An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Authorised Professional Operator Assessment

Module 4 – Regulated non-quarantine and Protected Zone Pests

Horticulture & Plant Health

Regulated non-quarantine pests (RNQP)

What is a Regulated non-quarantine pest(RNQP) defined as?

‘A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the EU territory’

Meaning:

- RNQPs a level of pest infestation may be tolerated (Threshold Limits)
- Specific pests present in EU and transmitted through specific plants for planting
- Feasible and effective measures are available to prevent presence

RNQP & their threshold limits						
Symptoms of virus infection	Solanum tuberosum L.	Threshold for the direct progeny of pre-basic seed potatoes			Threshold for the direct progeny of basic seed potatoes	Threshold for the direct progeny of certified seed potatoes
		PBTC	PB			
		0%	0.5%		4,0%	10,0%
Thanatephorus cucumeris	Solanum tuberosum L.	0%	1,0% affecting tubers over more than 10% of their surface		5,0% affecting tubers over more than 10% of their surface	5,0% affecting tubers over more than 10% of their surface
Spongospora subterranea (	Solanum tuberosum L.	0%	1,0% affecting tubers over more than 10% of their surface		3,0% affecting tubers over more than 10% of their surface	3,0% affecting tubers over more than 10% of their surface

RNQP & their threshold limits							
Leaf roll virus	Solanum tuberosum L.	0%	0.1%		0.8%	6,0%	
Leek yellow stripe virus	Allium sativum L.	**Threshold for the vegetable propagating & planting material concerned**					
		1%					
Onion yellow dwarf virus	Allium cepa L., Allium sativum L.	1%					
Other propagating material	Bacteria	Fungi/ oomycetes	Insects/Mites		Nematodes	Viruses/viroids/etc.	
	0%	0%	0%		0%	0%	
Other seed	0%	0%	0%		0%	0%	
Fruit plants & material	0%	0%	0%		0%	0%	

Aculops fuchsiae Keifer

What is it?

- Fuchsia gall mite is a Union RNQP specifically regulated on fuchsia plants for planting
- A major pest of seven species of the *Onagraceae* family: *F. arborescens*, *F. denticulata*, *F. gehrigeri*, *F. macrophylla F. magellanica*, *F. procumbens*, *F. triphylla*
- Worm like body, about a ¼ mm in length, yellowish-white in colour

Aculops fuchsiae Keifer

Symptoms of infestation:

- Rusting and deformation of the leaves
- Growths (galls) becoming swollen, blistered and reddened
- Leaf galls resemble leaf curl
- Deformed flowers
- All new growth ceases
- Further examination with a hand lens will reveal the yellowish fusiform mites

Aculops fuchsiae Keifer

Pathways and dispersal:

- Wind
- Birds and pollinating insects
- Movement of infested plants
- Propagation

Best Practice:

- Thus far official control measures have only shown to slow spread of pest as eradication is impossible.
  - Practice good sanitation
  - Use highly resistant fuchsia species or cultivars
  - Use reputable suppliers

Verticillium dahliae Kleb

What is it?

- *Verticillium dahliae* Kleb, or verticillium wilt, is a fungal pathogen is white and fuzzy in appearance, eventually turning black
- The fungus can survive in the soil for 14 years as microsclerotia, either free or in plant debris
- Verticillium wilt has a wide host range amongst economically important crops, ornamental plants, native species, weeds, and woody/herbaceous plants

Verticillium dahliae Kleb

What is it? (continued)

- This pathogen affects 14 different plant families and more than 200 hosts
- Primary hosts include:
  - Aubergines
  - Bell pepper
  - Lettuce
  - Oilseed rape
  - Potato
  - Strawberry
  - Tomato

Verticillium dahliae Kleb

Symptoms:

- Irreversible wilting
- Total defoliation
- Sectorial chlorosis and necrosis of leaf tissue
- Tomato and aubergines: tan discolouration of vascular tissue
- Herbaceous plants: wilting often develops when fruit and tuber production begins
- Woody plants: poor growth and early leaf senescence

Verticillium dahliae Kleb

Transmission:

- The pathogen is primarily transmitted through infected seed or plant stock of vegetative propagated crops

Best Practice:

- Use resistant or tolerant cultivars
- Utilise crop rotation
- Use pathogen-free planting material
- Employ good fertility and irrigation management

Ditylenchus dipsaci

What is it?

