

Slide 1

Hi everyone

During this intership, my objectif is to test a non-pharmaceutical way to mitigate HPAI in colonial wild population

For this projet, I have the previedge to be supervised by Amandine, Ana and Augustin Clessin.

The main motivation of this mitigation is to counter the impact of one specific case of epidemic : HPAI epidemic.

Slide 2

There are two types of avian influence:

- A low pathogenic type which is commonly present in wild population, especially in waterbird and in poultry
- And there is a highly pathogenic type which can cause high mortality both in poultry and in wild population

Slide 3

From 2021 to nowadays, there is a current severe epidemic occurring worldwide. The new clade of avian influence is characterized by infectious parameters, its rapid spread across all continent and by the diversity of host

Slide 4

The epidemic caused unprecedented impacts on wild population.

More than 320 bird species have already been infected.

Examples: Caspian tern / Peruvian Pelican

It also impacts marine mammals with for example more than 20,000 American sea lion that were found dead.

Slide 5

For now, there is no efficient measure that could control this epidemic.

In poultry, management relies mostly on biosafety and mass culling, and vaccination in some countries.

Vaccination in wild population is currently being tested but :

- It will still be complicated to implement to large scale
- And the measure would need an anticipation of, at least, 2 weeks before the outbreak

Vaccination could be adapted for small endangered species such as Californian condor

Slide 6

In this work, we are focusing on colonial seabird.

Seabird, not living in tropical areas have synchronized life cycle based on the season, with cycle of one one year. For some species such as wandering albatrosses, the cycle is based on 2 years with a sabbatical year.

Besides, most seabird species are colonial, that is to say, during the breeding, breeders nest in dense colonies where infectious contacts are favored.

Slide 7

Because of this specific biology, the idea of a non-pharmaceutical measure to mitigate HPAI emerged.