

Oil seed rape is grown throughout the UK and currently accounts for approximately 634,000 Ha of which 609,000 Ha is treated with crop protection products in order to help control damaging insect pests, diseases and weeds.

In order to establish crops before the onset of difficult winter conditions growers need to drill OSR crops as early as possible even though this is counter to the agronomic practice of later season drilling which would be best suited to minimize pest attacks. Earlier drilled crops with more developed roots systems are better equipped to survive the severe pigeon damage that occurs in many crops over-winter. The drilling date of the crop will fluctuate annually depending on location and climatic conditions of the season, however the period will generally commence with early drilling in the last week of July and first week of August.

The two key pests which can have a devastating impact on the OSR crop are Cabbage stem flea beetle (CSFB) (*Psylliodes chrysocephala*) and Peach-potato aphid (*Myzus persicae*).

Cabbage stem flea beetle (CSFB) (*Psylliodes chrysocephala*) is the most important flea beetle pest of autumn drilled oilseed rape and is now widely spread in the UK although still probably more common in some areas than others. HGCA Crop Monitor data shows that in the 2013 / 14 season that the East and North of England had the highest populations. Data currently being compiled from the 2014/15 season shows a dramatic increase in CSFB levels across the UK compared to 2013/14, whilst there are still regional differences with the East and South East showing the highest levels. Adult CSFB are present in the soil as the OSR seedlings germinate and can cause damage even before the seedlings emerge resulting in thinner crop stand. Whilst OSR is capable of compensating for missing plants the following spring, thin crops however, are far more attractive to foraging flocks of pigeons in the winter. None of the available foliar insecticide sprays can prevent this pre-emergence damage caused by adult flea beetles.

(<http://www.cropmonitor.co.uk/wosr/surveys/wosrPestAssLab.cfm?year=2014/2015&season=Spring>)

The results also show considerable variation in population from season to season but it is generally recognized that early sown crops in mild autumns are the ones most vulnerable to damaging attacks by CSFB.

The adult beetles move onto emerging OSR crops in late August or early September and both adults and their larva are responsible for damage leading to yield reduction or even total crop failure. Larval damage was historically regarded as the most serious

threat to crop yields, with 5 larvae per plant equating to a yield loss of 0.34 t / ha. This was based upon using an effective spray program compared with not using insecticides.

More recently control of CSFB has been obtained through the combined use of neonicotinoid based seed treatments and the application of pyrethroid based foliar sprays. However, with the removal of the option of neonicotinoid based seed treatments during season 2013/14 increased evidence of insecticide resistance has been observed with devastation even in crops where multiple foliar insecticide applications have been made. The lack of availability of neonicotinoid based seed treatments with the continued widespread use of pyrethroids over many seasons will only serve to increase the risk of resistance developing in further species. In this respect kdr resistance and more recently metabolic resistance has been identified in cabbage stem flea beetle (reference- Dr S Foster of Rothamsted Research, report to IRAG, March 2015)

Peach-potato aphids can occasionally occur in numbers large enough to kill seedling oilseed rape plants but the main problem for growers is usually the fact that Peach-potato aphids are the main vectors for Turnip Yellow Virus (TuYV). There is some dispute about yield losses associated with TuYV infection in the UK; in the literature losses of up to 30% are quoted. The average yield loss according to HGCA is around 15% in an untreated crop.

The level of TuYV infection varies from season to season in part because the percentage of aphids carrying the virus varies as does the number of aphids per season. Work carried out at Brooms Barn for HGCA shows that early infection (September / early October) has the greatest effect on crop yield. Where infection occurs later in the season the effect on crop yield is less. The work conducted by Brooms Barn for HGCA also showed that there were some varietal differences in susceptibility to TuYV but no varieties are fully resistant. Trials work on ten different varieties also showed that with all but one variety the use of a neonicotinoid based seed treatment improved yield compared with an untreated crop.

