

The Most Important Olive Pest and Disease

Set up: M. Zuhair Majid Agha



Introduction:

The olive tree is considered one of the most important trees in the Mediterranean basin and Syria in particular, thriving in the country's climatic conditions of Syria. As well as having an important position in Syrian agriculture, it is also one of the blessed trees mentioned in the Holy Quran. It is related to many beliefs and religions and is always associated with blessing and good. This tree is characterised by healing properties, as well as a food source.

However, the olive tree is prone to many insect and fungal pests, decreasing productivity and sometimes resulting in tree deaths.

We will try in this episode to show some of the diseases that may befall olive trees and ways of treating them.

Q.1. What are the most common pests or diseases that affect olive trees?

Olive trees, as with most plants, are plagued with many diseases and pests, but they can be determined in general by four directions:

- 1- Insect pests.
- 2- Bacteria and viruses.
3. Diseases caused by physiological changes.
4. Nutrient deficiency diseases.

Q 2. Let's start with insect pests. What are the most common types, and how do you cure them?

Sousse Al-Ghassan

A small black-coloured insect that pierces branches, especially where branches and leaves together. It is more harmful to small branches and usually strikes neglected gardens. The insect becomes more active in thirsty trees and feeds on wood and bark. It makes tunnels in the branches, leaving holes and dehydrating the branches and leaves.

Control

Cut injured and broken branches and

rereburning of spraying with an organophosphorous pesticide, such as a nitro or a drospan (1 liters / 1000 liters of water).

Olive fruit fly

A tiny, about 5-millimetre-sized fly that looks like an orange-coloured housefly. It lays its eggs in the heart of the fruit, which then hatch into larvae that feed on the fleshy portion of the fruit. They make tunnels through the fruit, which changes the colour of the fruit to black, affecting the quality of the fruit and increases the acidity of the oil. European varieties are more sensitive to injury than the native varieties.

Control:

Ploughing the earth to put the larvae in the sun.

Clean up any agricultural waste.

Collect and burn fallen olives.

Early harvesting.

Spray

is used with an organophosphorus pesticide, such as nitro or drospan, at a rate of 1 L/1000 L.

White cortical olive insect

This insect infects olive fruit, causing the fruit to fall, followed by the olive branches and leaves. The insect's shape is flat, round, and about 3 – 4 mm in diameter. The male insect is round, about 1 to 1.5 millimetres in length, and light white or grey.

Control:

The best and most effective way to combat the white crustal olive insect is to provide natural conditions for the growth and reproduction of its natural predators.

Olive–tree–naped beetle or peel beetle

This insect is a pest of small olive trees, which cause considerable economic damage. The young are 2 millimetres long and black with grey fur. Young insects come out of their winter environment in March and April, and after mating, females lay their eggs in cracks in the bark of olive trees. After hatching, the larvae immediately start drilling down through the branches. This causes a considerable loss of leaves and fruit, and the tunnels that the larvae drill can cause the wood to split.

Control:

In March and April, fragile olive branches need to be cut down and put under olive trees. The beetles will then gather on these branches and so they can be collected and burnt. The use of pesticides in early spring is one of the best ways to combat beetles.

Olive tree napkin

This insect is a dangerous olive pest. The beetle is 2 millimetres long and 1 millimetre wide. It is brown and black, and it is covered with fine grey hair. Its body is cylindrical and almost oval. The young beetles begin to appear in early May and gradually increase in numbers until they reach their peak in June. The insect has four overlapping generations a year.

Control:

There are at least seven membranous–winged insects that eat the beetle. These parasites play a prominent role in controlling the beetle's numbers and limiting the damage. Therefore, humans mustn't harm these winged insects by using chemical pesticides, as these kill many of them.

Agricultural control consists of caring for irrigation, fertilisation, pruning and burning infected branches immediately, so they don't become a source of infection.

Sousse Qolf Al-Zaytoun

The females of this insect lay their eggs within the ovaries of the fertilised olive flowers. Their larvae are fed by the contents of the fertilised ovaries, damaging the fruit. The insect's impact is not significant.

Control:

The best way to combat the scourge is to leave room for the natural predators to control the population.

Leap olive lice or cotton olive bug

This insect can cause a heavy loss of olive oil. This insect is only a few millimetres in size. They feed on the sap of the plant, preferring to attack the tender neocortex. The absorption of the larvae of this pest, accompanied by its wax secretions, delays the growth of the buds, prevents the emergence of new ones and dries up the leaves. Usually, this insect also attacks and destroys flowers. A clear sign of its presence is quasi-cotton secretions over small branches and leaves.

