

AFP | Gagliano Del Capo, Italy

Working in an arid Italian field of crumbly soil, agronomists are battling a rampant bacterium that has already infected millions of olive trees and could threaten the entire Mediterranean basin.

Xylella fastidiosa, which has no known cure, has devastated ancient olive trees in Italy's southern Apulia region and beyond, causing 1.2 billion euros (\$1.3 billion) of damage to the world's second olive oil exporter after Spain.

Since 2013, the disease has torn through Apulia's olive groves, leaving thousands of

skeleton-like trees in its wake, and little hope for farmers.

Once Xylella fastidiosa bacteria -- carried by tiny sap-sucking insects known as spittlebugs -- take hold, blocking the tree's ability to absorb water, the plant is doomed.

Bureaucracy and 'mafia'

The only way to fight the spread of the disease, known as "olive tree leprosy", is to destroy diseased trees, but farmers must seek special permission and say the authorities are not always forthcoming.

Doubtful of conspiracy theories that the mafia are killing trees to make way for hotel construction, agronomist Pierfeder-

agronomist and olive oil producer Giovanni Melcarne has lost 90 percent of his plants since Xylella arrived, and he is seeking an even better solution: immune varieties of olive tree.

While much of his machinery for olive cultivation now lies dormant, he has built an improvised greenhouse, filled with dozens of small olive saplings, among which he hopes to find at least one immune variety.

"We will infect them with the illness, we will contaminate them with the insects that transmit the illness so we have scientific proof that this plant, this indigenous variety that we could cultivate, doesn't catch the disease and so is immune,"

21 million trees, and is "spreading inexorably north at a speed of more than two kilometres (over a mile) a month", leaving behind it "a ghostly landscape".

The bug has also attacked orchards in Spain, France and now Iran. Both Greece and Portugal are bracing for its likely arrival.

Some 350 plants are vulnerable, including grape vines, citrus and almond trees.

Scientists say there is a real risk the disease will spread to the entire Mediterranean basin, where olive oil is a staple in the diet and vital to the economy.

This is why the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) in Bari, Apulia's capital,



Italy battles 'olive tree leprosy'

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ico La Notte noticed that some trees seemed not to become infected, standing tall and green in otherwise devastated fields.

Suspecting that they may be resistant varieties that can develop the disease to a small degree but continue to grow and flower, the soft-spoken researcher rapidly identified two that appeared to suffer little from Xylella.

"The Leccino and Favolosa varieties are a starting point, not the finish line," said La Notte, who works for Italy's National Research Council.

"We hope, and we're working on it, to find a much bigger number of resistant varieties," said La Notte, teaching visiting Egyptian agronomists in a research field outside the ancient town of Gallipoli.

Results so far are promising. Branches from resistant varieties that are grafted onto the trunks of sick trees are growing perfectly and even producing fruit, offering a glimmer of hope to the devastated region in the heel of Italy's boot.

Immunity?

Down the road in the heavily agriculture-dependent region,

Melcarne said, carefully labeling a batch of olive saplings.

But it will be at least another year before the results are known, given the slowness with which the disease will become visible after infection, something that has helped it spread invisibly, and rapidly.

Drones using infrared cameras can help detect the infection marginally earlier, but the disease's progress is relentless.

Known in the United States as Pierce's disease, it devastated California vineyards in the late 19th century.

The European Commission describes Xylella as "one of the most dangerous plant bacteria worldwide, causing a variety of diseases, with huge economic impact for agriculture, public gardens and the environment."

Since it arrived in the Apulia region in 2013, probably from Costa Rica according to the Italian farmers' union Coldiretti, the microscopic pathogen has killed more than a million olive trees in Italy.

Mediterranean spread

Coldiretti said earlier this month that Xylella has infected

has decided to train agronomists from around the region, including the Middle East and North Africa.

Relentless advance

"Today's technology lets us upload photos in real time, images of symptoms to help and also, through the project, we can mobilise the scientific resources of European countries which can go to other Mediterranean countries to help and to train these people," said CIHEAM agronomist Maroun El Moujabber, from Lebanon.

Budding and experienced experts from around the Mediterranean study at CIHEAM's sunny campus, where an app has also been developed which allows olive farmers or anyone else to input symptoms as they observe them, hopefully providing a better indicator of the disease's spread, and how to slow it.

Arafat Hanani, a young Palestinian doctoral student and plant pathologist at the CIHEAM, says that while "nothing is impossible about science", Xylella is particularly problematic.



The International Center for Advanced Mediterranean Agronomic Studies in Bari, Apulia's main city, trains agronomists from around the region, including the Middle East and North Africa



Agronomist and olive oil producer Giovanni Melcarne

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