

Identification of Common Spores

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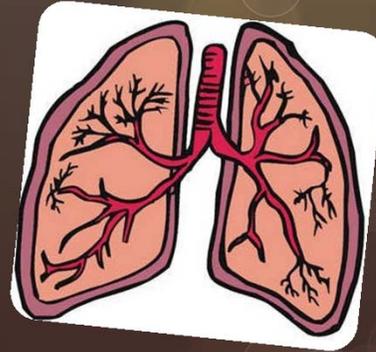
Outline

- Importance of spores
- 5 common spore types
- Future sites and projects



Importance of Spores

- Common plant pathogens that can cause crop damage
- Aeroallergen that can trigger allergic reactions
- Can be in the indoor environment
 - High concentrations can cause respiratory difficulties
 - Asthma triggers



Alternaria

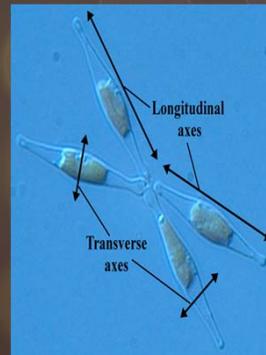
- Name
 - *Alternaria* conidia – “drumstick”
 - Second most abundant component of dry air spora
- Shape
 - Large multicellular spores
 - Septa are both beaked and produced in chains
 - Attachment scars visible at the tip of the beak
 - Various shades of brown
- Size
 - 7 μm X 18 μm to 15 μm X 75 μm
- Peak Concentrations
 - Late summer or fall
 - During afternoon hours with high wind gusts

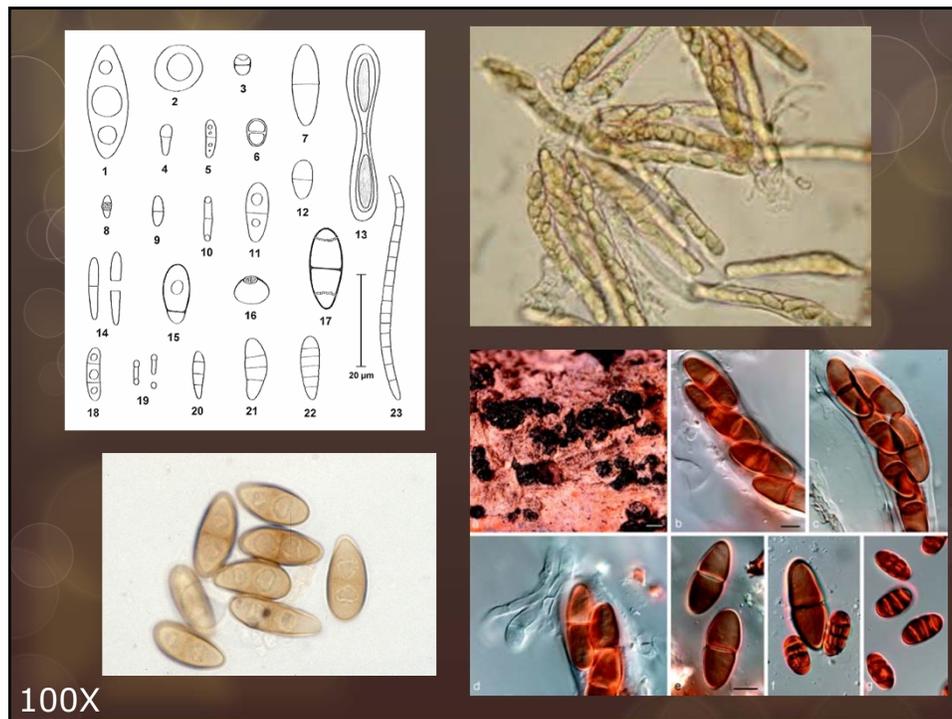




Ascospores

- Sexual spores produced by ascomycete fungi
- Vary enormously in size, shape, color and features
- Shape
 - Single-celled without any internal septa, two-celled with single septum, or multi-celled with many septa
 - Multi-celled spores can be transverse or longitudinal
 - Color ranges from colorless to dark brown and black spores
 - No attachment scar
- Size
 - 5 μm to over 100 μm
- Peak Concentrations
 - Rainy periods but can be found during early morning hours or high humidity

