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Sensitivity of pathogens to seed treatments

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There are many seed and soil borne pathogens that can infect and harm soybean seeds and seedlings following planting. These pathogens can be classified into two major groups, True Fungi and water molds. The environmental conditions that favor infection can be different for these pathogens but wet soils that promote mycelial growth is one thing they all have in common. Fungicide seed treatments that are currently labeled each affect different seed and soil borne pathogens. For example, fludioxonil is effective against *Fusarium* and *Phomopsis* but not the water molds. Lab and greenhouse evaluations of the different species of water molds (*Pythium*, *Phytophthora*, and *Phytophthora*) towards metalaxyl, mefenoxam, ethaboxam, and oxathiopiprolin have had significant isolate x fungicide interactions. These results indicate that the species are not responding similarly to each of the fungicide treatments. Comparisons of soybean cultivars with different levels (high or low) of resistance towards *Phytophthora* and *Pythium*, treated and non-treated with a fungicide seed treatment were done in fields with a history of stand establishment issues. Seed treatments were significantly different at locations where excessive rain or irrigation occurred within 14 days after planting. In addition, irrespective of the resistance package, all cultivars had significantly higher yield with a seed treatment in locations that received very favorable environmental conditions after planting. For regions that have poorly drained soils, both true fungi and water molds are a threat to yield and a combination of seed treatments is necessary to cover the pathogen complex that can infect soybeans early in the growing season. In addition, all cultivars in areas with heavy disease pressure due to poor drainage or high levels of inoculum will benefit from the seed treatment.