

Coarse Root Index.—Incidence of coarse root was reduced significantly in 8 out of 10 tests, but comparatively much less than that of root-knot. Dowfume W-40 gave significantly better results than D-D.

Yield.—Yield was increased significantly by fumigation in 7 out of 10 tests. Considering all tests with normal rate of application for the first, second and third years of treatment, the average increase in yield with D-D was 145 pounds per acre and with Dowfume W-40 (or its equivalent) 167 pounds. The difference of 22 pounds was not significant.

Grade Index.—Differences in grade index within tests were small and generally not significant.

Crop Index.—Crop indexes were approximately proportional to yields.

Burn Test.—Fire-holding capacity was significantly reduced by fumigation in 7 out of 10 tests. Considering all tests, Dowfume W-40 reduced burn significantly and D-D more significantly. Reduction in burn, although somewhat consistent, was relatively small and probably unimportant in most tests.

Soil pH.—Readings varied rather closely with ammonia nitrogen levels in the soil.

Ammonia Nitrogen.—Ammonia accumulated to higher levels and persisted later in the season in fumigated than in unfumigated soil. Dichloropropene-dichloropropane caused more pronounced effects than ethylene dibromide fumigants, and late fumigation with either type of fumigant produced more noticeable differences than early fumigation. Ammonia readings remained higher in fumigated plots than in checks until the sixth week after transplanting in nearly all tests, but they fell to nearly normal by the beginning of harvest, except in the late application of D-D in 1949 (Test 12). In some tests relatively large amounts of ammonia in the soil were associated with the dark green color and retarded growth of the plants.

Nitrate Nitrogen.—The results gave some direct evidence of delayed nitrification, especially for the February application of D-D in 1948 (Test 7). Nitrate readings were higher in fumigated plots than in checks until the sixth week after transplanting in nearly all tests in 1947 and 1948. Readings in 1949 were generally lower than in previous years, and there was little difference within tests.