Sanitary status of stone fruit industry in the Mediterranean countries: France

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FRANCE

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France is at a crossroad in international exchange of fruit plants and stone fruits. With a production of 1,1 million tons in 1996 partly for exports (Oniflhor), the accent is on fruit quality.

To prevent the introduction of new pests and to produce virus-free material, certification of fruit trees has been set up by the Ministry of Agriculture through Centre Technique Interprofessionnel des Fruits et Légumes (CTIFL). In collaboration with INRA, CTIFL laboratory of virology has developed reliable techniques for detecting infectious diseases. The agents of these diseases are either identified or still unknown. They may be detected by grafting onto GF 305 peach in the greenhouse to have a complete sanitary picture in 2 to 4 months (Boyé and Desvignes, 1996), or by ELISA to confirm the presence of a given virus, or by DAPI to check the presence of a phytoplasma, or by greenhouse tests on *in vitro* propagated indicators and in the nursery by double grafting.

10,000 tests are performed yearly at Lanxade. Test results have enabled us to draw a balance of the infectious diseases in stone fruit trees of French origin or imported from abroad. Ilarviruses were among the most common agents. PNRSV affected 25% of peach trees and 10% of cherries and other *Prunus spp*. It is rarely harmful except for some necrotic recurrent strains. PDV infect 30% of sweet cherry trees where it may induce a 10% vigour drop. Conversely, it may be more harmful to peach trees. Among other Ilarviruses, American plum line pattern and apple mosaic virus are rare in France. Since the viruses are easily identified, they are often eliminated by breeders and propagators.

The peach latent mosaic viroid (PLMVd), reported from France (Ambros *et al.*, 1995), occurs frequently in peach varieties imported from the United States and propagated in France without certification. It occurs in 20% of peach trees from the USA and in 60% of those from Japan. It induces few symptoms in the leaves but compromises the tree vigour from the 5th or 6th year. Symptoms and damages are quite variable according to the variety and depend on the climatic and agronomic conditions (Cornaggia, 1990). High temperatures favour the

expression of symptoms and enhance the disease effect. PLMVd has not been recorded from other species. The hop stunt viroid (HSVd) has been observed on apricot, peach and Japanese plum. Its incidence and frequency are still undetermined. Apricot chlorotic leaf roll (ACLR), a phytoplasma disease, is severe in apricot. It reduces production and kills the tree in 4 to 5 years. Very epidemic, it is reported from South-Eastern France with a contamination rate up to 30% in some orchards and from 5 to 10% in trees in other areas. The Regional Plant Protection Service has set up a control programme.

An isolate close to ACLR, the peach vein clearing (Cornaggia *et al.*, 1996) infects naturally Japanese plum and apricot. Sprouting is delayed, trees are chlorotic in summer and decline slowly. It represents 10% of collected isolates.

Peach yellow is a phytoplasma present in France (Desvignes, 1990). It infects 10 to 15% of peach cultivars reducing their vigour.

Nepoviruses are important and polyphagous. They occur in nearly all *Prunus* species. Only strawberry latent ringsot virus (SLRV) is common in France. It may infect peach orchards up to 20% and reduce production by 10%. It is very harmful when associated with PDV or PNRSV. The stocky prune virus (StPV) and myrobalan latent ringspot virus (MLRV) are rare and localised in South-West France. Raspberry ringspot virus (RRSV) is present in Western France where it induces serious damages. Tomato ringspot virus (TomRSV) is unknown in France. Apple chlorotic leaf spot trichovirus (ACLSV) infects all *Prunus*. Some strains may induce spots, chlorotic or rough rings, severe mottling with deformations in peach leaves, bark splits in plum and cherry. It is found in a few trees (5%) thanks to successful sanitary selection.

Sharka induced by the plum pox potyvirus is present in South-Eastern France on peach and apricot. The strain Markus (M), very epidemic in peach, may contaminate some orchards by 30% and a few production areas by 5 to 10%. Selection based on visual observation of the disease on flowers first and on leaves later, followed by uprooting of infected trees, has limited the disease (Desvignes and Bois, 1994).

Other diseases reported from France include: Krikon stem necrosis (NKV), very epidemic on St. Julien plum and myrobalan, is limited by the use of certified virus-free seeds. Cherry green ring mottle virus is latent in 4 to 6% of sweet cherry and peach cultivars.

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