



**Ministry of Environment  
and Food of Denmark**

Danish Veterinary and  
Food Administration

# **Analysis of costs caused by an avian influenza H5N8 outbreak 2016-2017 in Denmark**

NBVCG seminar - Riga  
04-Oct-2018  
Sten Mortensen

# **This work was done by ...**

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Danish Veterinary and Food Administration**

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Danish Veterinary and Food Administration**

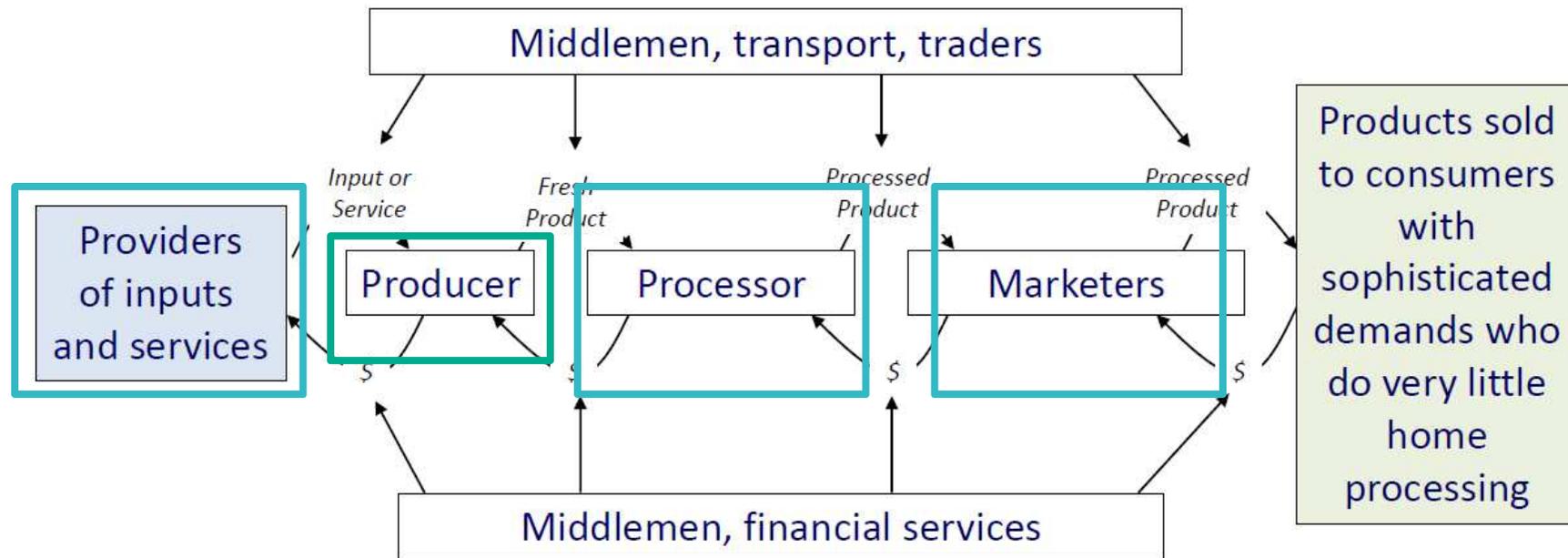
**Tove Christensen, Economist, University of Copenhagen**

