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Greenhouse testing of *Sclerotinia minor* on Peanut Lines

use of Greenhouse leaf assays.

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Dr. Burow provided seed for 124 lines. Eight replications were planted (one replicate on a given day, with two replicates per week) of each line. The seed was grown in a growth chamber until approximately 21 days and then a leaflet was removed and inoculated with *Sclerotinia minor* under high humidity conditions. After 1.5 days, the percentage of disease on a leaf was measured using an image analysis system. An analysis of the average disease was provided Dr. Burow to make germplasm decisions for his *Sclerotinia* field nursery. The initial set of seed contained 103 lines, and then after the first two replicates were run, lines 104 to 124 were also added to the test. The results are presented separately since lines 104 to 124 were not included in all the replicates.

One to two weeks after the leaf assays were conducted, stems were cut, placed in tubes, and inoculated with *S. minor*. The stems were kept at 100% humidity for 20 out of 24 hrs, and then the length of the lesion was measured after 3 days. An analysis of this data was also provided to Dr. Burow.

During the leaf assay testing, two replications were set outside of the growth chamber prior to doing the assays. One replication was set out for 2 days prior to the assay and the other set out four days prior to the assay. They were set out early because the plants were growing too tall and some leaves had been burned by the light bulbs. The average disease in the leaf assay dropped from 33% where the plants stayed in the growth chamber until the day of the leaf assay, to 12% when removed two days prior to the leaf assay, to 4% when removed from the growth chamber four days prior to the leaf assay. It is obvious that keeping the plants in the growth chamber is critical to getting a good assay.

The final percent leaf lesion as well as length of stem lesion (Table 1 and 2 in bold) were used to make suggestions to Dr. Burow as to what material should be included in the *Sclerotinia* nursery.

The stem assay was very inconsistent, and resulted in much less disease than found the previous year. The graduate student who worked on it previously also had documented a decline in growth of the *S. minor* isolates after 1 or 2 runs. It appears that either fresh isolates or possibly renewing the inoculum on peanut plants (rather than just on stems left over from the stem assays) may be necessary before this assay can be utilized. The assay also needs to be fine-tuned, but it is critical to improve the isolate aggressiveness first. The measurements for the stem assay are included in Table 1.

Table 1. Average % leaf lesion and stem lesion as a result of *Sclerotinia minor* being placed on the plant part (entries 1 to 103).

