Q	N	Q



Scrapie susceptibility



susceptible



resistent

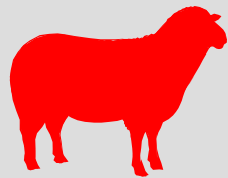


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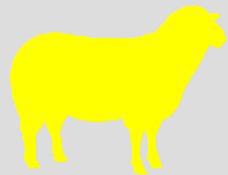
PrP genotype and scrapie susceptibility

PrP genotype

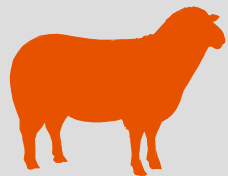


VRQ/VRQ
VRQ/ARQ
ARQ/ARQ
ARR/VRQ

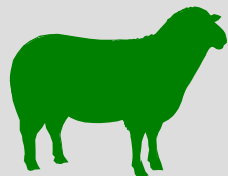
susceptible



AR*/AR*



ARR/AHQ
ARR/ARH
ARR/ARQ



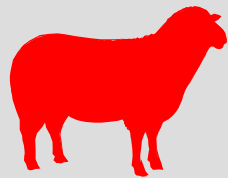
ARR/ARR

Resistant



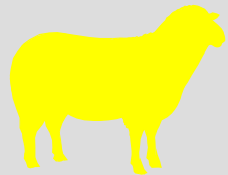
PrP genotype and BSE susceptibility

PrP genotype

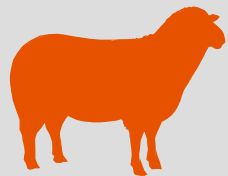


ARQ/ARQ

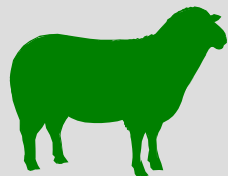
susceptible



AR*/AR*



ARR/AHQ
ARR/ARH
ARR/ARQ
VRQ/VRQ



ARR/ARR

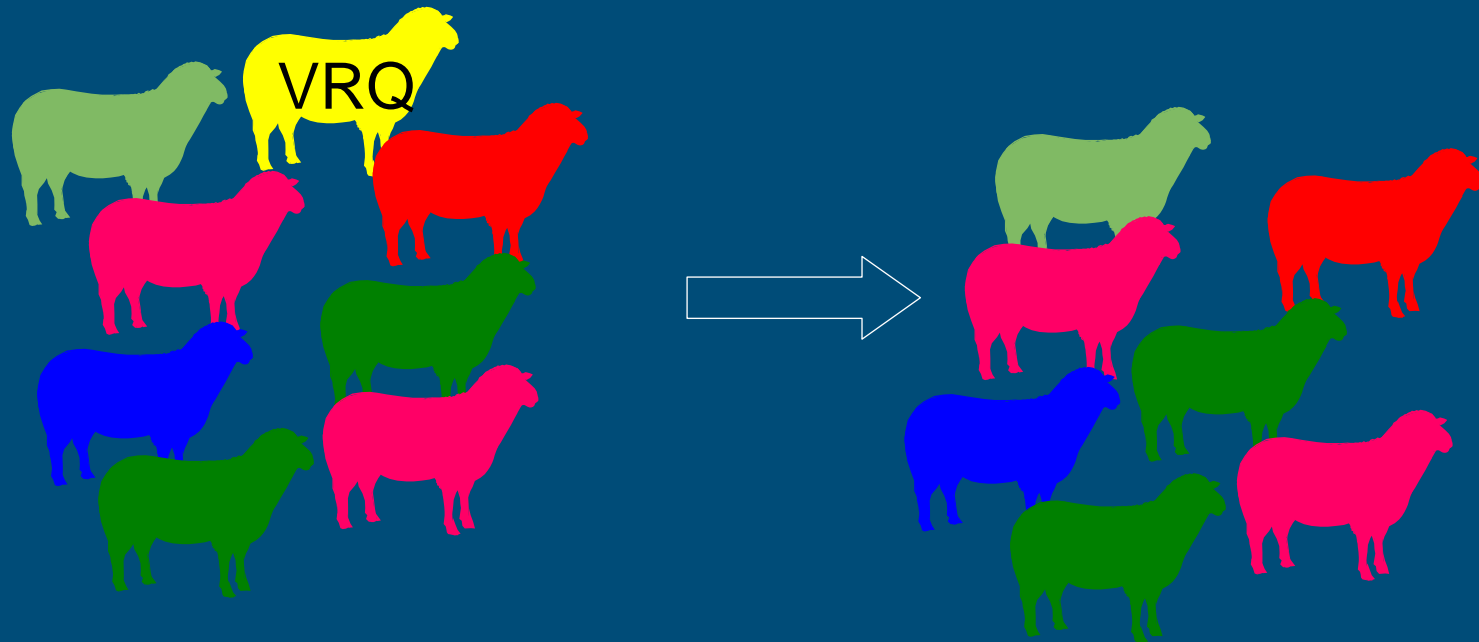
Resistant



Scrapie control = Selection against 'susceptible' genotypes



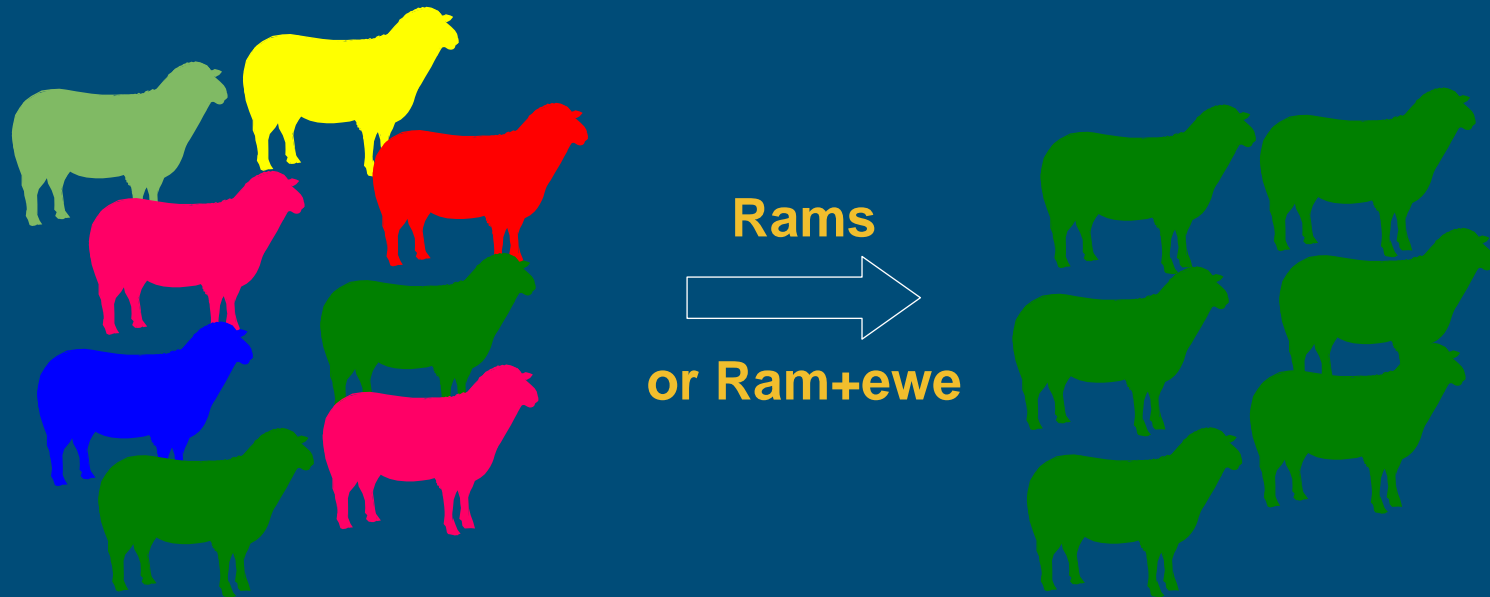
Scrapie control = Selection against 'susceptible' genotypes



Scrapie control = Selection for 'resistent' genotypes



Scrapie control = Selection for 'resistent' genotypes



Enquête 1990: Schatting van scrapie prevalentie

- 3.8 – 8.4% (6%) van kuddes met klinische problemen
- In positieve kuddes 1,27 ooiën/jaar klinisch
- 0.1% van alle schapen in Nederland



TSE's (scrapie): preventie en bestrijding

- Aangifteplicht sinds 1993 (passieve bewaking)
- Actieve surveillance sinds 1 jan 2002: scrapie, BSE
- Ruimen van positieve bedrijven sinds okt 2003:
 - Totaal
 - Partieel op basis van genotypen
 - Vernietiging geruimde dieren vs. slachten
 - Herbevolking
 - Ontheffing
 - Restricties positief bedrijf gedurende 2 jaar
 - Atypische scrapie, ontheffing
- Fokprogramma's (vrijwillig, verplicht: 2004-2007)
 - Angst voor BSE
 - Willen we scrapie wel bestrijden?