One of the most effective ways to combat the insect is to prune and burn the affected branches.

green olive leafworm (jasmine butterfly)

This is a serious olive pest. Its larvae feed on the olive leaves, flowers, shoots, and fruits. The butterfly is 11 – 16 mm long, and its width at the foot of its wings on both sides is 20 – 30 mm. Its front and back wings have a bright white colour. The larvae are green and about 2,5 millimetres in length when fully developed. There are yellowed capillaries on its chest and abdomen.

Control:

Good territory, deep or medium ploughing, harvesting infected and fallen fruit below the trees, separating from healthy fruits, and supplementing them. As for biological control, a bacterium (*Bacillus thuringiensis* (Bt)) has been tested that specifically fights the larvae. The result could be the elimination of 90 – 95% of the pest population.

Olive butterfly or olive moth

The size of the butterfly is small, about 5 millimetres long, and the distance between the two ends of its front wings at a single point is about 12 millimetres. Its front wings are grey with tiny light coloured patches that are covered in hair. The back wings are bright grey–white. The insect is found extensively in small trees and modern sleeping quarters. Larvae make tunnels on olive leaves in the winter, emerge from tunnels, become cocoons on buds, and then develop into whole insects in late February and early March.

In the second stage, the female lays eggs on the flowering buds, hatches the eggs, which turn into larvae that devour all the contents of the buds. The flowers wilt and dry. The female also lays eggs on the newly formed fruit, which turns into larvae that enter the fruit and start making tunnels in it and feed on the soft seeds, and the fruit falls to the ground.

Control:

Same as the previous insect (green olive leafworm).

olive fruit fly

The fertility of a female olive–fruit fly increases during the autumn months; their fertility is at its lowest level in the summer months. This insect attacks olive fruit, and its larvae may destroy a large proportion of the fruit. After hatching, the larvae dig their tunnels into the core of the fruit, rot the fruit into a dry, brown sponge. Often the shape and colour of the remaining uninfected portion of the fruit does not change. The major damage occurs when the affected fruit falls before it matures, typically in September and October. The percentage of oil in the affected fruit decreases and becomes more acidic.

A young insect is a medium–sized fly, about 5 millimetres long, with transparent wings, an outembox stained with a small yellow spot, a yellow chest, and red–yellow legs. We can ascertain the presence of an olive fruit fly by the simple "diverticulum" that occurs on the fruit's surface, where the larvae dug tunnels into the heart of the fruit. As a result, the surface colour turns brown.

Control:

Plough the land under the olive trees to expose larvae and cocoons present in the soil to sunlight, killing them.

Clear the land of grass and compost heaps.

Collect and dispose of fallen olives on the ground by burning.

Speed up the collection of olives that are nearing maturity, and squeeze them at the earliest opportunity.

Distribute yellow sticky fisheries at the beginning of July to attract adult olive fruit flies and trap them. This is one of the ways not to harm valuable insects, which are the biological enemies of many pests. It thus maintains a natural equilibrium. Hang the trap under the tree in a shaded yet exposed location. The fisheries must be clear to be effective, and the adhesive material must be sticky. Dry or dirty traps need to be changed. They remain effective for about two months, after which the old traps must be changed and new ones suspended.

To prevent the young flies of this insect from entering or exiting the store, place sheets of thin narrow wire on all the windows to the storehouse.

Clean all waste materials from the presses, wash the pots, and plug all the holes in the storehouses where larvae may find refuge.

[Mediterranean fruit fly](#)

The insect belongs to the same order as the olive fruit fly and its family. They are found in the Mediterranean Basin, Africa, Australia and South America and affect 180 types of plant families, including olive. The female lays her eggs under the newer or mature crust of the fruit. Her larvae feed on the heart of the fruit. The infected fruit falls to the ground, from which the fully grown larvae are extracted to transform into flies.

Control:

This pest is fought over olives in the same way as the olive fruit fly.

[Cotton Olive Insect or Olive Opacella](#)

Insects that infect olive trees in the spring and early summer causing heavy crop losses

The whole insect is about 2,5 millimetres long. It's green-brown and has wings.

The insect feeds on flowers. It secretes a large amount of white wax (in the form of sticky white lumps), covering flower petals and vegetable shoots. This causes the flowers to dry and fall, interrupting pollination, which leads to a decrease in the crop. The plant also struggles to photosynthesise due to the white wax that covers the tree. Black mould then can grow on the wax as well.

