

Genome-editing-based, neo-classical sexing strains to fight the invasive agricultural pest, *Drosophila suzukii*, by the ecologically safe sterile insect technique

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The cherry vinegar fly, *Drosophila suzukii*, is an invasive alien species that is becoming a growing problem for environment and global economy, as it infests berries, stone fruits, and grapes, with currently no effective and sustainable pest control method available. The Sterile Insect Technique (SIT) is an effective, species-specific, environmental friendly, and sustainable pest management approach, which is based on the large-scale release of sterile male insects that suppress or even eradicate target populations by infertile matings. SIT relies on the efficient separation of males and females before release, which is a difficult task to establish for new pest species. The project sets out to establish cherry vinegar fly strains that enable automated separation of males and females or the production of male-only populations by conditional female killing. For reaching this aim, the scientists use biotechnological engineering to generate selectable visible color mutants or conditionally lethal mutants based on designed temperature sensitive proteins. For male-specific rescue, they will place functional copies of the mutated genes onto the Y chromosome by modern gene editing technologies to generate foreign DNA-free strains, which can be provided to sustainable and environmental friendly insect pest management programs against this invasive agricultural pest.

Projektbeteiligte

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