



Ministry of Infrastructure and the
Environment



Geese and flight safety

from a
governmental
perspective

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Geese habitat in NL



2 populations



~2.1 million Arctic geese spend winter in NL

~60,000 geese stay year-round in NL



Daily commuting flights



Sleeping
areas

Feeding
areas

Daily commuting flights



6 June 2010,
A Boeing 737 struck



9 Canadian geese



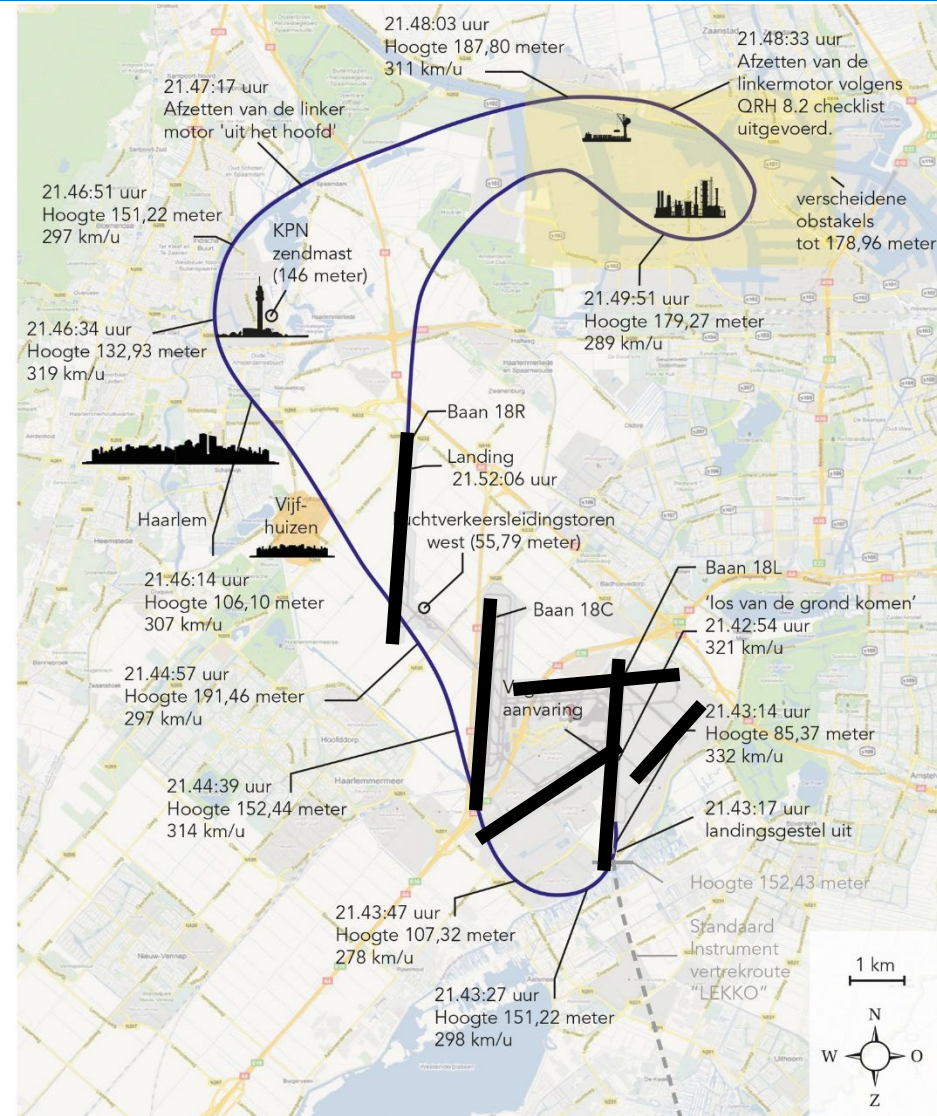
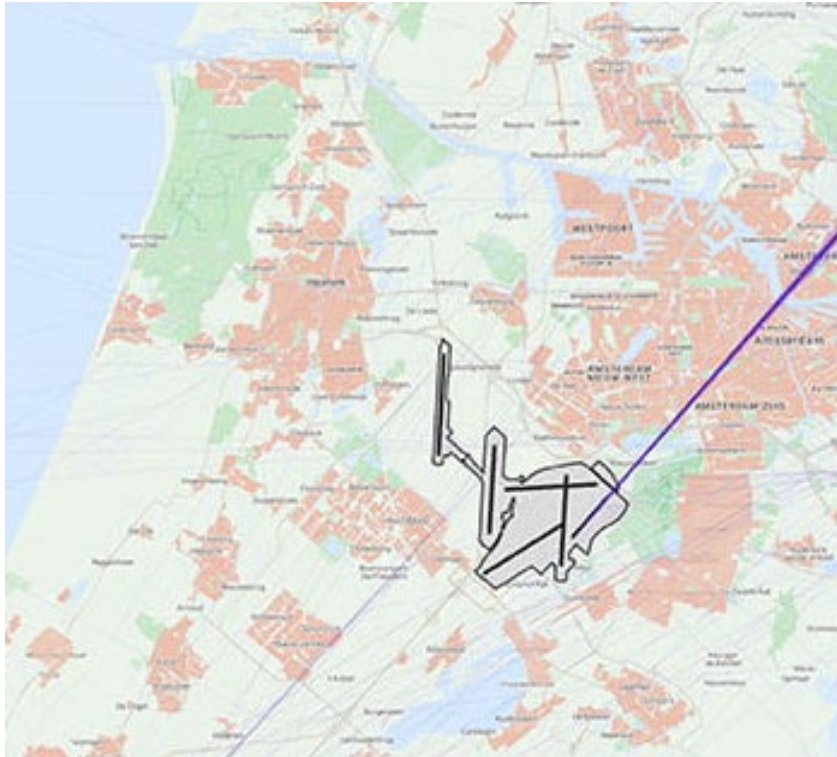


