

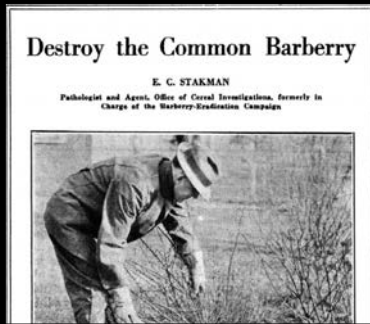
# Tacking a formidable foe: the fightback against a forgotten enemy in Western Europe

## Wheat stem rust (part two)

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# Legislation & policy to support common barberry removal campaign



Policy and legislation continues to limit Barberry plantings in America, Canada and some countries in Europe as a control measure for wheat stem rust

## Common Barberry

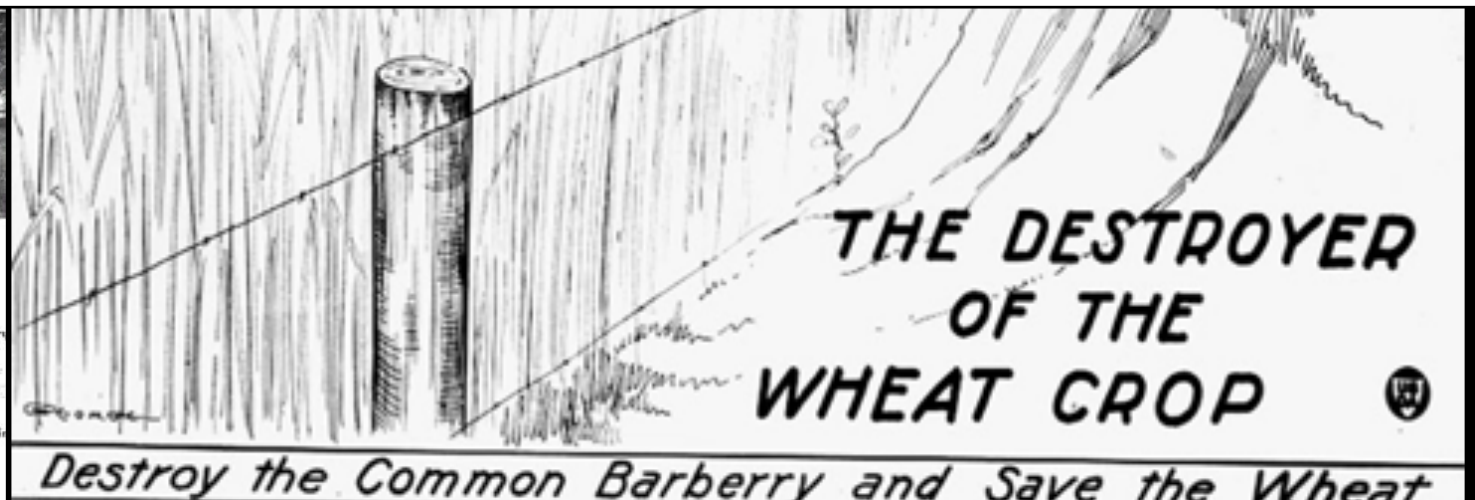
AND IS AN

### “ALIEN ENEMY”

The Minnesota Commission of Public Safety, Order No. 28, requires the immediate destruction of this bush.