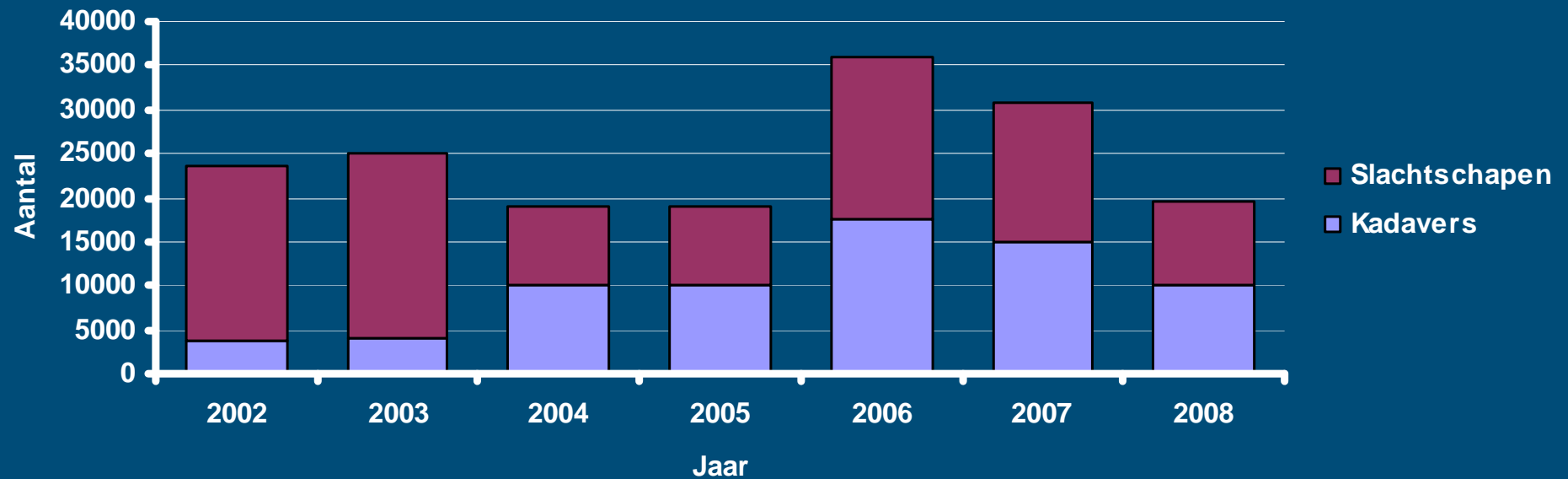
Passieve bewaking scrapie vanaf 1993

	Schapen	Geiten
1997	11	0
1998	16	0
1999	12	0
2000	10	2
2001	8	1

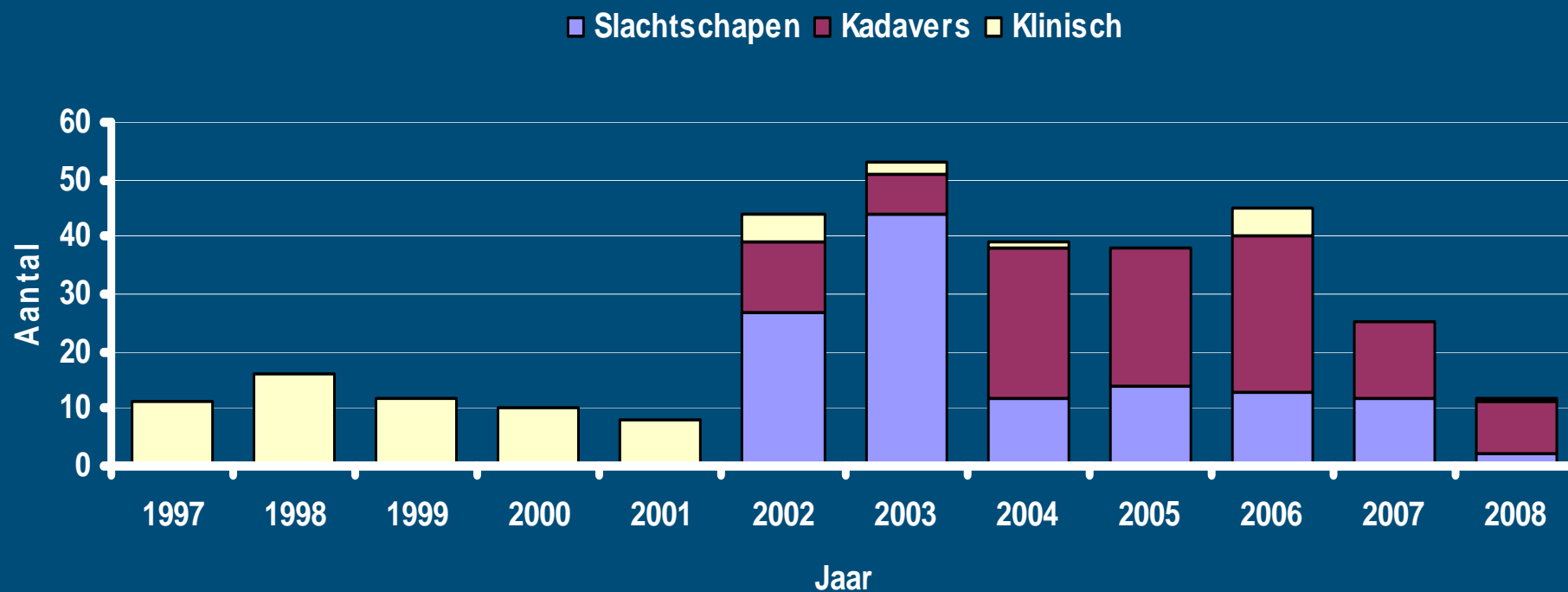


Aantal geteste schapen (actieve surveillance)

