

able irritation, resulting in an outpouring of serous fluid and mucous, on which the grub is nourished during the long period of larval life, eight to ten months. When fully developed the grubs loosen their hold on the membrane, to be shaken or sneezed out by the sheep in her efforts to dislodge them. Reaching the soil the grub which is quite active seeks cover in the loose dust or top soil to go through the last stage of its development, emerging from its pupal case in four to six weeks as a two winged fly. Some grubs do not succeed in getting out of the nasal passages while alive. Those that die, decompose and are thrown out through a fistula or with the other nasal discharges.

Distribution.— The Sheep Nostril Fly came to Canada with the importations from Great Britain many years ago. It is quite common in all sheep districts and has spread to the wild deer in the back districts. All persons familiar with the normal actions of sheep, know when the fly is about and attempting to deposit its larvae. The fly during flight makes a peculiar buzzing note, which together with its quick movements about the sheep's head cause much alarm. The sheep try to avoid the fly by crowding together and keeping their heads down. If many flies are working the sheep run about, sneeze and rub their noses in attempt to offset the tickling caused by the presence of the recently deposited larva. Sheep will run into thickets, long grass or shade or hold their heads low in a furrow bottom if such is available, in order to keep its nose out of reach of the fly.

Symptoms.— The symptoms indicating the presence of the grub in the nasal passages of the sheep, vary with the numbers present, and the general health of the sheep. Strong sheep in good condition are not affected as severely as weaklings or sheep in poor condition from lack of feed. One grub will cause but little trouble, while twenty or more grubs will create much irritation and a condition of "snotty nose" develops and continues as long as the grubs are present, in the nasal passages. The infested animal shakes its head, sneezes and rubs its nose, thereby trying to dislodge the grubs.

During the early stages of infestation the symptoms are those of a cold, a running nose and sneezing. This early stage of misery advances as the grubs grow and bacterial complications set in, until a severe catarrhal condition has developed. The air passages are partly plugged making breathing difficult. The presence of large amounts of purulent material brings about a condition of toxemia, that keeps the sheep unthrifty as long as the grubs remain. In severe infestations the animals may die.

Treatment and Prevention.— The use of lime dust, sulphur fumes, benzine, eucalyptus, turpentine or other irritants that produce violent sneezing and stimulate heavy mucous secretion give some relief to infested sheep. The spreading of dry lime over the pen floor and then causing the sheep to mill around and inhale the lime particles is sometimes practiced. The fumes of tar-sulphur-turpentine vaporization as recommended for lung worm treatment is also useful against the grub of this Sheep Nostril Fly.