

Light leaf spot gets green light for treatment

Improving light leaf spot forecasting should help oilseed rape growers to fine tune crop management for optimum yield. *Sarah Henly* finds out how

Light leaf spot has been blamed for some of the lower than expected oilseed rape yields at harvest, particularly in the south of the country. Small seeds and premature pod ripening lead to reductions of up to 50% in some cases, according to agronomists.

That's no surprise to plant pathologist, Neal Evans of Weather Innovations, who is co-ordinating the HGCA-funded light leaf spot project. He believes that the disease has played second fiddle to phoma in growers' minds over recent years.

"Growers may unintentionally have been leaving the gate open for light leaf spot by choosing phoma resistant varieties then spraying perhaps just once in the autumn when two sprays used to be the norm. The follow-up spray for phoma is usually timed about right to catch light leaf spot, the first phoma spray often being too early for it. In addition, products may have been selected with activity against phoma and not both diseases."

Unlike phoma, light leaf spot produces asymptomatic infections throughout the winter. Ascospores released by fruiting bodies called apothecia – produced on crop debris – blow around undetected and land on new crops. Lesions only appear after secondary spores, conidia, have been produced and these are then

rainsplashed on to surrounding uninfected leaves and plants, he explains.

Spotting symptoms showed from February last season. That is too late to control the disease, the time to do so being the ascospore stage in October, he stresses. The distance of ascospore spread is not fully understood, but it is common to see patches in the field that develop from the initial foci.

"Going back a few years, light leaf spot was more of a threat to oilseed rape crops in Scotland and northern England, and there are several theories as to why it has spread south. Conducive weather, varietal susceptibility and changes to spraying practices are the key culprits, we think, and there are recent concerns over variable sensitivity to azole fungicides."

Many of the varieties grown in the South have good genetic resistance to phoma but not necessarily to light leaf spot. This may be the reason 87% of crops surveyed for the disease in England last spring by CropMonitor had significant infection levels, he suggests.

While variety choice and fungicide policy are under growers' control, the weather is most definitely not. Dr Evans and the team are investigating what conditions encourage light leaf spot to develop and spread, to



Tools to forecast light leaf spot are expected by 2016.

produce an accurate forecast for decision making.

"We developed the light leaf spot forecast available to growers via Rothamsted Research's website, but it doesn't yet have an early warning component. What we need is a model of the onset of an epidemic so sprays can go on before the disease takes a hold. For that, we need more trials linked to weather and spore trap data.

"We are investigating the role of, among other things, cold winter weather and snow cover in disease development. The past mild winter may have duped us into thinking it wasn't a high-risk year," he suggests.

The team will develop a prototype forecasting model then validate it against spore release data to check that the green light advice is timed correctly. That will be confirmed in field trials on five UK sites across three seasons with three varieties with light leaf spot resistance scores ranging from 8 to 4.

The HGCA-supported light leaf spot forecast, hosted on the Rothamsted website (www.rothamsted.ac.uk/light-leaf-spot-forecast), is a tool that gives information on the risk for the coming season.

Research reasons



HGCA

This project should improve the timeliness of spraying to control light leaf spot in oilseed rape by better understanding the reasons for its development and from that information, producing an epidemic onset model.

Project: Investigating components of the oilseed rape light leaf spot epidemic responsible for increased yield loss to the UK arable industry

Timescale: August 2013-December 2017

Researchers involved: Weather Innovations, Adas, SRUC and Rothamsted Research

Funders: HGCA and Bayer CropScience

Cost: £78,205 from HGCA and £15,000 from Bayer

Key points

Harsh winters may have more influence on light leaf spot development than previously thought

Autumn forecast for light leaf spot will assist better targeting of fungicides

HGCA perspective by Jenna Watts

Research and knowledge transfer manager, HGCA

"Light leaf spot is an increasing problem for many growers across the UK and not just in the North. By understanding precisely how the disease is affected by specific climatic conditions, we could fine tune disease control and reduce associated yield losses. Improvements to the current forecasting tool to include epidemic onset warnings, as has been done for phoma leaf spot, will help growers to time fungicide programmes to target light leaf spot."