2002 – november 2008



Aantal scrapie gevallen surveillance 2002-2008

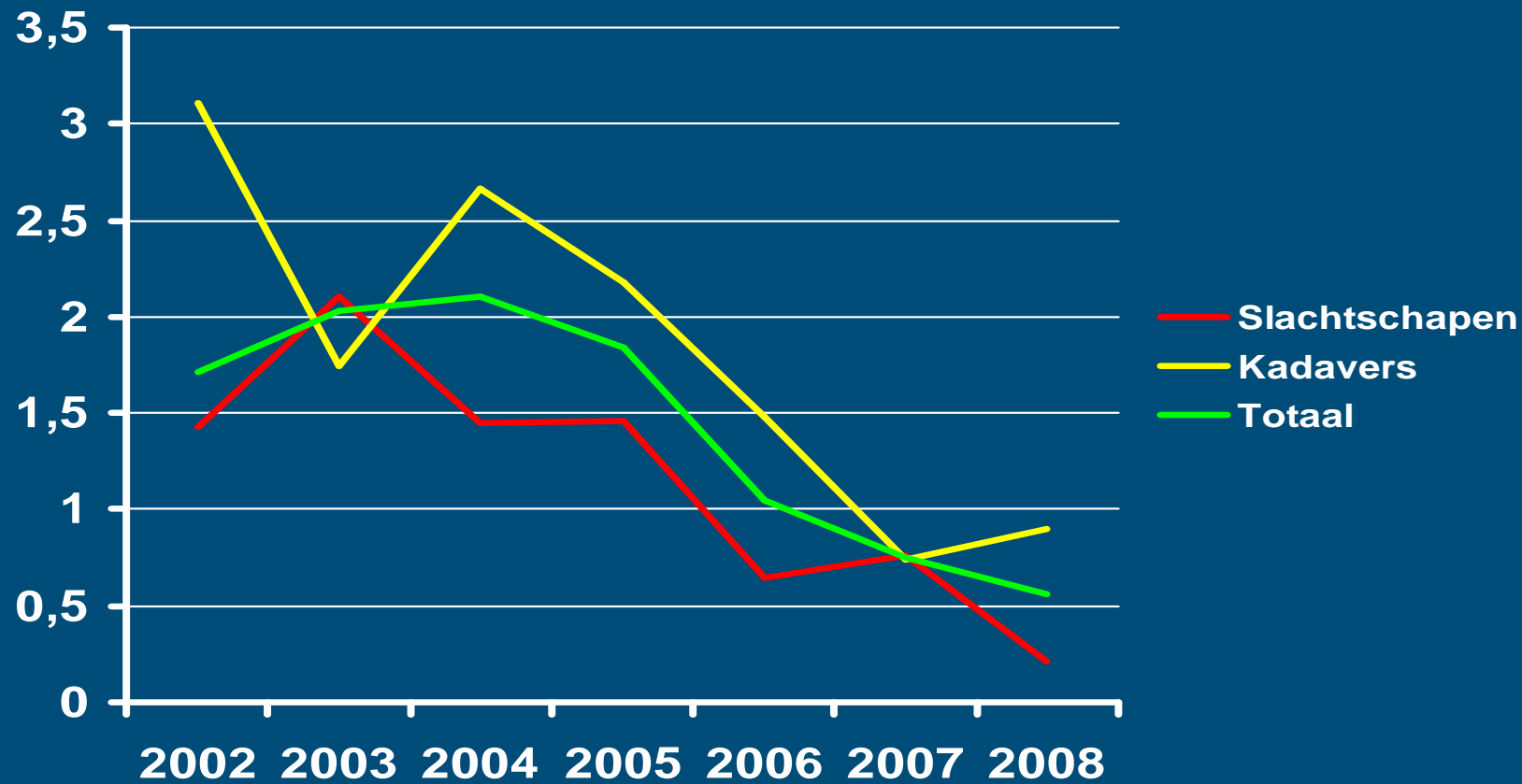


Alle negatief m.b.t. BSE



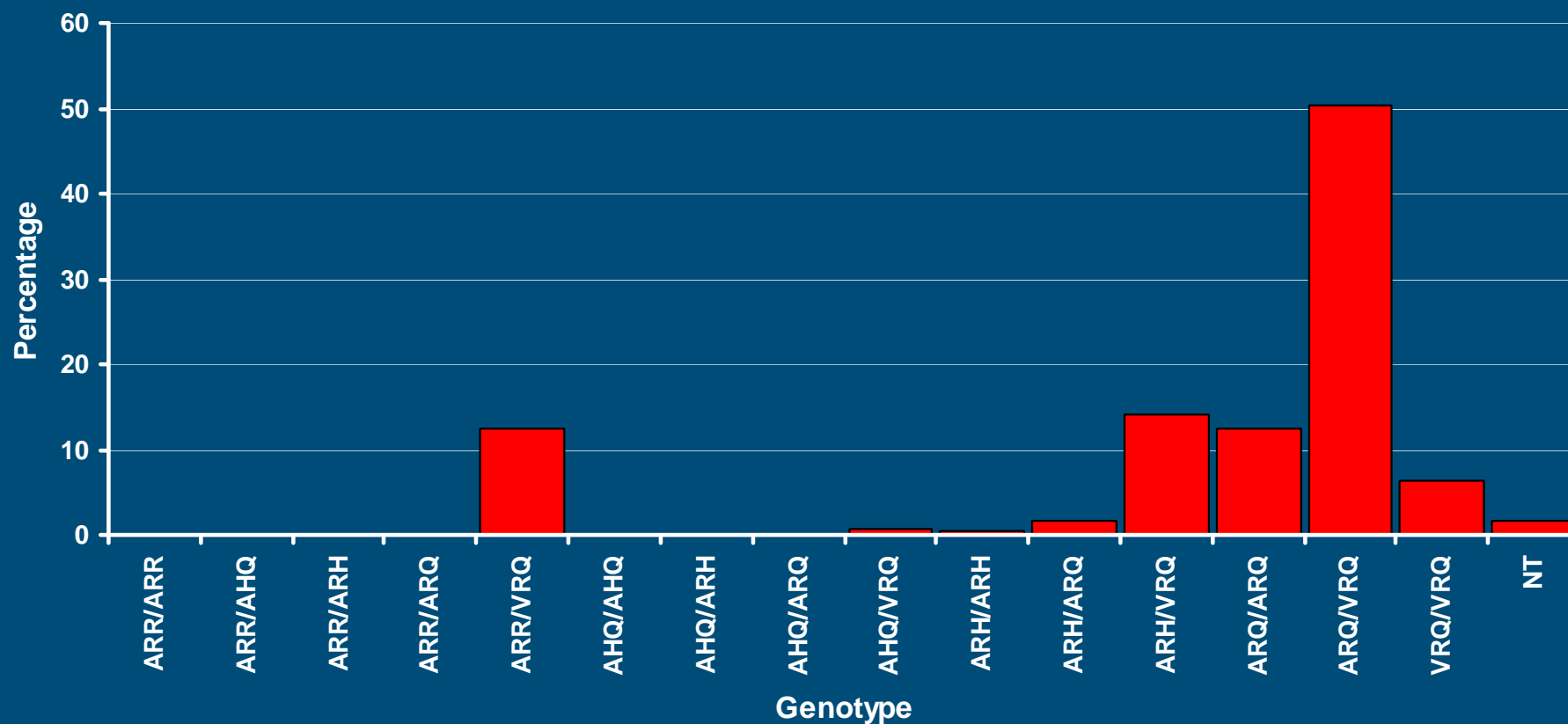
Scrapie incidentie per 1000 geteste schapen

