

## Survival of *Alternaria carthami* on safflower residue

K.J. Jackson and J. Berthelsen

Queensland Department of Primary Industries, Biloela. Q. 4715.

The most important disease of safflower in Queensland is the leaf, stem and head blight caused by the fungus *Alternaria carthami*. The disease is seed borne (Irwin 1976), but the importance of infected residue as a source for disease outbreak in subsequent crops is not known in Queensland where safflower crops are often planted into the same area every second year, or in successive years if summer rains have been adequate.

Residue from a safflower trial at Biloela infected with *A. carthami* and harvested in November 1977 was slashed and burnt in one block and left standing in another. The two blocks as well as an adjacent block of wheat stubble were subsequently cultivated. In May 1978, the three blocks were planted with safflower seed treated with a fungicide. Five weeks after planting established seedlings were removed and the number of diseased plants recorded (Table I). After seedling removal, the blocks were fallowed and the operation repeated on different areas within each block in May 1979.

**TABLE 1. Percentage of emerged safflower seedlings affected by *A. carthami* after sowing into a wheat or safflower (burnt vs. unburnt) residue in two consecutive years.**

Year	Wheat	Burnt Safflower	Safflower
1978	0.8	15.9	38.6
1979	10.9	31.6	43.9

The disease apparently survived on safflower residue for at least 18 months after the infected crop had been harvested. Moreover, the level of disease infection remained high. Laboratory tests on residue taken from the diseased safflower blocks in May 1979 confirmed that the pathogen was still viable. Burns (1974) also showed that the disease survived for two years on safflower residue in Montana. Higher levels of disease in the second sampling may have been related to dispersal of the pathogen by flood rains in November 1978, and to the wetter conditions during the second evaluation period.

We recommend that safflower should not be replanted into diseased areas for at least two years.

Burns, E.E. (1974). Proc. 4th Safflower and other oilseeds res. Conf., Fresno California 1974. pp. 35-41.

Irwin, J.A.G. (1976). Aust. J. exp. Agric. anim. Husb. 16: 931.