**Sigrid Denver, Economist, University of Copenhagen**

**Henning Otte Hansen, Economist, University of Copenhagen**



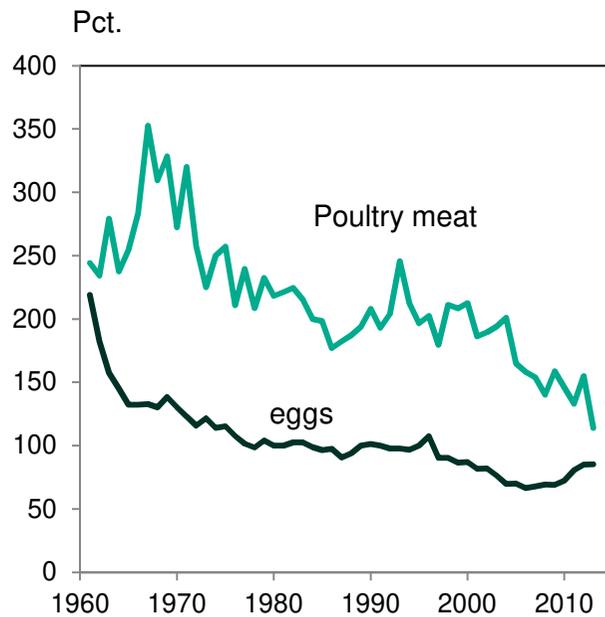
## Complex food chain



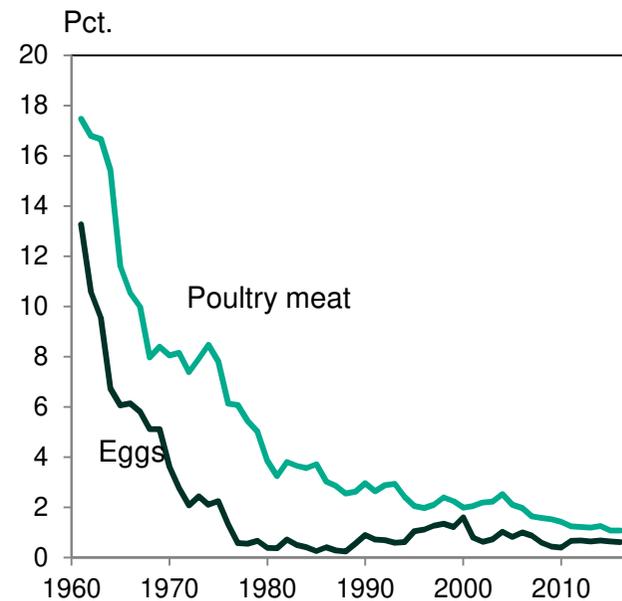
# The Danish poultry sector

## Production value 2017: 385 Mill. euro

**Figure 1. Denmark selfsufficiency**

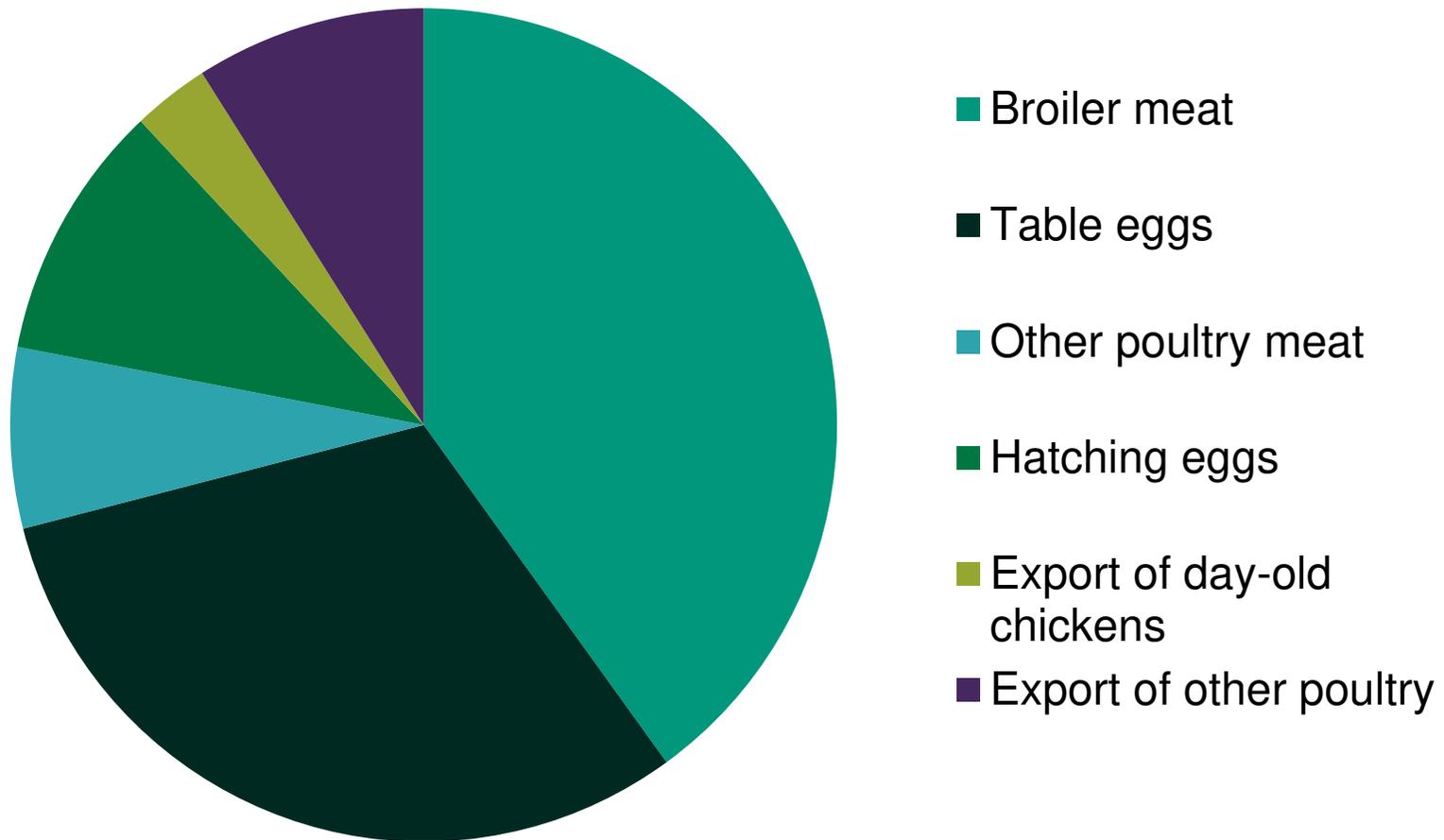


**Figure 2. Denmark share of world market for eggs and poultry meat**



# Production value 2017: 385 Mill. euro

## Sectors



# **Nordic-Baltic Mini-seminar on contingency planning: costs – economic studies related to animal disease emergencies**

**Helsinki - NBVCG seminar - 09-10 April 2018**

**30 participants**

**Participation from *all* Nordic-Baltic countries:**

- **Animal health experts from Veterinary administrations**
- **Agricultural economists ( a few 😊)**
- **Other animal health researchers**



## Avian influenza peacetime costs

Prevention of introduction of disease to the country	Surveillance for disease	Traceability and animal holding registration	Limit disease spread if disease enters country
Farmers education – awareness campaigns	Dead birds - sampling and testing	Registers for hobby-holders - Mandatory under elevated risk Commercial – always registered	Estimates risk – levels of measures 1: Ban on outdoor feeding (under roof) 2: Ban on outdoor keeping
Import control of Health certificates for hatching eggs, day-old chickens and live birds	Epizootic-surveillance (suspicions)	Movement records on farm	Biosecurity for herds, including changing facilities
Prompt Risk assessments and mitigating measures in relation to outbreaks in other countries	Advising farmers – early detection		Training exercises
Notification systems in other countries	Notification systems in own country		Advising farmers – early detection
Biosecurity on the poultry holdings	Diagnostic preparedness – laboratory capacity (incl. Sampling)		Good contingency plans for Depopulation – sanitation – repopulation
Measures against illegal import of birds			

