

Maatregelen tegen vogelpest

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Problematiek van vogelpest

- Ziekte bij pluimvee leidend tot economische schade en voortijdig doden van veel dieren
- Risico van ziekte bij de mens door direct contact
- Risico van pandemie

Fasering in te benoemen risico's

- Introductierisico (hoe komt het virus het land binnen en terecht bij de gehouden dieren)
 - Handel
 - Mensen
 - Trekvogels
- Spreidingsrisico voor detectie van het virus in Nederland
 - Handel
 - Mensen
- Spreidingsrisico gedurende bestrijding

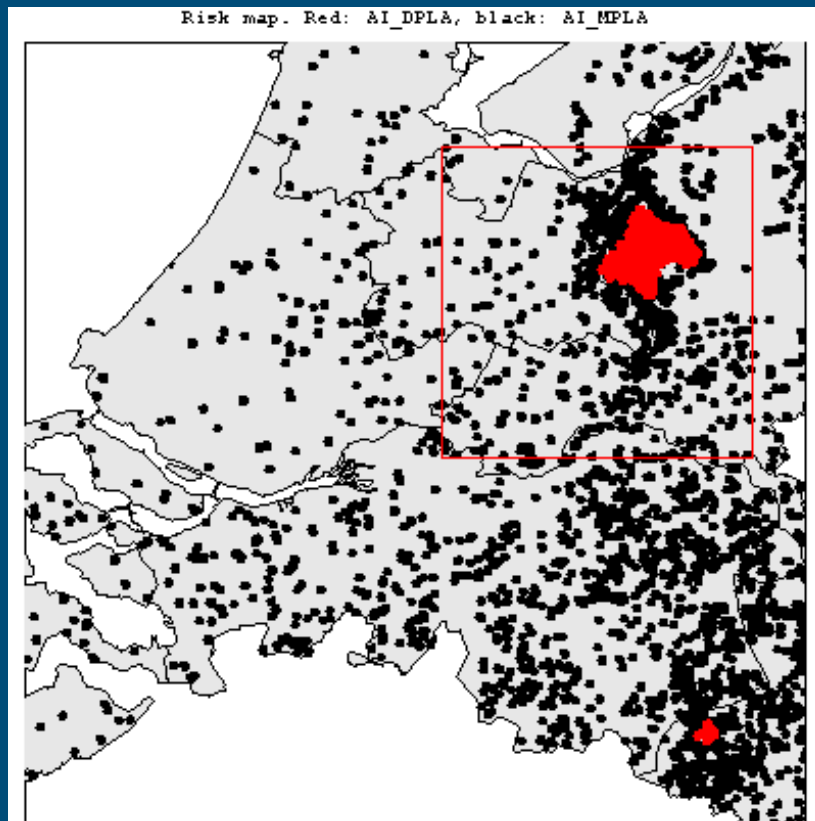
Besluitvorming augustus 2005

- Korte termijn: gaat om beperken van introductierisico
 - Beperken handel
 - Ophokken
- Argumentatie:
 - Te verwachte schade is enorm
- Lange termijn: zoeken naar manieren om spreidingsrisico tijdens de bestrijding te reduceren

Onderzoek veterinaire epidemiologie binnen WUR

- Statistische berekening van het spreidingsrisico tijdens de bestrijding
- Experimenteel bepalen van het effect van vaccinatie bij verschillende gehouden vogels en voor verschillende virussen

Spreadingsrisico tijdens de bestrijding



Twee regio's waar zelfs de beste bestrijding grote uitbraken niet altijd kan voorkomen