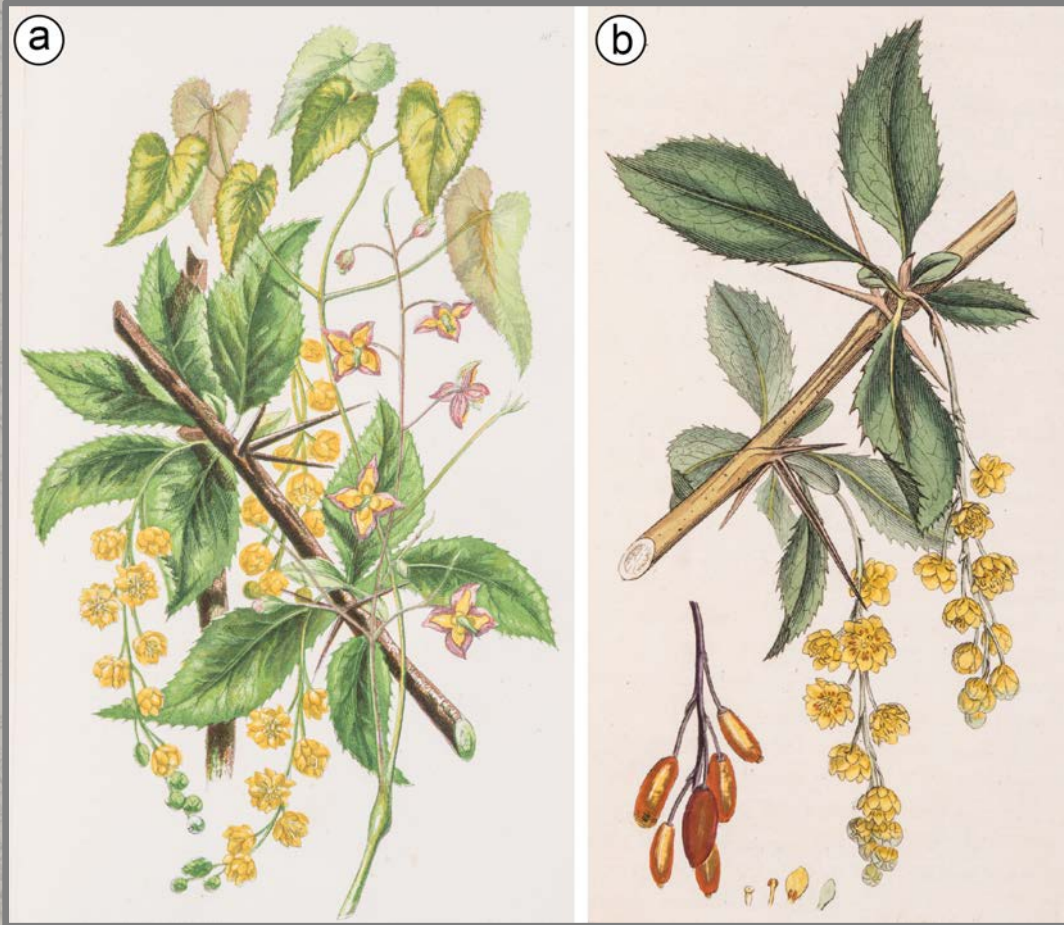
STATE ENTOMOLOGIST

University Farm  
St. Paul, Minnesota.



