Brussels, 20th July 2016

Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of *Apricot chlorotic leafroll mycoplasma*[1]

Current regulatory status

Candidatus Phytoplasma prunorum (CPp) is currently regulated in Annex I, Part A, Section II (d.2) of the plant health Directive 2000/29/EC as 'Apricot chlorotic leafroll mycoplasma (ACLR)'

Import requirements are listed under Annex IVAI (19.2) and Annex VB(1) for plants of *Prunus* L. intended for planting, originating in countries where ACLR is known to occur: no symptoms of ACLR have been observed on the plants at the place of production, since the beginning of the last complete cycle of vegetation

Intra-EU movement is subject to plant passport (Annex IVAII (12) and Annex VAI (1.1)) specifying either that the plants come from a pest free area OR no symptoms of ACLR have been observed on the plants at the place of production, since the beginning of the last complete cycle of vegetation.

Identity of the pest

The identity is clearly defined. The current term was introduced by Seemüller and Schneider (2004) for a phytoplasma of the 16SrX (Apple proliferation) – group, which is specifically attacking stone fruit species. It causes various diseases in apricot, peach and plum which are comprised as 'European Stone Fruit Yellows'. Routine PCR-tests are available and commonly used.

CPp is transmitted by its psyllid vector Cacopsylla pruni, a European and central Asian species, which is known to occur in almost all parts of Europe. The adults migrate in summer from their Prunus hosts to overwinter as adult on conifers and start to colonize stone fruits at the end of winter. Overwintered adults are highly infective and lay eggs on fruit trees. Nymphs emerge and the new adults then again migrate to their alternative hosts.

Apricots (*Prunus armeniaca*), peach (*P. persicae*) and Japanese plum (*P. salicina*) are the main cultivated hosts, on which the disease is of economic importance.

European plum (*P. domestica*) and myrobalan (*P. cerasifera*) commonly used as rootstock are largely tolerant. Infections were observed in naturally infected almond (*P. amygdalus*) and several other wild *Prunus* species; moreover, CPp was detected in naturally infected wild *Prunus* spp. and plants of other genera. Sweet cherries (*P. avium*), sour cherries (*P. cerasus*) and bird cherry (*P. padus*) are highly resistant and host neither the pathogen nor the vector; they do not play a role in the epidemiology.

Distribution of the pest

With the exception of Turkey, Azerbaijan, Egypt and Tunisia, CPp does not occur outside Europe. Within the EU it is present and widespread in many central and south European stone fruit areas. It has not been reported in PT, CY, MT, southern ES and most of the northern European countries. C.

[1] Scientific basis for the recommendation: Prima Phacie project
http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/319e.pdf

pruni is present in European countries (FI, SE, DK, IE), where the disease is not known. No information on the vector status was found for the Baltic countries (EE, LV, LT). There, blackthorn and myrobalan (favourite hosts) are absent.

Potential for establishment and spread in the PRA area

CPp is native to Europe and has spread in the EU through the trade of planting material and the migration behaviour of its native vector for many decades. It is considered unlikely that the occupied area will increase significantly as there is uncertainty concerning the presence of CPp in in Northern Europe. However, following the ISPM definition of 'endangered area' , it is concluded that northern European countries in which sensitive stone fruit crops are not produced are not included in the endangered area. Additionally, in southernmost parts of the EU, uncertainties exists concerning the availability of suitable conditions for aestivation and overwintering (and preferred hosts for reproduction) of the vector.

CPp is not transmitted mechanically by pruning. However, in areas where both disease and vector are present, CPp is likely to be associated with plants for planting, as (1) both vector and disease are present on widespread wild *Prunus* species and the vector overwinters on conifers and is able to migrate over long distances; (2) the phytoplasma can be transmitted with all parts of infected plants (including scions) throughout the year; (3) *P. domestica* and *P. cerasifera* rootstocks are commonly used; they are a favorite hosts of the vector and largely tolerant to the disease and act as source of infections; (4) symptoms of infections are often not present, particularly in young plants infections are unlikely to be detected (unless samples are tested); (5) measures to cure a phytoplasma-infection are not available.