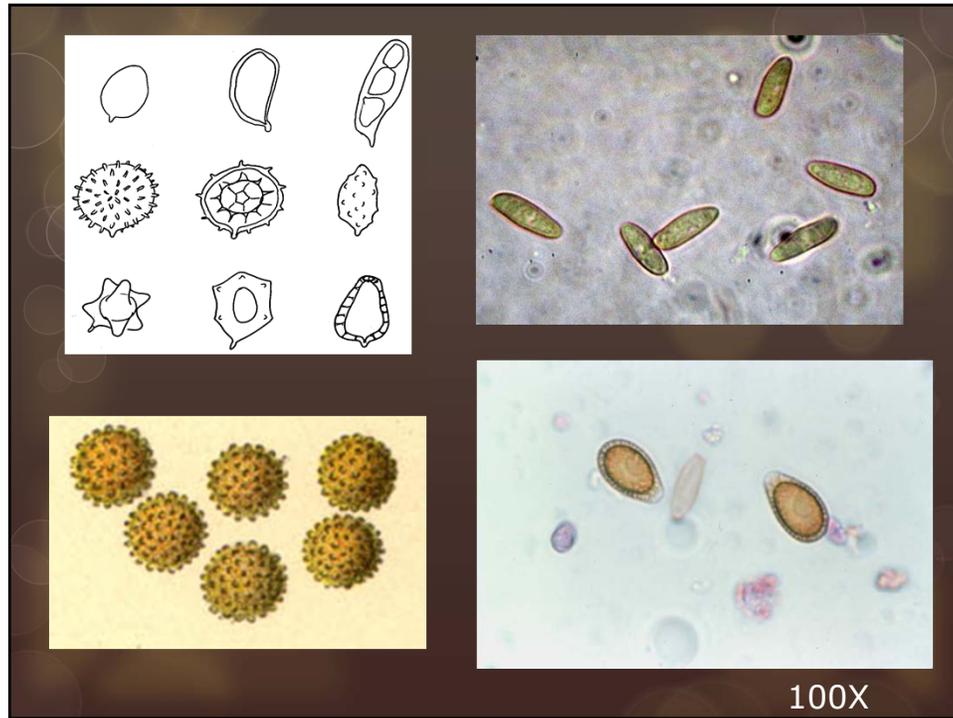




Basidiospores

- Sexual Spores produced by basidiomycetes
 - Mushrooms, bracket fungi, and puffballs
- Wide range in shape, size, and color
- Shape
 - ALWAYS single-celled
 - Globose, elliptical, fusiform, nodulose, angular, or irregular
 - Spore walls can be smooth or ornamented with spines, warts or ridges
 - Yellow, brown (various), or black in color
- Size
 - Small; 5 to 12 µm
- Peak Concentrations
 - Pre -dawn hours when humidity is high