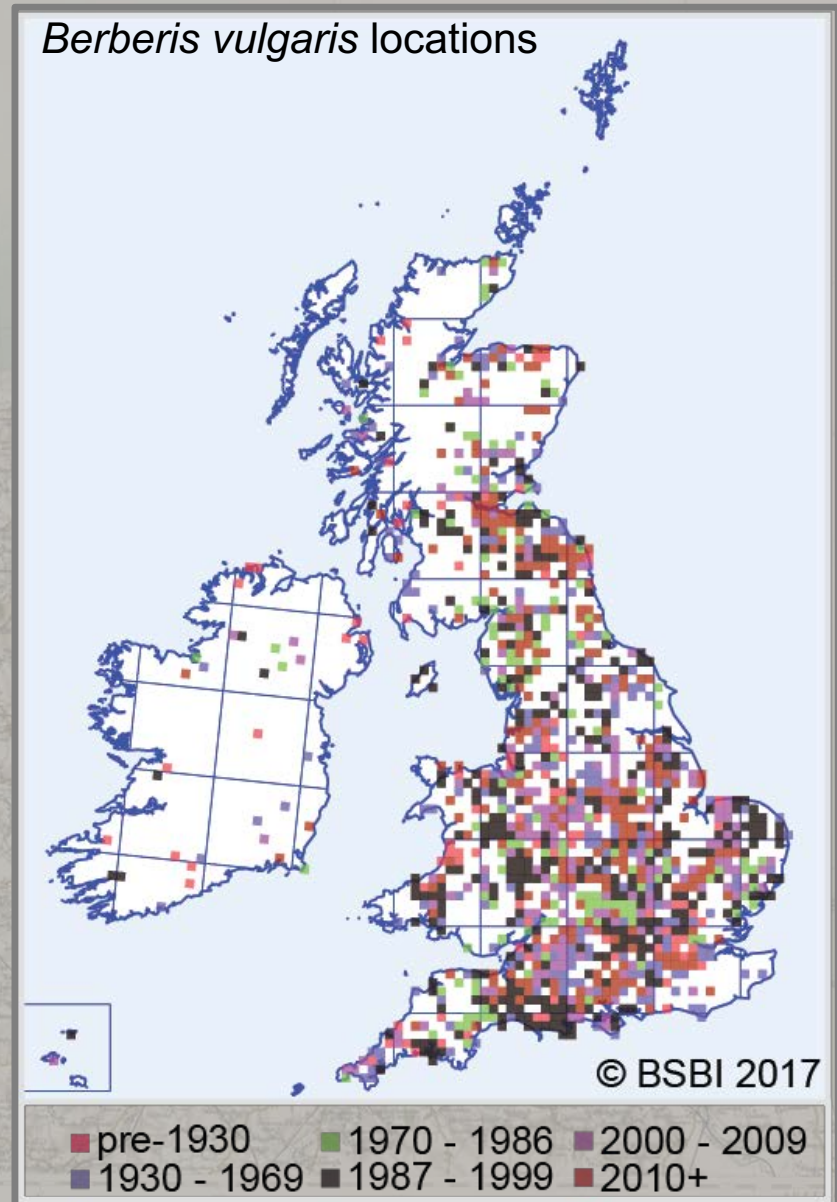


# Farmers actions led barberry removal from English countryside



Introduced in Middle Ages, with farmer-led removal recorded from the 18<sup>th</sup> century

Barnes, **Saunders** & Williamson, 2020. Plant Path.