Actieve surveillance



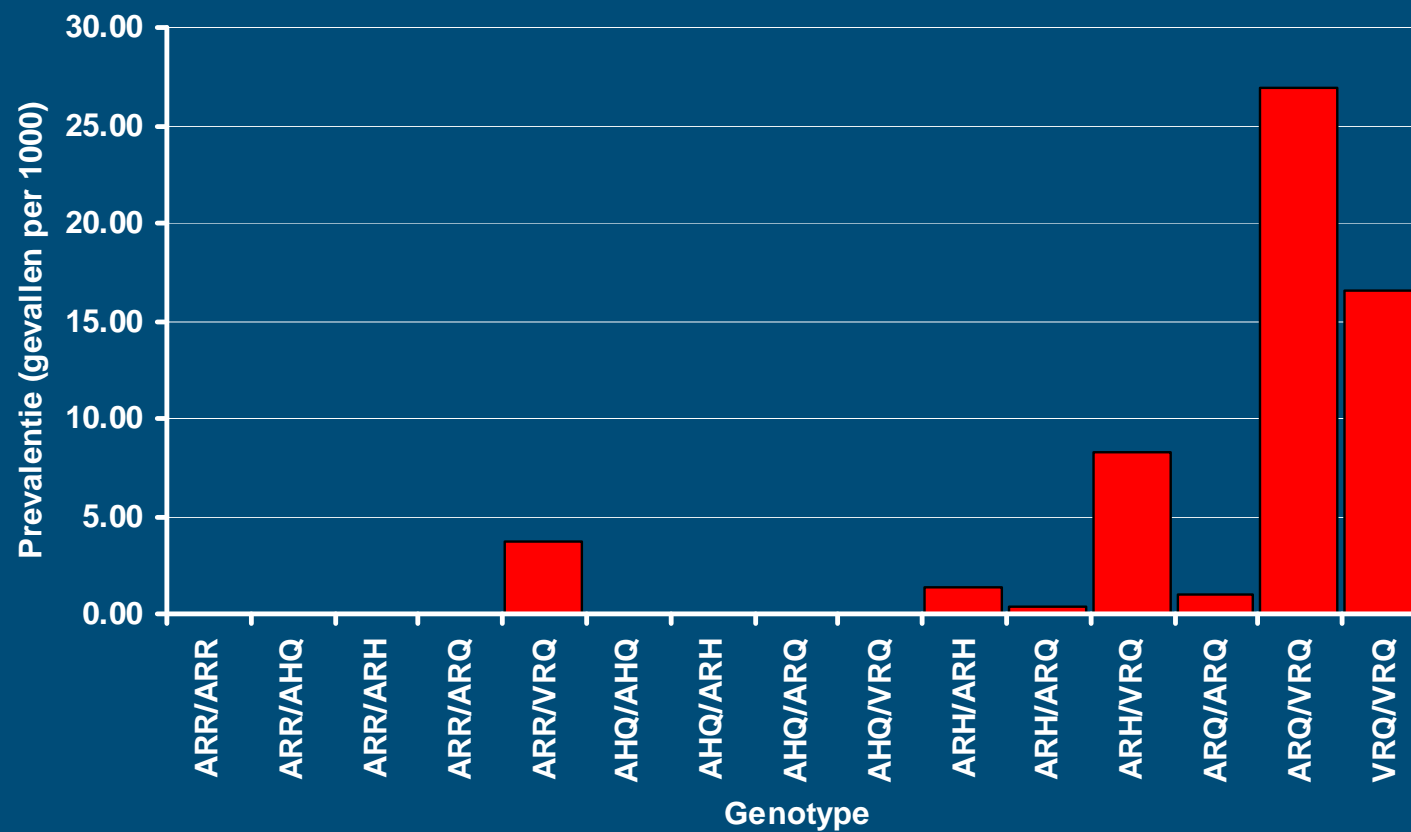
Genotypen verdeling index cases (250)