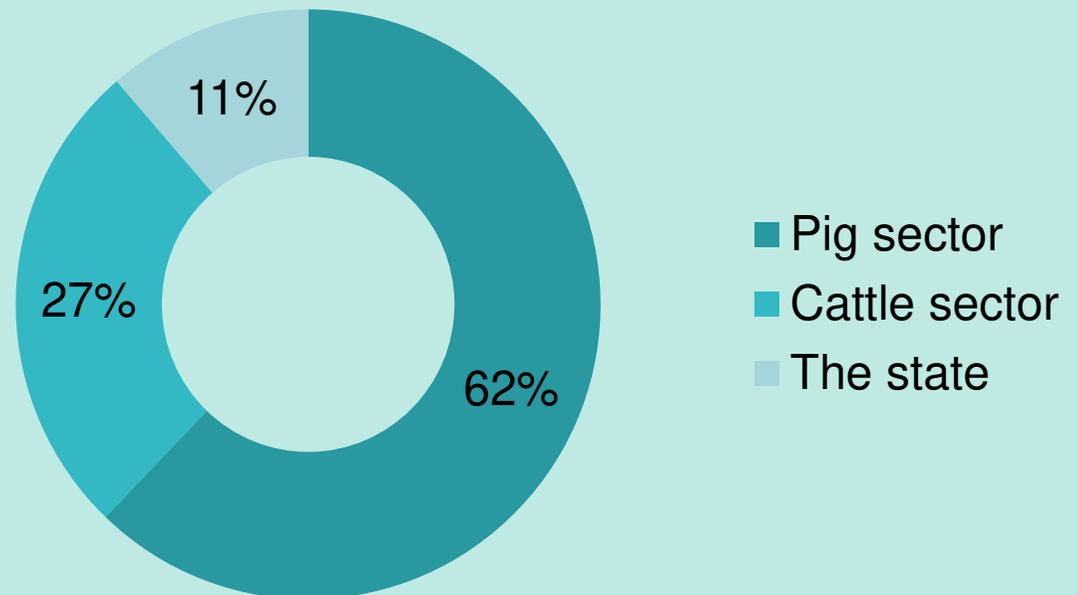


**Pigs**      €20 million

**Cattle**    €8 million

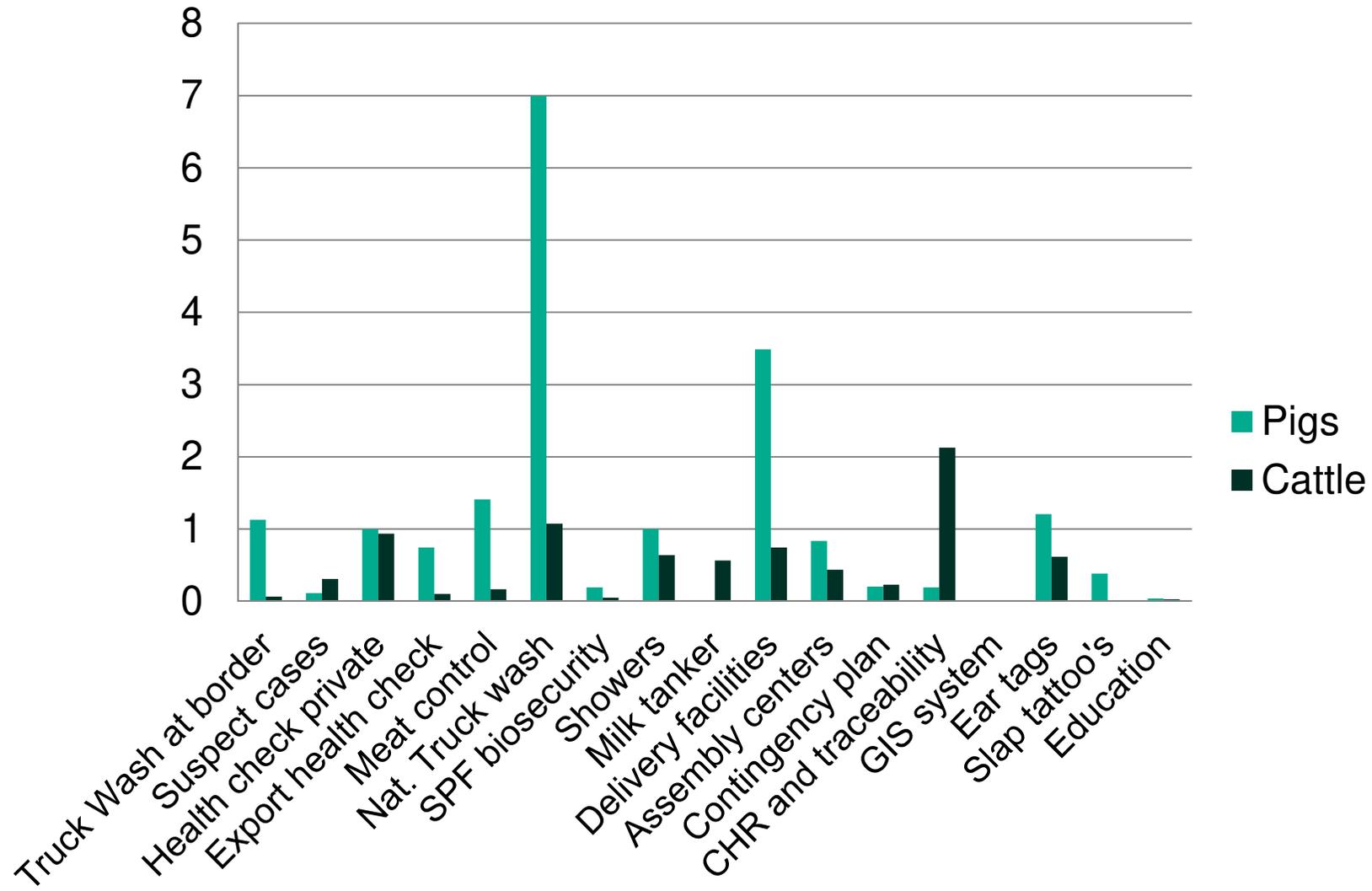
**State**     €4 million

## FMD and swine fever peacetime costs €32 million Year 2013



**Pigs €20 million**

**Cattle €8 million**

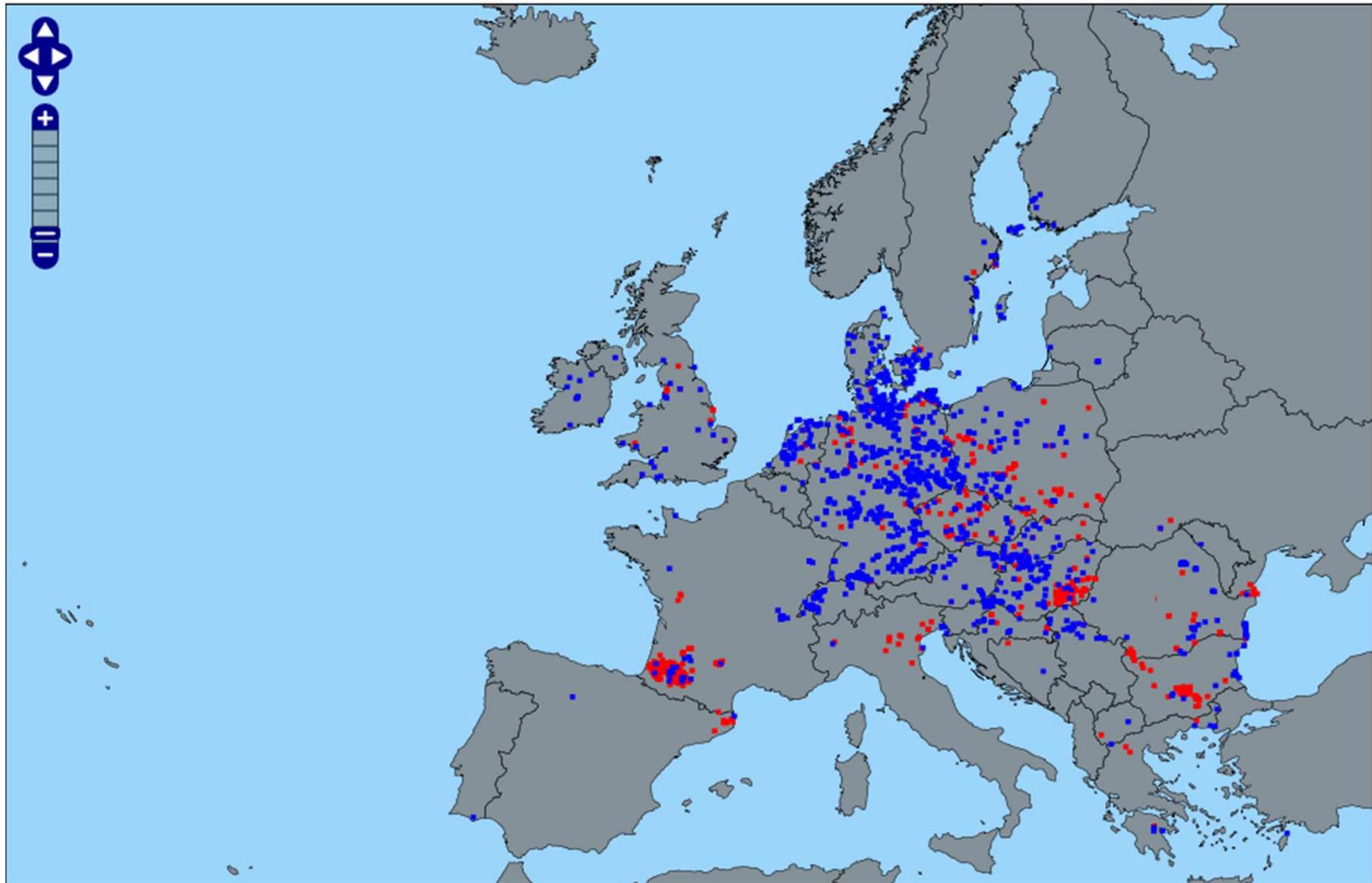


# Disease: Avian influenza potential losses – which items?

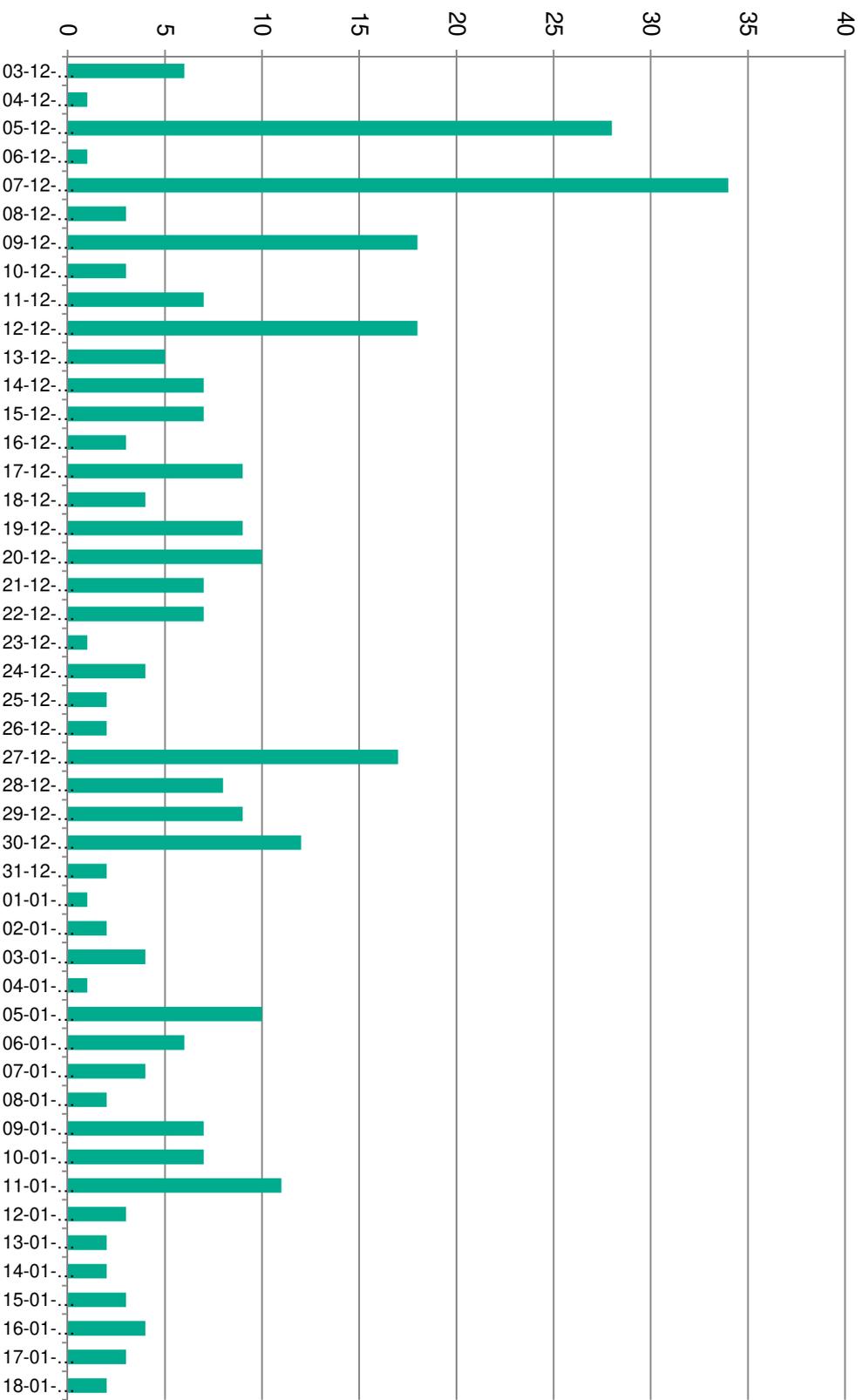
Costs of disease eradication	Loss of value of production during outbreak	Other economic losses during outbreak	Loss of other values (non-economic)
Maintenance of restriction zones (surveillance, sampling, inspections, biosecurity, lab costs, possible control posts) Surveillance of dead birds	Export losses: how other countries respond, for how long, whole country and all products affected/or not? Live animals, eggs, meat.	Farmers face losses when they are unable to keep the birds or get new birds (e.g. farms under restrictions)	Social effects if people cannot move as they would like to move; Anxiety; Social acceptability of farmer may be affected
*Cost of culling the birds, rendering, disinfection and cleaning of farm, Damaged equipment *Administrative tasks	Price effects in the domestic markets if there is excess supply or loss of consumer trust	Changes in production, e.g. lack of chicks if hatching operations are disrupted, or lack of buyers for chicks	Inability to enjoy recreational keeping of birds
