Technical report of the progresses on the MSSB project

TITLE: Spray application of double stranded RNA (dsRNA) for simultaneous management of multiple soybean fungal and insect diseases

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1. Constructing dsRNA expression vectors and Producing of dsRNAs in E. coli.

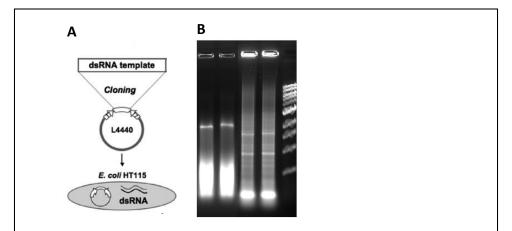


Figure 1. Construction and production of dsRNAs in a bacterial expression system. A. the vector we used to put our target genes from Cercospora pathogens; B. the production of dsRNAs in *E. coli* cells after induction.

2. Testing the effect of topically applied dsRNA in reducing soybean Cercospora diseases under greenhouse conditions.



Figure 2. Soybean plants grown in the greenhouse that had been treated with two of the dsRNAs for controlling Cercospora diseases before inoculation with *C. sojina* spores that cause Cercospora frogeye leaf spot disease.

3. Planting soybeans in the field for evaluating the effectiveness of dsRNA in reducing Cercospora diseases under field conditions.



Figure 3. Soybeans have been planted three different times (left to right, first planting on May 4, second on May 25, and the last planting was on June 8) in the field for evaluating the effect of topically applied dsRNA on reducing soybean Cercospora diseases, such as Cercospora leaf blight, frogeye leaf spot and purple seed stains.