

photosensitivity is due to the massive doses of chlorophyll administered in such extracts. It has not been possible, so far, to fractionate the ether extract of millet further.

Broom-corn millet grown at Manutuke has again proved toxic in the 1947 season, and dried millet obtained from this crop has produced severe photosensitivity and icterus in one guinea-pig to which it was fed.

In an attempt to determine whether locality and climatic conditions influence the development of toxicity in this millet, a crop was grown at Wallaceville this season. No photosensitivity or liver dysfunction has been observed in lambs grazing this crop.

*Japanese Millet Photosensitivity.*—Japanese millet (*Echinochloa crus galli* var. *frumentacea*) was grown at Manutuke for the third time. On the two previous occasions no harmful effects have been noted. This year photosensitization occurred in lambs introduced between 20th and 27th January, 1947. There were no jaundice and no liver lesions. Lambs which were left in the paddock until 18th March, 1947, recovered and made good growth.

*Rape Scald.*—Fresh green rape collected at Manutuke during an outbreak of rape scald was fed to guinea-pigs, which subsequently became photosensitive. Similar experiments with rape collected a week later were negative, and no results have yet been obtained with dried rape. Chromatographic analysis of extracts of the green rape has not revealed the presence of any pigments not usually found in green plants.

*Erodium Photosensitivity.*—An outbreak of photosensitization in lambs grazed on *Erodium moschatum* was reported by the Government Veterinarian, Hastings. An examination of the affected animals showed that œdema of ears and eyelids was marked, and that the bare tip of the docked tail was also severely affected. Irritation was much less than in facial eczema, and animals did not suffer any material setback. There was no clinical icterus, the plasma gave no van den Bergh reaction, and contained no phylloerythrin.

*Erodium* is used regularly in this district as autumn fattening feed for bought-in lambs. Normally, no appreciable number of cases of photosensitization are noted; conditions were apparently favourable to its occurrence this season, and the relatively high incidence is illustrated in one mob of 430, in which there were 130 cases.

Supplies of the *Erodium* have been secured and dried and feeding tests and extraction work will be carried out.

*Genetic Photosensitivity of Southdowns.*—The breeding experiment has now been concluded, and all evidence supports the hypothesis that the condition is inherited as a simple Mendelian recessive. An attempt is being made to trace the strains responsible for the disease in New Zealand.

Various liver-function tests have been done on a small flock of congenital photosensitive Southdown ewes at Wallaceville. It has been shown that these animals exhibit an abnormal retention of injected brom-sulphthalein similar to that obtained with rose bengal.

The following liver-function tests showed no differences between normal and photosensitive Southdowns: prothrombin time; serum phosphatase; cephalin-cholesterol precipitation test; hippuric acid excretion test.

Small but definite differences between the two groups were found on applying the intravenous glucose tolerance test. The photosensitive sheep showed a slightly greater tolerance to glucose. A similar effect was found in the blood sugar response to intravenous injection of adrenalin, where the photosensitive animals showed a smaller rise of blood sugar and a more rapid return to normal than did the controls. Determinations were made of the levels of blood chloride, serum sodium, and potassium. No significant differences were found between the two groups.

Further work, including the blood glucose response to insulin and pitressin and the galactose tolerance test, on this abnormality of carbohydrate metabolism is in progress. Certain aspects of fat and protein metabolism will be studied later.