Surveillance 2002-2008: klassieke scrapie

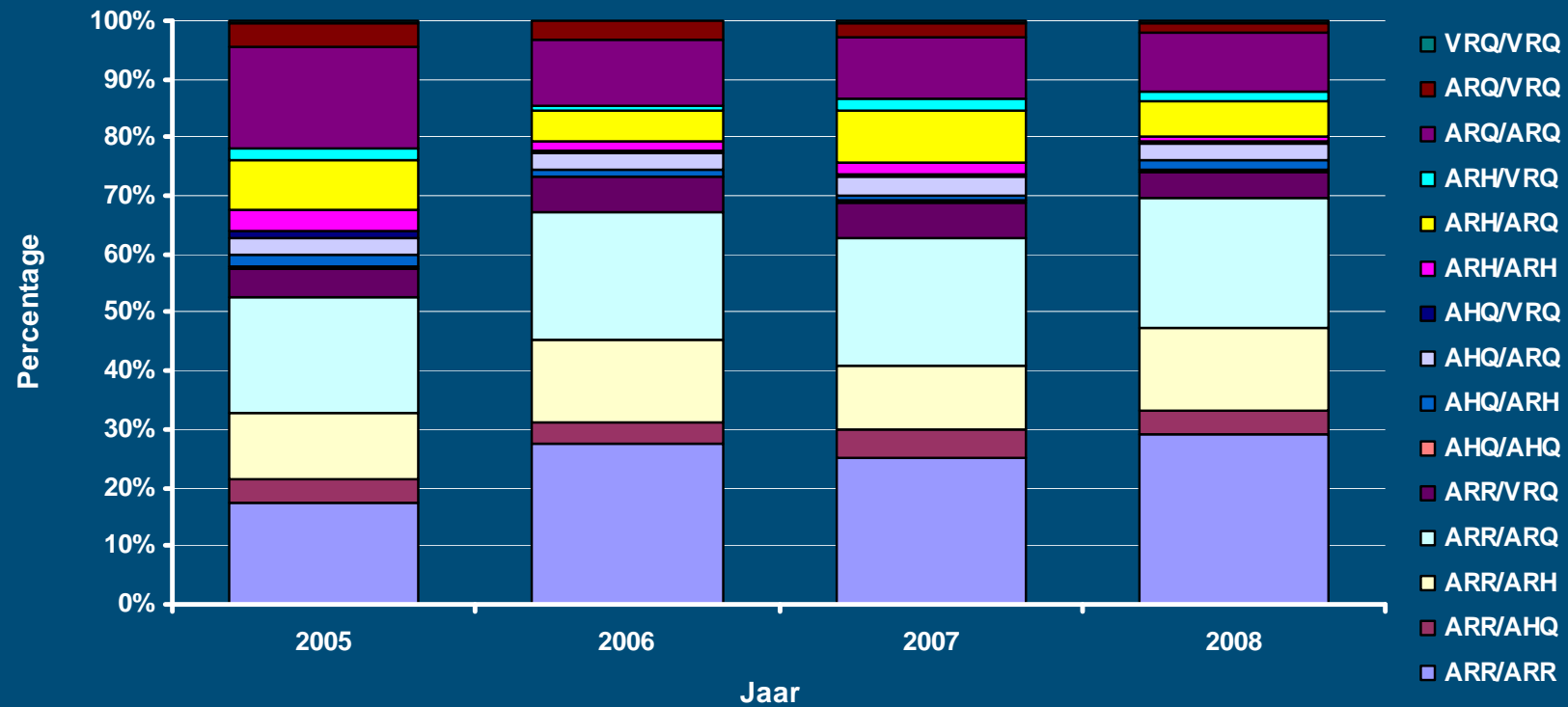


Prevalentie scrapie/genotype

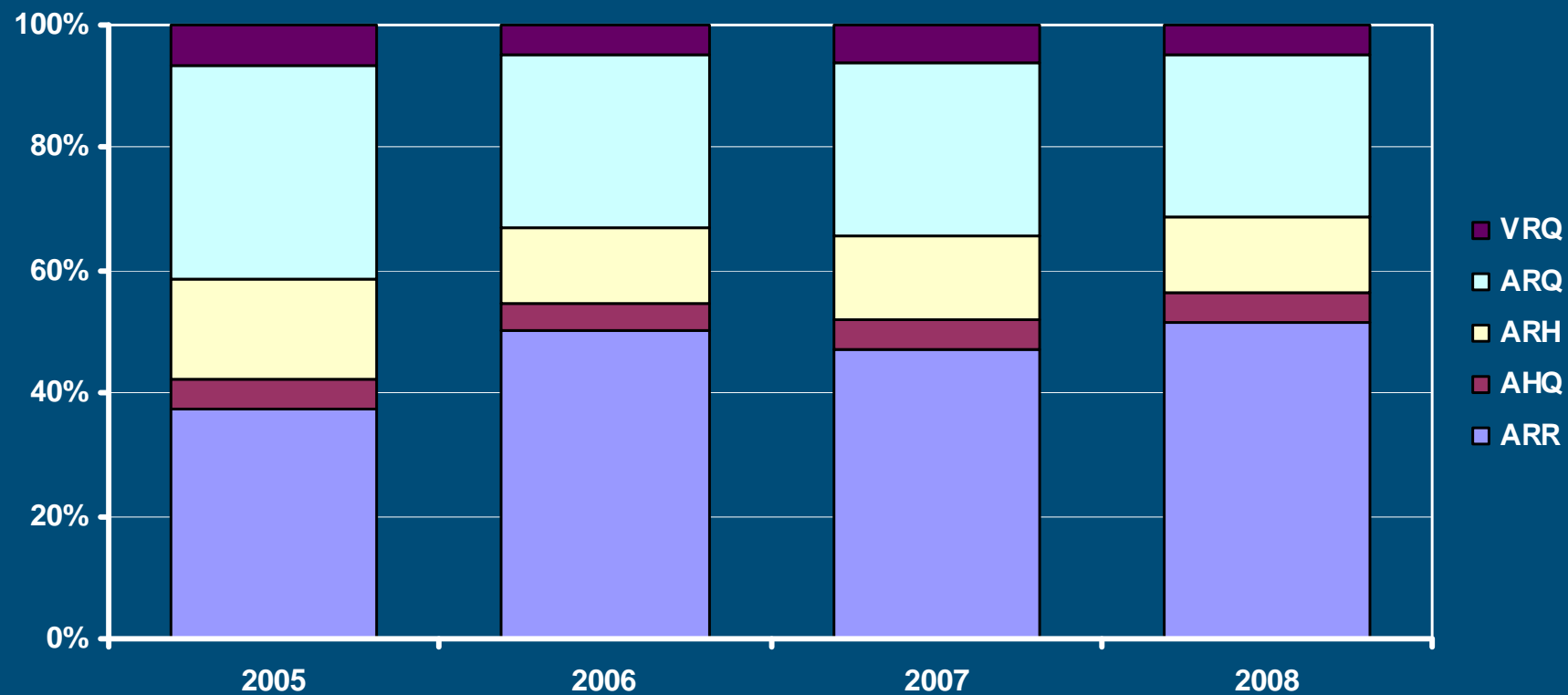
Surveillance 2005-2008: klassieke scrapie (107)



