



PPS-jaarrapportage 2017

De PPS-en die van start zijn gegaan onder aansturing van de topsectoren dienen jaarlijks te rapporteren over de inhoudelijke en financiële voortgang. Voor de inhoudelijke voortgang dient dit format gebruikt te worden. Voor PPS-en die in 2017 zijn afgerond is een apart format "PPS-eindrapportage" beschikbaar.

De jaarrapportages worden integraal gepubliceerd op de websites van de TKI's/ topsector. Zorg er svp voor dat er geen vertrouwelijke zaken in de rapportage staat.

Algemene gegevens	
PPS-nummer	KV 1409-045 (U-TKI-2014-10)
Titel	Mechanism of thrips resistance in Capsicum
Thema	T&U, Meer met Minder
Uitvoerende kennisinstelling(en)	Plant Breeding, Wageningen University and Research
Projectleider onderzoek (naam + emailadres)	Ben Vosman
Penvoerder (namens private partijen)	Alejandro Lucatti
Contactpersoon overheid	Jan van Vliet
Werkelijke startdatum	June 1, 2015
Werkelijke einddatum	September 1, 2019

Highlights: geef een korte beschrijving van de belangrijkste resultaten tot nu toe

Thrips are among the major pests worldwide. They puncture plant cells and feed on the content, causing silvering of the leaves. More importantly, they can transmit viruses that can destroy a complete crop in a matter of weeks. Thrips are invasive species with a high reproduction rate that can spread rapidly over a large area. Several thrips species have a worldwide distribution. Thrips are also difficult to control because of their cryptic habit, the larvae hide in closed buds and pupate in soil. This makes them difficult to reach by pesticide sprays, which limits their effectiveness. Recently we have discovered an effective source of resistance against thrips in pepper and shown that the resistance was based on inhibition of larval development. A single QTL for larval development and thrips damage was found in an F2 population. The goal of this project is to elucidate the mechanism of thrips resistance and identify the gene(s) involved. The project has started with screening F3 plants for recombination in the QTL region. In total 3833 F3 plants were screened. Plant showing a recombination in the 2-LOD interval were phenotyped for thrips resistance together with reference materials. In 2017, fine mapping narrowed down the region of interest to 0.3 Mbp, containing 21 genes based on the CM334 reference genome and the Solgenomics gene predictor software. We also continued our study on the effect of plant and leaf age on thrips resistance for which we used the fraction of first instar larvae that did not develop into second instar as a measure. Our results show that plants start to express thrips resistance when they are between four and eight weeks old. Furthermore, it was shown that youngest fully opened leaves of the resistant accession are significantly more resistant to thrips than older leaves, whereas young leaves of the susceptible accession are more susceptible than older leaves.

Aantal opgeleverde producten in 2017 (geef in een bijlage de titels en/of omschrijving van de producten of een link naar de producten op openbare websites)			
Wetenschappelijke artikelen	Rapporten	Artikelen in vakbladen	Inleidingen/ workshops
-	-	-	3

Bijlage: Titels van producten en links naar informatie op openbare websites (w.o. Kennisonline)

Lectures:

Vosman, B. (2017) Host plant resistance against insect pests in pepper and tomato. Asian Solanaceous Round Table 2017(ASRT-2). February 23-25, 2017, Bangkok, Thailand

Vosman, B. (2017) Insectenresistentie onderzoek. Vakopleiding voor plantenveredeling, Wageningen 10 maart 2017.

Vosman, B. (2017) Breeding for Host Plant Resistance against insects in the post genomics era. International Symposium on Marine and Agricultural Genomics (ISMAG)". April 19-21, 2017, organized by the Marine Genome 100+ Korea and National Agricultural Genome Program (NAGP) of South Korea. Seoul, South Korea.