

Sclerotinia Head Rot



Image from Sam Markell



Image from Bob Harveson



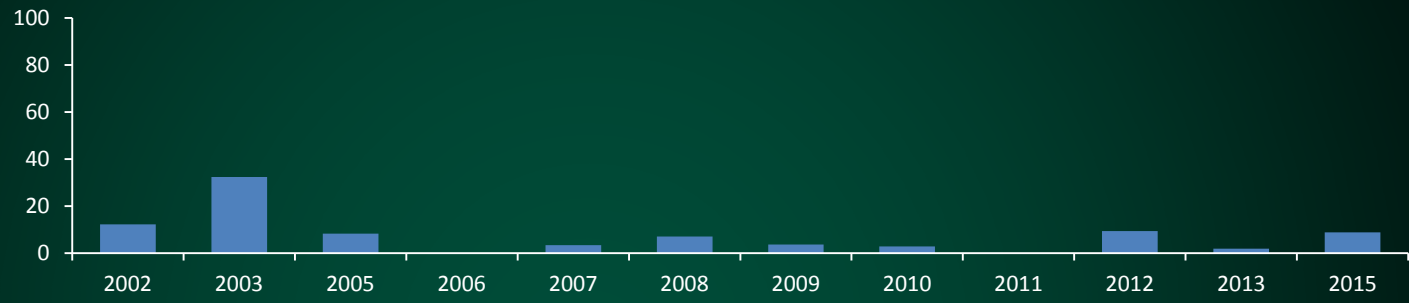
Image from www.pannar.com/diseases

Sclerotinia Head Rot – Prevalence

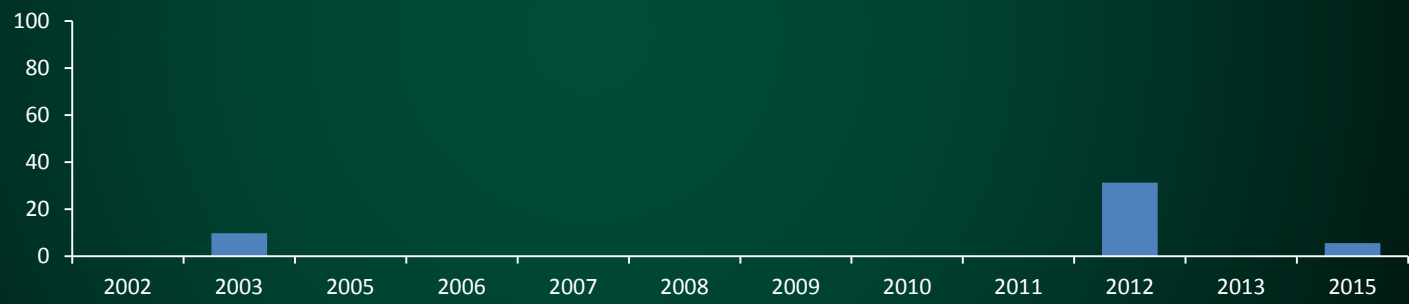
ND, MN