Emergency landing after bird strike

Boeing 737-4B6, Amsterdam Schiphol Airport,

6 June 2010

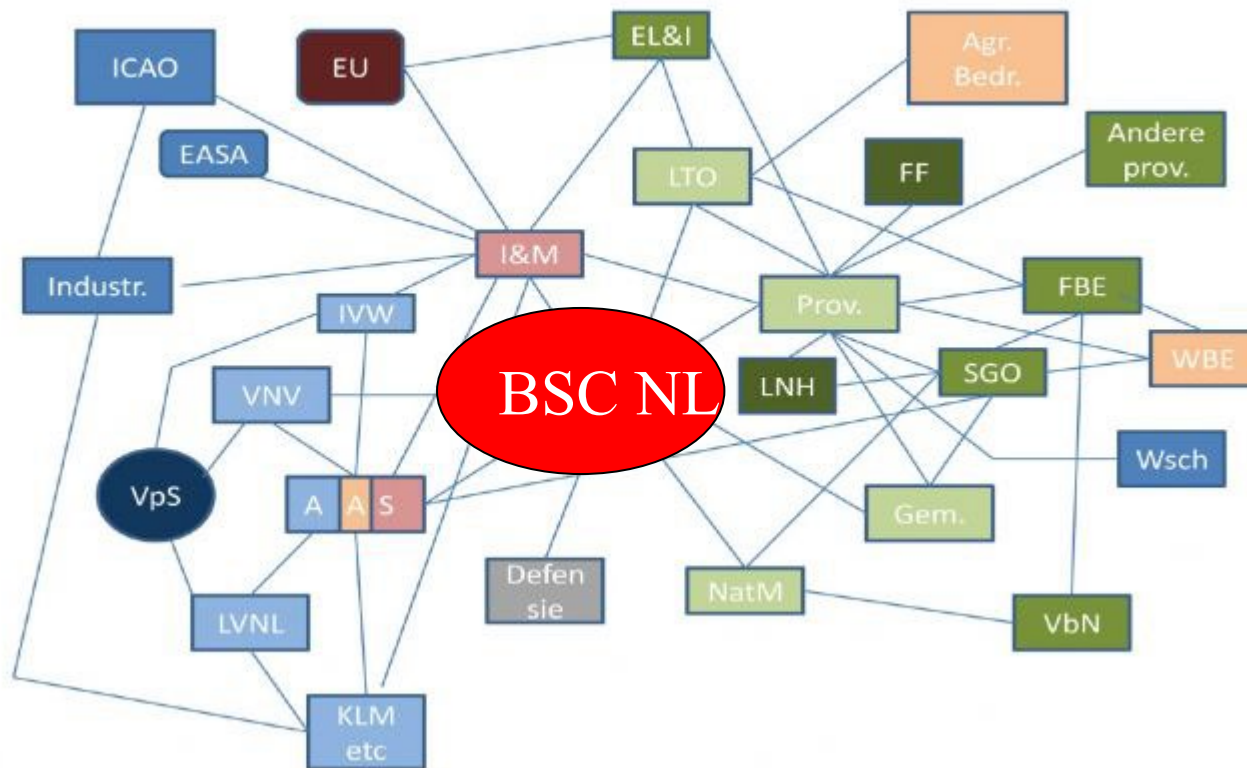
Emergency landing





AVIATION/AVIATION SAFETY

LAND USE: NATURE MANAGEMENT/
AGRICULTURE/WATER



Dutch polder model:



everybody needs to
do his part



Roles of stakeholders



| | |
|--------------------------|--|
| Dutch Pilots Association | keep stressing the safety aspect |
| Schiphol | <ol style="list-style-type: none">1. Zero tolerance for geese at the airport2. providing data3. trials with bird radar |
| Nature organizations | allow culling policy in their areas |
| Farmers | change farming policies |
| Municipality | amend spatial planning policy |
| Provinces | facilitate culling policy |
| State of The Netherlands | coordination |
| Birdlife Netherlands | ecological advise & allow culling policy |
| KLM and other airlines | provide data |
| ATC | researching possibilities for implementing radar information |

