# Journal of Plant Science and Phytopathology

**Volume - 5, Issue - 3**

**Review Article** **Published Date:-2021-11-25 14:16:20**

[Tree-ring history of Swiss needle cast impact on Douglas-fir growth in Western Oregon: correlations with climatic variables]

The fungal pathogen, Nothophaeocryptopus gaeumannii, occurs wherever Douglas-fir is found but disease damage is believed to be limited to the Coast Range and is of no concern outside the coastal fog zone (Shaw, et al., 2011). However, knowledge remains limited on the history and spatial distribution of Swiss Needle Cast (SNC) impacts in the Pacific Northwest (PNW). We reconstructed the history of SNC impacts on mature Douglas-fir trees based on tree ringwidth chronologies from the west slope of the Coast Range to the high Cascades of Oregon. Our findings show that SNC impacts on growth occur wherever Douglas-fir is found in western Oregon and is not limited to the coastal fog zone. The spatiotemporal patterns of growth impact from SNC disease were synchronous across the region, displayed periodicities of 25-30 years, strongly correlated with winter and summer temperatures and summer precipitation, and matched the patterns of enriched cellulosic stable carbon isotope indicative of physiological stress. While winter and summer temperature and summer precipitation influenced pathogen dynamics at all sites, the primary climatic factor of these three limiting factors varied spatially by location, topography, and elevation. In the 20th century, SNC impacts at low- to mid-elevations were least severe during the warm phase of the Pacific Decadal Oscillation (PDO, 1924-1945) and most severe in 1984-1986, following the cool phase of the PDO (1945-1977). At high elevations on the west slope of the Cascade Mountains, SNC impacts were the greatest in the 1990s and 2000s, a period of warmer winter temperatures associated with climate change. Warmer winters will likely continue to increase SNC severity at higher elevations, north along the coast from northern Oregon to British Columbia, and inland where low winter temperatures currently limit growth of the pathogen. Surprisingly, tree-ring records of ancient Douglas-fir logs dated ~53K radioactive years B.P. from Eddyville, OR displayed 7.5- and 20-year periodicities of low growth, similar to those found in modern day coastal Douglas-fir tree-ring records which we interpret as being due to cyclic fluctuations in SNC severity. Our findings indicate that SNC has persisted for as long as its host, and as a result of changing climate, may become a significant forest health problem in areas of the PNW beyond the coastal fog zone.

---

**Short Communication** **Published Date:-2021-10-28 12:28:59**

[Intensive fruit orchards cultivation]

The main purpose of a High-intensity cultivation system is to maximize the yield crop per area unit through planting more trees, exploiting efficient use of different resources.
There are different factors that affect high-intensity cultivation that include Land-cost, planting spaces, tree size, Rootstock, and Practice management. Meanwhile, the adoption of High-intensity cultivation to control canopy size, by using modern management practices is very crucial to get more yields in the early stages of the orchard besides simplicity in its management and increase the farmers' net profit. In addition, High-density cultivation use in different fruit crops like olive, mango, orange, mandarin, Apple, and cherry. Numerous benefits of intensive fruit cultivation include increase fruit yield per unit area, improving use efficiency of natural resources e.g. soil, light, water, and nutrients, enhancing fruit quality, improving soil properties and rising levels of organic carbon and nutrients in plant tissues …etc. In addition, it is very effective in acid lime soil and achieves high income for the farmers.

---

**Research Article** **Published Date:-2021-10-06 12:29:49**

[Effect of chitosan and silicon oxide treatments on postharvest Valencia Late (Citrus × sinensis) fruits]

---

The efficacy of chitosan and silicon oxide to prevent postharvest weight loss and fungi infection in 'Valencia Late' oranges was tested. Three silicon oxide concentrations (0.1%, 0.2%, 1%) were applied as preharvest treatments. Chitosan treatments were performed at the same concentrations in postharvest fruit. Preharvest applications were carried out by tractor spraying, while fruit were submerged for 30 seconds in baths with the chitosan concentrations in the postharvest applications. In both cases, a positive control (water treatment) and negative control (fungicide) were included. Treated fruit were stored in a chamber to simulate commercial storage conditions (4 ºC, 90% RH) for 9 weeks. After this time, the weight loss and damage caused by fungi due to natural infection were evaluated. Both silicon oxide and chitosan applications were effective in controlling natural infection by Penicillium species but had no positive effect on weight loss.

---