Van der Goot et al. 2005 ongevaccineerd

Table 2. Transmission of H7H7 in unvaccinated chickens

Chicken	Day after challenge												
	1	2	3	4	5	6	7	8	9	10	14	16	21
I	+/+	+/+	†										
I	+/+	+/+	+/+	†									
I	+/+	+/+	+/+	†									
I	+/+	+/+	+/+	+/+	†								
I	+/+	+/+	+/+	†									
S	ad	+/-	+/-	+/+	+/+	†							
S	ad	-/-	+/-	+/+	+/+	+/+	†						
S	ad	+/-	+/-	+/+	+/+	+/+	+/+	+/+	+/+	-/+	-/-	-/-	-/-
S	ad	-/-	+/-	+/+	+/+	+/+	†						
S	ad	+/-	+/-	+/-	+/+	+/+	+/+	+/+	-/+	-/+	-/+	-/+	-/-
I	+/+	+/+	+/+	+/+	†								
I	+/-	+/+	+/+	+/+	†								
I	+/+	+/+	+/+	+/+	†								
I	+/-	+/+	+/+	+/+	†								
I	+/+	+/+	+/+	+/+	+/+	†							
S	ad	-/-	+/+	+/+	+/+	+/+	†						
S	ad	-/-	+/-	+/+	+/+	+/+	†						
S	ad	-/-	+/-	+/+	+/+	+/+	†						
S	ad	-/-	+/-	+/-	+/+	+/+	†						
S	ad	-/-	+/-	+/-	+/-	+/+	+/+	+/+	+/+	+/+	-/+	-/+	-/-

Chickens were challenged with 0.2 ml of diluted allantoic fluid containing 10^4 EID₅₀ per ml (0.1 ml intranasally and 0.1 ml intratracheally) of A_v/C/Chicken/Netherlands/621525/09. I, inoculated chicken; S, contact chicken; †, chicken died; ad, not determined; EID₅₀, egg-infectious dose; +/+, positive tracheal swab/positive cloacal swab; +/-, positive tracheal swab/negative cloacal swab; -/+, negative tracheal swab/positive cloacal swab; -/-, negative tracheal swab/negative cloacal swab.

Van der Goot et al. 2005 na 7 dagen

Table 3. Transmission of H7N7 in vaccinated chickens 7 days after vaccination

Vaccine	Chicken	Day after challenge											
		1	2	2	4	5	6	7	8	9	10	14	
H7N1	I	+/-	-/+	+/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	I	+/+	+/+	+/+	+/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	I	+/-	+/-	+/-	+/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	I	+/-	+/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	I	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
	S	nd	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-
H7N3	I	+/+	+/+	+/+	+/+	+/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	I	+/-	+/+	+/+	+/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	I	+/-	+/+	+/+	-/+	-/+	+/+	-/+	-/+	-/+	-/+	nd/-	
	I	+/-	+/+	+/+	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	I	+/+	+/+	+/+	+/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	+/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	+/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	+/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	
	S	nd	-/+	+/-	-/+	-/+	-/+	-/+	-/+	-/+	-/+	nd/-	

Chickens were challenged 7 days after vaccination with 0.2 ml of diluted allantoic fluid containing 10^6 EID₅₀ per ml (0.1 ml intranasally and 0.1 ml intratracheally) of A/Chicken/Belgium/621557/02. I, inoculated chicken; S, contact chicken; nd, not determined; EID₅₀, egg-infectious dose; +/+, positive tracheal swab/positive cloacal swab; +/-, positive tracheal swab/negative cloacal swab; -/+, negative tracheal swab/positive cloacal swab; -/-, negative tracheal swab/negative cloacal swab; nd/-, tracheal swab not determined/negative cloacal swab.

Van der Goot et al. 2005 na 14 dagen

Table 4. Transmission of H7N7 in vaccinated chickens 14 days after vaccination

Vaccine	Chicken	Day after challenge								
		1	2	3	4	5	6	7	8	
H7N1*	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
H7N2*	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	1	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	5	nd	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-

Chickens were challenged 14 days after vaccination with 0.2 ml of diluted slurry fluid containing 10^6 EID₅₀ per ml (0.1 ml intranasally and 0.1 ml intratracheally) of A_v/Chicken/Netherlands/621557/09.1, inoculated chickens: 5, contact chicken; nd: not determined; EID₅₀, egg-infectious dose; -/-, negative tracheal swab/negative cloacal swab.

* Experiments were performed in duplicate. The results of the replicates were identical; therefore, only one replicate is shown.

Effect van vaccinatie

- Wel kliniek, wel transmissie
- Geen kliniek, wel transmissie
- Geen kliniek, geen transmissie

H7N7 in kippen na 2 weken wordt transmissie & kliniek voorkomen

H7N7 in fazanten na 2 weken wordt kliniek maar niet transmissie voorkomen

Conclusie

Goede vaccinatie tegen vogelpest is mogelijk:

Belangrijk daarbij is een duidelijk doel & controle of dat doel wordt gehaald.

Afsluiting

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