4 track approach

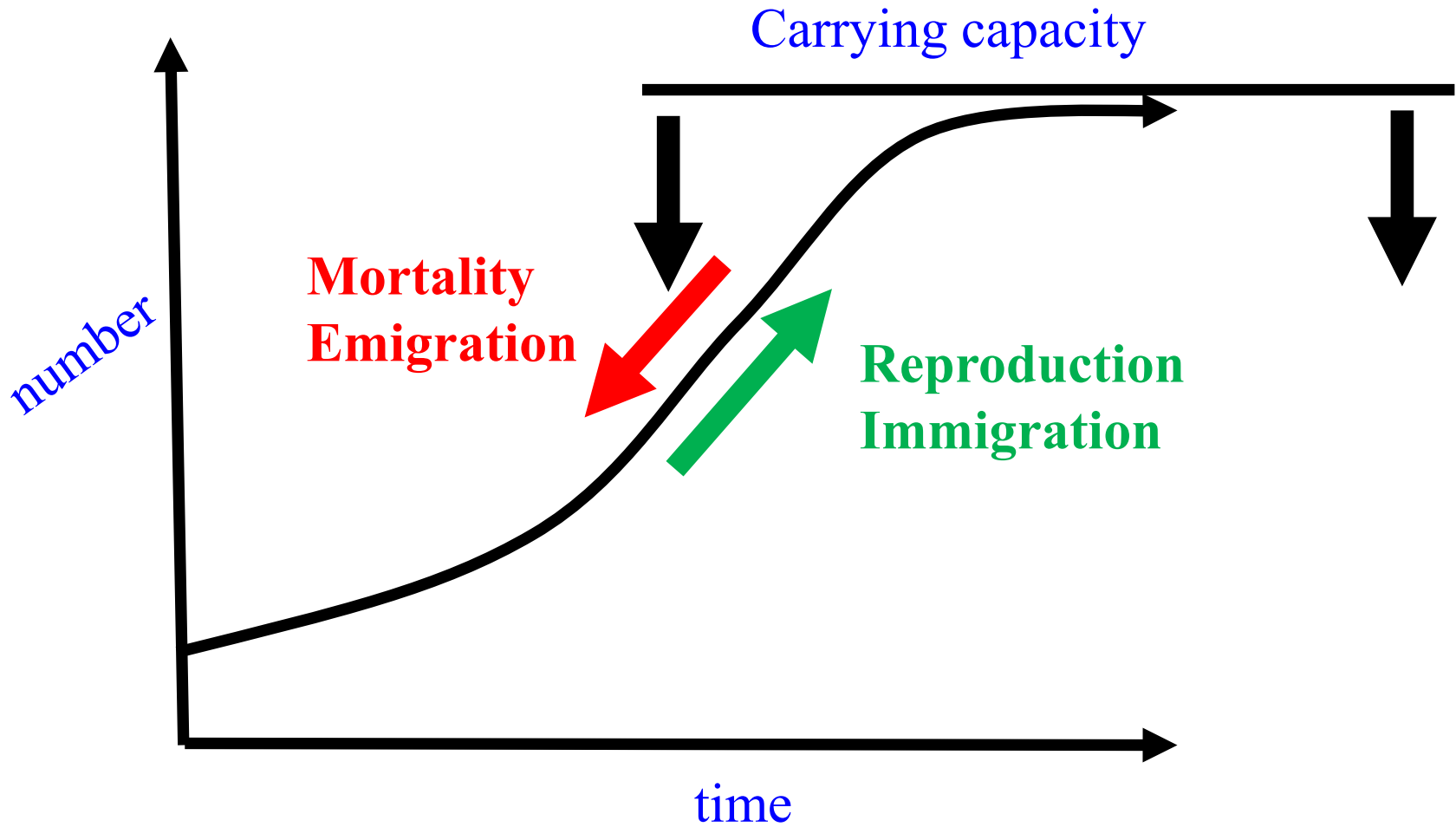


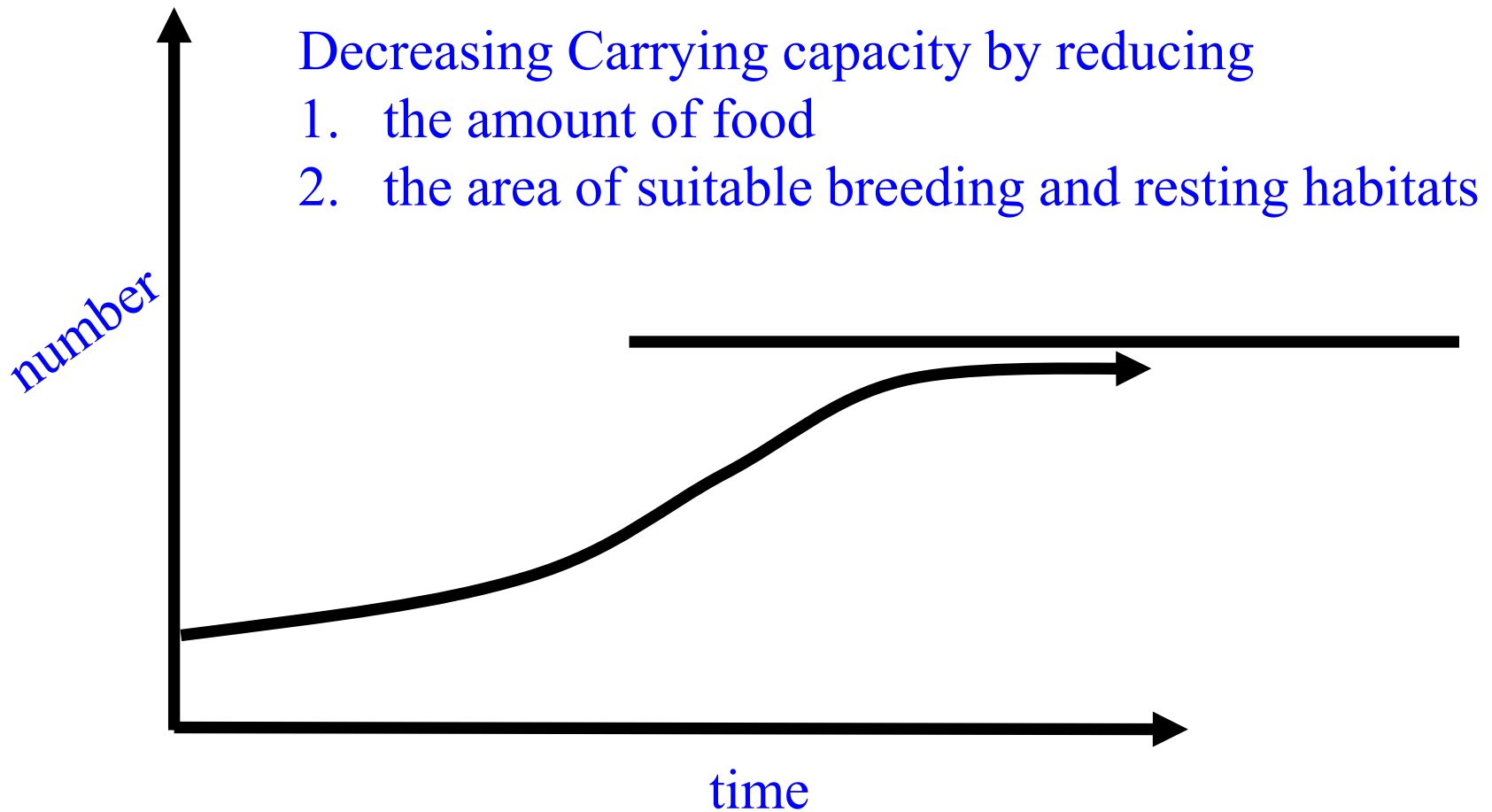
