

may perish from the disease during periods when there are heavy dews even though the days are dry and sunny (5).

Fungicides were tested for control of downy mildew on cabbage seedlings in plant beds and on heads of maturing cabbage plants at Hastings from 1940 to 1953. None of the fungicides except those containing copper had been tested for control of the disease prior to 1940. All materials except paradichlorobenzene were applied as sprays and dusts with hand-operated, traction and tractor-operated sprayers and dusters. Treatments were started in plant beds before or immediately after downy mildew was first observed on the seedlings and in cabbage fields one to three weeks before harvest. Plant bed tests were conducted in October, November, December and January and field tests were made in February, March and April. At the beginning of the tests insects were controlled with insecticides containing nicotine and arsenic and in later years with DDT, chlordane, TEPP and parathion as they became available.

Notes were taken on the amount of plant injury caused by downy mildew and the fungicides. Records were made of the number and weight of plants in samples drawn from similar-size areas in treated and non-treated plant beds. The number of cabbage heads with different degrees of injury caused by downy mildew and the number free of the disease in field test plots were recorded. Results of the tests not heretofore published (1, 2, 3, 4) are reported in this bulletin.

FUNGICIDES USED IN PLANT BEDS

1940-1943 TESTS

Paradichlorobenzene and one or more formulations of Ceresan, bismuth subsalicylate, ferbam, chloranil, U. S. Rubber Co. Fungicide 366, and sulfur- and copper-containing fungicides were tested for control of downy mildew from 1940 to 1943.

Paradichlorobenzene (PDB).—This chemical was tested in 1940 and 1941. It was applied under frames in about the same manner as described by Tisdale and Kincaid, who used it for control of down mildew of tobacco (*Peronospora tabacina* Adam) in plant beds (11). The frames were made of 1 x 10-inch and 1 x 12-inch cypress boards and measured 2 to 6 feet in width and 7 to 16 feet in length. Unbleached sheeting woven with about 60 threads to the inch was used as covers which could be fastened to the tops of the frames with grommets. Frames of appropriate sizes were used on plants grown in broadcasted and