Experiments were conducted in the field and glass-house to assess losses due to gray leaf spot, (Stemphylium solani), early blight (Alternaria solani) and tomato mosaic virus (TMV) on tomato and Cercospora, (Cercospora arachidicola and C. personata), on peanut. Various levels of disease intensity were established by means of applying fungicides at different intervals. Natural occurrences of all the diseases studied except TMV, which was artificially introduced, were assessed.

Large yield increases were obtained when fungicides were applied every seven and ten days for the control of the above foliar diseases during dry and wet season trials, respectively. The best disease control was achieved when fungicides were applied every seven days in the dry season and twice every week in the wet season, but these treatments did not produce the highest yields. Yields were generally related to the severity of disease present and the degree of control afforded by each spraying regime. Unsprayed treatments had the highest disease ratings and manifested the greatest yield losses.

Uncontrolled infections of gray leaf spot and early blight on tomato depressed yields by 26.8% and 45.7%, respectively. Yield losses resulting from Cercospora leaf spot ranged between 2.1% to 25.6%. In the field gray leaf spot was more severe on plants infected with TMV, and the disease complex reduced yields by 15% and 39.8% in the dry and wet season, respectively. In the glass-house, TMV alone depressed yields by 40% to 45.3%.

TMV infection induced accumulation of higher dry matter and protein content of the infected plant leaves. Increased leaf spotting activities of the fungal diseases resulted in the destruction of more green tissues and rapid leaf defoliation. The rate of leaf defoliation was positively correlated

with disease ratings and leaf area covered by disease lesions.

Yield losses were associated with leaf spotting, rapid leaf defoliation and general reduction of leaf surface areas which, presumably, lowered photosynthetic activities.