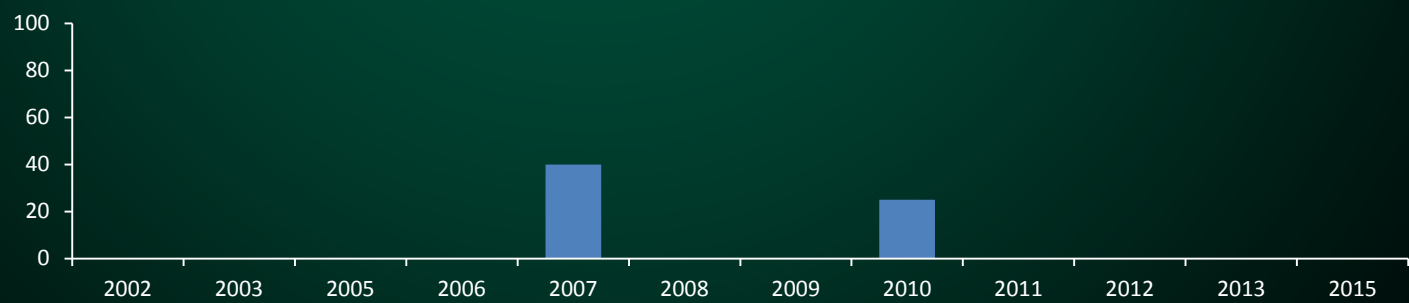
SD



KS, CO, NE

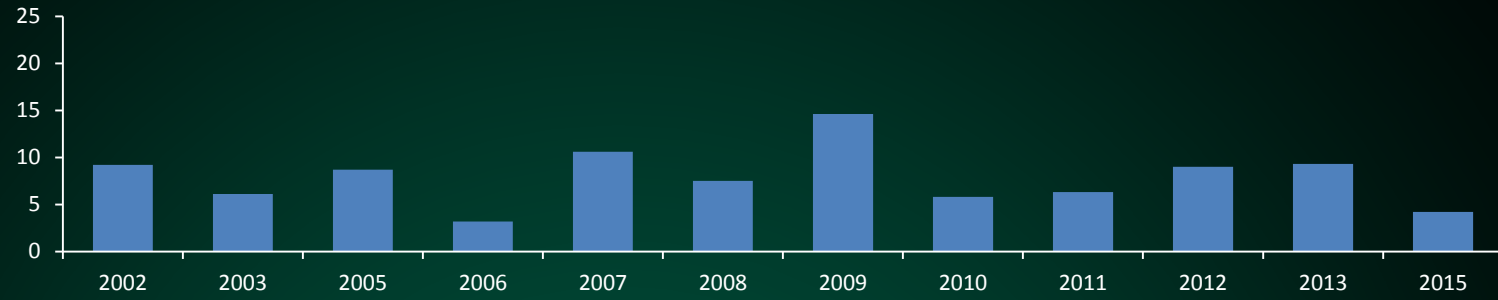


TX

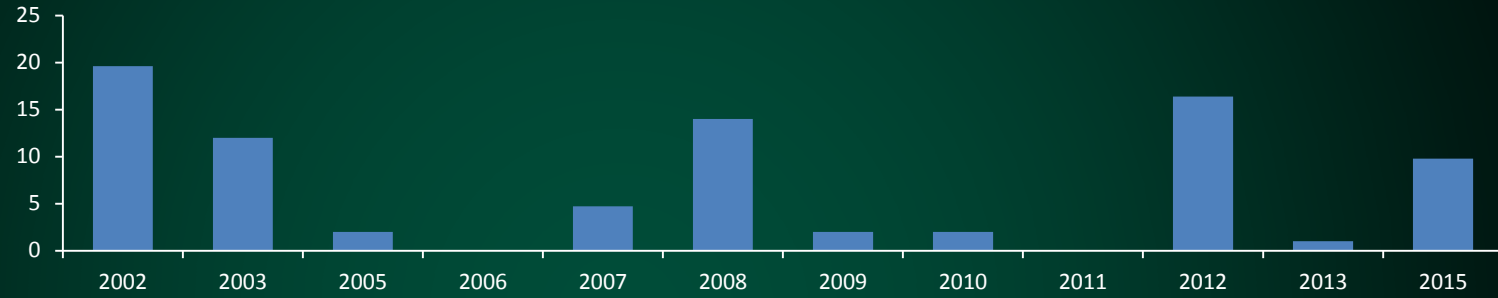


Sclerotinia Head Rot – Field Incidence

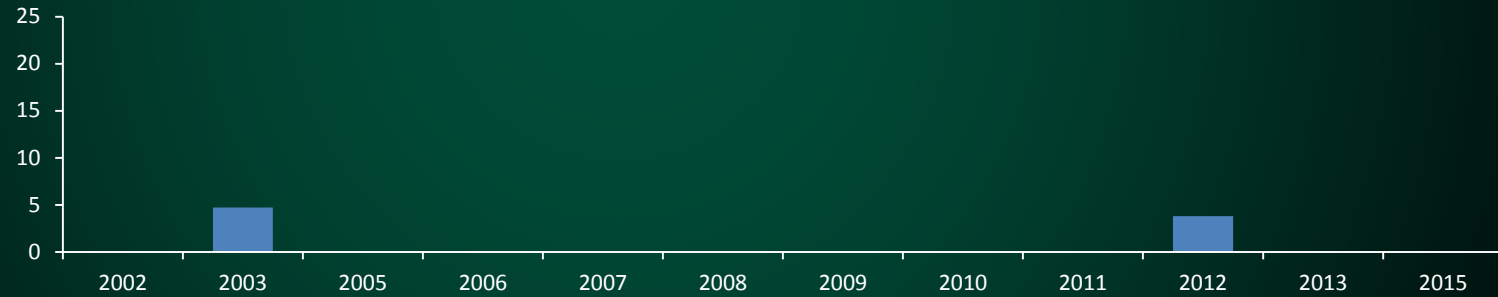
ND, MN



