# Mycology
# The study of fungi

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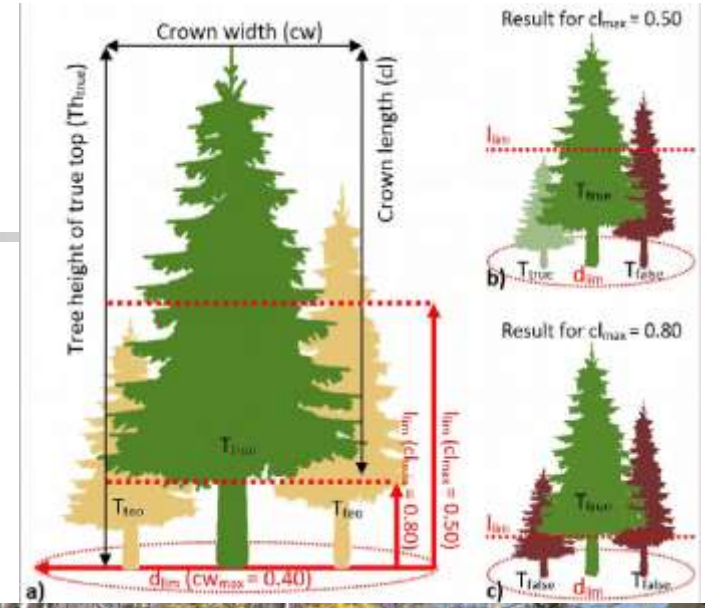
# Spore dispersal: The big gamble

- **Fungi = sessile (immobile). (Like Plants)**
- **walk or fly to new habitats?!**
- **How Growth and Distribution Occur?**
- **- Extension to adjoining area,**
- **- Disperse spores or seeds.**

(Most fungal spores are single cells. They can travel beyond the physical limits of their parent into more distant territory)

- Organisms (Trees for instance) can grow to short distances only




- The maximum outward growth rate of fairy rings in the soil is only 8 inches (20 cm) per year.
- Fairy rings can become enormous, but it takes hundreds to many thousands of years
- An aspen clone in Utah covers 17.2 acres (43 hectares) and is estimated to be one million years old.

- Mushroom Fairy ring

- **The spores of fungi are smaller and lighter**

**Why plants are more successful?**

**Tallness!!!**

**Boundary Layer?**

**How Fungi adapted?!! (Shooting, Vectors)**

. Once spores are caught by the wind they can be carried very long distances.

. Spores of a wheat rust have been reported to have been dispersed 1,243 miles (2000 km) by the wind.

## a two-step process

- Spore discharge or release.
- Dispersal away from the parent.

Fungi have evolved a number of different mechanisms for spore discharge and dispersal.

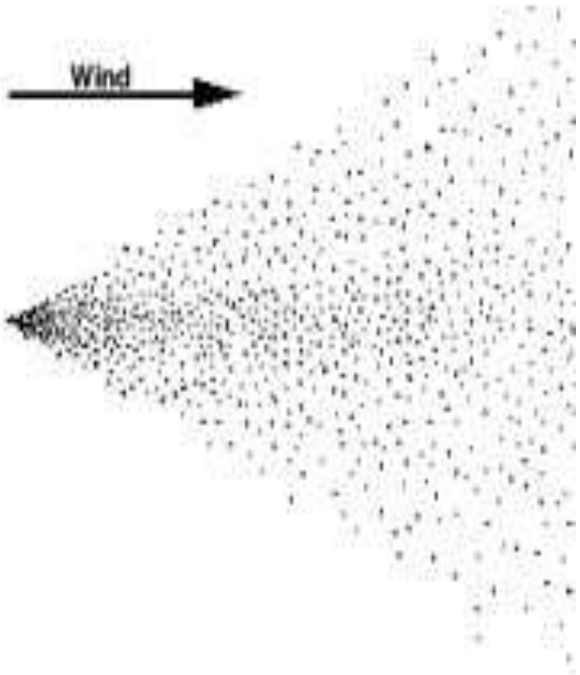
- Solutions for dispersal can be grouped into passive and active mechanisms.
- Passive mechanisms for dispersal include
- Wind
- Water
- Animals

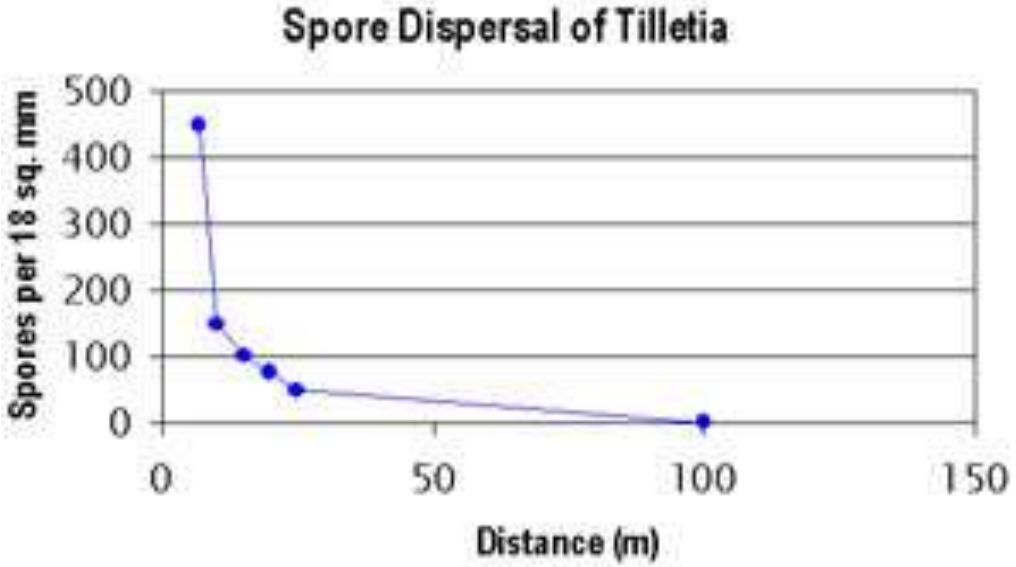
# Wind dispersal

- is not an energy-efficient way to disperse spores.
- trillions of spores needed… why?
- landing in a habitat suitable for germination is extremely small.

- Passive wind dispersal is sometimes called "sweepstakes dispersal" because its chance of success is so low,
- Another problem with this method is that most of the spores land close to the parent fungus
- See the figure

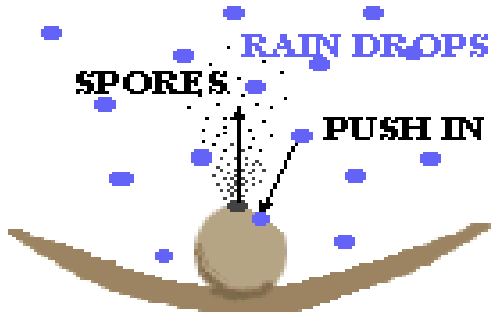
- Note that the density of the spore cloud decreases in relation to its distance



# Water Dispersal

- **Chemical composition = "non-wettable" = Floating**
- **The spores are carried along on the surface of the water like little boats.**
- **Water in the form of raindrops can disperse spores in a different way.**




# Animal Dispersal

- **Animal vectors = best ….. Why?**
- **spore will be deposited in a site favourable for germination and growth.**

**Fewer spores Needed why?**

- **a greater chance of success.**

# Active spore release mechanisms solutions include:

- **Bursting Cell**
- **Rounding off**
- **Ballistospore discharge**

- **Some cup fungi use a bursting cell to "shoot" spores through the boundary layer.**