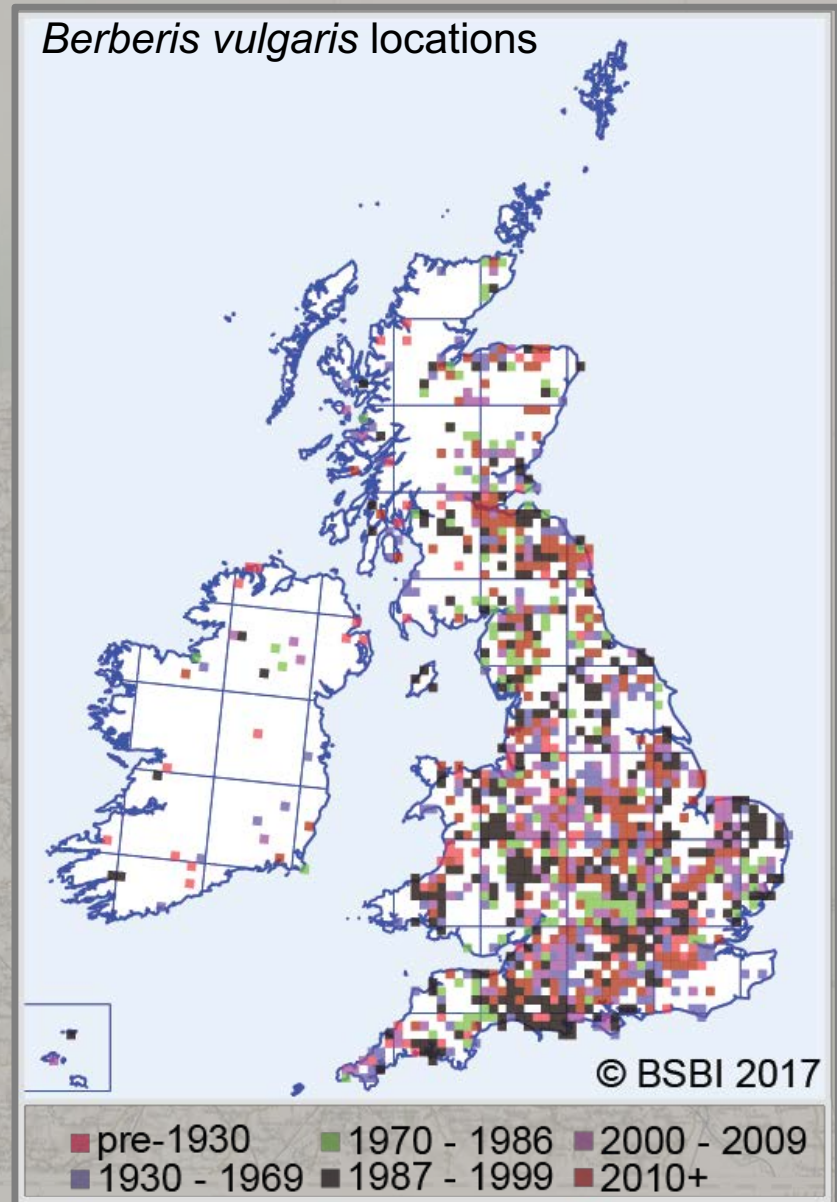




# Barberry is increasing in prevalence in the UK



Increasing *B. vulgaris* prevalence partly due to habitat conservation programs





# How do we manage risk of common barberry?...

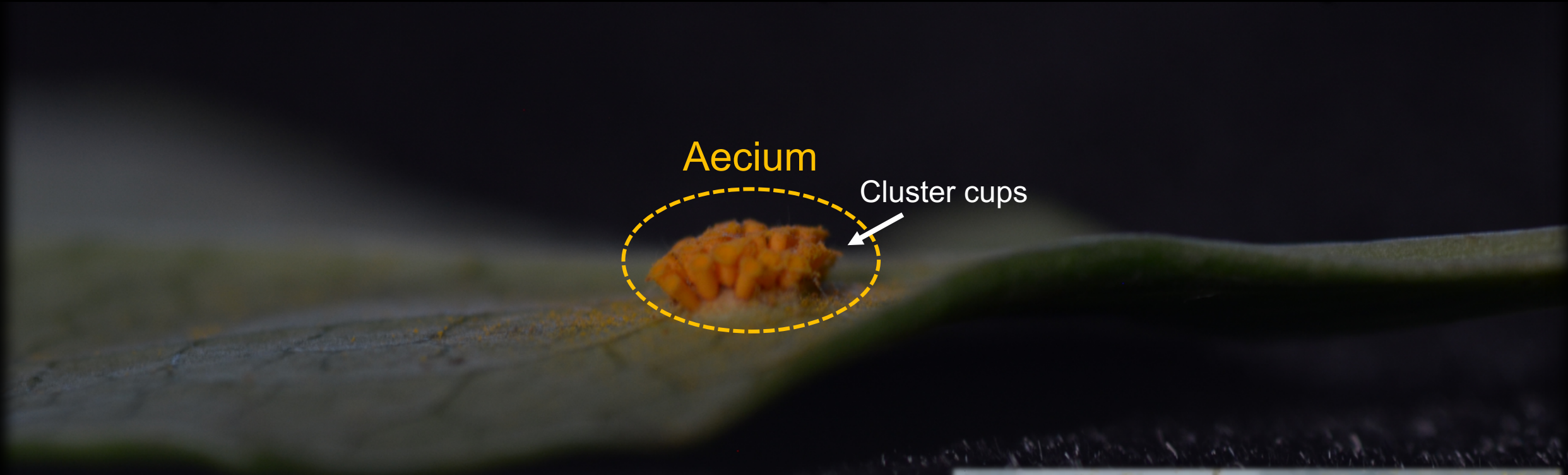
How much inoculum is released from a barberry bush, and far can it travel?