The insect hides in the leaves during the cold winter months, coming out in April as the temperature starts to rise. Then, they begin breeding with the white female laying eggs on the branches near flowers and the bottom of leaves. One female can lay as many as 100 eggs, which all hatch and feast on the tree.

The insect is more active in temperate and humid climates and is less active in hot climates.

The insect has 3–4 generations per year.

Spray the trees in April with Movento's Pesticide, Dimethodes, or Chlorpiro before the flowers open and once you see the adult insect.

Q-3. What are the most common fungal, viral and bacterial diseases that affect olive trees?

Awn Al-Taous.

It is a common, severe fungal disease that causes reduced productivity and spreads at high temperature. It begins with increased moisture in autumn, and the symptoms are concentrated on leaves and fruits. It appears as circular grey spots on the top surface of the leaf. Dark varieties are more prone to this disease.

Control

Preventive spraying takes place after pruning in November or December. The spraying is repeated after one to two months. If the moisture continues, a third spray can be given.

In the case of severe injury, especially in susceptible varieties, spraying should be done 3 times in the injury season for at least 3 years. The disease

develops in a thermal range of 9 – 25 degrees Celsius and is especially common when the temperature is between 15 – 18 degrees Celsius. Materials used for preventive spraying:

Copper hydroxide compounds.

Systemic copper pesticides yield good results.

In infected fields, it must be considered that the disease cannot be eliminated from the first year, and preventive spraying is performed once or twice at a one to two month interval,

In all cases, the field must be kept clean, plant waste must be disposed of, and periodic spraying programs must be followed.

Bacterial blast

A germ disease that in recent years has established itself in areas along the Mediterranean, attacking economically important crops such as olives, citrus and grapes.

In 2013, it was discovered in Italy and made its way to Italian olive trees. In the absence of any known cure, the pathogen has already affected more than 10 million trees at the southeastern tip of Italy.

Olive trees are not the only host for strains of these bacteria, but also more than 500 other plants, many of which are dependent on the host.

When insects absorb the tissue from an infected tree, they can carry the bacteria to other trees, but the disease also spreads through transporting the infected plants.

Symptoms of a bacterial blast include weak branches, dried leaves and shrinking fruits, as the trees are already suffering from internal drought. Bacteria live in the xylem that transports water and foodstuffs, and the tree's limbs are choked.

Prevention is the only way.

Despite countermeasures, the disease continues to kill olive trees in Italy and has spread to Spain and France. So far, no reports have been received in Syria.

The most important prevention method is the disposal of plant wastes in a field.

Appropriate pest control.

No trees of ill or unknown origin should be planted.

Report any new or unusual cases occurring in the area.

Verticillium wilt disease

The fungus that causes the disease Verticillium Wilt lives in the soil and causes the wilting of vegetables, fruit trees and olive trees. It is prevalent on land previously planted with disease-sensitive crops, such as pepper, tomato, eggplant, watermelon and more.

Indicators of the disease include the wilting of small leaves and the drying of leaves and little branches. The injury usually is partial, and the stiff leaves are stuck on the twig. One of the most prominent signs of the disease, which often occurs in the spring and early summer, is brown lines in the living area under infection and branches.

The fungus penetrates the olive tree through the roots, causing it to rot, and the ends of the branches wither. Plant residues are a vector for disease, including infected seedlings, unfermented organic fertilisers and contaminated agricultural equipment.

Ensure the safety of used seedlings.

Ensure that the soil used in multiplication bags is free of fungus and that it has been sterilised.

The natural sterilisation of the soil in olive vineyards and nurseries

The disposal and annihilation of stiff branches

Pimples or anthrax on olives

This disease is widespread in many Arab countries and affects olive fruit in general, causing weight loss of 40–50%, reducing the number of fruits, and decreasing the quantity of oil.

The symptoms of this disease appear in the form of the rot and pink/orange mumps of ripe fruits. Unripe olive fruits are susceptible to this disease at all stages of physiological growth as the fruit nears maturity, its susceptibility increases, and the hibernation period decreases. Infected fruit trees may appear to wilt on leaves and branches several weeks after infection.

In the

spring, the fungus is dormant. It is only during the warm and wet conditions of the summer months, when the fruit begins to develop and mature, that the spores appear on the surface of the fruit and invade the internal tissues. Fungus spores spread by insects, wind, and water. The infection lasts for 7 to 8 months until the fruit ripens. That is, fungi can hit when the environmental conditions are right but will stay asleep until the fruit starts growing.