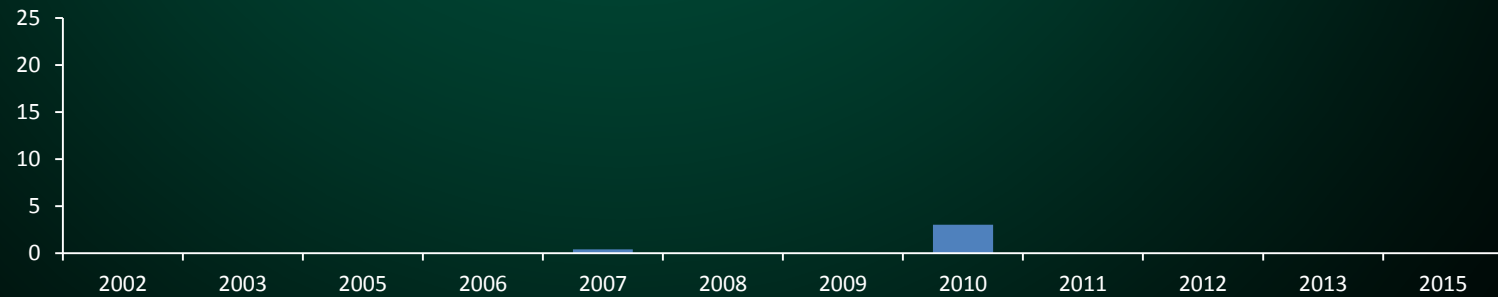
SD



KS, CO, NE



TX



Symptoms & Signs

- Dried-bone colored lesions
- Shredding
- Presence of Sclerotia (hard black structures)
- White fluffy mycelium
- Decapitation

























