

## Data Sheets on Quarantine Pests

# *Venturia nashicola*

### IDENTITY

**Name:** *Venturia nashicola* S. Tanaka & S. Yamamoto

**Anamorph:** *Fusicladium* sp.

**Taxonomic position:** Fungi: Ascomycotina: Dothideales

**Common names:** Japanese pear scab (English)  
Kurohoshi-byo (Japanese)

**Notes on taxonomy and nomenclature:** *V. nashicola* was proposed (Tanaka & Yamamoto, 1964) on the basis of morphological, pathological and physiological differences from *V. pirina*, which causes scab of European pear. Although *V. nashicola* is sometimes considered to be a synonym of *V. pirina* (Sivanesan, 1977), comparative studies (H. Ishii, unpublished) indicate that *V. nashicola* is a species distinct from *V. pirina*.

**Bayer computer code:** VENTNA

**EU Annex designation:** II/A1

### HOSTS

The principal host is *Pyrus pyrifolia* var. *culta*; *P. bretschneideri* is also attacked. *V. nashicola* has also been reported on various wild *Pyrus* spp. such as *P. betulifolia* (manshumamenashi), *P. aromatica* (iwateyamanashi), *P. vilis*. However, these wild species are not widely distributed and are not a significant reservoir of the pathogen. Pears (*P. communis*) are not specifically recorded as a host, but the host range in *Pyrus* is apparently quite wide. Since *Pyrus pyrifolia* var. *culta* and *P. bretschneideri* are hardly grown in the EPPO region, *P. communis* must be considered the main species at risk.

### GEOGRAPHICAL DISTRIBUTION

*V. nashicola* is indigenous to eastern Asia and has no history of spread to new areas.

**EPPO region:** Absent.

**Asia:** Japan (Honshu), Korea Republic (Cho *et al.*, 1985).

**EU:** Absent.

### BIOLOGY

The fungus overwinters in infected leaves on the orchard floor and forms ascospores in a pseudothecium in the following spring. The fungus also overwinters in the inner tissues of bud scales on the tree, resulting in the production of conidia. The ascospores and conidia thus formed play an important role in the primary infections. The discharge of ascospores and the dispersal of conidia occur mainly in rain periods. The incubation period of the fungus in leaves and fruit is influenced by weather conditions and is 2-3 weeks or even longer. The fungus repeats secondary infections several times a year. In the rainy season (June in Japan), the conidia are actively disseminated. In the hot summer, however, the

fungus is usually inactive. In autumn, it becomes active again and new infection of buds occurs. The infection tends to last until middle or late autumn in Japan.

For more information on the biology or physiology of the pathogen, see Yamamoto & Tanaka (1962; 1963), Tanaka & Yamamoto (1964), Misonou & Fukatsu (1970; 1971), Takanashi *et al.* (1970), Umemoto & Nagai (1985), Umemoto (1990, 1991a, 1991b).

## DETECTION AND IDENTIFICATION

### Symptoms

In early spring, bud scales infected the previous year develop and form conidia, which infect the basal portion of young clusters and produce black sporulating lesions. Subsequently, abundantly sporulating lesions can be observed on leaves, petioles, fruit and young shoots. Infections of petioles and peduncles result in premature abscission of leaves and fruit, respectively. Uneven development or cracking of the fruit occurs after infections. Amounts of conidia formed on leaves decrease after summer has passed.

### Morphology

Conidia occur singly and are one-celled, pale-brown, ovate, but sometimes irregular in shape, 7.5-22.5 x 5.0-7.5  $\mu\text{m}$ . Ascospores are unequally two-celled, with a septum near the base, pale-brown, 10.0-15.0 x 3.8-6.3  $\mu\text{m}$ .

A full description is given by Tanaka & Yamamoto (1964).

## MEANS OF MOVEMENT AND DISPERSAL

Under natural conditions, *V. nashicola* spreads by conidia or ascospores within orchards. Movement by human agency has not especially been noted. In international trade, *V. nashicola* is liable to be carried on infected plants for planting of *Pyrus*. However, it is not known ever to have been intercepted.

## PEST SIGNIFICANCE

### Economic impact

In Eastern Asia, *V. nashicola* is one of the most serious pathogens in *Pyrus pyrifolia* var. *culta* and *P. bretschneideri*. The pathogen causes fruit drop, cracking, and malformation. No scab-resistant cultivars are commercially available in *Pyrus pyrifolia* var. *culta*.

### Control

Commercial orchards have been successfully protected by chemical spraying coupled with routine inspections, and removal of infected parts. Strains of *V. nashicola* resistant to benzimidazole fungicides are widely distributed throughout Japan, making it difficult to control the disease with this group of fungicides (Ishii *et al.*, 1985). Since 1986, ergosterol biosynthesis inhibitors (EBIs), such as triflumizole, bitertanol and fenarimol, have been introduced into Japan for the control of pear scab, and have replaced benzimidazoles for this purpose.

### Phytosanitary risk

*V. nashicola* has not been considered as a quarantine pest by EPPO or any other regional plant protection organization. It is undoubtedly of considerable economic importance, but its significance for the EPPO region has to be qualified in several respects: (1) most authors (including the abstracting services of CAB International) consider it synonymous with the important but very widespread indigenous *V. pirina*; (2) if distinct, it is not clear that its introduction would substantially change the pear scab situation in Europe, since biology

and control measures are practically identical; (3) its potential on European pear is ill defined, while its normal hosts are grown at most as curiosity crops in Europe.

## PHYTOSANITARY MEASURES

If phytosanitary measures against *V. nashicola* are justified, then prohibition of the import of plants for planting of *Pyrus* spp. from infested countries would be appropriate, in view of the presumed difficulty of ensuring that they are free from latent infection.

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