The trees are not infected but show no symptoms.

Control:

The gathering and burning of leaves and fallen fruit.

Prune trees to improve airflow and light penetration within a tree. This can also help to reduce injury.

The primary method used to combat the disease is preventive spraying with copper oxychloride.

In infected areas, preventative copper fungicides must be applied at the end of summer or a mixture of copper oxychloride, zenab (0.4%) and border mixture (2%). You need to spray once a month throughout the growing season. Spraying must also begin when the fruit is the size of a pea and lasts to about 3 weeks before the harvest season.

Q 4. What are the physiological diseases of olives?

The olive tree, like other trees, is exposed to some physiological diseases, of which we can mention:

– colds and frost damage:

The olive tree is relatively tolerant of low temperatures. Still, if it falls below the tree's tolerance, it can cause damage to all parts of the tree except the root. This happened to the olive trees in Syria in the 1950s, where a wave of frost wiped out most of the olive trees.

The relatively low temperatures in winter do damage to the leaves and the fruits without causing their death. Low temperatures during the autumn period can cause the death of the leaves and the branches.

The leaves show some brown spots, as in the case of a lack of boron and potash. When the frost is severe, the buds die, and the leaves dry entirely, similar to the symptoms of verticillium. You can distinguish between the two by the appearance of wounds in the bark branches that frost causes. Beware, these can then become a shelter for bacteria causing olive tuberculosis (as happened in the area of al-Rouj in the province of Idlib in the winter of 1997) or insects. In this case, in the regions of the valleys where frost is expected, it is advisable to delay pruning to spring.

Young olive plantations are particularly sensitive to frost, especially during the dry period. For example, in the province of Andalusia during (1994–1995), the cold caused 36% of the plantations under the age of 3 to dry. In 1995, the damage appeared very similar to verticillium, especially as the autumn was relatively warm. They later led to the colouring of vessels without any external signs on the bark, causing the branches to dry up and prompting unnecessary pruning.

– Heat and sun damage:

In some years, olive trees suffer from heat and drought, where direct sunlight exposure is particularly damaging, especially on young or damaged trees. The damage appears as dehydration in the bark and a portion of the wood under the bark. This area is later vulnerable to some wood diseases. It is therefore beneficial to paint the olive branches with lime. Abnormal temperatures may also damage the trees in some years. The partial drying of fruit is caused by the dry weather and the lack of water in the soil.

Q 5. What are the symptoms of element deficiency on olives?

Olive trees grow on mineral-poor land and are tolerant of a lack of nutrients. Therefore, only severe shortages are a danger to them. Here are the signs of deficiency:

potassium deficiency:

Potassium is an essential element needed by olive trees in large quantities. Leaves turning brown at the ends are a clear sign of potassium deficiency. The leaves fall off in cases of severe cases. Potassium deficiency can be remedied by adding potassium to the tree soil in winter. To estimate the necessary amount of the tree, the soil must be analysed, and appropriate material rates must be followed according to the shortage, age and production of the tree.

iron deficiency:

Iron is vital for plant growth, and iron absorption is influenced by the presence of calcination in the soil. The symptoms appear on the leaves in the form of yellowing. Iron deficiency can be treated by the addition of iron, but only once the soil has been properly analysed. This is because a lack of magnesium can also cause yellowing in the leaves.

Q 6. How to prevent olive diseases and pests?

Olive pests and diseases can be prevented by focusing efforts on preventing olive tree infections, with soil care, "organic" fertilisers, good breeding, herding and ploughing, and the provision of organic cover.

Q7. Top recommendations and advice?

Good maintenance of olive trees is better than curing them.

Ploughing the soil helps get rid of a lot of diseases

One of the most important processes is to clean the field of weeds, preferably manually or mechanically.

Any plant waste from pruning or shale must be disposed of and burned away from the field.

Consider adding properly fermented organic fertilisers to the soil.

Take into account the appropriate composting and irrigation dates whilst considering the environmental factors that may increase humidity

Monitor the field continually, observe all changes in the leaves and note the presence of strange butterflies and insects.

In general, painting trees with a Bordeaux solution is a helpful preventive factor.

Spraying with a solution of copper oxychloride is one of the most important preventive and therapeutic methods against fungal diseases.

Organic phosphorous compounds are vital for insect control and preferably accompanied by an adhesive.

Most importantly, ask the specialists in the area for help when you see any unusual behaviour.

Purchase of fertilisers and pesticides from accredited centres and companies.