Sclerotinia diseases of sunflower



Basal Stalk Rot / Wilt



Image from Tom Gulya



Mid-stalk Rot

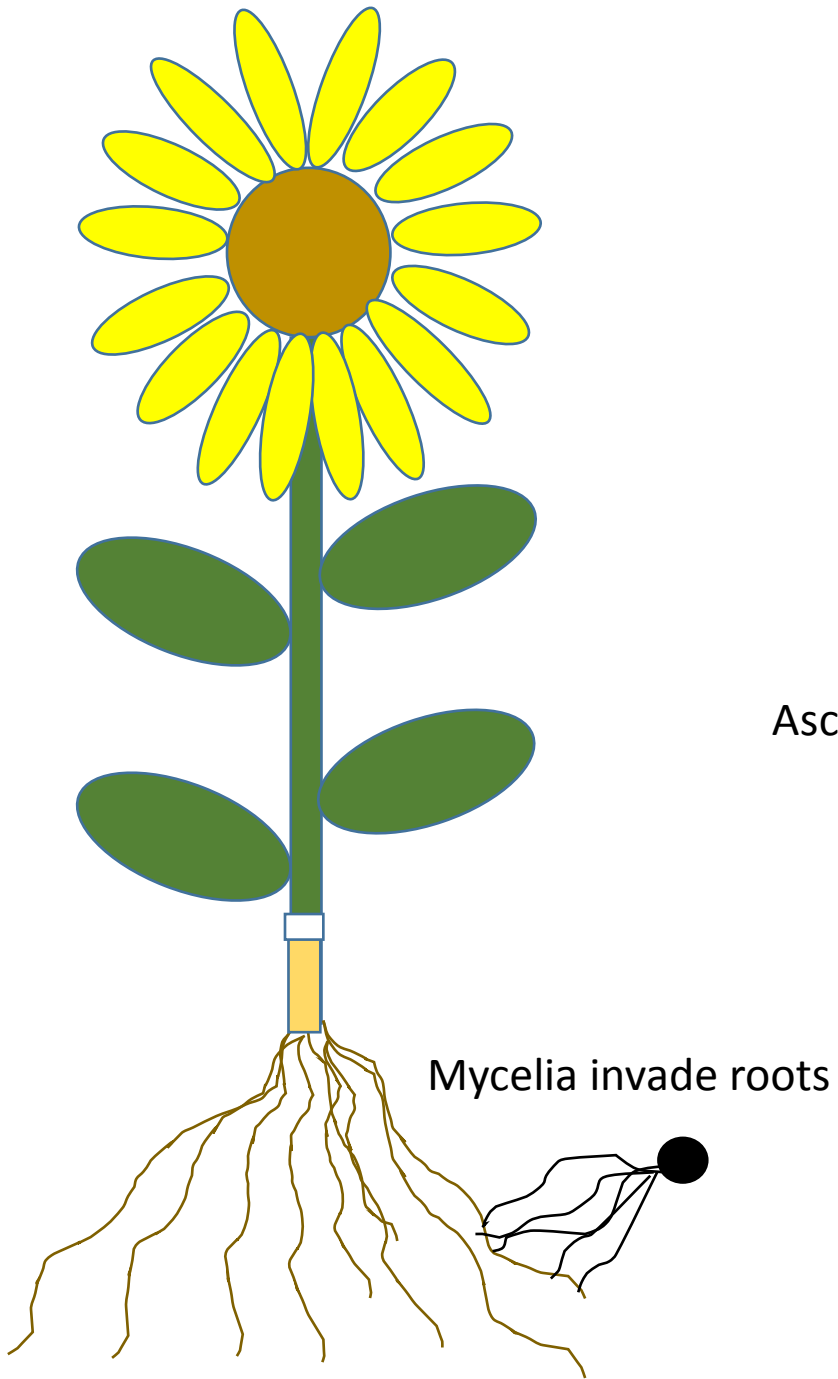


Image from Tom Gulya

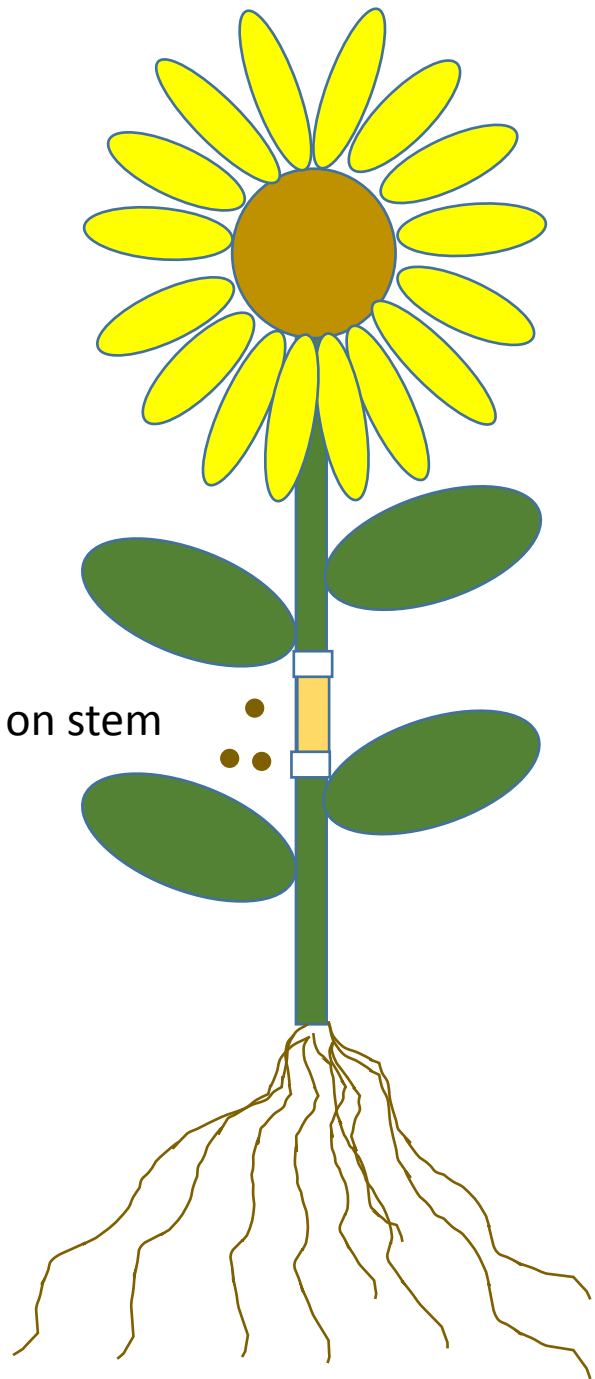
Head Rot

Sclerotia

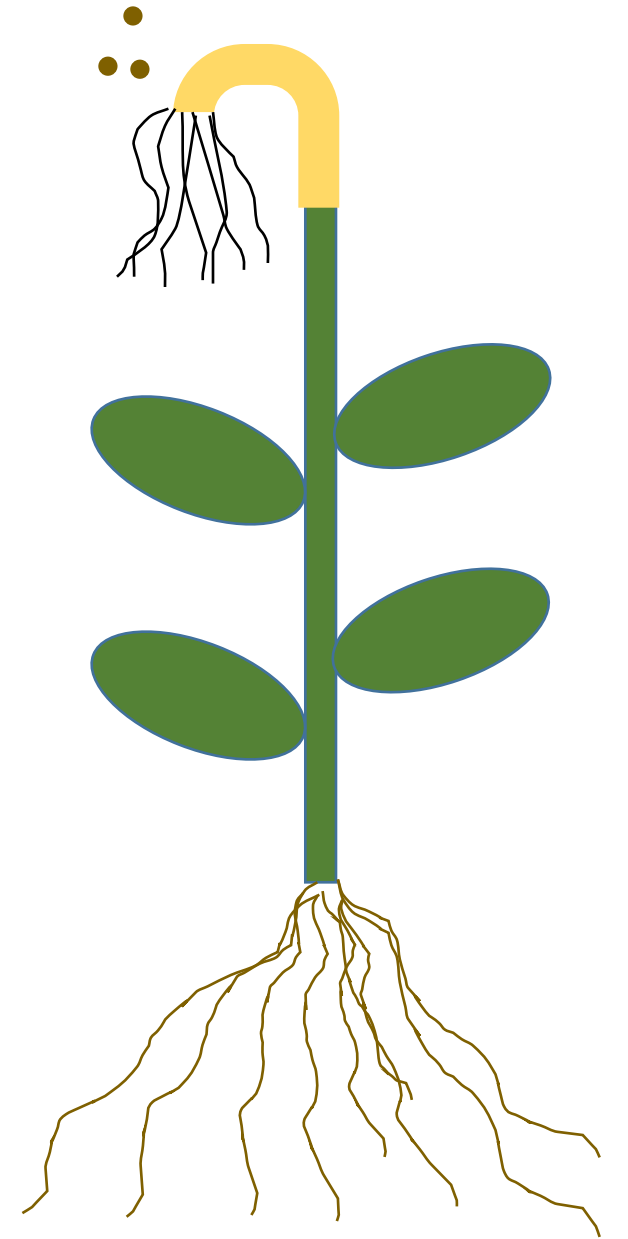




Ascospores land on stem



Ascospores land on head



Management Strategies



- Rotation – All broadleaf crops are susceptible
- Chemical Control – Largely not effective / practicle
- Bio-control – ‘Contans’ (soil applied sclerotia pathogen)?
- Resistance – Hybrid differences

Overview of Sunflower Unit Efforts on *Sclerotinia* diseases



- Evaluation of materials from interspecific crosses for better head and stalk rot resistance (Seiler, Jan).
- Mapping of genomic regions carrying QTL contributing to stalk rot resistance and marker development (Qi).
- Incorporation of resistance from various sources into inbred lines with favorable agronomic qualities (Hulke).
- Improvement of field phenotyping, mechanistic studies of plant resistance and *Sclerotinia* pathogenicity (Underwood).

