PBG Committee Meeting
Hilton Hotel
Minneapolis, MN
July 27, 2008

(Held in conjunction with the American Phytopathological Society's 2008 Annual Conference)

Members in Attendance:

- John Leslie, Kansas State
- Xiaoying Zhou, Purdue University
- Corby Kistler, U. of Minnesota
- Nathan Gross, U. of Missouri
- Jim English, U. of Missouri
- Liane Gale, U. of Minnesota
- Burt Bluhm, U. Arkansas
- Nancy Alexander, NCAUR/USDA, Peoria, Co-Chair

After an introduction of the Members in attendance, Co-Chair Alexander listed the goals of the meeting which were to summarize the highlights of the research results of the PBG, to delineate specific research thrusts for the ultimate goal of getting rid of FHB/DON in the field in the immediate future, the 2-3 year future, the long-term future, and to identify specific projects that can feed into other research groups to help solve the problem of FHB.

Highlights of previous research include: the identification of pathogen diversity by population studies in the U.S.; use of the *Fusarium* genome sequence to limit disease through the identification of genes specifically involved with infection, virulence, DON-detoxification/modification; transmission/spread of spores and hyphae in the field; research on the basic biology of *Fusarium* that have laid the infrastructure for other research programs; the success of bringing in larger grant monies from outside of USWBSI that have been instrumental in furthering the research goals of developing methods to control FHB.

The remaining time was spent outlining 2 potential projects that would include multiple researchers, both within and outside of PBG. The first was entitled: Gene discovery/target development. Four subprojects were included: 1) anti-fungal peptides: peptides are presently being tested for anti-fungal properties and have the potential to be used as a "fungicide" or incorporated into plant transgenics to provide resistance to fungal invasion; 2) pheromones: could tie into other RACs such as MGMT for studying effectiveness as a fungicide and GDER for transformation into plants to delay/stop the introgression of the fungus; 3) toxin degradation/resistance: identify genes involved in toxin modification or degradation from other microbial sources, from other organisms; although this research may be time/labor intensive, the genes responsible for toxin

degradation could be transferred into wheat and barley to help provide FHB resistance (as the model *FgTri101*); and 4) genes required for virulence: several genes have been identified that have been shown to be involved in FHB virulence; further work will verify the importance of these genes in pathogenicity/virulence and could be incorporated into GDER research. The second Project would focus on pathogen diversity. Work in this area is critical for understanding the effect of fungal genotype on host infection/resistance, the effect of the type and amount of toxin produced by the fungus and the role of toxin in disease, and the tolerance/susceptibility of different lines of *Fusaraium* to different fungicides.

Both of these "Integrated Projects" are specifically designed to provide methods for stopping the progression of FHB in the immediate future.

The PBG group then met with the MGMT group and discussed these 2 Coordinated Projects. The fungicide studies may have the most rapid results in identifying factors involved in susceptibility/resistance that may then provide the wheat and barley plants with sufficient ability to overcome *Fusarium* infections and lower overall mycotoxin concentrations in the grain.

Reported by Nancy Alexander, PBG Co-Chair