Carrot *Sclerotinia* Monitoring

15 June 2016

Overview

This is the week two report for sclerotinia monitoring at two carrot sites, in Nottinghamshire and Cambridgeshire, where we check for sclerotial germination onset and progress. Carrot plants are at the 2-3 leaf stage at the Nottinghamshire site but have not emerged yet at the Cambridgeshire site. Where soils remain moist, sclerotia of the pathogen *Sclerotinia sclerotiorum* will start to germinate to produce fruiting bodies (apothecia) that release airborne spores which can infect carrot crops, especially when there is canopy closure or dead leaves present. Sclerotial germination is currently seen in winter cereals and other arable crops as well as in carrot crops, especially as soils are now moist. Germination of sclerotia in carrot fields usually takes at least a month from sowing. The current risk of sclerotinia infection in carrots is low, as plants are small with no senescent leaves.

Weather conditions and carrot growth stages

Last week was mild and wet with average air temperatures above average at 15°C (two degrees above normal), ranging from 13°C in the far north to 17°C in the south. Soil temperatures were at 16°C, also above average. Many parts of the UK had heavy rain over last weekend with some flash floods reported. e.g. the Nottinghamshire had up to 72 mm (see Notts. Carrot report below).

Going forward the conditions may turn drier and brighter in many areas on Friday and Saturday, but on Sunday outbreaks of rain are likely to spread from the west, and next week is expected to be changeable: sun with outbreaks of rain. This means that sclerotia are likely to germinate actively if soils remain moist at the surface. Forward main carrot crops have 2-3 true leaves.

Regions

Cambridgeshire and East Anglia

The Cambridgeshire and eastern areas have had significant rain in the last week. Carrots sown on 19 May at the monitoring site have not quite emerged (Fig 1). Sclerotia were buried in this carrot field on 26 May and could start to germinate from now onwards in wet soil after the recent heavy showers. By contrast, sclerotia buried in December 2015 in a nearby wheat crop have now reached 23% germination (Fig 4), indicating that airborne spore inoculum is currently being produced. Monitoring germination in both wheat and carrots allows us to see the effect of spring cultivations on the timing of sclerotial germination. Our depots are indicative of the activity of sclerotia elsewhere in the region, in crops drilled from last autumn to those sown more recently.

Nottinghamshire and E. Midlands

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The crop (var Nairobi) sown on 3 May is at the 2-3 leaf stage (Figs 2 & 3) with ground cover currently less than 5%. Post-emergence weed control will be applied soon, along with trace elements and a second insecticide for willow carrot aphid control. There was significant but very variable rain from last Friday onwards across Nottinghamshire, following a dry, warm and sunny period. So far, there has been no sclerotial germination in the carrot crop (sclerotia buried 16 May) or the associated wheat crop (sclerotia buried Dec 2015) (see chart in Fig.4).
Earlier last week 12 mm of irrigation was applied to the crop, followed by 17 mm of rain between Friday to Monday, so the soil is now wet through the current rooting depth of the carrot crop. Elsewhere in Nottinghamshire the weekend rainfall was up to 72 mm, making many fields too wet for any field operations.

Photos



Fig. 1. 14 June, Cambridgeshire site carrot field, cv. Bangor sown 26 May 2016, GS 0 and some weeds.

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Fig. 2. 13 June, Nottinghamshire site carrot growth, cv. Nairobi, sown 3 May 2016, with barley cover crop: carrots are at the 2-3 leaf stage.

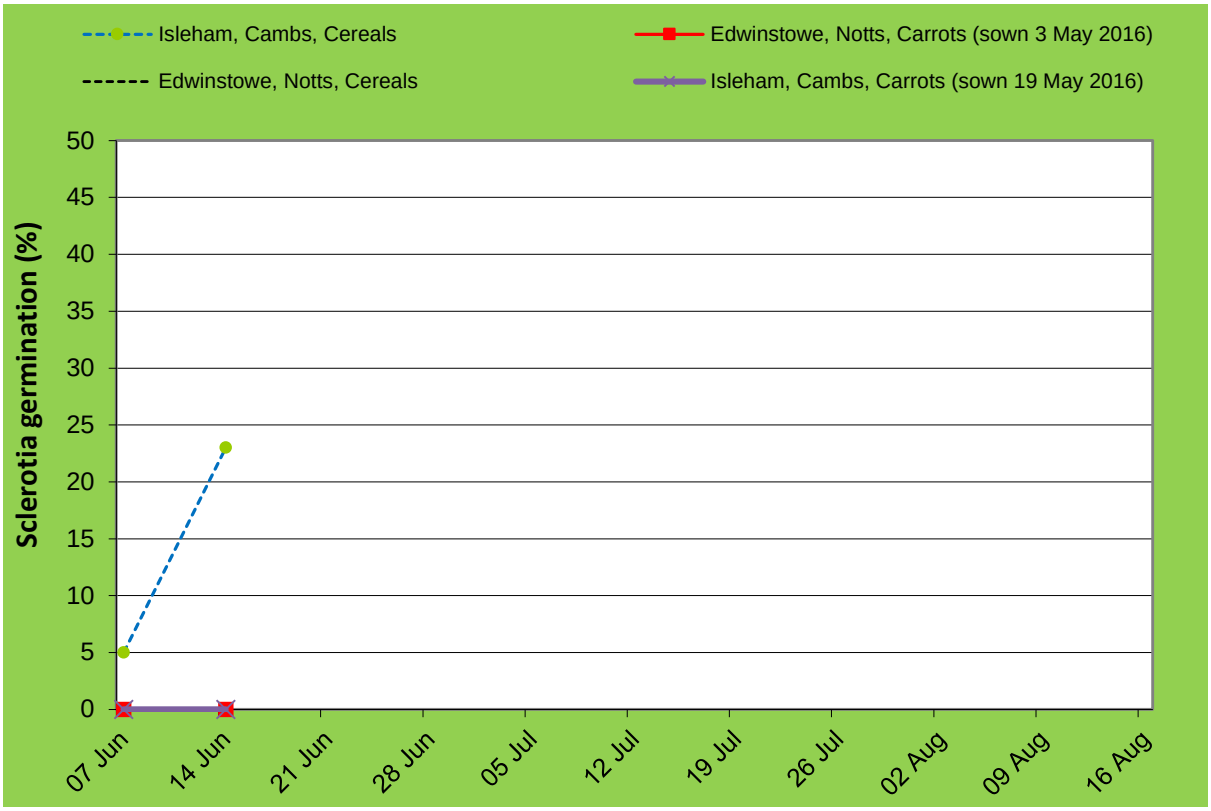


Fig. 3. 13 June, Nottinghamshire site carrot growth, cv. Nairobi, sown 3 May 2016: carrots are at the 2-3 leaf stage. Barley cover crop is now senescent.

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Sclerotia Germination (refer to website map for exact locations)

Depots of carrot sclerotia are being monitored near Edwinstowe, Notts and Isleham, Cambs. At both of the sites, depots of carrot sclerotia are being monitored in winter cereals and in main crop carrots. This allows the effect of spring cultivations on sclerotial germination timing to be taken into account.



Key points

No germination of carrot sclerotia is evident in carrot crops but germination activity is high in the associated Nottinghamshire wheat crop, indicating recent airborne spore release. With the current wet weather, sclerotial germination is likely to continue and spores will be present. However, infection risk to young carrot crops is low, as long as there are only new healthy leaves, no senescent foliage and a small canopy.

Actions

Most main crops are still at the seedling stage with low ground cover. No fungicides are required at this early stage, unless cavity spot is present. Monitor crops for any physical damage as this could facilitate infection by sclerotinia.

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