1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

4 track approach

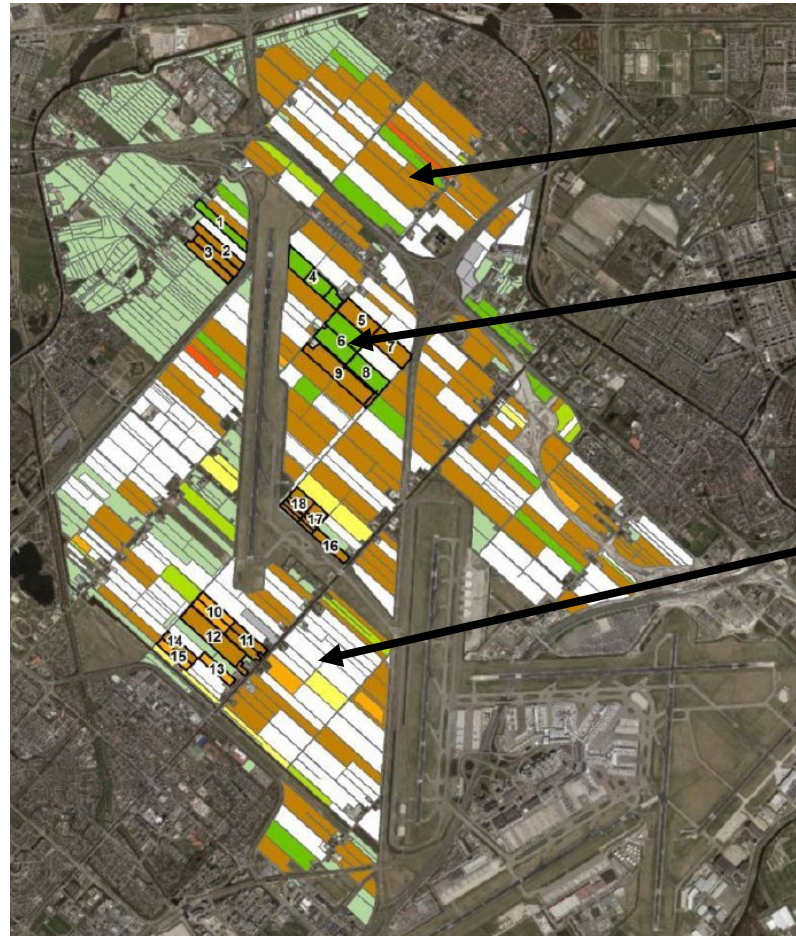
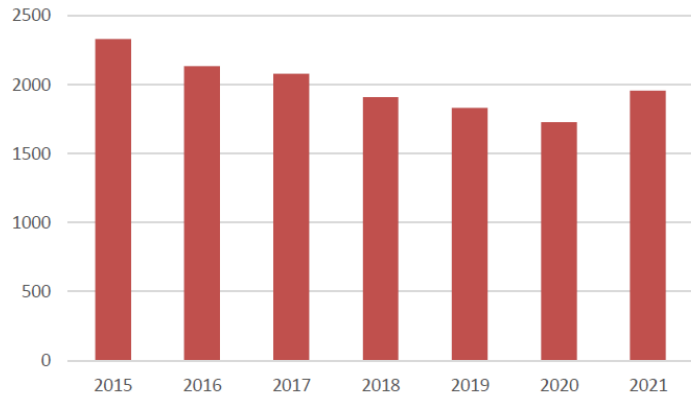


