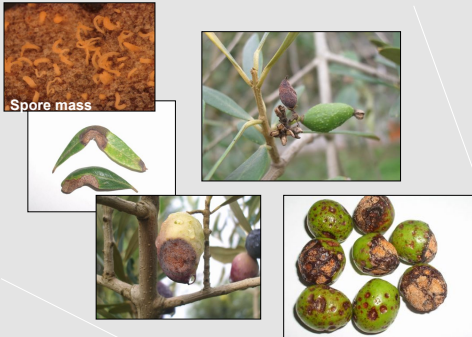


DISEASES AND DISORDERS ASSOCIATED WITH ENVIRONMENTAL STRESS IN SUSTAINABLE OLIVE ORCHARDS IN AUSTRALIA

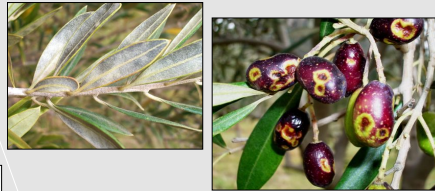
Dr Vera Sergeeva

Anthraco



Favoured by hot weather and high humidity following rain, spores can spread by dew, rain splash and moist wind to adjacent ripe and healthy fruit

Cercosporiose



Favoured by high humidity and moderate temperatures susceptible cultivars. Weather conditions before harvest very important for the development of disease on fruit

Peacock spot



Low temperature and moist conditions during autumn, winter and spring favour disease development. Young leaves are very susceptible to infection in spring. The pathogen is inactive during the hot and dry summer and infected leaves became crusty and whitish

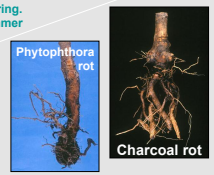


Adverse weather conditions during flowering

Heat, wind, chilling and frost during flowering have negative impact on pollination, flower development and fruit set

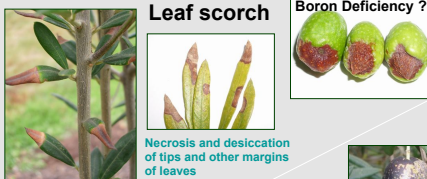
Pathogenic diseases are commonly associated with specific environmental conditions. In addition, non-pathogenic disorders, such as damage by heat and sun, wind, rain, fire, moisture, temperature, sunlight and other weather conditions can cause sunburn, russet, leaf scorch, pit burn, shriveling, frost, chilling, hail injuries; water ability and nutrition deficiency all of which interfere with the normal physiological processes in trees can be directly caused by environmental conditions, can be negative impact on pollination reduced crop set, yield, slow tree decline and dieback. If one of these factors is out of balance it may lead to environmental stress, which may in turn, result in a greater tendency to become diseased.

Root rot



Phytophthora and Fusarium rots are associated with high moisture and/or with poor drainage. However *Macrophomina phaseolina* (Charcoal rot) can be associated with relatively dry soil. They reduced growth and in severe cases plant death

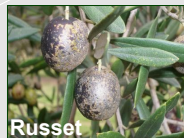
Nutrition deficiency



Necrosis and desiccation of tips and other margins of leaves

Hot, dry, windy weather, nutrient deficiency poor soil and combination of too much light and heat and insufficient moisture

Dehydration and frost damage



Occurs when wet fruits are exposed to large diurnal variations in temperature



High temperatures above 40° C and clear skies increase the incidence. Sunburn only affects the skin does not extend deep into the flesh

Hail



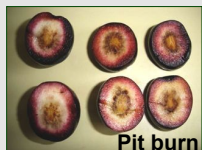
Fruits and twigs may exhibit open, ragged-edge to wounds in the skin or bark

Frost and chilling



Frost and chilling can damage fruit, but type of the damage depends on temperature and period of exposure. Fruit may turn a brown shows surface blisters and spots, indicating damage around the pit. It may be blackened throughout the whole fruit or only at the apical end and secondary fungal rots, such as *Alternaria* species, commonly infect the damaged fruit. Dehydrates, remaining shriveled until harvested or drop in severe frost

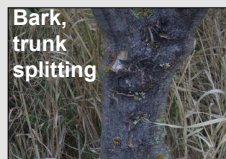
Sun and Heat



High temperatures ($\geq 40^{\circ}\text{C}$) during early fruit ripening and harvesting coinciding with excess soil moisture causes softening and brown discoloration of the flesh adjacent to the stone

Fire

Many olive groves are in bush fire-prone areas. The damage was principally to the foliage of the canopy. Up to 400 hectares were lost due to fire activity in 2009



Water

Lack of available water due drought leads to poor growth, low fruit yield and tree decline. It may also exacerbate nutritional problems and other disorders associated with tree stress. However, high rainfall can also cause fruit losses and increase incidence of fruit rot diseases



Sunscaid injuries can occur particularly in young trees



Frost can also damage olive trees, especially young trees, young shoots and inflorescences, resulting in serious losses

Sergeeva V, Braun U, Spooner-Hart R, Nair N.G. Observations on spot caused by *Fusicladium oleagineum* on olives (*Olea europaea*) in New South Wales. Australia Australasian Plant Disease Notes. 4:26-28, 2009
 Sergeeva V, Spooner-Hart R. Olive disorders caused by heat and sun. Australian and New Zealand Olivegrower and Processor. 66:44-46, 2009.
 Sergeeva V, Spooner-Hart R, Nair N.G. Evidence of early flower infection in olives (*Olea europaea*) by *Colletotrichum acutatum* and *C. gloeosporioides* causing anthracnose disease. Australasian Plant Disease Notes. 3: 81-82, 2008.
 Sergeeva V, Spooner-Hart R, Nair N.G. First report of *Colletotrichum acutatum* and *C. gloeosporioides* causing leaf spots of olives (*Olea europaea*) in Australia. Australasian Plant Disease Notes. 3: 143-144, 2008.
 Sergeeva V, Braun U, Spooner-Hart R, Nair N.G. First report of *Pseudocercospora cladosporioides* on olive berries (*Olea europaea* L.) in Australia. Australasian Plant Disease Notes. 3:24, 2008.
 Sergeeva V, Spooner-Hart R, Nair N.G. Root rot diseases of olives in Australia. The Olive Press. Winter, pp.25-28, 2005.
 Sergeeva V, Tesoriero L, Spooner-Hart R, Nair N.G. First report of *Macrophomina phaseolina* (Tassi) Gold. on olives (*Olea europaea* L.) in Australia. Australasian Plant Pathology. 34:273-274, 2005.
 Smyth J. Frost damage to the 2006 crop. Australian & New Zealand Olivegrower and Processor. Sep/Oct, pp.19-20, 2006.

Acknowledgements: Thank you to Rural Industries Research & Development Corporation, Horticulture Australia Limited and Boundary Bend Management for funding support.