Grassland/clover relationship

A major program of research has been initiated at a British research station to examine the occurrence, development and mechanisms of co-adaptation between varieties of ryegrasses and white clover.

Random samples of survivors of grasses and clovers have been taken from old swards of two clover varieties, each grown with five grass varieties and subject to cutting and continuous grazing managements. After two cycles of vegetative propagation, plants have been established in the field to assess any changes in morphological characters which have occurred in response to associate grass/clover varieties and management .

An early and particularly interesting result is that there are indicators of a strong shift in seed producing capacity of the clovers depending on which grass they were grown with. For one of the clovers, seed production per plant was nine times greater in survivors from swards containing its most favoured companion grass compared with its least favoured one.

It has also been found the presence or absence of root competition had significant effects on many of the parameters measured. The proportion of clover in the swards on a dry weight basis declined rapidly where full competition occurred and fell to about five per cent in the final harvest.

Where root competition was prevented, the proportion of clover stabilised after an initial decrease and remained at about 18 per cent of the grass/clover sward.

It is concluded that root competition is of overriding importance in the early development of grass/clover swards and the specific plant characters associated with the competitive abilities of grass and clover below ground need detailed study.

Source: London Press Service

Field slug control

Slugs are important pests of a wide range of crops in the northern hemisphere but are poorly controlled by current chemical methods, which sometimes cause problems through their effects on non-target organisms. Now a British research station has discovered a nematode which can be used to parasitism and control field slugs.

The Nematode, Phasmarhabditis hermaphrodite, was at first not considered to be a parasite, but scientists at Long Ashton Research Station, in western England, have shown that it can kill all pest species of slugs tested as well as at least one species of snail. However, useful species such as earthworms, carabid beetles, and other insect species are not affected by the nematode.

Scientists have recorded natural levels of parasitism of 30-50 per cent in slug populations at Long Ashton Research Station. In view of these levels of natural infection it is likely that birds, and mammals such as hedgehogs, badgers, etc, which regularly feed on slugs, must frequently consume nematode-infected slugs without harm. Nematode larvae live freely in the soil and infect slugs be entering the mantle cavity, where they grow and reproduce, causing a characteristic swelling of the mantle. Slugs are inhibited from feeding a few days after infection, thus protecting crops from damage, and they die after one to two weeks.

The nematode is a bacterial feeder and species of bacteria have been selected which support good growth of the nematode in foam chip and liquid cultures, and which produce nematodes capable of killing slugs. As a result, P. hermaphrodite is now produced by the British Agricultural Genetics Company (AGC) in liquid fermenters in a pilot plant at Horticulture Research International, Littlehampton, on the south coast of England.

Third-stage infective larvae are harvested and formulated by AGC in a friable clay which can be mixed with water and applied to soil as a drench or spray. Field experiments in Chinese cabbage, lettuce, and winter wheat show that the nematode is capable of protecting these crops from slug damage

Source: London Press Service