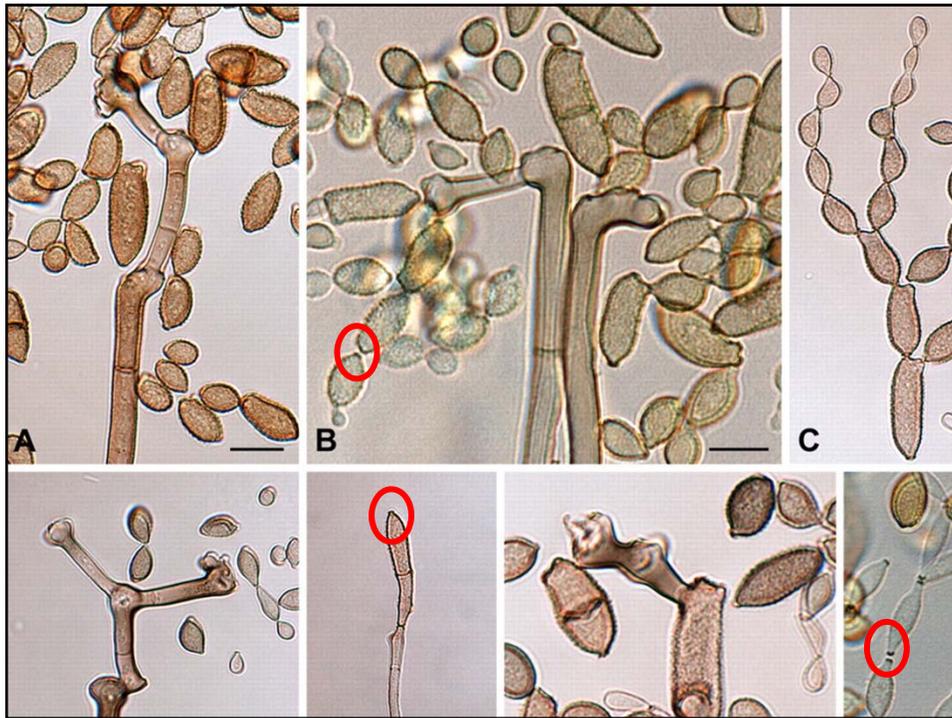




Cladosporium

- Abundant airborne spores in temperate areas (90% of the U.S.)
- Asexual fungi
- Shape
 - Ellipsoidal to cylindrical
 - Pigmented with yellow to light brown
 - Produced in chains, may be unicellular or have two septa
 - Prominent attachment scars
- Size
 - Varies from 3 μm to 25 μm
- Peak Concentrations
 - Detected year round in many areas
 - Highest levels from late spring to early fall

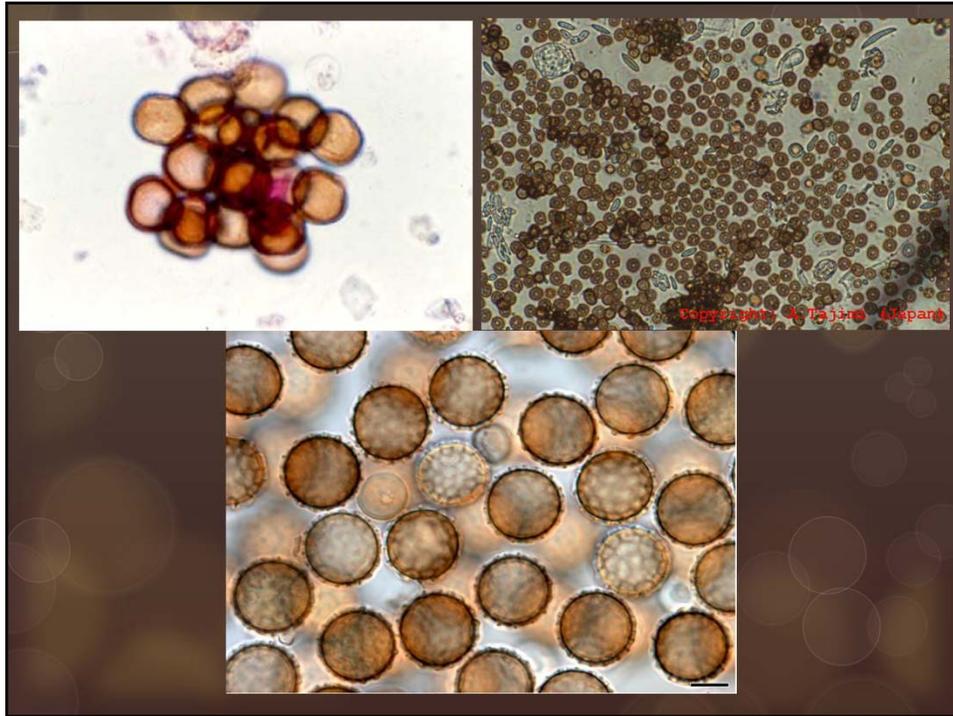




Smuts

- Common Name
 - Black, dusty spores that are plant pathogens
- 1,200 species of smuts within 50 genera
- Shape
 - Globose; with smooth, spinney, or reticulate walls
 - Yellow to brown in color
- Size
 - 3 to 24 μm
- Peak Concentrations
 - Low humidity and gusty winds promote spore dispersal
 - Peak sunshine hours and high atmospheric pressure





Future Sites

- Total of 5 stations around the valley
- UNLV, Jean, 1 High School, 1 Middle School, and 1 Elementary School



Future Projects

○ Studies

- Looking a dispersal trends from previous years until now
- Determining the exact concentrations around the corners of the valley
- Airborne pollen and spores as potential asthma triggers



Questions?/Comments!

