Agar. Trials proved that a high-class agar can be made from *Pterocladia lucida*, and experimental use by a meat-canning firm proved successful. A survey of the Bay of Plenty, East Cape, and Whangarei areas was made, and the required weed located in considerable amounts. Arrangements have been made for collecting sufficient material for a large-scale processing trial. Test of locally made agar for other purposes have given promising results.

Other economic possibilities, indicated in the bulletin, are being further explored, and a general survey of the occurrence and quantities of the various weeds is in progress.

Medicinal Plant Culture.

Digitalis purpurea.—A sample of local foxglove was ground to a 22/60 powder. An assay of the British Pharmaceutical Society was satisfactory, and the Ministry of Health has asked for a quantity of dried leaf. Dried leaf from imported seed gave a test of twice the strength required by the British Pharmacopœia. Air-drying of the leaf did not impair the active content, as measured by chemical means.

Atropa belladonna.—From imported seed eight hundred plants were raised. Growth was excellent, but in late summer there was a severe attack of root-rot. Flowering shoots yielded 0·88 per cent. of total alkaloid, calculated as hyoscyamine, stem-leaves 0·38 per cent. The British Pharmacopœia standard is 0·3 per cent. Seed-yield has been fair.

Datura stramonium.—Several hundred plants were raised from English seed. Growth was rapid and each seed production abundant. Leaves from flowering plants gave 0·34 per cent. total alkaloids, calculated as hyoscyamine (British Pharmacopœia standard, 0·25 per cent.). Plant raised from local seed were superior in height and leaf-production, but not in alkaloids.

Hyoscyamus niger.—A small number of the annual variety and some one hundred and fifty of the biennial variety were raised. Growth was excellent, and also seed-yield from the annual variety. The biennial variety became infected in the rosette stage with root-rot in the late summer, with considerable mortality. Leaves from flowering annual plants yielded 0·05 per cent. total alkaloids, calculated as hyoscyamine; rosette leaves of biennial plants yielded 0·13 per cent. (British Pharmacopœia standard for both, 0·05 per cent.).

Ricinus communis.—Castor beans from New-Zealand-grown plants yielded 56·5 per cent. of oil (normal yield is 55 per cent. to 60 per cent.). Plants from American seed have grown over 6 ft. in the first season, with abundant seed-production.

Seed and other propagating material have been saved. Some species have not yet reached the testing stage. Further supplies of seed have been obtained from overseas, and will be planted out in the spring, including *Barosma betulina*, *Ephedra*, and *Polygala senega*.

Phormium.

The new experimental area (Paiaka) on the Moutoa Estate is now in operation. Seed-sowing has been completed for the season, including some seven acres in swamp flax for thickening and extending the flax areas. The demonstration area of different varieties and forms has been almost completely planted up, and will include practically all sorts of importance or interest. Nursery work has been continued, and seedlings of promising types are being raised, while the sorts established earlier are being tested as they mature. Breeding-work has been confined to crosses between *Phormium colensoi* and *P. tenax*, with a view to securing an improved soft fibre. The experiments being laid out include spacing, cultivation, manurial, yield, age of plant at cutting, and seedling-variation trials. Fibre tests on established plots are being made as the stands mature. Fans have been provided and planted out on different areas on the Estate.

The Director assisted in a survey of the phormium resources and possible utilization of the west coast of South Island, all important areas from Karamea to Bruce Bay being studied. A full report has been prepared for submission to the Flax Industrial Committee. During the survey numerous collections of seed from individual plants were secured, and are being put under observation on the experimental area.

Nassella Tussock.

A preliminary survey of the areas affected by this weed has been made, and an interim report submitted. The weed occurs over some 200 square miles, and the chief centres of infestation have been located. It is clear that the tussock is a serious menace, has already put out of production many acres of valuable land, is spreading rapidly and has established itself in certain localities distant from the main area. Further investigation is in progress, with especial reference to methods of spread and means of control. Full discussions, formal and informal, have been held with the farmers concerned, who are evidently resolved to do all they can to assist in controlling the pest. A bulletin covering the whole situation is in preparation.

Miscellaneous.

Weed Investigations.—These have continued as opportunity offers. A scythe with swab attachment for experiments with control of ragwort and other weeds by this method of sodium chlorate treatment has been received and will be tried out in the coming season. The "Handbook of the Naturalized Flora" has been well received, and is proving useful in many directions.

Lavender.—Inquiries and tests have shown that while there are at present no commercial areas, crops of good oil content can be grown should sufficient demand occur.

Hemp.—A small trial of Ferramington and Hungarian Hemp has been made, and seed saved for an extended trial.

Tanning Barks.—A survey of the available wattle-bark resources is being made.