The condition caused by broom-corn millet is very similar in many respects to facial eczema, but is probably not identical with it. Chemical investigations are proceeding with a view to determining the toxic principle.

Japanese millet (*Echinochloa crus galli* var. *frumentacea*) has been grown twice at Manutuke and grazed with sheep, which have remained quite healthy. It is therefore of considerable importance that farmers who consider sowing millet for grazing should make sure that they obtain seed of Japanese millet and not that of broom-corn millet.

Genetic Photosensitization of Southdowns.—Further breeding experiments have now shown conclusively that this condition is inherited as a simple Mendelian recessive.

Studies of the liver dysfunction are being pursued. There is no anatomical abnormality that can be demonstrated by macroscopic or microscopic examination or in vascular casts. Excretion of pigments such as phylloerythrin and rose bengale is imperfectly accomplished. A variety of liver-function tests is now being applied to affected animals.

St. John's Wort Photosensitization.—Hypericum perforatum (St. John's wort) is established on a considerable area of country in Marlborough, MacKenzie country, and Central Otago. Consumption of this plant causes photosensitization, and it has also been observed in New Zealand that photosensitive sheep go into convulsions when their skin comes into contact with water, as in crossing a stream or when dipped. Experiments have shown that the convulsions occur only when active photosensitization is present, since black sheep fed St. John's wort and kept in the sun or white sheep fed similarly and kept indoors are not sensitive in the dip, whereas white sheep fed St. John's wort and kept in the sun until photosensitive do take fits when dipped.

Cattle are also similarly susceptible, a reaction being observed when they wade rivers and streams.

The problem is of considerable significance in the affected districts, as dipping becomes hazardous to the sheep. Control of the weed is the only feasible method of reducing its dangers, and any methods except biological ones are impracticable because of the rough country. The Cawthron Institute has undertaken an examination of biological methods and some success is reported from the use of insects imported from Australia.

Sheep Nutrition, Canterbury.—The investigation of the nutrition of ewes, lambs, and hoggets under Canterbury conditions was continued at the Kirwee Experimental Farm and further valuable results have been obtained. Shortage of staff has made it necessary for the Department to relinquish this work, which in future will be continued by the Canterbury Agricultural College with financial assistance from the Department.

Rickets in Sheep.—The investigations at Kirwee were continued. It was shown that green barley as well as green oats will produce rickets in hoggets during winter. Single massive doses of vitamin D in the form of Calciferol prevented the disease and also increased the growth rate. Rickets did not occur in Italian rye-grass, turnips, or chou moellier.

Bowie.—The work of the previous three seasons directed toward the prevention of this disease in Marlborough was continued during the 1945–46 season. Using a compound mineral lick containing all minerals known or thought likely to be essential to animal health in the concentration in which they are present in normal pasture, bowie was virtually prevented on a paddock where its incidence had been high during the previous three seasons. In addition to being practically free from bowie, the lambs of ewes receiving this lick throughout pregnancy were of a particularly high standard for the country they were bred on and were considered to be the best crop of lambs to be bred on the property.

During the 1945–46 season the incidence of bowie in a similar paddock (but one in which its incidence tends to be lower) was fairly high (approximately 10 per cent. severe and 10 per cent. mild cases), this suggesting that the absence of bowie in the treated sheep was probably not the result of more favourable climatic conditions.