

Tomato Spotted-wilt.—Investigations have shown this disease occurs on garden peas.

Lily-mosaic.—The virus has been proved to be readily transmitted by aphides.

Pea-mosaic.—Thirty selections of peas produced by the Agronomy Division were tested for resistance. All but three proved to be immune.

Cucumber-mosaic.—Fourteen varieties of pumpkin, marrow, squash, and cucumber were tested for resistance. Seven proved to be resistant to the disease, the others susceptible.

Halo-blight of Beans.—Three and four applications of Bordeaux mixture and copper carbonate gave satisfactory control of the disease under field conditions. Work is in progress in selection of three promising varieties for resistance to this disease.

Grease-spot and Brown-spot of Passion-fruit.—Four sprays of Bordeaux 3-4-50 reduced infection of the former disease to 2.3 per cent. and gave almost complete control of the latter.

Dry-rot of Swedes.—Seed from five commercial varieties of swedes and seven of turnips, grown under supervision of the Department of Agriculture, were tested for presence of this disease, which is seed-borne. All were found to be disease-free.

Head-smut of Maize.—Work has shown that infection from infected soils is the chief source of perpetuation; the disease may be to a slight extent also carried with the seed.

Blind-seed of Rye-grass.—Preliminary investigations with rye-grass grown in pots under glass suggest, as a means of control, use of certain dusts or sprays applied at blossoming to prevent infection of ovaries.

II. THERAPEUTANT TESTING

(See also Fruit Research Report, p. 18.)

Improvements in Disease Control

Septoria-spot of Celery.—Comparative tests for control of the fungus were made with the proprietary Cuprox, Coppesan, Copper Sandoz, Dithane, and Bordeaux mixture. All gave control equal to Bordeaux. Dithane showed no trace of plant injury and left no visible residues.

Broad-bean Rust.—Tests were made comparatively with Dithane, Phygon, Fermate, T.M.T., and lime sulphur plus colloidal sulphur. Control equal to that secured with the standard spray, lime sulphur plus colloidal sulphur, were obtained with these new proprietary fungicides.

Downy-mildew of Onions.—Comparative tests were made for control of the fungus with Dithane, Phygon, and Bordeaux mixture. Owing to the dry season, little disease developed; nevertheless, the proprietary Phygon gave evidence of being an effectual fungicide for control of this disease.

Bronze-beetle, on Boysen-berry.—A field trial was undertaken to ascertain whether D.D.T. was more effectual than lead arsenate in control of this pest. Results suggest that D.D.T. may offer a promising control of this pest.

Calendar-beetle of Strawberry.—As soil treatments, D.D.T. and Gammexane were used in an effort to combat the larvæ of this pest, which destroys the roots. Gammexane proved to be highly toxic to larvæ. D.D.T. almost inert.

White-butterfly and Diamond-back Moth of Cabbage.—Field trials are in progress to ascertain dosage rates and periods between applications of D.D.T. for control of these pests. Comparisons are also being made with a D.D.T. oil emulsion and a new insecticide based on chlorinated terpenes.

Late-blight of Tomatoes.—Field trials are in progress to ascertain value as fungicides of Phygon and Dithane at various dosages in comparison with Copper Sandoz, Coppesan, Cuprox, and Bordeaux mixture. Phygon has shown some interesting phytocidal effects, producing fruit injury at a dosage rate of 4 lb. to 100 gallons. Dithane produced somewhat severe foliage injury at the highest concentration and slight injury at the lowest concentration. Copper Sandoz produced leaf injury typical of copper oxide.