The objective of the proposed research is to conduct field trials of transgenic barley lines developed by L. Dahleen (USDA-ARS-Fargo, ND), M. Manoharan (UAPB) and A. Tilahun (UNI) to determine their resistance to FHB and levels of DON accumulation. Comparison will be made between resistant and susceptible checks and set of transgenic lines, including Conlon with Chi+FvGlu, Chi+tlp, Npr1 or FvGlu, Conlon BC lines with more than one of the genes, Lacey with Dogt1 and Golden Promise with gastrodianin. The field trial will be planted at the Langdon Research Extension Center in northeast ND, under guidelines required for transgenic research plots.