



Fostering Agricultural Markets Activity II (FARMA II)

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Annex 1

The list of the most potentially harmful organisms that will be assessed for B&H – RATIONALE

HARMFUL ORGANISMS	CLASSIFICATIONS	STATUS OF HARMFUL ORGANISMS	CATEGORY	IMPORT CHECK	PLACE OF CHECK	MOTIVATION/CLARIFICATION
<i>Xylella fastidiosa</i> cause olive leaf drying „Olive Quick Decline Syndrome“	Bacteria	Absent, no data	Fruit, grape, ornamental plants	Ornamental plants	<i>Polygala mirtifolia</i> in maritime places, plum orchards, olive trees and vineyards	<p><u>Economic impact</u> <i>Xylella fastidiosa</i> is a bacterium that affects many plant species around the world. <i>Xylella fastidiosa</i> is an A2 quarantine organism on EPPO list. In Brazil 1.8 million citrus trees are now infected, and some growers in São Paulo state are now planting mangoes instead of citrus. In California, it causes over \$100 million in yearly losses to the grape industry. And in Italy, around one million olive trees are estimated to be infected to the peninsula of Salento. (http://data.daff.gov.au/data/warehouse/9aab/2017/EcoImpactsXylella/EcoImpactsXylellaFastidiosa_20171123_v1.0.0.pdf). <i>X. fastidiosa</i> was discovered near Lecce, Italy in 2013. Since the initial outbreak, it has invaded 23,000 ha of olives in the Apulian Region, southern Italy, and is of great concern throughout Mediterranean basin. Therefore, predicting its spread and estimating the efficacy of control are of utmost importance. In the EPPO region, grapevine and citrus are clearly the most significant potential hosts, though peach is also important. Many other hosts could carry the bacterium, without necessarily being significantly affected themselves (https://gd.eppo.int/taxon/XYLEFA).</p> <p>In Bosnia and Herzegovina there are about 24 million plum trees, pears, apples, cherries, peaches, walnuts, and 13.5 million grape vines (<i>all Xylella hosts</i>). Among the fruit, plum is the most vulnerable species and in BiH is the most productive fruit with a large share in export. Beside above mentioned, but not less important is that in southern part of Herzegovina are planted over 200 ha olive trees who are in danger of being invaded with this bacteria, because we import many seedlings from Italy at this moment.</p>
<i>Flavescence dorée (FD)/ (Grapevine)</i>	Phytoplasma	Absent, no data	Grape vine	NO	Vineyards	<p><u>Economic impact</u> FD is on A2 EPPO list. Flavescence dorée phytoplasma first appeared in southwestern France in 1955. It was followed by its rapid expansion and</p>

<i>flavescence dorée</i>						appearance in Corsica, Italy and Spain (Catalonia), and then in Portugal and Switzerland. Recently, her appearance has been recorded in Serbia, Slovenia and Austria. Unfortunately, the first appearance of the FD was confirmed in 2009 and in Croatia. Grape vine was the only known FD phytoplasma until recently, but recently was found also in the <i>Clematis vitalba</i> near infected vineyards in Italy (Filippin et al., 2007). Recent studies have confirmed phytoplasma FD at black alder (<i>Alnus glutinosa</i>). For the moment more than 3.700 ha of vineyards in BiH could be invaded with this pathogen if no control measures are taken.
<i>Tomato ringspot virus/ringspot of tomato</i> (transmitted from <i>Xiphinema americanum</i>)	Virus	Absent, no data	Fruits, Woody ornamental plants, Vegetables	NO	Plum orchards, raspberry, vineyards,	<u>Economic impact</u> TomRSV is on A2 EPPO list. The rapid spread of TomRSV in grapes in New York has led to a serious decline, particularly of the cultivar Cascade (Siebel 13053) (Uyemoto, 1975). In Oregon, fruit from TomRSV-infected raspberry canes weighed 21% less individually than from healthy canes, and the yield was more than halved, since TomRSV has a particularly adverse effect on drupelet set of certain cultivars (Daubeny et al., 1975; Freeman et al., 1975). In addition, fruit quality is reduced, the fruits being crumbly and therefore unmarketable (Mircetich, 1973). The progressive decline in raspberries is such that, by the third year of infection, up to 80% of fruiting canes may be killed. The virus is of some economic importance in those EPPO countries where it occurs. An isolate of TomRSV from Pelargonium in the UK (probably imported from the USA) caused severe symptoms on several glasshouse crops; thus, the virus presents a serious threat to the glasshouse industry, especially where salad and ornamental crops are grown together. It is possible that European Xiphinema species, such as <i>X. pachtaicum</i> , which is widespread in the EPPO region, could transmit the virus. This organism is very important for the BiH agricultural production and economy because: BiH has more than 2,500 hectares planted with berry fruit (raspberries, strawberries, blueberries, blackberries and aronia) and it is increasing every year more.
<i>Diaporthe vacciniae</i> Phomopsis canker and dieback	Fungi	Absent, no data	Berry	NO	Blueberry orchards	<u>Economic impact</u> <i>D.vaccinii</i> is on A2 EPPO list. The disease is commonly established in the USA on cranberries and blueberries. It was responsible for a reduction of 18-35% of the cranberry crop in several plots in 1933 in Massachusetts (Bergman & Wilcox, 1936). The disease became serious in a few marshes in Wisconsin in 1966 and in isolated instances caused serious losses (Friend & Boone, 1968). Blueberries can be destroyed by <i>D. vacciniae</i> within a few months. There are reports of attendance in the area of Southeast Europe.
<i>Monilinia</i>	Fungi	Absent. No data	Fruit	No	Plum	<u>Economic impact</u>

