Use of Biological Pest Control in Scottish Agriculture

Biological control is the reduction of a pest population using natural mechanisms such as predation, parasitism or disease. SASA conducts surveys of agricultural and horticultural pesticide use and the data show that whilst there has been little change in the proportion of Scottish crops treated with conventional agrochemical pesticides in the last 10 years (>90%), the biological control of pests has become more widespread over time.

Biological pest control is most effective, and most often encountered, in crops grown under protective cover; in Scotland its use is almost exclusively recorded in fruit and vegetable crops grown in glasshouses (protected edible crops) and soft fruit crops grown in polytunnels. The percentage of these crops that are estimated to have been treated with a biological pesticide over the last 10 years is presented in Figure 1.

In addition to use on protected crops, in recent surveys (2007 and 2011) biological control has been recorded on around 2% of the total field grown vegetable crop area.

A wide range of species of bio-control agents have been recorded in recent pesticide usage surveys. These include arthropod and nematode predators and parasites of insect pests, bacterial and fungal insecticides, nematode predators of slugs and bacterial and fungal pathogens of plant disease (Figure 2). Initially most biological pesticide use encountered was for the control of insect pests, however, in recent years, there has been increased use of biological control agents for disease control in protected edible and soft fruit crops (Figures 3 & 4). The majority of bio-control use on outdoor vegetable crops is for slug control (Figure 5).

The use of bio-pesticides is likely to continue to increase in Scottish agriculture, complementing conventional pesticide use. Both the recently adopted EU Thematic Strategy for Sustainable use of Pesticides and the greening element of the reformed Common Agricultural Policy encourage an integrated pest management approach incorporating alternative sustainable and environmentally sensitive techniques such as biological control.