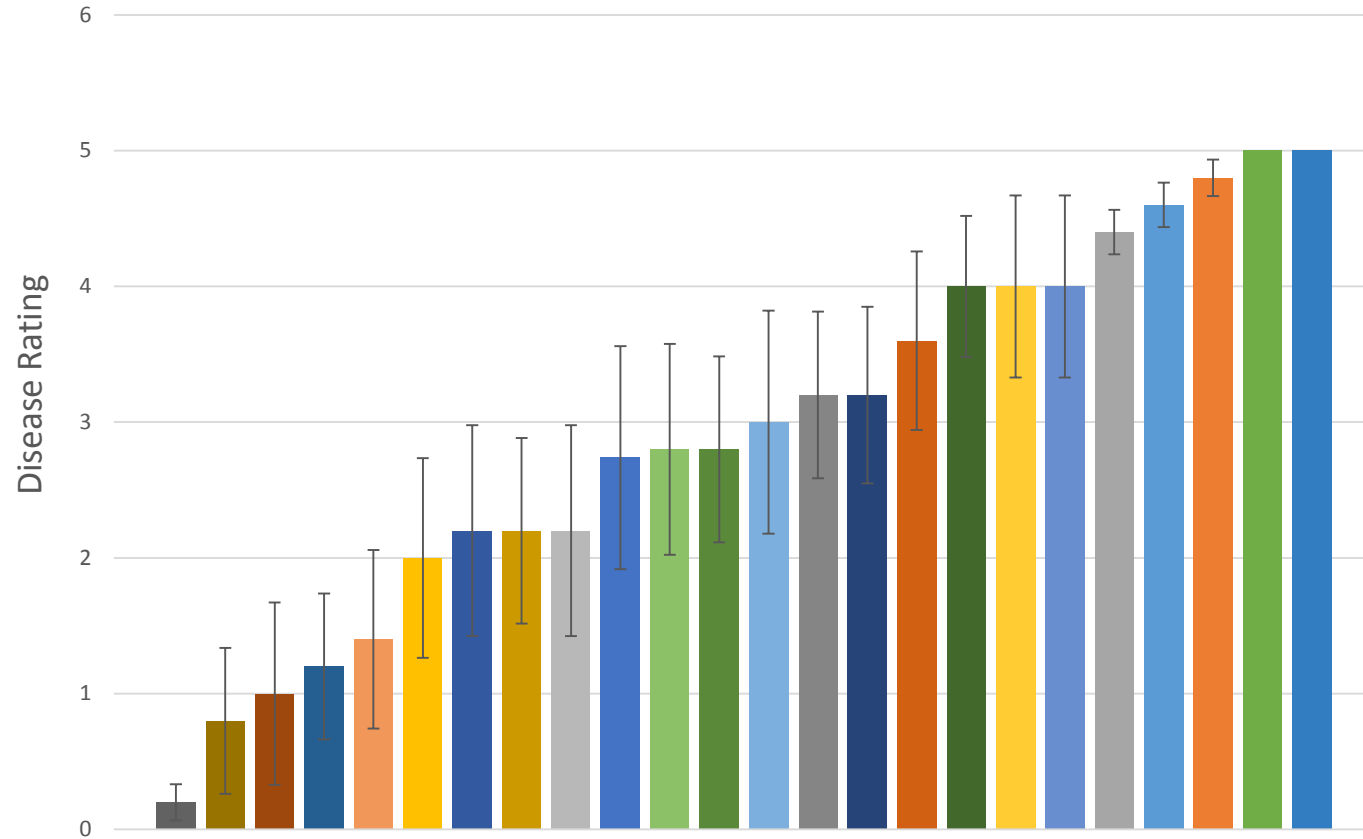
Challenges and Limitations for Head Rot



- Space for field evaluation of unit materials is very limited, mist irrigation nurseries required for effective disease screening (partnerships w/ NDSU Carrington REC & Central Lakes College).
- Limited understanding of pathogen diversity.
- Reliance on a single *Sclerotinia* isolate for field evaluations.