- *Ditylenchus dipsaci* is a migratory endoparasite, known as the stem and bulb nematode
- Infestation causes swellings and distortions of aerial plant parts or rotting of stem basis, bulbs, tubers and rhizomes
- In clay soils, this pest may persist for many years, surviving without a host plant

Ditylenchus dipsaci

What is it? (continued)

- *D. dipsaci* is known to attack more than 450 different plant species
- Primary hosts include:
  - *Allium* spp.
  - *Fragaria ananassa*
  - Flower bulbs: *Narcissus* spp., *Tulipa* and *Begonia*
  - *Fabaceae* spp.
  - *Solanum tuberosum*
  - *Zea mays*
  - *Vicia faba*

Ditylenchus dipsaci

Symptoms:

- Leaf deformations and leaf swellings- blister-like areas
- Wilted appearance of leaves and can become chlorotic
- Bulbs soften and when cut open display browning of scales
- Crop declines in patches in the field
- Swelling and deformation of stem tissue
- Lesions which turn reddish-brown then black
- Leaf and petiole necrosis
- Infected seeds are darker, distorted and small in size; possibly speckled spots on surface

Ditylenchus dipsaci

Movement and dispersal:

- Seeds and plant material of host plants
- Soil
- Irrigation water
- Contaminated footwear and clothing
- Contaminated farm tools and machinery

Ditylenchus dipsaci

Best Practice:

- Utilisation of crop rotation
- Use of material
- Certified seeds and pathogen-free planting
- Use reputable suppliers
- Seek guarantees from your supplier on health status of the plants
- Know where plants sourced from and where grown
- Sanitise farm machinery/tools/footwear
- Minimise soil movement; i.e. ensure commercial vehicles are soil free

Protected Zone Quarantine Pests

What is a protected zone (PZ)?

- An officially defined geographical area in the EU for a specified RNQP pest for which that pest is neither endemic nor established
- Pest known not to be present in that area although present in other parts of the EU
- Ireland has PZ status for 22 of 31 PZ pests recognised in the EU

Protected Zone Quarantine Pests

Additional restrictions to prevent PZ pests establishment:

- Specific annual surveys
- Annual reporting
- Commission audits
- PZ code + EPPO code (or scientific name of pest) of specific pest on the plant passport
  - Host plants of PZ can only be sourced from other PZ countries or pest free areas, as stated in Council Directives 2017/1279/EC and 2019/523/EC

Bemisia tabaci

What is it?

- Known as the tobacco whitefly
- Small plant sap-sucking insect, found in most parts of the world and is vector for numerous harmful viruses
- Adults are about 1mm long with powdery white wings and white/yellowish bodies
- It is a major pest to glasshouse salad crops such as; tomatoes and cucumbers

Bemisia tabaci

What are the indicators of infestation?

- Chlorotic spotting, vein and leaf yellowing
- Mosaic pattern on leaves together with leaf curling
- Decrease in plant vigour and height in instances of heavy infestations
- Yellow/white larval scales on underside of leaves
- Sooty moulds on leaves

Bemisia tabaci

How does the pest spread?

- Spread usually occurs on traded plants, which makes it necessary that imported plants into Ireland have the PZ status on the plant passport

Bemisia tabaci

Best practice to eliminate introduction/spread of Tobacco whitefly:

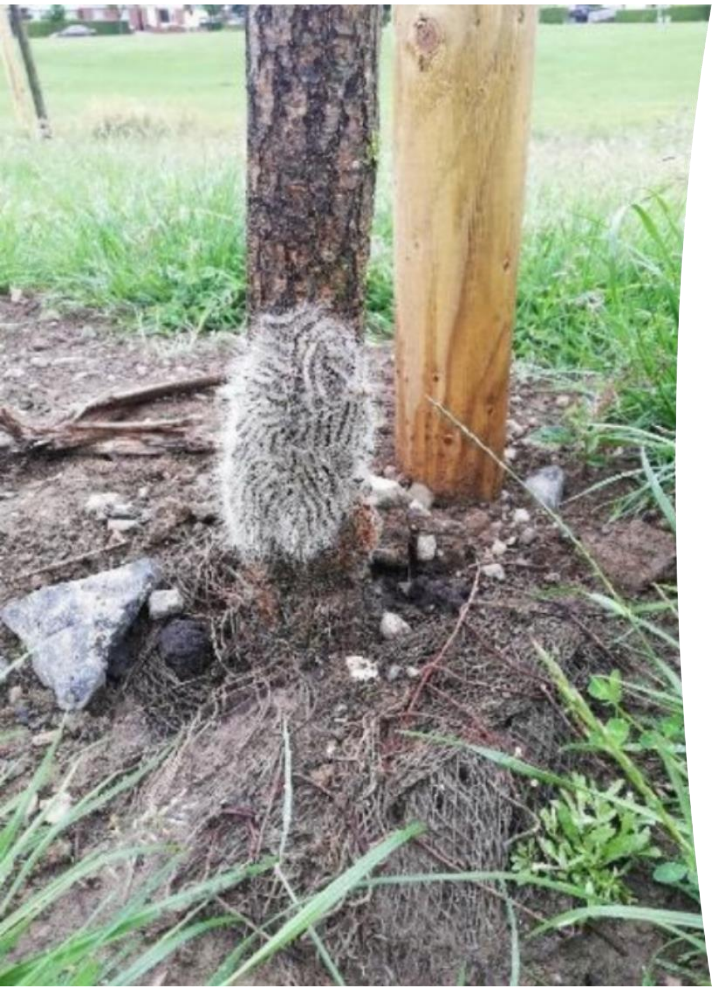
- Inspect all new plant material
- Monitor underside of leaves and use yellow sticky traps
- Isolate newly arrived plants
- Do not mix ornamental and vegetable crops in the same area
- End of season disposal of plants and sterilise glasshouse/polytunnel area(s)

Thaumetopoea processionea

What is it?

