Name

Instructor Name

Art 101

19 November 2018

Woody Plant Diseases in Missouri

A sudden oak death has been found in Missouri which is caused by plant pathogen. Missouri department of Agriculture says that “it has found ramorum blight on rhododendron plants shipped to some retail nurseries in the state. The rhododendrons were shipped to Walmart and Rural King stores throughout Missouri, as well as the Springfield Home Depot, Stark Bros. Nursery Garden Center and Fort Leonard Wood PX(*Sudden Oak Disease Found in Rhododendrons in Missouri | FOX2now.Com*)”. There is no treatment for the pathogen as agriculture officials warned people who bought lilac plants and rhododendrons from Park Hills Plants. In order to save plants it is important to know the reason of oak declining in Missouri. Researchers have found that damage is increasing on the Mark Twain National forest in Missouri. The decline of oak tress occurs naturally. The decline of black and red oak trees are due to:

* Where they grow: rocky soil, shallow, and often on upper slopes and ridge tops.
* Historical land use.
* Their age as live only 70 to 90 years.

Factors that triggered the decline are:

1. Repeated insect defoliation
2. Short-term drought
3. Acute pollution
4. Late-season frosts

The dying trees cause serious damage to ecosystem. Degraded timber values caused by decay and borer tunnels, loss of aesthetics, decrease and increase in habitat for some wildlife species, and loss of recreational opportunity such as hunting, camping and hiking can bring change in economic and social conditions(*Oak Decline in Missouri | Missouri Department of Conservation*). Short term as well as long term response should be taken for Missouri. It is important to remove hazardous trees from high-use areas such roads, yards etc. Increase in the variety of forest stands to reduce the dominance of two or more species of tree is necessary.

According to the researchers, Thousand Cankers Disease is threat for Missouri, although it is not found yet but early detection is important to control it. This disease affects black walnut. The symptoms are provided by researchers to know if tree is having such disease. Some of the symptoms are:

* New sprouts can grow from trunk to roots which leads to bushy appearance.
* Signs of walnut twig beetles(*ID Thousand Cankers Disease | Missouri Department of Conservation*).

With rising concern about environmental pollution and the damaging effects of chemicals, it has become essential to use biological control as an environmentally friendly alternative option. Traditional breeding of trees for confrontation remains one possible way, but it is a strategy that may be outdone by the introduction and spread of diseases and pests, as well as a time-consuming and sometimes difficult task. Despite the trials of bio-control of pest and tree diseases, research shows that endophyte treatments can be effectively applied, and there is a clear potential for application to trees such as BCA in the future(*Endophytes vs Tree Pathogens and Pests: Can They Be Used as Biological Control Agents to Improve Tree Health? | SpringerLink*). Though, it is indistinct how endophytes enter plant tissue and spread throughout the plant. The effectiveness of the biological control technique can be improved by combining it with environmental conditions and cultural to stimulate plant health and promote the inhibition of pest or pathogens, but this still requires more attention in the future(*Endophytes vs Tree Pathogens and Pests: Can They Be Used as Biological Control Agents to Improve Tree Health? | SpringerLink*). Developments in molecular techniques, such as NGS, reveal more precise community structures, and with the study of new environments, it is likely that new fungal and bacterial species will be revealed and enable the dissection of societal effects of individual organisms.

**Work Cited**

*Endophytes vs Tree Pathogens and Pests: Can They Be Used as Biological Control Agents to Improve Tree Health? | SpringerLink*. https://link.springer.com/article/10.1007/s10658-019-01814-y. Accessed 19 Nov. 2019.

*ID Thousand Cankers Disease | Missouri Department of Conservation*. https://mdc.mo.gov/trees-plants/diseases-pests/invasive-tree-pests/thousand-cankers-disease/id-thousand-cankers-disease. Accessed 19 Nov. 2019.

*Oak Decline in Missouri | Missouri Department of Conservation*. https://mdc.mo.gov/trees-plants/diseases-pests/oak-decline-missouri. Accessed 19 Nov. 2019.

*Sudden Oak Disease Found in Rhododendrons in Missouri | FOX2now.Com*. https://fox2now.com/2019/07/21/sudden-oak-disease-found-in-rhododendrons-in-missouri/. Accessed 19 Nov. 2019.