<i>fructicola</i> Brown rot, twig canker					orchards	Monilinia fructicola is a devastating disease to peach orchards worldwide. Brown rot also affects other stone and pome fruit trees such as plum, apricot, cherry, apple and pear. The United States, a major producer of stone fruits, is at risk for potentially large yield losses each year due to brown rot. In areas of the world where it is present, M. fructicola is among the most economically important parasites of peach, nectarine, apricot, plum, cherry, and parasites on apples, pears and tomatoes. Monilina fructicola is an A2 quarantine organism for EPPO. Monilina fructicola causes severe losses, especially on stone fruits (Prunus spp.), both before and after harvest. Heavy losses have been reported in North America on peaches, cherries and plums. Losses of 1 million AUD occurred on peaches in 1969 in the Murrumbidgee area (Australia), and heavy losses have also been reported on apricots in Tasmania. The main host range of this fungus covers the rosaceous fruit trees: principally peaches and other Prunus spp., to a lesser extent apples and pears; the fungus can also be found on Chaenomeles, Crataegus, Cydonia and Eriobotrya. The total area of peach and nectarine in BiH is 2000 hectares (EPPO 2011). The organism is now present in Serbia and some articles says even in Croatia (Ivić et al., 2014). In August 2009, mature peaches (Prunus persica cv. Royal Glory) with brown rot were found in a 5-year-old orchard in Goriška, western Slovenia.
<i>Halyomorpha halys</i> brown marmorated stink bug (BMSB)	Insect	Absent. No data	Fruit	No	Pear orchards	<u>Economic Impact</u> BMSB is polyphagous, and is a pest of several important crops in its native range. In Japan it attacks shade and fruit trees, vegetables, and leguminous crops (Hoebeke 2002). In southern China, it feeds on flowers, stems and pods of various legumes, and also on: flowers of hibiscus, stems of celosia, fruits of black night-shade, malabar/Indian/ceylon spinach, apple, cherry, Citrus spp., fig, Japanese apricot, and Zuccarini, Japanese persimmon, mulberry, peach, pear, the princess tree, and soybean. Nielson and Hamilton (2009) conducted an extensive study of BMSB populations at farms in New Jersey and Pennsylvania, and found approximately 25% damage per fruit tree. These studies critically indicate the potentially increasing pest pressure that may occur in tree fruits, particularly pears, apples, and peaches, as a result of the introduction of BMSB. Based on the quantity of production pears in BH is at fourth place and it is host of this insect. The production of pears is 8% of the total fruit production. The organism is present in Serbia and it could be a potential risk for BH agricultural production.
<i>Anoplophora glabripennis</i> Asian	Insect	Absent. No data	Plants intended for planting, other than seeds, genera and species:	YES Visual inspection of sensitive	Forest workers and forest areas, public areas	<u>Economic impact</u> Anoplophora glabripennis is an A1 quarantine organism for EPPO. The Asian long-horned beetle (Anoplophora glabripennis) (ALB) is an invasive pest from Asia that came to Canada, the United States and Europe concealed in solid