| Breeding line | % Leaf lesion | Stem Lesion (mm) | Breeding line | % Leaf lesion | Stem Lesion (mm) | Breeding line | % Leaf lesion | Stem Lesion (mm) |
|------------------|---------------|------------------|---------------|---------------|------------------|---------------|---------------|------------------|
| TxL071954 | 11.7 | 19.3 | TxL071982 | 23.1 | 17.0 | TxL071840 | 30.7 | 18.6 |
| TxL071985 | 12.0 | 19.6 | TxL071807 | 23.6 | 15.2 | TxL071952 | 31.6 | 24.6 |
| TxL071990 | 12.1 | 16.8 | TxL071958 | 23.6 | 16.5 | TxL071956 | 31.8 | 22.2 |
| TxL071838 | 14.4 | 14.0 | TxL071963 | 23.8 | 25.2 | TxL071953 | 31.9 | 12.3 |
| TxL071828 | 14.7 | 22.0 | TxL071976 | 24.0 | 9.0 | TxL071971 | 32.2 | 21.3 |
| TxL071986 | 15.0 | 11.8 | TxL071814 | 24.6 | 22.8 | TxL071977 | 32.3 | 27.0 |
| TxL071808 | 15.0 | 17.0 | TxL071837 | 25.0 | 17.0 | TxL071839 | 32.9 | 19.6 |
| TxL071803 | 15.1 | 24.6 | TxL071984 | 25.1 | 16.0 | TxL071993 | 33.1 | 22.8 |
| TxL071833 | 15.5 | 17.4 | TxL071962 | 25.1 | 19.2 | TxL071992 | 33.1 | 19.8 |
| TxL071821 | 15.5 | 21.5 | TxL071806 | 25.3 | 19.0 | TxL071995 | 35.4 | 20.6 |
| TxL071831 | 15.8 | 10.6 | TxL071959 | 25.3 | 25.4 | TxL071804 | 35.7 | 22.0 |
| TxL071825 | 15.8 | 19.0 | TxL071847 | 25.4 | 21.2 | TxL071848 | 37.0 | 24.4 |
| TxL071996 | 16.2 | 22.2 | TxL071966 | 25.7 | 16.5 | TxL071844 | 37.9 | 15.0 |
| TxL071991 | 16.7 | 20.6 | TxL071846 | 25.7 | 13.0 | TxL071979 | 38.6 | 23.0 |
| TxL071970 | 17.2 | 17.0 | TxL071960 | 25.8 | 34.2 | TxL071999 | 39.3 | 10.0 |
| TxL071850 | 17.4 | 18.2 | TxL071810 | 25.8 | 14.2 | TxL071967 | 42.6 | 23.6 |
| TxL071973 | 17.5 | 17.8 | TxL071998 | 26.0 | 22.3 | Florunner | 43.4 | 23.0 |
| TxL071842 | 17.7 | 22.5 | TxL071980 | 26.1 | 21.5 | TxL071994 | 43.4 | 27.2 |
| TxL071811 | 18.1 | 16.8 | TxL071830 | 26.3 | 15.8 | TxL071809 | 43.6 | 20.0 |
| TxL071983 | 18.1 | 22.6 | TxL071805 | 26.6 | 28.6 | TxL071843 | 43.7 | 23.5 |
| TxL071817 | 18.2 | 25.8 | TxL071812 | 26.6 | 21.8 | TxL071815 | 44.8 | 23.0 |
| TxL071827 | 18.4 | 29.6 | TxL071978 | 27.0 | 20.2 | TxL071826 | 50.6 | 22.8 |
| TxL071813 | 18.5 | 18.3 | Langley | 27.0 | 24.3 | TxL071957 | 56.1 | 19.2 |
| TxL071832 | 18.6 | 19.0 | TxL071829 | 27.4 | 17.5 | | | |
| TxL071820 | 19.0 | 20.6 | TxL071823 | 27.8 | 18.4 | | | |
| TxL071997 | 19.4 | 13.2 | TxL071801 | 27.8 | 17.2 | | | |
| TxL071835 | 19.4 | 18.8 | TxL072000 | 27.8 | 19.2 | | | |
| TxL071964 | 19.9 | 20.8 | TxL071845 | 28.1 | 20.6 | | | |
| TxL071841 | 19.9 | 15.0 | TxL071969 | 28.1 | 15.8 | | | |
| TxL071849 | 19.9 | 11.8 | TxL071961 | 28.2 | 23.2 | | | |
| TxL071972 | 20.2 | 19.8 | TxL071987 | 28.3 | 27.2 | | | |
| TxL071965 | 21.0 | 15.8 | TxL071989 | 28.5 | 19.0 | | | |
| TxL071818 | 21.2 | 26.2 | TxL071981 | 28.8 | 20.0 | | | |
| lub275 | 21.4 | 19.0 | TxL071955 | 29.1 | 19.8 | | | |
| TxL071819 | 21.5 | 24.4 | TxL071822 | 29.1 | 27.2 | | | |
| TxL071802 | 21.8 | 17.2 | TxL071975 | 29.4 | 18.8 | | | |
| TxL071951 | 21.9 | 10.8 | TxL071834 | 29.7 | 21.8 | | | |
| TxL071824 | 22.4 | 25.4 | TxL071968 | 29.7 | 19.0 | | | |
| TxL071836 | 23.1 | 20.8 | TxL071974 | 30.3 | 20.0 | | | |
| | | | TxL071816 | 30.6 | 20.8 | | | |

Table 2. Average % leaf lesion and stem lesion as a result of *Sclerotinia minor* being placed on the plant part (entires 101 to 124).

| Breeding line | % Leaf lesion | Stem Lesion (mm) |
|------------------|---------------|------------------|
| Lub275 | 9.7 | 19.0 |
| TXL074033 | 10.5 | 16.3 |
| TXL074040 | 10.8 | 18.7 |
| TXL074031 | 13.0 | 12.5 |
| TXL074004 | 13.4 | 17.0 |
| TXL074032 | 14.1 | 20.6 |
| TXL074050 | 15.0 | 16.4 |
| TXL074043 | 16.8 | 17.0 |
| TXL074023 | 18.1 | 15.4 |
| TXL074020 | 19.3 | 25.8 |
| TXL074029 | 19.6 | 16.8 |
| TXL074054 | 20.2 | 13.0 |
| TXL074030 | 21.7 | 21.0 |
| TXL074040 | 22.7 | 19.0 |
| Langley | 23.5 | 24.3 |
| TXL074001 | 23.7 | 20.0 |
| TXL074047 | 24.6 | 17.0 |
| TXL074051 | 26.1 | 19.8 |
| TXL074002 | 27.5 | 24.8 |
| TXL074025 | 27.6 | 21.4 |
| TXL074045 | 32.1 | 22.7 |
| TXL074027 | 34.2 | 14.4 |
| Florunner | 38.2 | 17.8 |
| TXL074039 | 46.7 | 25.5 |