must be determined and specified for different types of crops and culture systems. Furthermore, the “area of activity” is of interest, i.e. whether a parasitoid is active near ground level or in the berry zone. To answer these questions with a focus on protected berry cultivation, a model trial was started on the experimental field of Julius Kühn-Institute in Dossenheim. Three raspberry plantings (plot size 20 m²) were netted with a standard net (mesh 0.8 cm); one additional planting was free-standing. All plantings were artificially infested with *D. suzukii*. Two netted plantings were subject to weekly releases of either five female *T. drosophilae* / m² or five *P. vindemmiae* / m²; the third plot and the free-standing planting served as controls. To determine parasititoid activity, raspberries were baited with fresh *D. suzukii* pupae and weekly exposed in the plantings for five days from August to mid-October. Afterwards, the pupae were removed and incubated. Of the 6,400 exposed pupae, 4,272 were retrieved in the laboratory, from which 3,435 insects eclosed (2,508 *D. suzukii*, 401 *T. drosophilae*, 526 *P. vindemmiae*). The maximum parasitation rate in a planting was 39.8 % for *T. drosophilae* and 45.4 % for *P. vindemmiae*. The latter was mostly detected in the upper berry zone (120-190 cm) and most active from mid-September until October, while *T. drososphilae* was mostly detected near ground level and did not show a temporal focus. Both species parasitized bait pupae in all four plantings. The first model trial in summer 2021 demonstrated that the method for quantifying parasitoid activity is suitable but showed the limitations of testing while using a standard net to separate different treatments. Further model trials in 2022 will focus on comparing the efficacy of the two species under modified testing conditions, such as a lower release rate. It will hopefully help to better understand the activity of released parasitoids in protected berry cultivation.

The project Antago-Senecio: Herbivorous insects for the control of tansy ragwort

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The rising number of tansy ragwort (*Jacobaea vulgaris* Gaertn.) in grassland, especially under low management intensity, is highly problematic for grazing livestock due to the poisonous impact of pyrrolizidine alkaloids in these plants. This phenomenon also exacerbates the use of those ragwort-rich grasslands for grazing or hay and silage production. Current management and control practices are time consuming or rely on herbicides which may be banned in future, why an innovative and self-regulating method is needed to secure the livelihood of farmers and the preservation of diverse and protected grasslands. Therefore, one aim of the EIP-Agri-Project “Antago-Senecio” is to find local and specialized herbivorous insects as potential biological control agents for the regulation of tansy ragwort. The

well-known cinnabar moth, *Tyria jacobaeae* L. (Lepidoptera, Arctiidae), the ragwort flea beetle, *Longitarsus jacobaeae* Waterhouse (Coleoptera: Chrysomelidae), as well as the less studied ragwort crown boring moth, *Cochylis atricapitana* Stephens (Lepidoptera: Cochylidae) and the ragwort fly, *Sphenella marginata* Fall. (Diptera: Tephritidae) may be potential antagonists. A first collection of these insects was performed in the season 2022 and more than 150 larvae of *T. jacobaeae* were collected from several locations. However, at least two populations were infected by microsporidia and only 26 % of *Tyria*-larvae survived and pupated successfully. The mean weight of the 44 surviving *Tyria*-pupae was 142.59 ± 21.81 mg, representing a solid weight for further development. Additionally, *L. jacobaeae, S. marginata* and *C. atricapitana* were collected in the field and a rearing in the greenhouse could be started. Future laboratory tests will aim at the establishment of successful rearing technique as well as feeding trials to evaluate the harmful effects of the antagonists. First successes resulted in rearing *C. atricapitana* on larval medium and the establishment of a 3rd and 4th generation in the greenhouse. Besides the suitability of the antagonists regarding the control of *J. vulgaris*, their effect on other ragwort species like *Jacobaea aquatica* Gaertn., Mey. & Scherb, *Jacobaea erucifolia* Gaertn., Mey. & Scherb and *Senecio inaequidens* D.C. will also be investigated. Moreover, field tests in the Westerwald in Hesse and Rhineland-Palatinate will be conducted and will complement the laboratory studies. Finally, the result will be used as a basis to evaluate the potential of these herbivorous insects to regulate and/or prevent the dominance of ragwort in low-intensively used grasslands as well as perspectives of their long-term establishment and release strategy in grasslands.

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ResBerry – Resilient organic berry cropping systems through enhanced biodiversity and innovative management strategies

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