**Vanessa  
Bueno-Sancho**



# Aeciospores are released in vast quantities from barberry bushes



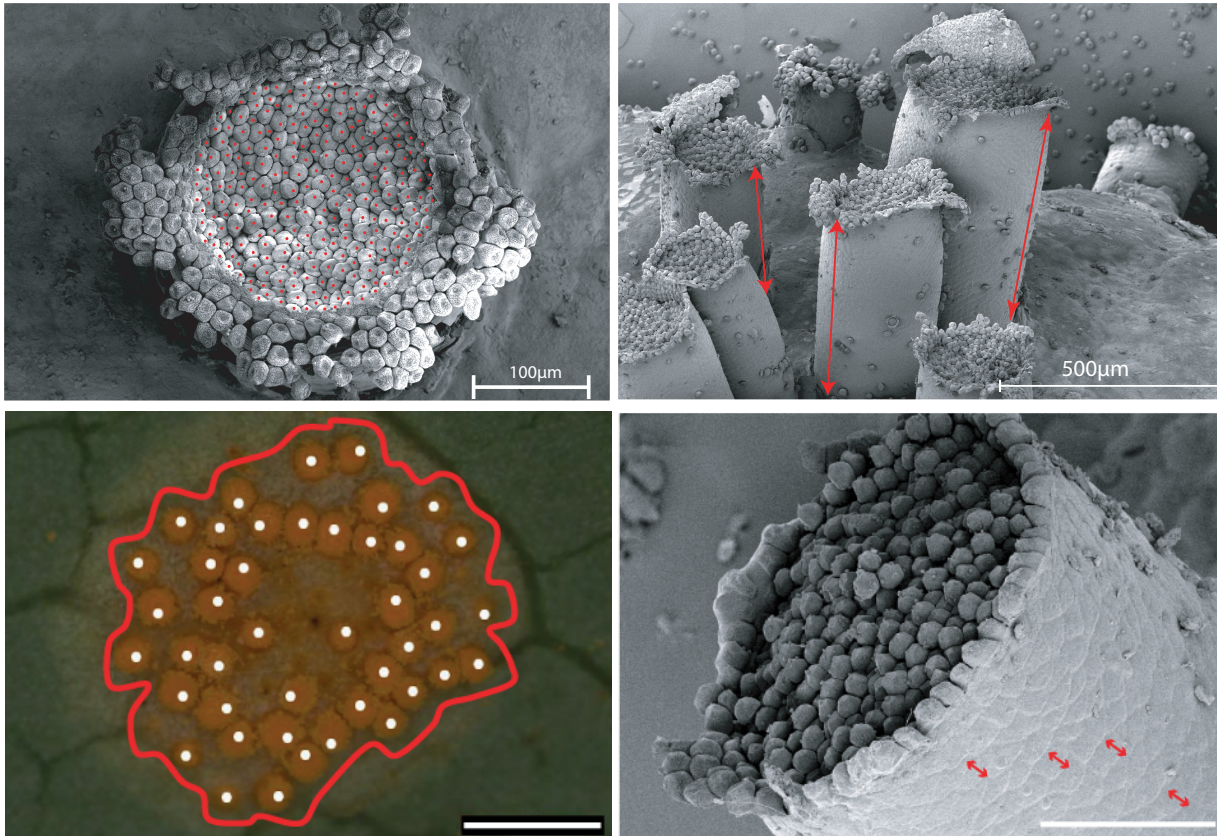
How many aeciospores are released from a single bush?





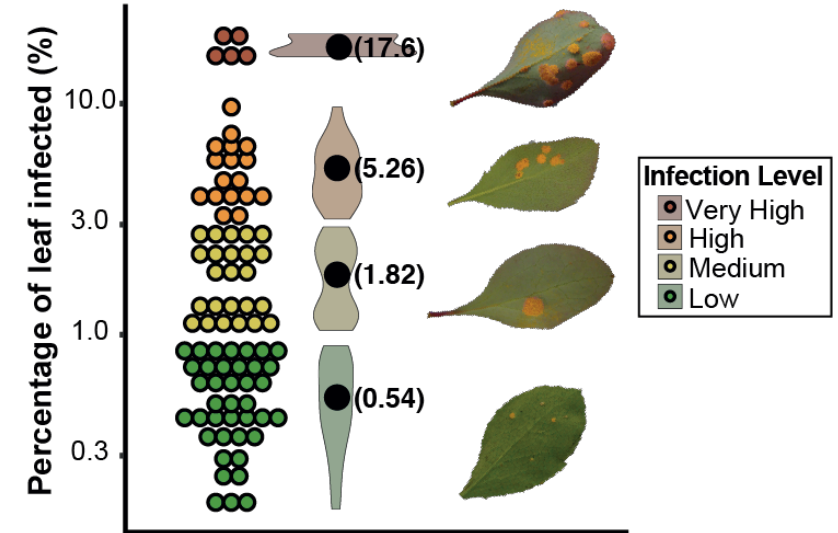
# How many aeciospores could be released from a barberry bush?

