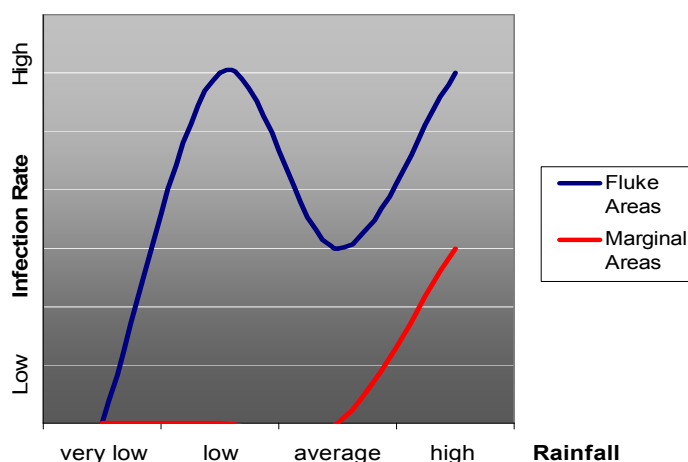


Environmental Conditions and Liver Fluke Control

The life cycle of the liver fluke involves a snail intermediate host in addition to a final host such as sheep and cattle. Passage of the parasite from the faeces of an infected animal to a snail requires water so that the larva can actively swim around to find a suitable snail. Passage of the parasite from the snail to the final host involves an infective stage that swims away from the snail and encysts on vegetation to maximise the chance of being eaten. Environmental conditions therefore play a major role in determining the transmission rates of the parasite, with temperature and rainfall being the two most important factors.

Temperature influences both snail activity and survival of the encysted larvae. When minimum temperatures fall to about 10°C, the snails become inactive, burying into the mud. This effectively prevents the release of any parasites into the environment. Very cold temperatures (i.e. below freezing) will also reduce the survival rate of the encysted parasites, but warmer microclimates within paddocks may allow some parasites to survive even extreme conditions. Seasonal variation in temperatures can be used with good effect when planning liver fluke control programmes so that animals are treated at a time when there are minimal parasites surviving in the environment, but year-to-year variation in temperatures must be considered when conducting treatments.



The influence of rainfall is felt more through unusual climatic conditions than regular seasonal variation. In wet conditions, the snail population can multiply rapidly and the snails can expand their range into areas that are normally too dry for their survival. This creates a greater parasite challenge for livestock and the parasite may become a problem in areas where it is normally rare. Liver fluke may also be more of a problem when conditions are dry. In dry times when there is little pasture, animals will congregate and feed more in the wetter areas where the infective stage of the parasite is concentrated. In extremely dry conditions, when dams, creeks and springs dry up for extended periods, the snail population may die out (though they can survive within the mud for some time). This breaks the parasite life cycle and provides an excellent opportunity to knock the parasite population down to very low levels by treating all stock with a highly effective product. Treatment when conditions are dry is also important to minimise the impact of parasites at a time when the livestock are under nutritional stress.

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