Compensations to farm (income to them, not to be counted twice)	Loss of production when animals are culled/they die	Effects to carcass collection, feed, egg packing, meat industry	Health issues and stress to those who are involved
Possible environmental damages	Idle production facilities	Reduced efficiency of production due to restrictive measures	Less free range keeping of poultry
Educate military and blue star to help handling the sanitation		Free-range and organic production – difficulties with inside	
Extra biosecurity requirements for farms and bird holdings		Losses to tourism – especially if a zoonotic type of AI virus	
Information		Losses to tourism – especially if a zoonotic type of AI virus	



# HPAI H5N8 in Europe from November 1st 2016 to Jun 1st 2017



# Epidemic curve - HPAI H5N8 outbreaks in poultry in EU – First 2 months



# **HPAI H5N8 outbreak in one hobby flock of ducks and geese**

**10 November 2016**

**2 wild birds detected with HPAI H5N8 in two locations in Denmark**

**11 November 2016**

**Ban on gatherings of poultry and bird shows in Denmark**

**14 November 2016**

**Compulsory housing of outdoor poultry in Denmark**

**19 November 2016**

**HPAI suspected in a hobby flock of ducks and geese in Elsinore  
Holding restricted and samples taken.**

**21 November 2016**

**HPAI H5N8 detected in the samples from ducks.  
Protection zone (3 km) and surveillance zone (10 km) established.  
Killing of the remaining poultry**