In the UK Peach-potato aphids are known to carry multiple forms of insecticide resistance. Field samples of aphids assessed by Rothamsted Research in 2013 showed that all of the Peach-potato aphids tested carried MACE resistance and Super kdr (ne), the new form of kdr resistance. Historically populations also carried genes which gave resistance to organophosphate products (esterase resistance) although with decreased use of this class of chemicals, these are now uncommon. Resistance to the neonicotinoids is also known but so far only in some parts of Southern Europe.

The chemistry available to control Peach-potato aphids in arable crops is now rather limited (due to Kdr, super Kdr and MACE resistance) with pymetrozine and thiacloprid

probably being the most useful. There are no known forms of Peach-potato aphid which are resistant to pymetrozine or thiacloprid in Northern Europe.

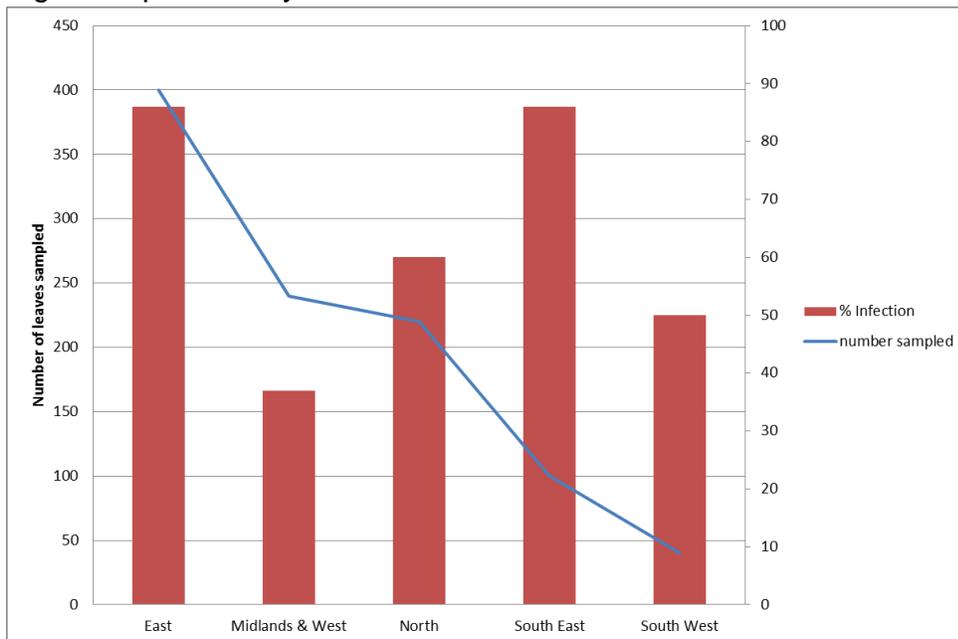
Pymetrozine (Plenum) has an approval for application in the autumn to OSR and only one spray is permitted. Likewise thiacloprid (Biscaya) is limited to only one application in the autumn.

There are a few products still effective for aphid control (*Myzus persicae*) vectors of TuYV, which have a limited number of applications such as thiacloprid, and pymetrozine.

Data are being gathered on the presence of TuYV in the 2014-15 crop in England, with preliminary findings showing a widespread and often significantly high infection levels of TuYV across the country (Fig 1) including areas where CSFB is less prevalent such as the north. This may be indicative of the lack of protection from neonicotinoid seed treatments available coupled with the limited options for effective foliar aphicides for the last growing season.

A summary of the TuYV data available to date is presented below. The results are expressed as % infection from 20 leaves assessed at each site.

Figure 1- preliminary TuYV data



In order to help growers protect crops that are at most risk from TuYV damage and CSFB attack, it is proposed that the use of neonicotinoid based seed treatments be allowed on all crops due to the widespread prevalence of the pests.

Data to back up these statements are available from a number of sources including crop surveys commissioned by NFU and additional data from Syngenta, Bayer Crop Science, IRAG, and the Rothamsted Research led Aphicide Resistance Project which can be submitted on request.