Potential for consequences in the PRA area

Within the endangered area, the phytoplasma has direct effects on yield, quality and marketability and can lead to plant mortality. The economic impact is often high in central and southern European countries, however, depends on various factors: such as the plant species, the rootstock, the scion cultivar (and its combination), the strain virulence, the phytoplasma concentration, the climatic condition, the age of the trees and the abundance of the insect vector population and can vary from minor to severe.

There is a high risk that the phytoplasma is associated with plants at the place of production. In such cases the intended use of sensitive host plants is affected and the phytoplasma may cause significant economic impact.

Recommendation

According to the Working Group, the organism does not qualify for a Union Quarantine status. However, it can be still transmitted through plants for planting, while the vector can be transmitted over very long distances. Many infected plants do not show any symptoms (e.g. rootstocks). There is a need for intelligent risk reduction measures. It is a complicated disease especially in the case of the simultaneous occurrence of orchards and forests in the same region, or even the presence of hedges of wild *Prunus* near the orchards. For this pest rootstocks and the pollinator plants are the most important source of infection. At this moment the distribution of this pest is not entirely clear.

The WG recommends re-classifying this organism as an RNQP with the possibility of Protected Zone status.

In a Protected Zone situation, further reflection may needed about the need to have monitoring, through sampling and testing, of *Prunus* plants, particularly asymptomatic *Prunus* species, as infected plants can remain without symptoms for up to five years after infection.

As background for the development of specific control measures, it is may be important to consider that during the Prima Phacie project, risk reduction options were elaborated to reduce the risk of CPp spreading in infested planting material of sensitive hosts: Apricots (*P. armeniaca*), Japanese plum (*P. salicina*) and Peach (*P. persicae*) (including their rootstocks). To produce healthy fruit tree material it is essential:

- to use healthy propagation material (including scion and rootstock) and use of insect-proof conditions (where presence of insect vectors is abundant);
- to avoid any re-infestation in the nursery by infested psyllid populations, through the use of insect-proof conditions (where presence of insect vectors is abundant);

An obstacle to the production of healthy fruit tree material is the migration behaviour of the vector and the widespread presence of the disease and its vector in wild *Prunus* species.

Evaluation of risk reduction options:

- Visual inspection is considered a suitable measure in mother plant nurseries. However, depending on the rootstock/variety used the disease has a long latent period and symptoms often do not appear on young plants. Therefore visual inspection is not considered reliable in nurseries producing plants for planting.
- Sensitive PCR tests are available and should be applied in the production of nuclear and propagation stock plants and in nurseries producing fruit trees in case of suspicion. However, testing for the presence of latent infections will have to be performed at random, with multiple subsamples.
- Currently, thermotherapy by hot air is a feasible control treatment. It is useful for obtaining nuclear stock trees of *Prunus* spp., free of CPp. Hot water treatment may also be applied.
- Fully resistant cultivars/rootstocks are not available.
- Physical isolation, i.e. the production under insect-proof conditions may be advisable in the production of nuclear stock and may be applied also to propagation stock, particularly in areas where both disease and vector are abundant. For nurseries producing fruit tree, physical isolation may be too costly, although needed where presence of insects vectors is abundant.
- Vector control is effective to avoid re-infestation through natural spread of infested vectors, although suitable plant protection products seem to be no longer available on the EU market. At the same time, insecticides control may be impeded if vector and disease are present on wild hosts. To mitigate the risk of re-infestation the vector control strategies should include the removal of any source of infection from the vicinity of the nurseries or to ensure production in insect-proof conditions, including for nurseries.
- A certification scheme combines visual inspections, testing, isolation criteria and vector control and enables the production of trees with high but not absolute guarantee of CPp freedom.