**22 November 2016**

**Cleaning and disinfection approved**



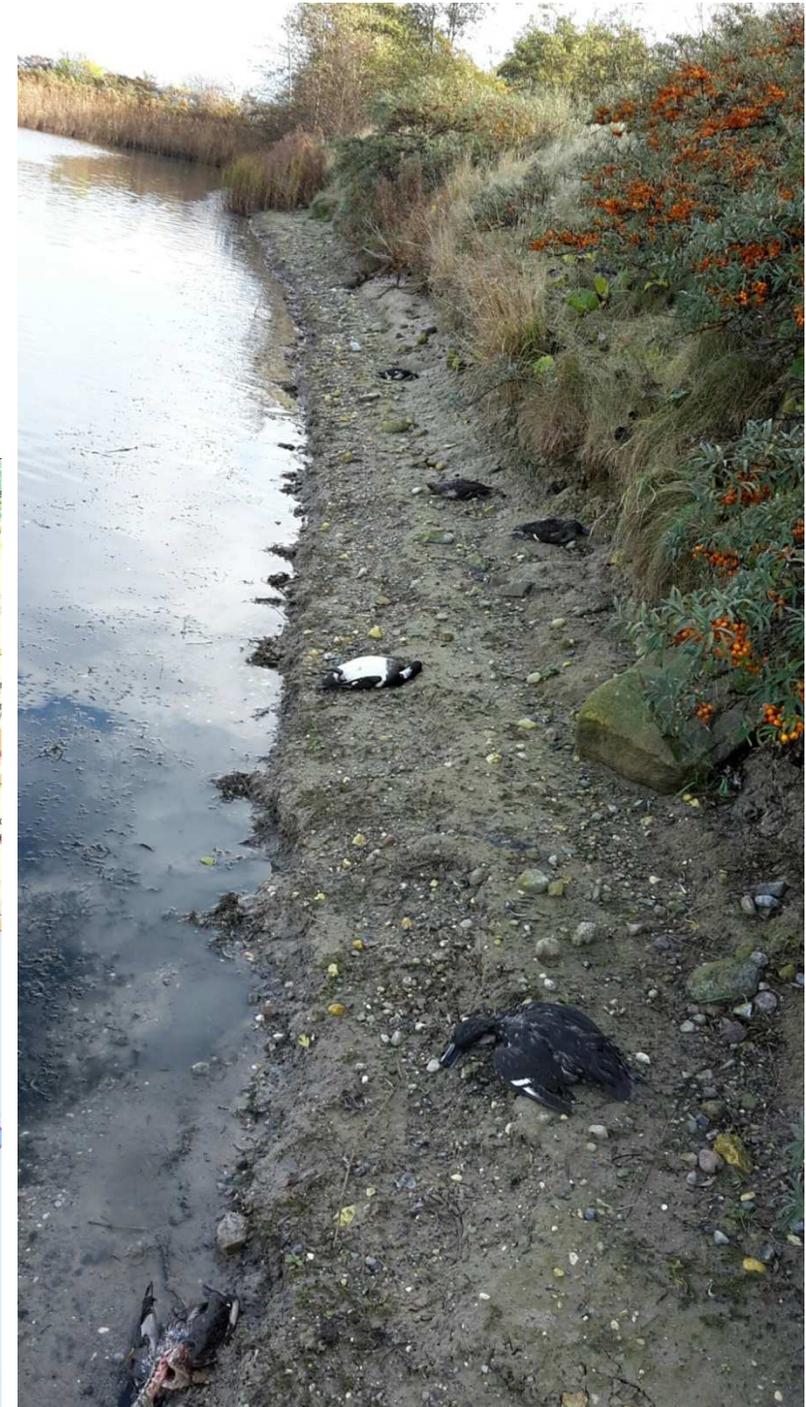
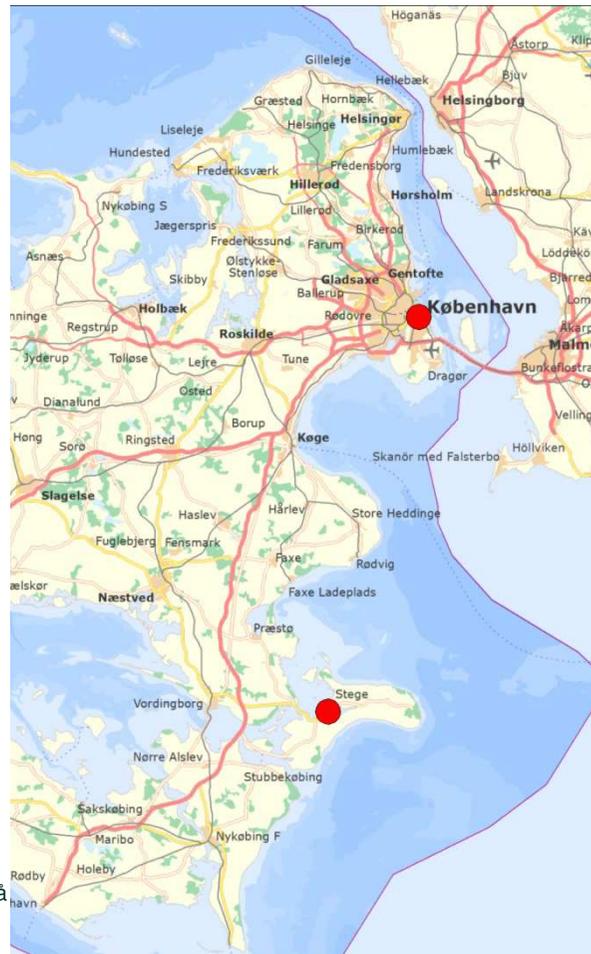
# Wild birds

10 November 2016

First detection of HPAI H5N8  
infected tufted ducks (*Aythya  
fuligula*)

Christiania,  
Copenhagen

Stege, Moen



# Outbreak in a hobby holding 21 November 2016

## Medical doctor from the "Rigshospitalet" ..

14 Chicken – indoor – all virus negative

5 turkeys – indoor – all virus negative

13 geese – outdoor - all virus negative

35 ducks – outdoor – all virus positive - 10 dead



I november blev en gård i Skibstrup ved Ålsgårde i Nordsjælland ramt af fugleinfluenza i en andebesætning. Nu er sygdommen fundet i tamme gæs på Lolland. (Foto: BAX LINDHARDT © Scanpix)



## Ekspert om fugleinfluenza: Værste udbrud i 10 år

Af Lasse Lange | 22. november 2016 kl. 5:00 | 0 kommentarer

Print f t in +



Folk fra Beredskabsstyrelsen og Fødevarestyrelsen var mandag tilstede på gården i Skibstrup ved Ålsgårde i Nordsjælland, hvor der er konstateret fugleinfluenza i en andebesætning. Døde fugle slæbes her væk. (Foto: Bax Lindhardt/Scanpix)

**SYGDOM:** Det igangværende udbrud af fugleinfluenza er det værste siden 2006, siger professor Lars Erik Larsen, der er formand for Fødevarestyrelsens ekspertgruppe om fugleinfluenza.

“Skrækscenariet er nu, at smitten spredt sig en af de store besætninger.

—  
Lars Erik Larsen  
Professor på DTU og formand for Fødevarestyrelsens ekspertgruppe om fugleinfluenza

JOBANNONCER

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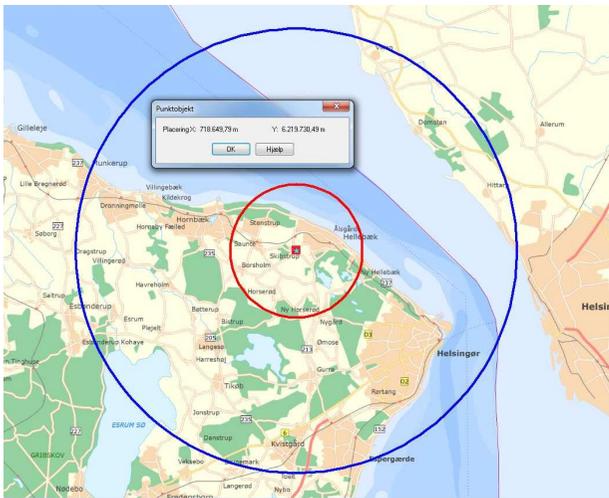
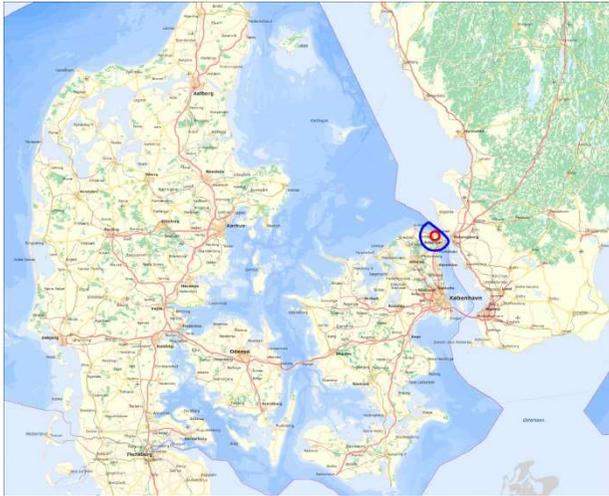
Universitetspraktikant til  
Atinget - efteråret 2017  
Frist: 5/6-2017