Genotypen verdeling steekproef surveillance



Allel frequentie steekproef surveillance



Geruimde bedrijven (eind 2003-2008)

- Totaal 71 van de 169 positief bevonden kudde geruimd (ca. 66 VRQ geassocieerd, ca. 5 ARQ geassocieerd)
- Transmissie vastgesteld op 49 bedrijven
- Aantal secundaire gevallen: 191

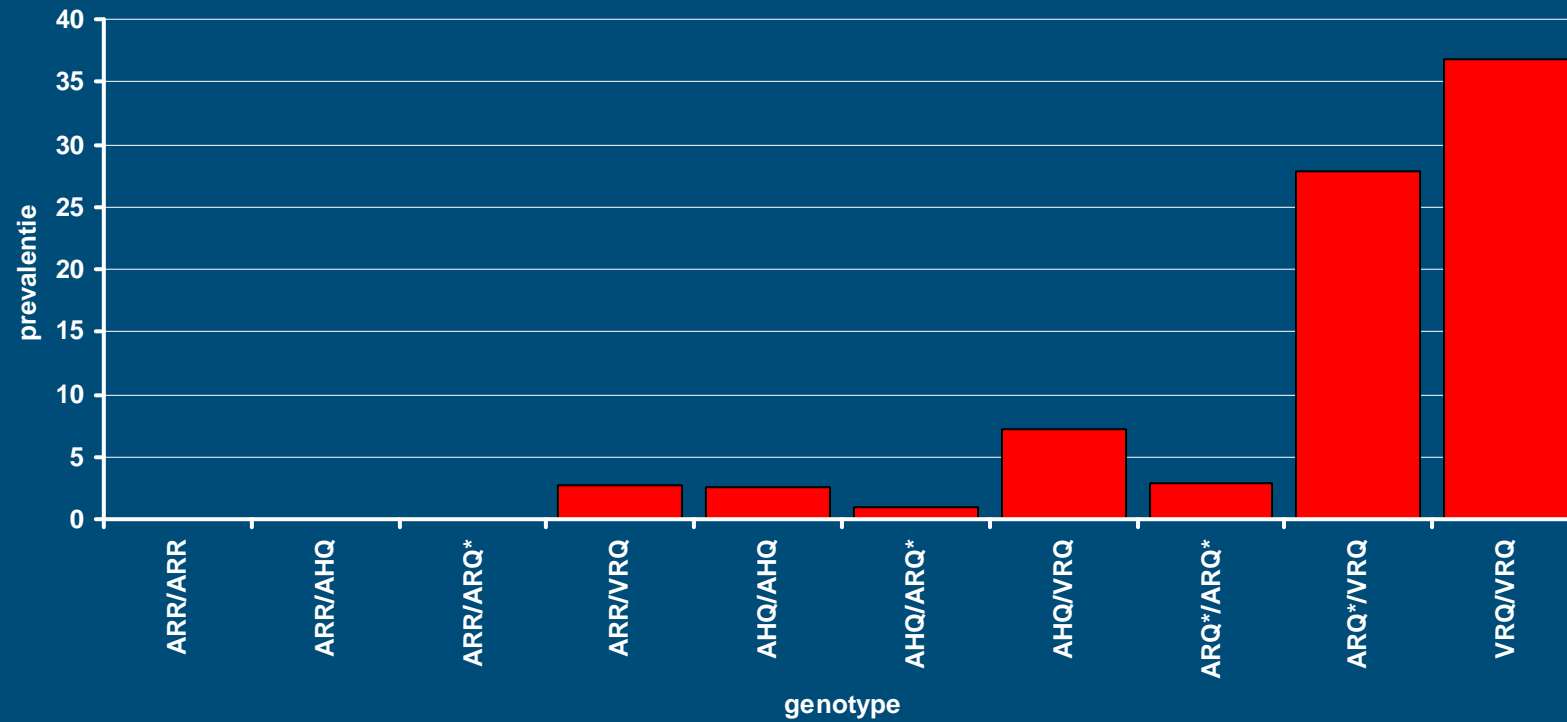


Tested genotypes 71 culled flocks

Genotype	Tested	Positive
ARR/ARR	235	0
ARR/AHQ	26	0
ARR/ARQ*	405	0
ARR/VRQ	879	24
AHQ/AHQ	39	1
AHQ/ARQ*	208	2
AHQ/VRQ	28	2
ARQ*/ARQ*	1910	54
ARQ*/VRQ	556	155
VRQ/VRQ	57	21
Untyped	15	3
Total	4358	262



