

1. Content of the 'Topic Description' document

1.1. Topic area

Pest Risk analysis.

1.2. Topic title

Blueberry rust caused by *Thekopsora minima* – improved risk assessment by supplying quick and reliable identification tools and by performing infection studies.

1.3. Description of the problem the research should solve

Blueberry rust of the North American highbush blueberries (*Vaccinium corymbosum*) caused by *Thekopsora minima* has been reported from Germany for the first time in 2015 (Schrader & Maier). Because of a complicated systematic history the disease-causing agent was probably often mislabelled as *Pucciniastrum vaccinii*. This allows for confusion with the European blueberry rust on the native *Vaccinium myrtillus*, because *Pucciniastrum vaccinii* is a synonym of *Naohidemycetes vaccinii*. The confused systematic history also causes problems in reliably drawing distribution maps for the rust species responsible for the diseases on the North American versus the European blueberries based on currently published reports.

The suggested project is aiming to

(1) provide a quick and reliable identification of the different blueberry rust fungi. We have built DNA data sets, which could be used as “one-click-identification-tools” by other researchers or plant protection officers clearly distinguishing *T. minima* from *N. vaccinii*. By using these tools the confusing use of the two names could be eventually ended.

(2) By clarifying the nomenclatural problems reliable distribution maps of the relevant fungi could be drawn.

(3) Develop a qPCR protocol to enable detection in asymptomatic tissue during the latent period of infection, (which could be important for testing import consignments.)

(4) It is currently unclear whether *Thekopsora minima* can potentially infect the native European blueberry (*Vaccinium myrtillus*). This is important to know for a better risk assessment in relation to the impact the introduced *Thekopsora minima* might have on native European flora.

1.4. Description of the expected results

The project should enable a clear and quick identification of *Thekopsora minima*, end the confusion about the correct labelling and enable correct information about the actual distribution of the pest. The planned infection studies should clarify whether *T. minima* can also potentially infect native European blueberries or cranberries (*V. myrtillus*, *V. itis-idaea*), and thus pose a potential threat to these native host plants.

1.5. Beneficiaries of this research product

Plant protection agencies are to be enabled to make use of the robust detection methods, to reliably identify blueberry rusts.

Clear differentiation of the North American, European and Japanese blueberry rusts and a reliable knowledge of their host ranges, will allow for targeted resistance breeding programs by blueberry breeders in the future.

1.6. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
1. Bundesministerium für Ernährung und Landwirtschaft, Germany	-The group will focus on the following crops: blueberries: (mainly the North American



<p>Bettina Beerbaum Bettina.beerbaum@bmel.bund.de</p> <p>Silke Steinmüller Silke.steinmoeller@julius-kuehn.de</p>	<p><i>Vaccinium corymbosum</i>, and <i>V. angustifolium</i>, but also the native <i>Vaccinium myrtillus</i> and their rust diseases;</p> <p>Contact person: Wolfgang Maier E.mail address: wolfgang.maier@julius-kuehn.de</p>
<p>2. Ministry of Agriculture and Forestry Environment and Water Management, Austria</p> <p>Sylvia Blümel Sylvia.bluemel@ages.at</p>	<p>-Monitoring of rust on following crops planned: blueberries: (<i>Vaccinium corymbosum</i>, and <i>V. angustifolium</i>, but also the native <i>Vaccinium myrtillus</i> cranberries: <i>V. vitis-idaea</i>.</p> <p>-Development and validation of specific PCR detection methods for <i>Thekopsora minima</i></p> <p>-Inoculation of different host with <i>T. minima</i> under greenhouse conditions.</p> <p>Contact person: Richard Gottsberger E.mail address: richard.gottsberger@ages.at</p> <p>Contact person: Ulrike Persen E.mail address: ulrike.persen@ages.at</p>
<p>3. Institute for Agricultural and Fisheries Research, Belgium</p> <p>Martine Maes Martine.maes@ilvo.vlaanderen.be</p>	<p>-Development and validation of specific qPCR detection methods for <i>Thekopsora minima</i>.</p> <p>Contact person: Kurt Heungens E.mail address: kurt.heungens@ilvo.vlaanderen.be</p>
<p>4. All-Russian Plant Quarantine Centre, Russia</p> <p>Natalia Sherokolava natalia_sh@mail.ru</p>	<p>-Contribution to be detailed</p> <p>Contact person: tbc E.mail address: tbc</p>

1.7. Research project partnership outside Euphresco

Euphresco funding ensures a certain level of transnational collaboration among Euphresco member countries. It is possible, if the funding consortium is interested, to contact funding organisations or research groups outside the geographical area covered by Euphresco members. The Euphresco coordinator could advertise the research topic in order to have an enlarged collaboration. If funders are interested in this possibility, please check the case below:

The funding consortium of the topic mentioned in section 1.2 requires to advertise the topic outside the Euphresco network

It is not a must, but it could be of advantage to include North American scientists in this project to have access to North American material and knowledge of the disease situation in North American blueberry production. Contact already exists with Annemiek Schilder who was part of the expert team working on the EPPO PRA.

1.8. Any other relevant information on content

2. Euphresco management aspects of the project

2.1. Indication of the topic budget

Funding organisation ^a	Mechanism ^b	Total Budget ^c
1. BMEL (DE)	NC	€ 50 000
2. AGES (AT)	NC	€ 31 990
3. ILVO (BE)	NC	€ 20 000
4. FGBU VNIKR (RU)	NC	€ 10 000
total		€ 111 990

2.2. Expected duration of the project (only for non-competitive topics)

12-24 months.

2.3. Identification of project coordinator

Has the research project coordinator been identified?

- Yes
 No

2.4. Any other relevant information on topic organisation and management

^a First member is project coordinator. A minimum of two partners are necessary for each proposal. Add lines as needed.

^b Please indicate the preferred mechanism (e.g. real pot RP; virtual pot VP; non-competitive NC), or several mechanisms if there is flexibility.

^c Optional, as this amount can still change in the next phase. In-kind contribution should also be indicated in this column.