Research Projects Summary

1. Establish short and long term goals for research
    a. Short term
        - Continue with more field trials (current SCBG)
        - Develop rapid diagnostic assay for tissue (current SCBG)
            - Also need improved assays for seed and soil
        - Build programs for outreach to industry (current AILRC)
        - Host genetic diversity (2-stage process, review existing germplasm)
        - Pathogen virulence diversity (2-stage process, review existing collections)
        - CSI agronomy: trials on cultural management
            - Impacts of soil properties, rotation, irrigation, etc.
    b. Long term
        - Host genetics of resistance (2-stage process, establishing advanced markers for breeding)
        - Pathogen virulence diversity (2-stage process, establish new collections in targeted areas)
        - Soil health
            - need agroecologist on team
            - establish correlations using field histories
            - establish resilience in soil suppressiveness
            - soil microbiome study needed (but expensive)

2. Continue to secure robust funds for both short and long-term research programs
    a. Revise SCMP application – by Dec 1 or when RFA is released
        - Update diagnostic preliminary data (Frank Martin)
        - Improved stakeholder monetary support (Paul Brierley)
        - Laying foundation for long-term project (Barry Pryor, Tom Gordon)
        - Improve collaborative effort for CSI agronomy (Paul Brierley)
        - Better discuss state of knowledge (Barry Pryor, Tom Gordon)

Resistant Varieties & Product Evaluation Summary

Critical needs to be targeted for improved disease management

1. Close the gap between the initial variety trials in 2002 and now.
    - Increase variety trial frequency and locations, and integrate past FW trial data with continued trial data
2. Make space available every year where trials can be conducted for germplasm and product evaluations especially for new material.
    - Tom Gordon trial ground for disease testing; understand opportunities and limitations
3. Continue to establish the genetics of resistance.
    - DNA test with markers - is Fusarium resistance present or not in promising germplasm?
    - Further investigate known resistance in varieties by seed companies
4. Better understand the spread of the pathogen
    - Improved soil testing for the pathogen and sampling strategies
    - Improved seed testing (fast & easy) – proven protocols
5. Investigate new products and tools to manage the disease
    - Improve soil properties and soil suppressiveness
    - Biological (microbial) control of the disease and biological (microbial) amendments to improve soil health
    - Biological and chemical suppressants (non-microbial) to FW, for plant and soil applications
    - Rotation crops that suppress the pathogen in rotation
    - Rotation crops that function as hosts or non-hosts
    - Effects of solarization and fumigation