1. Can farmers grow crops that are unattractive for geese?





~ 2,000 hectares wheat and barley around AMS



wheat

barley

potatoes
and
sugarbeets

yields of $\sim 9,000$ kg/ha



harvest losses



counting harvest losses



~ 25 kg / hectare



nutrition value of grains



is higher than grass



Restrict farming policy?



1. Can farmers grow crops that are unattractive for geese?

Yes, but ...

“Farmers are entrepreneurs who grow crops that

1. are suited for the soil and climate
2. are most profitable”



1. 40% of Schiphol vicinity is farmland
2. Yearly economical value is EURO 100 million
3. Farmers have been around longer than aircraft
4. Soil type (clay) is very good for wheat and barley

Solution:

- * continue growing wheat and barley
- * harvest losses need to be made unavailable for geese within 48 hours post harvest

reduce the availability



of grains



Key elements for successful participation of farmers

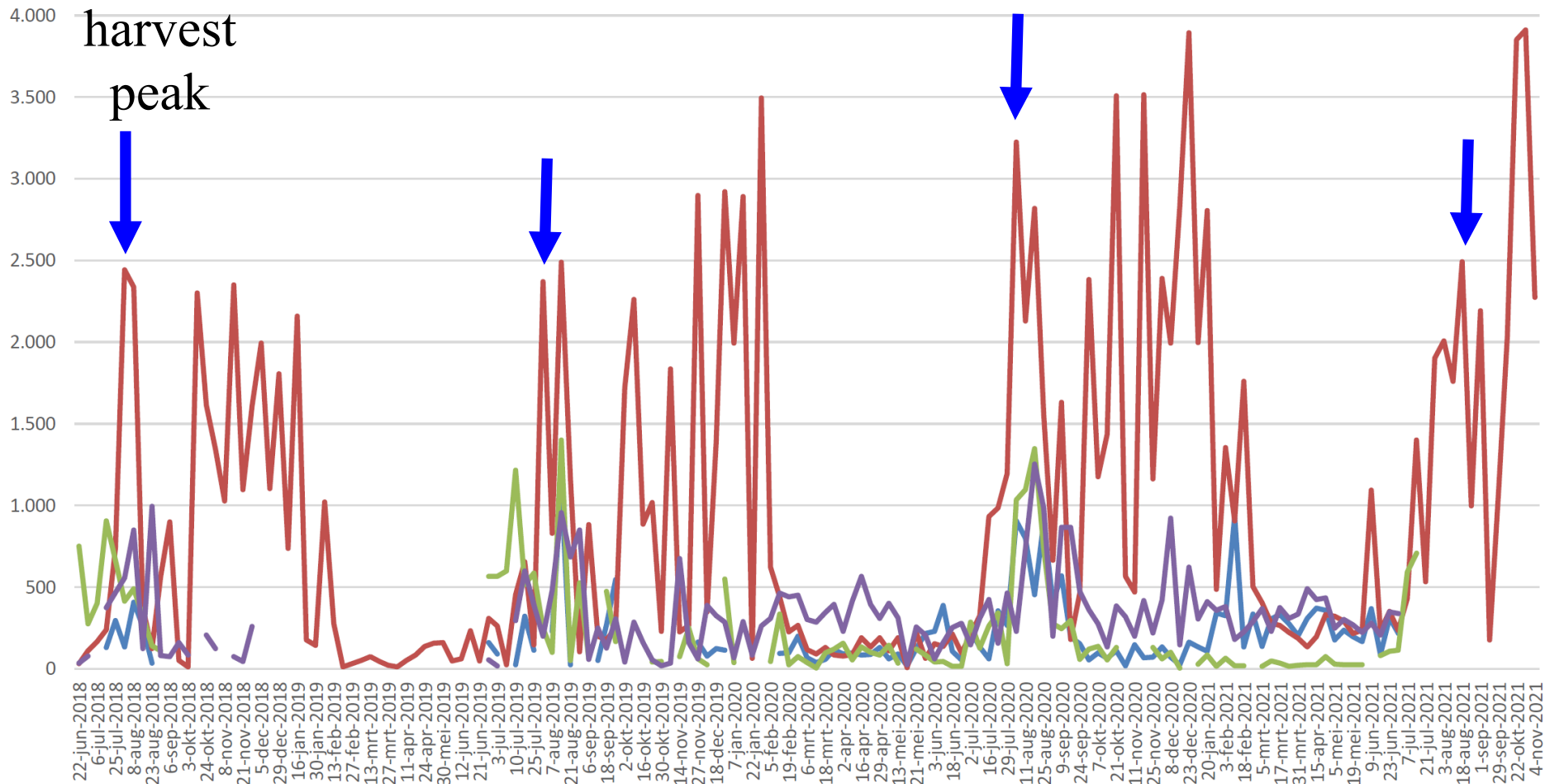
Farmers participate on a voluntary basis:

- * Creates real commitment and enthusiasm
- * awareness: farmers feel involved and responsible
- * 95% of farmers participated within two years

Financial compensation EUR 787 / hectare for:

1. Not harvesting the straw
2. Extra labor (and machineries)

→ ~95% reduction in the availability of grains around the airport post harvest.



Mitigate geese habitats?



1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

Mitigate geese habitats?



Can we mitigate the resting / breeding areas?

Yes, we can, but ... “To mitigate existing areas is legally very difficult.”

and “In the Amsterdam area there is a need for more nature areas for the purpose of

- * nature protection
- * recreation
- * water retention”



In the past: CAA had to approve creation of bird attractive habitats.

Change of policy: The local municipality is being held responsible.

In order to avoid conflicts of interests:

→ risk assessment to prove that the creation of new habitats will not attract hazardous birds

change flight schedules?

1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

change flight schedules?

Can we detect crossing birds and change the flight schedule of aircraft accordingly?

Schiphol Amsterdam Airport has bird radars

Ongoing study to provide ATC with radar information.

Reduce the population?



1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

Reduce the population?



- Birdlife Netherlands agreed on culling policy
- Nature organizations agreed on culling policy in their areas
- Provinces have to get licences under very strict nature laws

Future developments



1. Can farmers grow profitable crops that are unattractive for geese?
 - crops for biofuel
 - crops for building material
 - textile hemp
 - solar panels

2. Can we mitigate the resting / breeding areas?
 - ?

3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
 - ongoing research

4. Can we reduce the population of geese?
 - ongoing evaluation of current methods
 - trials with expelling techniques
 - trials with extra hunting efforts



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Thank You!