longhorned beetles “Starry sky”			Acer spp., Aesculus, Alnus spp., Betula spp., Carpinus spp., Citrus spp., Corylus spp., Cotoneaster spp., Fagus spp., Lagerstroemia spp., Malus spp., Platanus spp., Populus spp. Prunus laurocerasus, Pyrus spp., Rosa spp., Salix spp., Cornus spp., Crataegus spp., And Ulmus spp.,	herbs taking samples to the presence of a harmful organism.		wood packing material. Asian longhorn beetles primarily attacks tree species and represents a dangerous harmful hardwood organism. As a primary harmful organism, it kills a wholly healthy tree and expands rapidly. Asian longhorn beetles (<i>Anoplophora glabripennis</i>) is serious quarantine pest and treat to deciduous trees in parks and forests of Bosnia and Herzegovina. The damage pest can caused are comparable with dying of elms and chestnut cancer together. In order to prevent the spread of this pest in Bosnia and Herzegovina, it is extremely important that pest be recognized as soon as possible and that the information is transmitted to the competent services. In the USA, suppressing a 1996 infestation in New York State cost more than 4 million USD (USDA, 1998). <i>A.glabripennis</i> caused the destruction of thousands of trees in the USA and eradication campaigns have cost 800 million USD (http://www.nonnativespecies.org/factsheet/downloadFactsheet.cfm?speciesId=242).
<i>Anoplophora chinensis</i> . Asian longhorned beetles (Chinese longhorned beetles)	Insect	Absent. No data	Plants intended for planting other than seeds, genera and species: Acer spp., Aesculus, Alnus spp., Betula spp., Carpinus spp., Citrus spp., Corylus spp., Citrus spp., Corylus spp., Cotoneaster spp. Fagus spp., Lagerstroemia spp., Malus spp., Platanus spp., Prunus laurocerasus, Pyrus spp., Rosa spp., Salix spp., Cornus spp., Crataegus spp., And Ulmus spp.	YES Imported consignments of seeds and seedlings, visual inspection of material and sampling in case of doubt as well as laboratory testing.	Forest workers and forest areas, public areas ⁴	<u>Economic impact</u> <i>Anoplophora chinensis</i> is an A2 quarantine organism for EPPO. <i>Anoplophora chinensis</i> can cause serious damage to healthy fruit, ornamental and amenity trees. In Asia, <i>Anoplophora chinensis</i> is the most important cerambycids in citrus orchards. In Italy, the damage caused by citrus longhorn beetles has been in urban area. Most of the trees grown in cities and towns in England and Wales are potential hosts including citrus, apples, beech, birch, hawthorn, hazel, horse chestnut, plane, poplar, oak and willow. Between 2001 and 2013, Lombardy plant health service spent €180 million on eradication measures, including the removal of over 25,000 trees , however the pest may have spread too far for eradication to be practical. (https://planthealthportal.defra.gov.uk/assets/factsheets/CLB-Plant-Pest-Factsheet-update-May2016v5.pdf). With a spectrum of more than 40 host plants, it presents a potential threat to the natural environment, fruit and woody trees and ornamental plants. Unlike other similar harmful organisms that primarily attack dead trees, this harmful organism when once come to a certain area, it is very difficult and expensive to eradicate it. <i>Anoplophora chinensis</i> is now present in Croatia.
<i>Gibberella/ Fusarium circinata</i> Pitch canker of pine	Fungi	Absent. No data	Plants intended for planting the genus Pinus spp. And species <i>Pseudotsuga menziesii</i> I seeds	YES Imported consignments, seeds and seedlings,	Forest nurseries, forest stands and crops, urban trees	<u>Economic impact</u> <i>G. circinata</i> is on EPPO A2 list. <i>G. circinata</i> is a chronic problem in the south-eastern USA, where it affects production in plantations, nurseries (Barnard & Blakeslee, 1980) and seed orchards (Dwinell et al., 1981; Dwinell et al., 1985), but does not significant impact on native forests. Most southern pines are affected to some extent, including <i>P. taeda</i> , which typically sustains

