



PPP Annual Report 2019

PPP projects which are under supervision of the "Topsectoren" must report annually on the scientific content and financial progress. This form is used to report the progress of the content of the project. PPP projects that finish in 2019 should make use of a different form: "PPP-final report."

The annual report will be published on the TKI / topsector website. Therefore, please ensure that there is no confidential information in the annual report.

The PPP-annual report must be sent, at the latest, by the 1st of March 2020 to the "TKI's": info@tkitu.nl or info@tki-agrifood.nl. For Wageningen Research, the report has to be sent to the "Topsector secretary" of your respective institute.

General information	
PPP-number	TU-18015/TU-2018-016
Title	Counteracting <i>Botrytis</i> and <i>Alternaria</i> infection by interfering with plant susceptibility genes
Theme	Sustainable plant-based production
Implementing institute	Wageningen University – Plant Breeding
Project leader research (name + e-mail address)	Yuling Bai bai.yuling@wur.nl
Coordinator (on behalf of private partners)	Lorena da Ponte (on behalf of of Kees van Dun), Rijk Zwaan
Project-website address	https://topsectortu.nl/nl/counteracting-botrytis-and-alternaria-infection-interfering-plant-susceptibility-genes
Start date	1-2-2019
Final date	31-7-2023

Approval by the coordinator of the consortium

The annual report must be discussed with the coordinator of the consortium. The "TKI's" appreciate additional comments concerning the annual report.

Assessment of the report by the coordinator on behalf of the consortium:	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not approved
Additional comments concerning the annual report:	

Summary of the project

Problem definition	Tomato is susceptible to necrotrophic fungi <i>Botrytis cinerea</i> and <i>Alternaria solani</i> . No major resistance genes against these fungi have been identified in wild tomato species; only quantitative resistance has been reported. To achieve resistance against these fungi tomato susceptibility genes required for colonization, growth and development of the fungi can be identified and mutated. Such resistance is expected to be broad spectrum and durable.
Project goals	<ol style="list-style-type: none"> 1. Identification of tomato <i>S</i>-genes for necrotrophic pathogens <i>Botrytis cinerea</i> and <i>Alternaria solani</i> by screening available tomato EMS population to select mutants with resistance to the two pathogens. 2. Mutation of candidate tomato <i>S</i>-genes using CRISPR techniques. 3. Characterization of EMS and CRISPR mutants for specificity of resistance and their potential use in breeding programs. 4. Elucidation of mode(s) of action of (earlier identified) <i>S</i>-genes.

Results	
Planned results 2019	<ol style="list-style-type: none"> 1. Confirmation of previously identified EMS mutants by CRISPR and RNAi of identified genes 2. New putative resistant mutants from the EMS population 3. Production of CRISPR mutants
Achieved results 2019	<ol style="list-style-type: none"> 1. Confirmation of one identified gene from EMS mutant by testing CRISPR mutants and RNAi-silenced plants 2. Screening of M2 families of EMS population with <i>Botrytis</i> and <i>Alternaria</i> resulted in 16 putative mutants with reduced susceptibility 3. CRISPR mutants are being produced for four new candidate S-genes
Planned results 2020	<ol style="list-style-type: none"> 1. Identification of mutated gene underlying resistance in additional EMS mutant 2. Confirmation of identified EMS mutant by testing CRISPR mutants and RNAi-silenced plants 3. New putative resistant mutants from the EMS population and CRISPR plants 4. Production of additional CRISPR mutants

Deliverables/products in 2019 (provide the titles and /or a brief description of the products/deliverables or a link to a website.
<u>Scientific articles:</u> none
<u>External reports:</u> none
<u>Articles in professional journals/magazines:</u> none
<u>(Poster) presentations at workshops, seminars, or symposia.</u> none
<u>TV/ radio / social media / newspaper:</u> none
<u>Remaining deliverables (techniques, devices, methods, etc.):</u> none