Prevalentie/genotype geruimde bedrijven



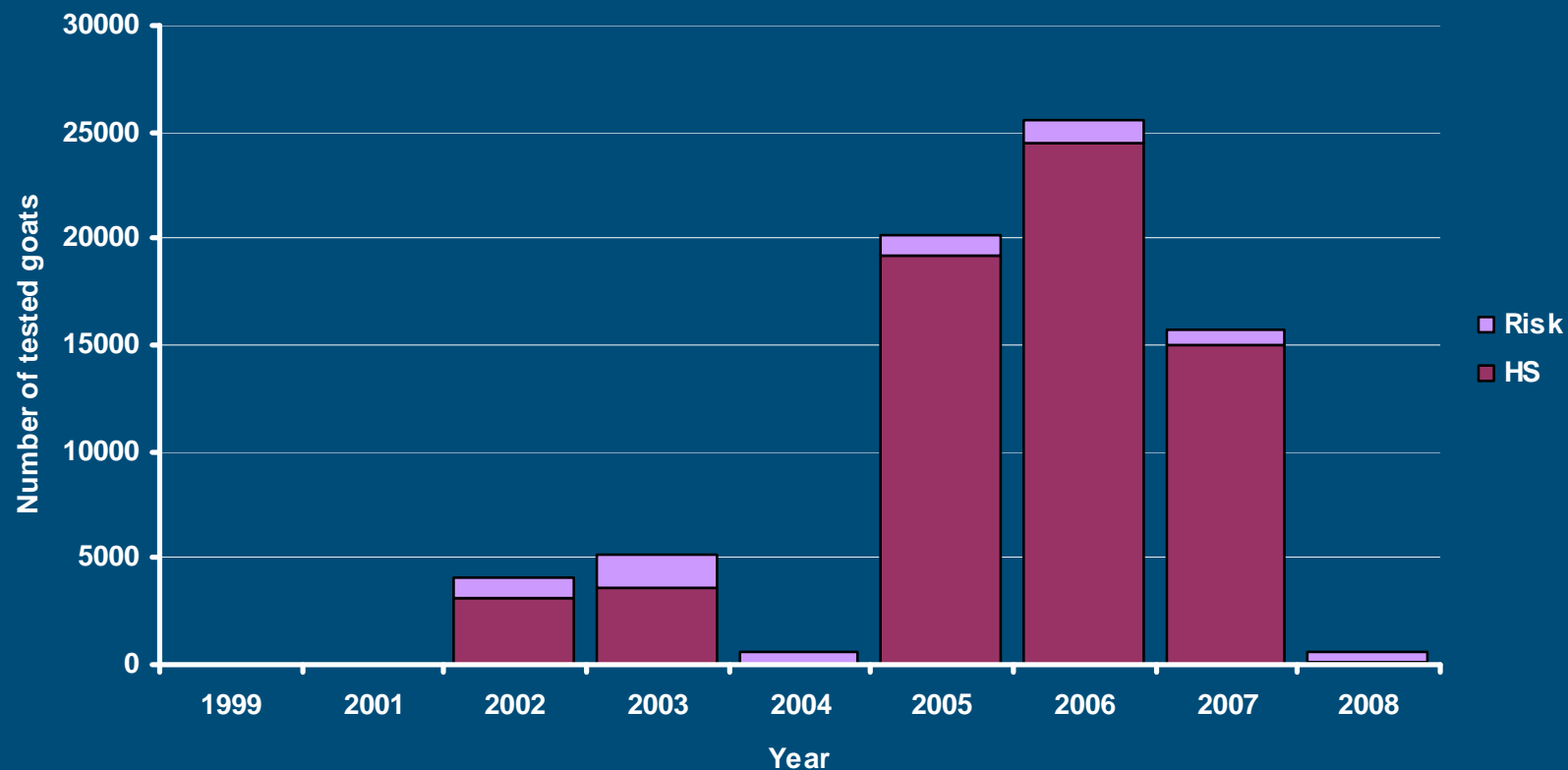
Classical scrapie - atypical

- 250 cases of classical scrapie: no BSE
- 4 cases of atypical scrapie (NOR98: IHC, Western blot); 2005-9, 21, 2007-12,15
 - Breed: Zwartbles (3x), unknown (1x)
 - Genotypes: AHQ/AHQ, ARQ/ARQ, AHQ/ARQ, ARR/ARQ



Number of tested goats (active surveillance)

2002 – 2008



No positives



Genetische resistentie geiten

- ?
- ARQ
- Overige allelen: 142(I/M), 211(R/Q), 222 (Q,K)
 - 37, 110, 143, 154, 240