- The oak processionary moth (OPM) is a native pest of central and southern Europe
- Major pest of oak trees in Europe, with the larvae (caterpillars) often causing severe defoliation of infested trees
- OPM poses a risk to human and animal health as the caterpillar hairs can cause irritation to skin and respiratory problems

Thaumetopoea processionea



Recognising OPM:

The caterpillars are the most distinctive to recognise and usually found from April to June:

- Caterpillars have black head and body with long white hairs. As they mature a single dark stripe develops on the middle of the back
- The caterpillars are unique as they follow one another head to-tail in long ‘processions’ to and from nest or feeding position

Thaumetopoea processionea

Human health risk:

- Caterpillar hairs contain an urticating defensive toxin, thaumetopoein, a chemical potentially harmful to humans
- **Contact can**: provoke allergic reactions manifested as skin rashes, conjunctivitis and respiratory problems

Thaumetopoea processionea

Do not:

- Touch or approach caterpillars or nests

Do:

- Call in a pest control expert to remove infestations in your own trees
- It is mandatory to report sightings to the Department of Agriculture, Food and the Marine

Thaumetopoea processionea

Best Practice:

- Use reputable suppliers
- Seek guarantees from your supplier in relation to the health status of the plants
- Know where plants/trees are sourced and grown
- Make sure that the plant material has valid plant passports

Erwinia amylovora - Fire blight

What is it?

- Fire blight is a contagious disease that can cause considerable damage and economic loss in apple orchards
- The disease is caused by a bacterium, *Erwinia amylovora* (Burrill), that infects members of the *Rosaceae* family

Erwinia amylovora - Fire blight

Host plants include:

- *Sorbus aucuparia/ Sorbus aria*
- *Cotoneaster*
- *Pyracantha*
- *Crataegus*
- *Chaenomeles*
- *Photinia*

Erwinia amylovora - Fire blight

Symptoms:

- **Blossom blight**: Infected blooms appear water soaked, later beginning to wilt, shrivel and turn black/brown
- **Shoot blight**: Shoot stems become discoloured and shrivelled, with tips forming an ‘inverted J or Shepard's’ crook’
- **Main branch/trunk**: Develops darkened cankers which eventually crack ooze
- **Fruit blight**: Shrivel, brown and mummify

Erwinia amylovora - Fire blight

Transmission:

- Fire blight is established in most of Europe and Mediterranean Sea area
- Bacteria can be carried to blossoms by wind, rain, and insects
- Transport of latently infected plants/plant material can introduce into unaffected areas

Best Practice:

- EU regulation requires host plants of fire blight must have Protected Zone on plant passports destined from fire blight free zones, such as Ireland
- Use tolerant or resistant varieties if available
- Train staff to recognise plant diseases

Leptinotarsa decemlineata

- Known as Colorado Beetle
- A serious pest of potatoes, as well as other cultivated crops including tomatoes and aubergines
- Adults feed on the tubers, leaves stems and growing points of host plants, while larvae feed on leaf edges
- Adults emerge in spring/early summer, dispersing to suitable host plants through flight or walking
- Introduction happens through wind-borne migration, or more commonly transported on potato plants, tubers or hitchhiking on non-hot crops and packaging
- Control measures are minimal with cultural and sanitary measures

Leptinotarsa decemlineata

Best Practice:

- Utilisation of crop rotation and/or manipulation of planting date
- Establishment of plastic-lined trenches
- Use of trap crops
- Use reputable suppliers
- Know where plants/planting material are sourced and grown
- Make sure plant material has valid plant passport

New EU rules for plant health

Plant passports will be issued using a common format for all consignments of plants traded between professionals within the EU.

European Commission | Health and Food Safety

https://ec.europa.eu/food/plant/plant_health_biosecurity/legislation/new_eu_rules_en

For Further Information

Contact:

Horticulture and Plant Health Division
The Department of Agriculture, Food and the Marine
Backweston Admin. Building
Backweston Campus
Celbridge
Co. Kildare
W 23 X3PH

Tel: 01 505 8885
Email: plantandpests@agriculture.gov.ie

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Bia agus Mara
Department of Agriculture,
Food and the Marine