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## Checkoff-funded research finds answers to old problems as new ones emerge

**T**he biggest news relating to soybean plant health in the past few months is the discovery of genetic resistance to the soybean aphid. This announcement came from the University of Illinois at the same time soybean producers were frantically spraying fields heavily infested with this sap-sucking pest. The discovery of genetic resistance to aphids is nearly as important as the discovery of the gene that makes soybean resistant to glyphosate (Roundup®).

Genetic resistance to aphids is the only cost effective way to maintain stable yields in the presence of this pest. Insecticide applications must be timely and last only seven to 14 days before fields may need to be treated again. The mature soybean aphid deposits two to three live young per day causing the population to build rapidly and double every three days. As a result, the aphid population within a field can go from nominal to critical within a week.

Our export customers are becoming more sensitive to the amount of insecticides we use, as they become more demanding on the quality of the product they buy. A recent Japanese delegation requested information from the American Soybean Association on the amount of insecticides being applied to control the soybean aphid. They were acutely aware of the severity of our problem and were concerned about the insecticide residue on the beans they will ultimately consume.

### Charcoal rot reported in Iowa

Just as researchers find potential solutions to one problem, a new one emerges or becomes more widespread. Such is the case with charcoal rot, another fungal pathogen.

Charcoal rot was recently discovered as the cause of premature death of soybean in several counties throughout Iowa. Though never before seen in Iowa and most prevalent in southern states, it can develop anywhere hot, dry

conditions exist. Unlike most soil fungi, which decline in activity when soils become too warm, this fungus is most active when soil temperatures are as high as 80-95 degrees F. The fungus causes a general root rot in soybean, infecting the roots and lower stems.



**Charcoal rot on mature soybean root. Image courtesy of X.B. Yang, Iowa State University**

Symptoms of charcoal rot most frequently begin in the driest areas of the field such as hilltops and sandy or compacted areas of the field. Plants infected with the pathogen may have premature yellowing of the top leaves and premature leaf drop, symptoms that can easily be mistaken for normal maturity.

Late-season symptoms of charcoal rot have been linked to other root pathogens such as *Pythium*, *Phytophthora* and possibly sudden death syndrome. It may also be more prevalent in areas of high pH or high SCN populations. Like *Pythium* and *Phytophthora*, SCN causes early-season root injury providing entry sites for additional pathogens.

You can find more information on charcoal rot and the latest university research information on aphids at [www.planthealth.info](http://www.planthealth.info).