

(26) found that the pathogen *Colletotrichum truncatum*, which causes anthracnose of soybeans, could be isolated from symptomless, apparently healthy trifoliolate leaves. Freehand sections demonstrated that the mycelium was confined to epidermal cells. Such dormant types of infection probably do not occur for all fungi pathogenic to soybeans but they do occur for the two pathogens, *Diaporthe* spp. and *Colletotrichum truncatum*, which cause severe diseases.

Crane and Crittenden (7) found a close relationship between the length of the flowering period and infection by the fungus, *Cercospora kikuchii*, which causes the purple stain disease of seed. In general, they found that early maturing cultivars had a longer blooming period than did late-maturing cultivars. Also Kilpatrick and Hartwig (15) found that planting seed of the cultivar Ogden late, July 15 and August 1, tended to reduce the percentage of seed with purple stain. Late planting also greatly reduced the incidence of pod and stem blight caused by *Diaporthe* spp.

Christensen (4) divided seed decaying fungi into two groups, (a) storage fungi and (b) field fungi. The storage fungi are primarily species of *Aspergillus* and *Penicillium*. These fungi have one characteristic in common, that is, they can grow without free water, parasitizing seed at low moisture content. These fungi are ubiquitous, but usually cause the greatest damage when the seed is stored.

In contrast, the field fungi are usually species of *Alternaria*, *Cladosporium*, *Fusarium*, *Helminthosporium*, and in the case of soybeans, additionally *Diaporthe*, *Colletotrichum*, and *Cercospora*. Others exist, but they are thought to be of lesser importance. In general, to cause seed decay, field fungi need a higher moisture content than storage fungi. Unfortunately, moisture content of seeds essential for growth of *Diaporthe*, *Colletotrichum*, and *Cercospora* has not been studied critically.

The fact that both storage fungi and field fungi cause soybean seed deterioration in Florida makes it important to provide storage conditions that will greatly minimize the growth and development of all seed-deteriorating fungi. Because other workers (4, 5, 6, 9, 11, 22, 23, 25) have described in detail the storage conditions necessary to prevent growth and development of storage fungi in soybean seed and grain, no effort has been expended in this investigation on storage fungi. Physical limitations prevented work with bacteria. Also it was impossible to identify the many species of fungi cultured from infected seed. Thus the data are presented as number or percent of seed infected by fungi.

The purpose of the experiments reported here has been to assess the environmental conditions that affect infection of soybean seed by field fungi. The primary work included meteorological data during matu-