Økonomichef til  
Fødevarestyrelsen  
Frist: 14/5-2017



# Restriction zones



Punktobjekt  
Placering: 57.1648, 12.621375, 49 m



# HPAI H5N8 outbreak in one hobby flock of ducks and geese

**22 December 2016**

**Surveillance zone lifted. EU restrictions lifted.**

**7 Februar 2017**

**Detection of HPAI H5N8 in geese in an open air museum categorized as "Captive birds"**

**22 Februar 2017**

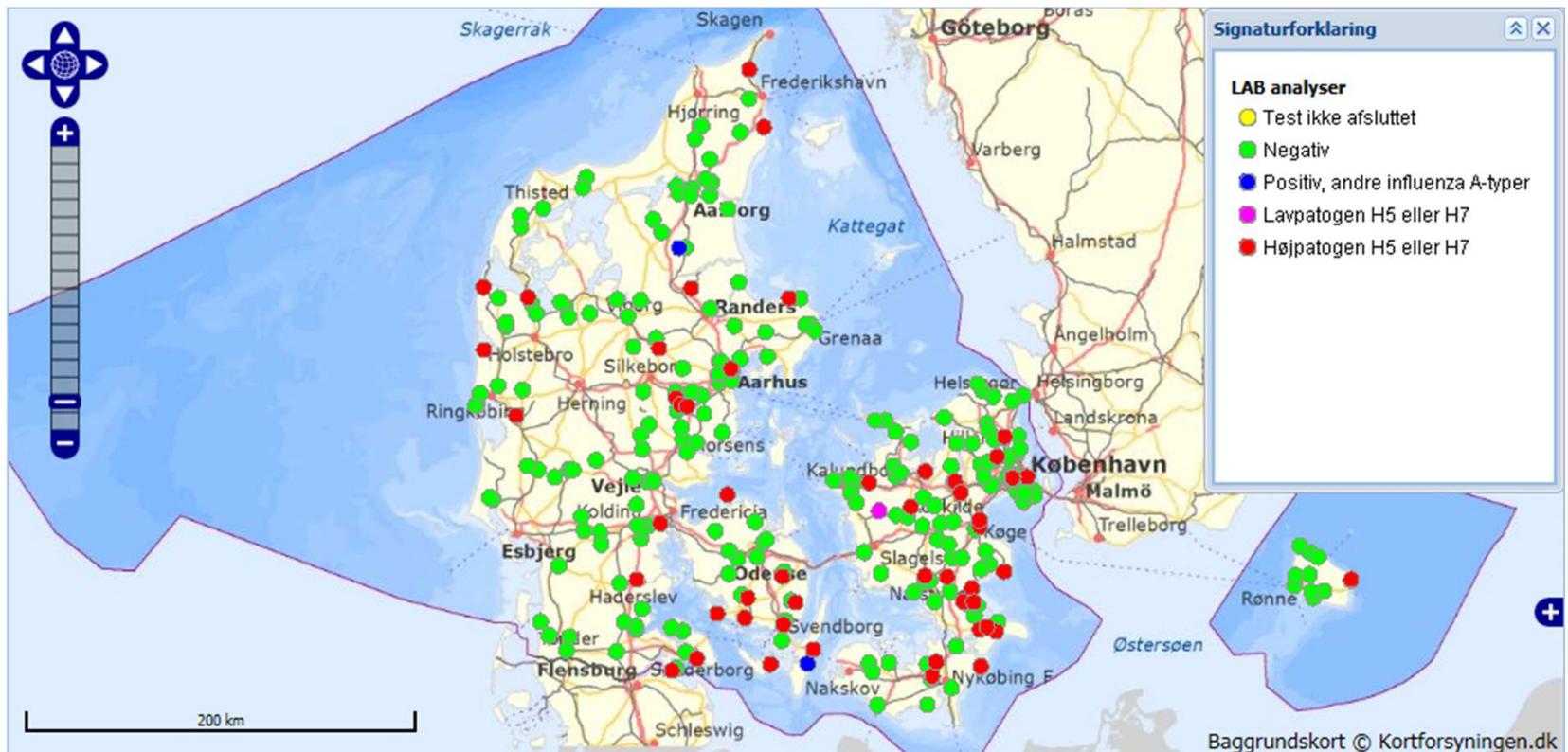
**Denmark re-gains the OIE status "Country free of HPAI"**

**12 April 2017**

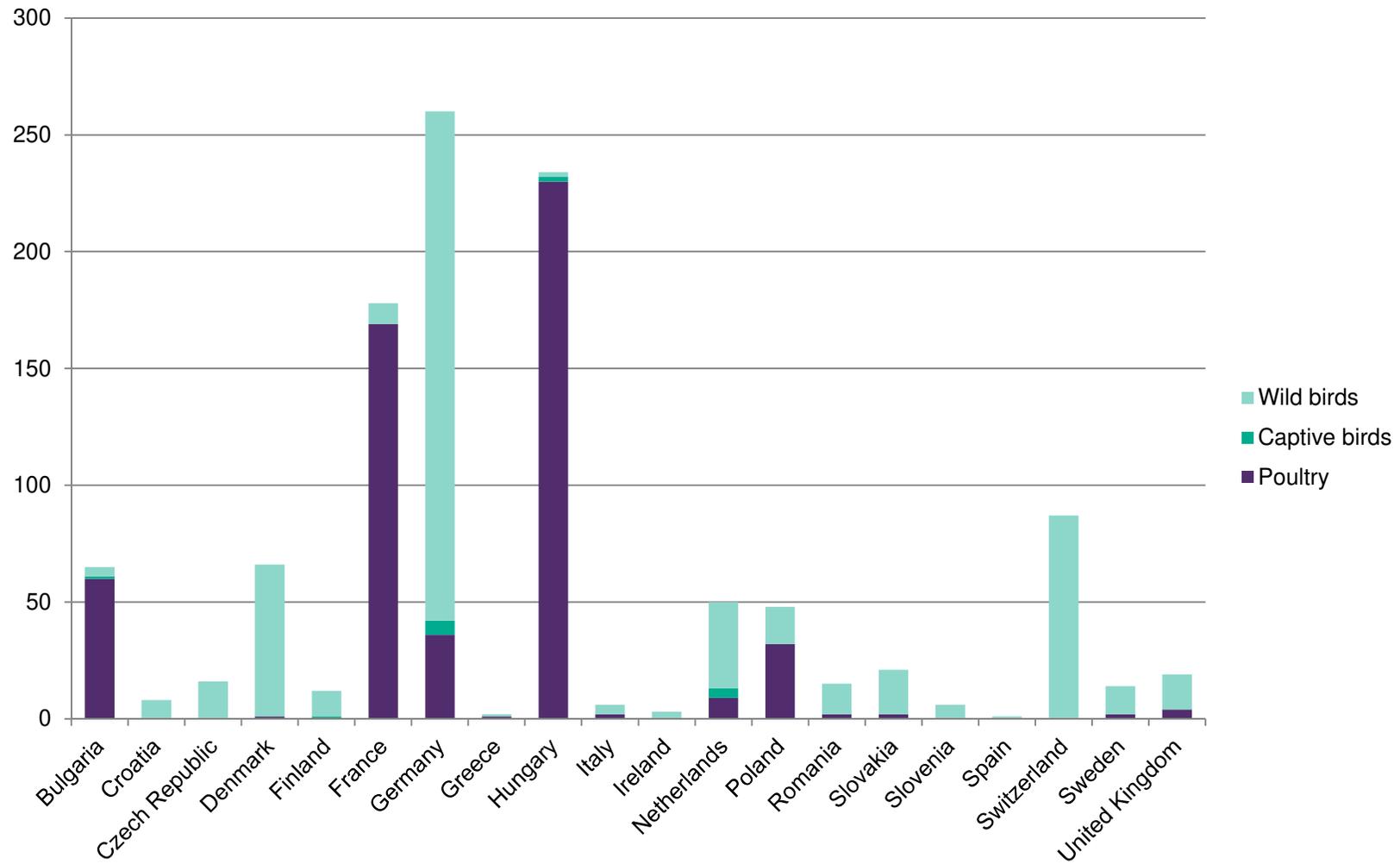
**Lifting of ban on outdoor keeping of poultry**