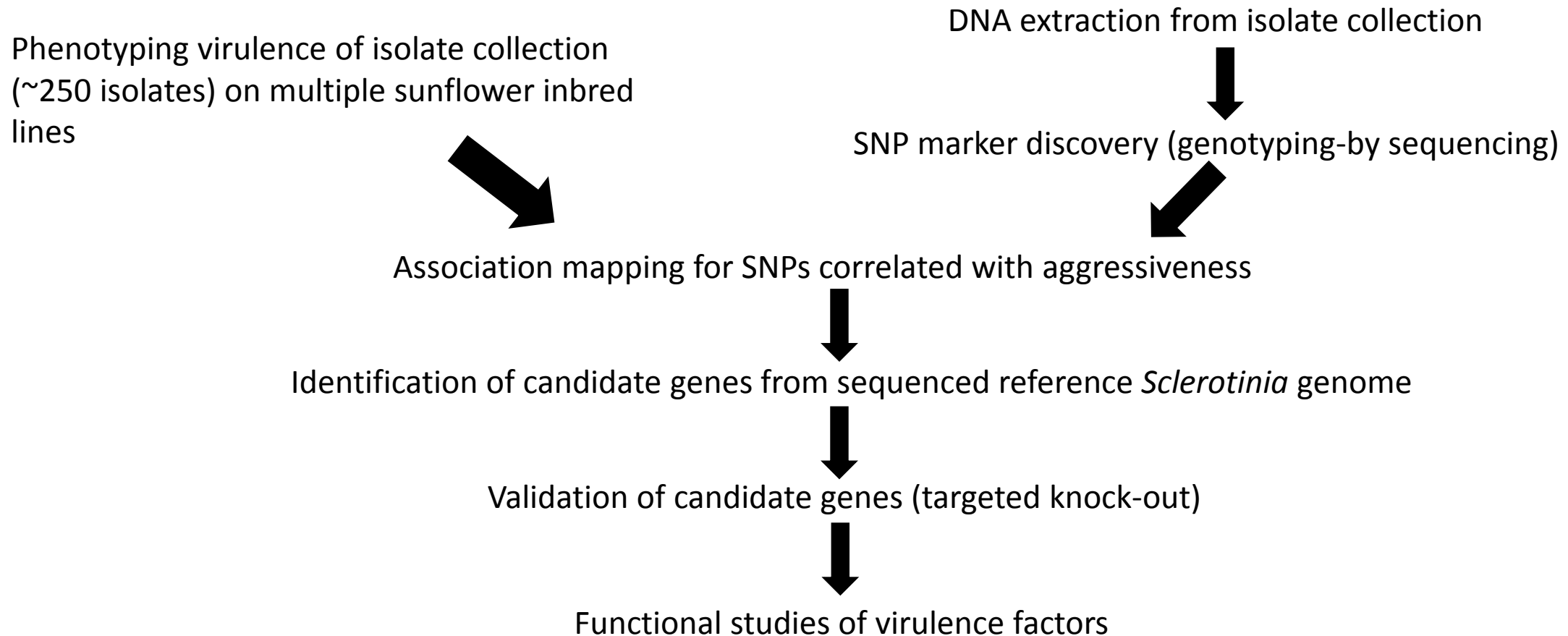


Variation in *Sclerotinia* isolate aggressiveness



Aggressiveness of 24 *Sclerotinia* isolates inoculated onto heads of inbred line HA 89

Identifying genetic factors contributing to differential virulence of the pathogen (virulence factors)



Acknowledgements



Sunflower Pathology

Chris Misar

Kassaye Belay

Michelle Gilley

Mitch Dufour

Reid Lakin

Caleb Worrall

Collaborators

Bob Brueggeman (NDSU Plant Pathology)

Berlin Nelson (NDSU Plant Pathology)

Sam Markell (NDSU Plant Pathology)

Shyam Solanki (NDSU Plant Pathology)

Jim Steadman (U. Nebraska)

Michael Wunsch (NDSU Carrington)

Keith Olander (Central Lakes College)

Hannah Barrett (Central Lakes College)

Ron Nelson (Central Lakes College)

All of my colleagues and co-workers at the Sunflower and Plant Biology Research Unit



THANK YOU

QUESTIONS?

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