A valuable experiment showing the ease with which mosaic can be transferred by workers handling plants at different stages in the pulling and planting of seedlings in the field was arranged at the Tobacco Research Station. The following figures illustrate the great importance of observing simple precautions in connection with the handling of plants.

Treatment.	Percentage Mosaic.	
	9th December.	24th December.
Control (clean hands)	2·3	6·4
Plants pulled with infected hands	59·0	68·5
Plants laid out with infected hands	63·5	74·5
Plants planted with infected hands	25·5	34·5
Plants planted after infection by rolling four cigarettes ..	49·5	58·5
Plants planted after thorough washing of infected hands ..	1·0	7·5

(iii) *Value of Milk and Tannin Sprays.*—The value of both milk and tannin sprays as preventives of mosaic spread has been tested. In the seedling-bed experiments carried out at the Cawthron Institute the application of milk sprays conferred significant protection against virus infection via wounds. Where, however, the leaves were not bruised, the use of a virus spray did not result in heavy infection of mosaic.

Both tannin and milk sprays at the Tobacco Research Station gave a significant reduction in the amount of mosaic in tobacco seedling beds where the number of plants had previously been inoculated with mosaic virus.

Further experiments have dealt with the longevity of the virus in the soil and with common weeds as possible carriers of tobacco mosaic. Results in the past season show that mosaic virus can persist in infected soil for a period of at least four months after the incorporation of infected tobacco trash. In connection with the possibility of weeds acting as carriers of tobacco mosaic, the results of the past season indicate that only in one case (*Solanum nigrum*) is the weed likely to transmit tobacco mosaic.

Other Tobacco Diseases

Black Root-rot.—This fungus disease was isolated for the first time during the past season from stunted tobacco plants taken from a commercial field at Dovedale. Three further cases of black root-rot infection were identified at Umukuri and Motueka. In each case affected plants were situated in a restricted area of the properties.

This disease is severe in certain seasons in the United States of America and causes a dwarfing of the plants. The roots are infected, and unless very satisfactory growth conditions occur, the yield of tobacco is greatly diminished. Unless resistant varieties of tobacco are used, affected land must be spelled from tobacco for a number of years.

Angular Leaf-spot.—This bacterial disease has been identified in both living and cured tobacco leaves. Bacteria have been isolated and inoculated into tobacco plants which have given positive results with all the bacterial strains isolated. This disease causes a spotting of the leaf blade angular in outline. Heavy rain may cause distribution of the bacteria, resulting in the coalescence of the spots, causing considerable damage to the leaf.

A survey was made during the season of fifty-three typical tobacco-fields covering every important tobacco-growing locality in the Nelson District. In six cases heavy infection of angular leaf-spot was found, in six cases moderate infection, in fourteen cases light infection, and in twenty-seven cases the tobacco was free from this disease. The survey shows that angular leaf spot had a fairly wide distribution already in all tobacco-growing localities, with the exception of the Moutere Valley and Braeburn.

Verticillium Wilt.—One case of *Verticillium* wilt in tobacco has been identified in Motueka. The property affected with this particular disease has shown an extension of infection during the past season. This disease is not confined solely to tobacco, and persists in the soil for several years. It will be necessary to rotate the land in selected crops for a number of years.

Collar-rot.—A number of chemicals, including Semesan, red copper oxide, zinc oxide, copper sulphate, and formalin, were tested for the control of collar-rot in tobacco seedling beds. Probably owing to the heavy artificial infection of the beds with *Sclerotinia*, no chemical gave satisfactory control of this fungus.

Seed-production and Plant-breeding

There has been a continued demand by the manufacturers responsible for growers' contracts for tobacco-seed produced at the Research Station. During the past season 16½ lb. were sold to the manufacturers, as against 17 lb. in the previous season. The seed demanded by the manufacturer is produced from once-tested single-plant selections from imported seed. Tobacco-seed, however, is also being raised at the Station in successive generations, so that shortly a comparison will be possible between seed raised in New Zealand over a number of years and seed once or twice removed from imported seed.

Plant-breeding work to obtain mosaic-resistant varieties has been continued. Ambalema variety was used as the resistant parent, but some crosses have been made with *Nicotiana glutinosa*, another resistant type. Of the Ambalema crosses, two in the second generation segregated for resistance, and the resistant plants were then back-crossed to the flue-cured parent. Other crosses are in the first generation.

In view of the identification of black root-rot in the Nelson District, the chief commercial varieties of flue-cured tobacco have been crossed with Little Dutch, a resistant cigar variety.

Preliminary trials of flue-cured varieties, Burley varieties, and cigar leaf have been carried out at the Research Station. The test with the flue-cured varieties indicates that the common commercial varieties grown in the district are among the best in yield and are of satisfactory quality.