**Lifting of ban on gatherings of poultry and bird shows in Denmark**

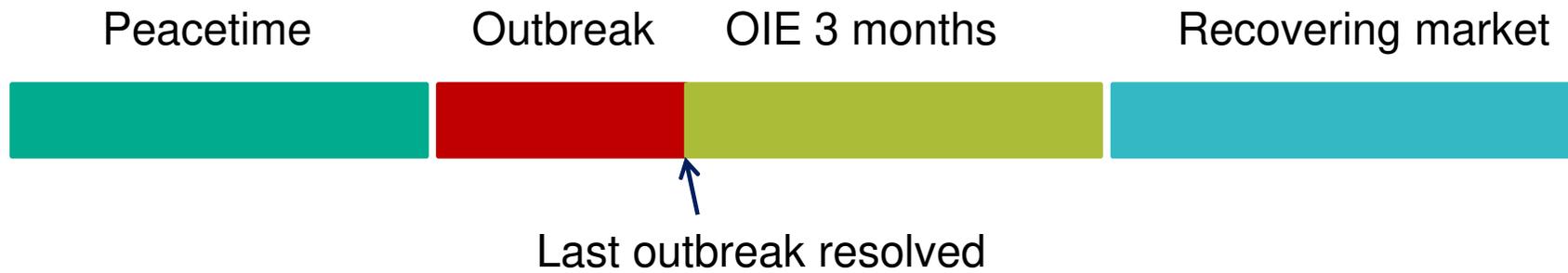




# HPAI H5N8 outbreaks December 2016 – January 2017

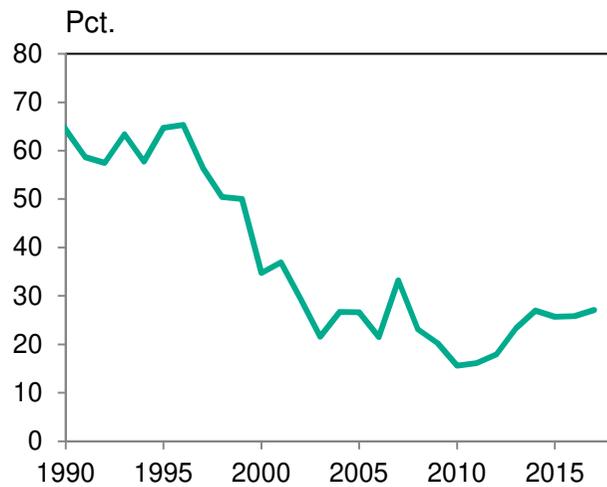


## Timeline – market loss

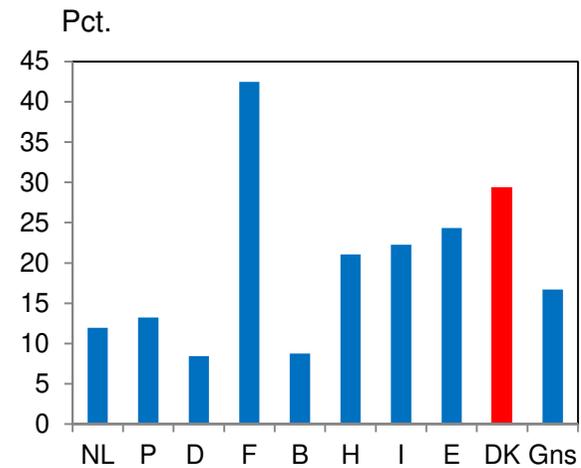


# The Danish poultry sector

**Figure 9. Export of Danish poultry meat to non-EU countries (% of al export)**

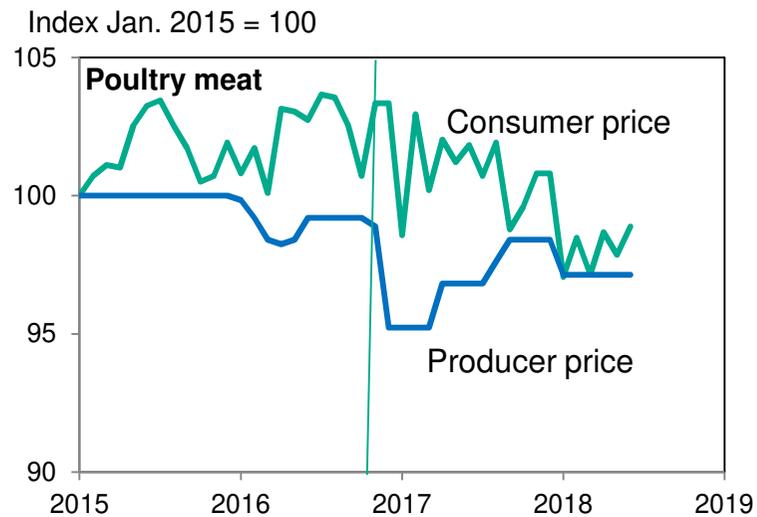


**Figure 10. Export of poultry meat to non-EU countries (% of al export)**

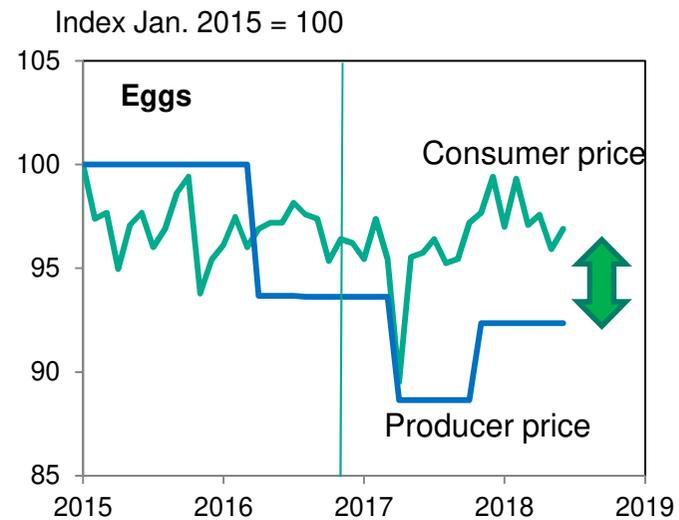


# Prices

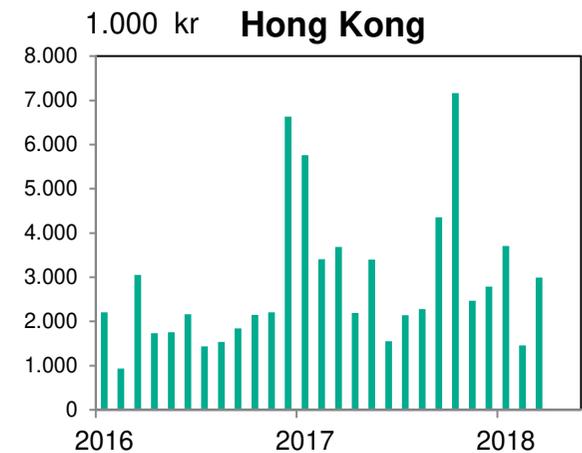
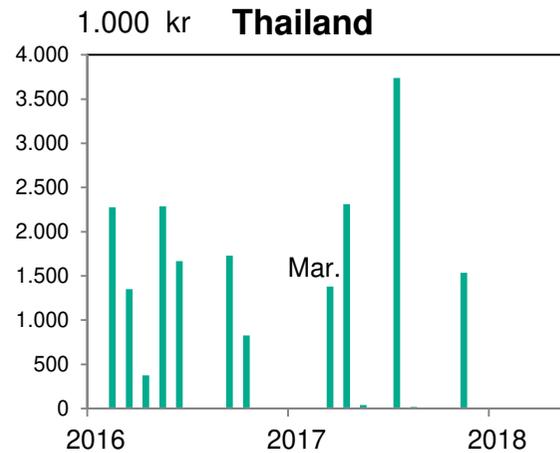
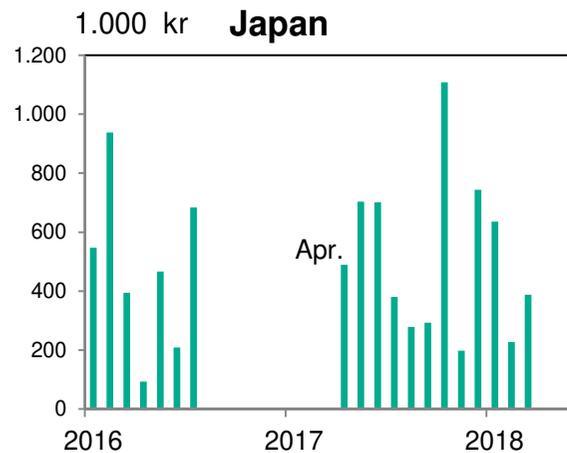
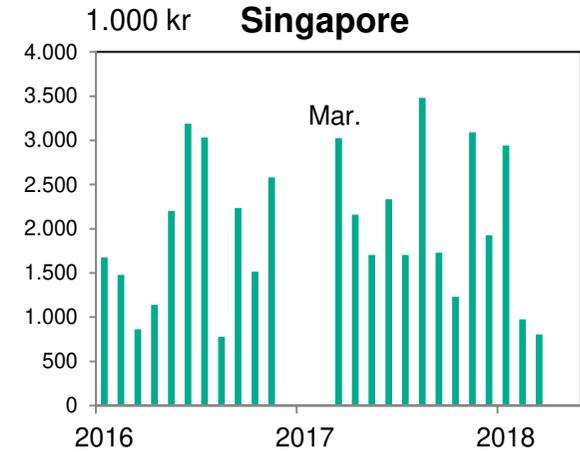
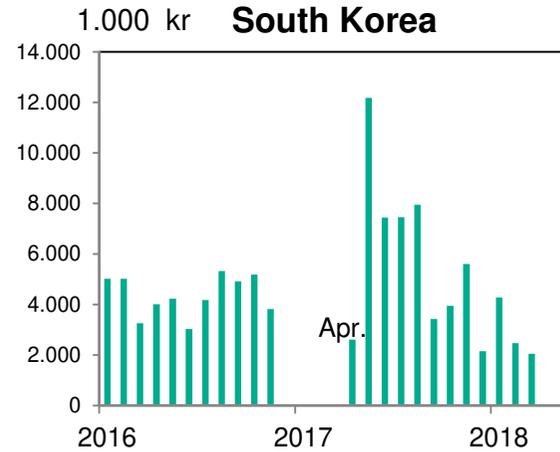
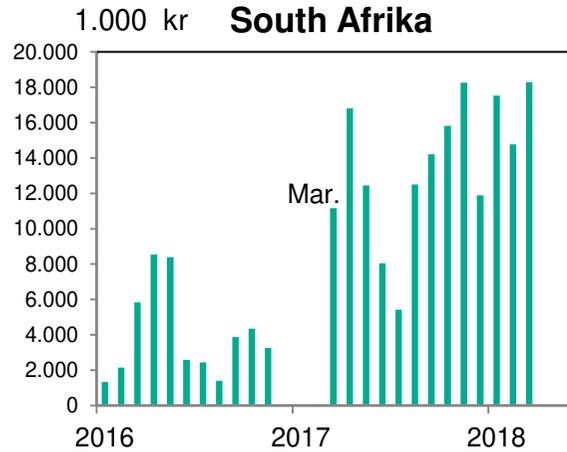
**Figure 11. Development of producer- and consumer prices – poultry meat**



**Figure 12. Development in producer and consumer prices – shell eggs**

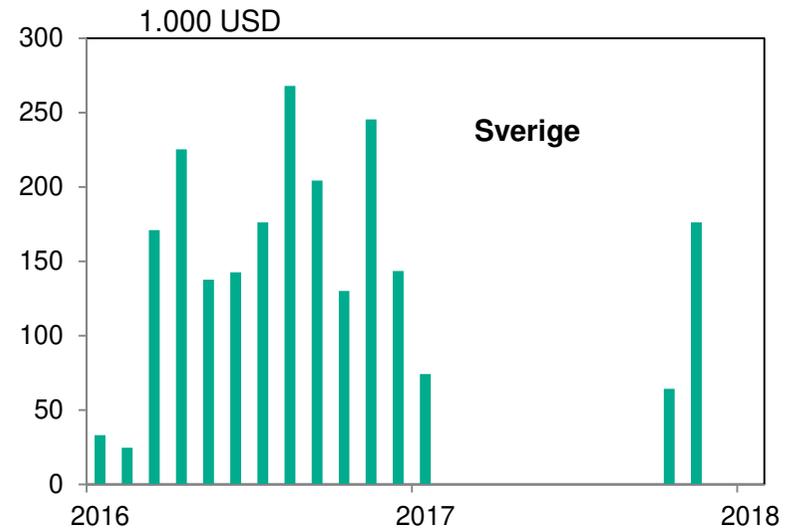
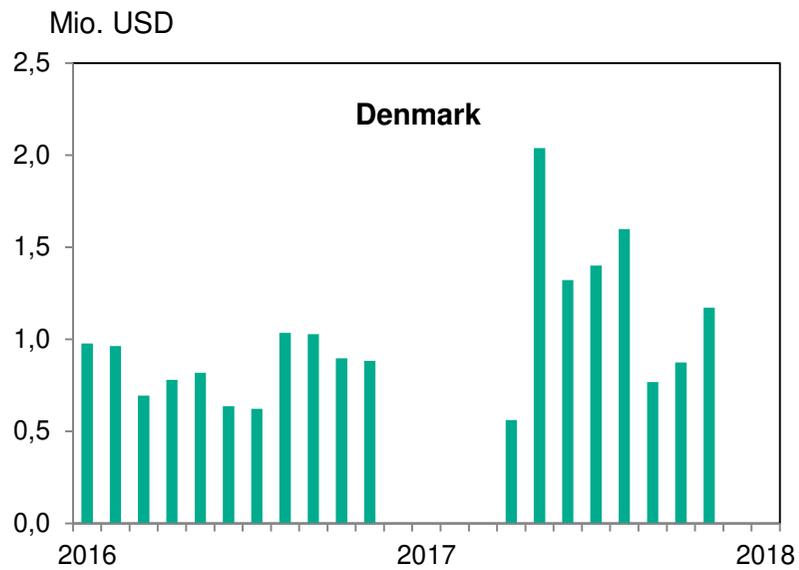


# Figure 13. Danish export of Poultry meat, January 2016 to March 2018





# Figure 15. South Korea as importing country



	Last outbreak	OIE free
DK	11/11 -16	22/02 -17
S	24/11 -16	29/04 -17

**Export resumed**  
 March  
 October

# HPAI H5N8 outbreak in Denmark – which items?

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## Preliminary Cost of one avian influenza H5N8 outbreak 2016-2017 in Denmark

Who?	Item	Euros
State	Costs of erad. Compensation, culling and cleaning - 1	23.000
State	Costs of erad. Working hours - DFVA	65.000
Table egg sector	Free-range egg producers downgraded 07/02 to 28/03	213.000
Table egg sector	Consequential egg-packing plant lost profit	117.000
Table egg sector	Lost contracts on free-range egg products	40.000
Table egg sector	Lost contracts on parent stock to non-EU countries	.. pending
Meat sector	Reduced prices Hatchery	.. pending
Meat sector	Reduced producer prices	.. pending
Meat sector	Reduced profits, 3 slaughter plants	.. pending
	<b>Total</b>	.. pending

