United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Plants for Planting Quarantine Pest Evaluation Data Sheet

August 20, 2012

In order to prevent the introduction of quarantine pests into the United States, § 319.37-2a allows the APHIS Administrator to designate the importation of certain taxa of plants for planting as not authorized pending pest risk analysis (NAPPRA). APHIS has determined that the following plant taxa should be added to the NAPPRA category. In accordance with paragraph (b)(1) of that section, this data sheet details the scientific evidence APHIS evaluated in making the determination that the taxa are hosts of a quarantine pest.

Quarantine Pest: ***Phytophthora alni* subsp. *alni***

Hosts: ***Alnus spp.***

Status: This pest and host were regulated under a Federal Order DA-2009-27 dated June 22, 2009

Taxonomy and description of the pest:

Phytophthora alni Brasier & S.A. Kirk[1].

P. alni is a hybrid of two different *Phytophthora* parents. These parents are likely *P. cambivora* and a *Phytophthora* species similar to *P. fragariae*[2]. There are three subspecies of *P. alni*, the *P. alni* subsp. *alni* being the most prevalent[1].

Phytophthora alni is commonly known as both Alder Dieback and Alder Phytophthora.

Known distribution:

Austria, Belgium, Czech Republic, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Slovakia, Slovenia, Sweden, UK, England, Wales, and Scotland[3].

P. alni subsp. *alni* is not known to occur in the United States.

Biology of the pest:

P. alni has been isolated from infected roots, stems of alder trees, and from stream baiting[4,5,6]. The infectious part of the pathogen is mainly its zoospores[3]. It is homothallic

(self fertile) and produces ornamented and semi-ornamented oospores in culture as well as in infected tissue.[3,7]. The viability of oospores appears to be low. Ideal temperatures for growth in culture are between 22.5-25.0° C, with the upper temperature limit about 30° C. Infection of a plant seems to occur usually at the collar level or, during flooding, on the stem[3]. Trees suffer from root and collar rot, as well as disrupted vascular systems, resulting in death[1,3].

The disease is most commonly associated with alder stands along riparian ecosystems as well as in nurseries associated with alder seedlings[8,9]. Studies in France showed that water flow played a role in disease development. Fewer diseased alders were found in sites where water flow was rapid compared to sites with slower water flow. In Germany, alders that were planted on high hills or banks were less likely to show disease symptons[11]. Higher summer temperatures and clay soils also increased prevalence of the pathogen[10]. In some cases tree decline took more than four years and some trees actually overcame infection through inherent resistance mechanisms[8].

Damage potential of the pest:

P. alni was first discovered in the UK in 1993[2]. Since then it has spread to over 18 countries in Europe[4]. While the origin of *P. alni* is unknown, information from Poland suggested that introduction of the pathogen to natural ecosystems may have occurred via nursery-infested seedlings planted throughout the country for reforestation[9]. The pathogen further established in the field via zoospores in streams, particularly greater infection rates were found during the growing season when flooding occurred[11].

In Europe this disease has already done extensive damage to alder populations[3]. In inoculation tests, the North American red alder has shown to be susceptible to this pathogen[3].

Known host range:

Alnus spp.[3,12].

Action under NAPPRA:

The importation of *Alnus* spp. plants for planting, excluding seed but including cut flowers and greenery, a host of *P. alni* subsp. *alni*, is not authorized pending a pest risk analysis (NAPPRA) **from all countries except Canada.**

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