## Aeciospores per aecium



~7,100 spores per cup, 40 cups per cluster  
= 284,000 spores per infection

## Levels of infection per leaf



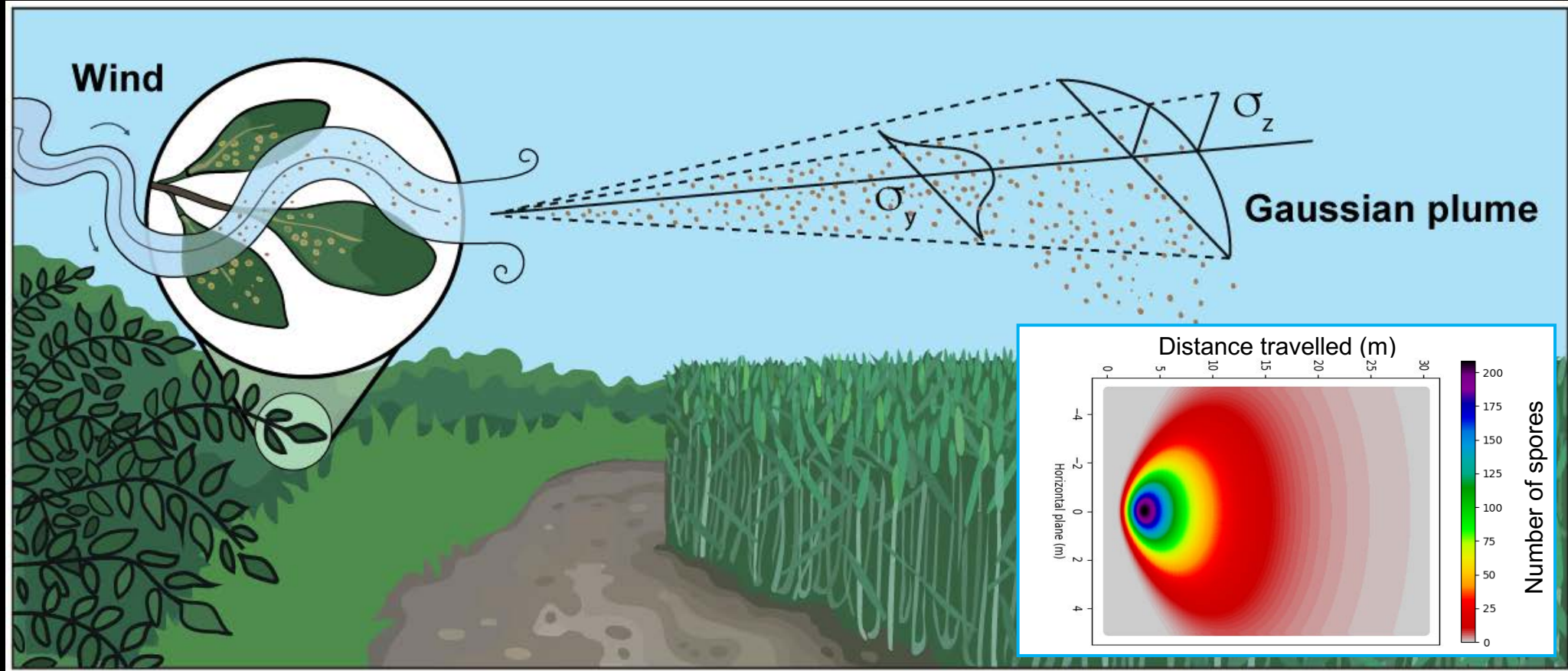
## Levels of infection per bush

Analysis of *Berberis*  
bush leaf content  
= average 900 infected  
leaves





# How far do aeciospores travel?



## Aeciospore Dispersal Model

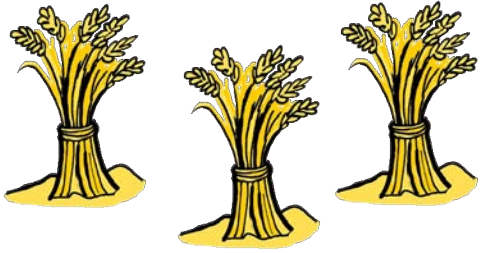
<https://aeciospore-dispersal-model.com>

**Density of spore dispersal projections can guide policy on planting distances for barberry hedges near cereal crops**



# Enhancing preparedness for wheat stem rust re-emergence in Western Europe

## Breeding



- Limited resistant varieties have been extensively evaluated for incorporation in breeding pipelines as appropriate
- Need to be mindful of how changes in wheat planting strategies could impact incidences of warm temperature diseases

## Barberry



- Aeciospore dispersal projections can be used to assess risk and guide new policy on safe distances of *Berberis* plantings

## Fungicides



- Modern fungicides currently remain effective as a control measure

Plant breeders

Ag-Chem companies

Pathologists

Policy makers



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