a cause of quarantine pests				visual inspection of material and sampling in case of doubt as well as laboratory testing		only minor damage and <i>P. elliottii</i> , which can be more severely affected (major epidemics in Florida in the 1970s, with an estimated loss of between 13.6 and 30.7 million cubic feet annually in the period from 1974 through 1979; Dwinell et al., 1985). Since <i>G. circinata</i> was introduced into California in 1986, it has caused damage and mortality of <i>P. radiata</i> in urban plantings and in native forests. Costs of tree removal and replacement may eventually amount to several million USD in severely affected areas (Templeton et al., 1997).
<i>Thaumatotibia leucotreta</i> False codling moth	Insect	Absent. No data	70 host plants within 40 plant families. It can attack many cultivated and wild fruit species such as avocado (American Persea), cocoa (Theobroma cacao), carambola (Averrhoa carambola), citrus species (especially <i>C. sinensis</i> and <i>C. paradisi</i> but <i>C. limon</i> is considered to be an unsuitable host), coffee (<i>Coffea</i> spp.), guava (<i>Psidium guajava</i>), litchi (<i>Litchisinenensis</i>), macadamia (<i>Macadamia ternifolia</i>), peach (<i>Prunus persica</i>), pepper (<i>Capsicum</i> spp.), persimmon (<i>Diospyros kaki</i>) Punicagranatum). It is also a pest of field crops such as beans (<i>Phaseolus</i> spp.), Cotton (<i>Gossypium</i>	YES, IMPORT	Citrus; Cotton; Stone fruits.	<p><u>Economic Impact</u></p> <p><i>Thaumatotibia leucotreta</i> is a pest of economic importance to several crops, including: corn, cotton, citrus, litchi, macadamia, peach and plum, throughout sub-Saharan Africa, South Africa, and the islands of the Atlantic and Indian Oceans. <i>T. leucotreta</i> is on EPPO A2 list. On oranges, <i>T. leucotreta</i> caused 2-5% damage on Valencia and Navel oranges in 1954 (USDA 1984), but yield losses have been as great as 10-20%. <i>Thaumatotibia leucotreta</i> has caused significant yield losses ($\geq 30\%$) to macadamia crops in Israel and South Africa (La Croix and Thindwa 1986a, Wysoki 1986). In Ugandan cotton, <i>T. leucotreta</i> caused 20% loss of early sown varieties and 42 - 90% loss of late varieties (Byaruhanga 1977). The Port of Leghorn is one of the major points of entry into Italy for commodities coming from non-EU countries, subject to the monitoring of plant health (TOSCANA, 2014). In 2013, the Phytosanitary inspection activities carried out in the Port of Leghorn authorized the entry into the European Union of about 92.000 tons of fresh fruit which corresponds to an estimated economic value of 70 million euros, of which 42 million is Citrus, 27 million is Pomaceae and 1 million stone fruit and other fruits. Altogether, the amount of fresh fruit imported from South Africa, Argentina and Chile is about 90% of the total. Specifically Citrus fruits, which are imported during the period from May to October, come mainly from South Africa (60%) and Argentina (25%) (TOSCANA, 2014). During the inspection 20 cartons randomly chosen containing 65 oranges each (for a total of 1.300 orange fruits) were singly examined. The 2% of fruits presented the yellowish-brown rind around the oviposition hole and one larva of Lepidoptera Tortricidae, in each orange, that fed just below the fruit surface (Fig. I, 2). It is noteworthy that 2% is also the current fruit loss level in South Africa due to this pest (EPPO, 2013).</p> <p>The damage on Citrus is highly variable from orchard to orchard and from</p>

			<p>hirsutum), castor bean (<i>Ricinus communis</i>) and maize (<i>Zea mays</i>).</p>			<p>season to season, but can reach up to 90%. The damage on cotton damage caused by <i>T. leucotreta</i> is similar to <i>Pectinophora gossypiella</i>. Larvae penetrate cotton bolls, they first mine in the walls of the bolls and then feed on the seeds. Infested bolls are then often invaded by secondary rots. Larval presence is often characterized by the occurrence of a filamentous waxy secretion protruding from the entry hole. The damage on stone fruits: larvae bore into the fruit at the stem end and begin to feed around the stone. Infestation may be detected by the presence of brown.</p>
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