lance, integrated pest management and export quarantine measures of *D. suzukii* systematically.

Landscape effects on *Drosophila suzukii* dispersal and migration

Anto Raja Dominic[1], Felix Briem[2], Christoph Sinn[1], Doreen Gabriel[3], Burkhard Golla[1], Heidrun Vogt[2]
[1] Julius Kühn-Institut (JKI), Institute for Strategies and Technology Assessment, Kleinmachnow, Germany
[2] JKI, Institute for Plant Protection in Fruits Crops and Viticulture, Dossenheim, Germany
[3] JKI, Institute for Crop and Soil Science, Braunschweig, Germany

The presence and spatial distribution of various landscape elements play an important role in pest occurrence and damages. While high-resolution landscape data is widely available, sampling data are often not gathered with landscape studies in mind. In this presentation, we explore methods to analyze trap-capture data of *Drosphila suzukii* from south-west Germany with the objective of mapping spatio-temporal risk for their dispersal and migration based on landscape characteristics. We also present DROSOMON, a centralised, harmonized web platform for data gathering and easy access to trap-capture data and related parameters. The traps monitored by Julius Kühn-Institut over three years were all concentrated in three clusters, 75 km being the maximum distance between the traps. The trapping periods, baiting mixture and local environment vary between the traps. We study the correlations between the capture rates and landscape elements at local and landscape scales using buffer widths ranging from 10 m to 5000 m. In particular, we look into theorized hypothesis concerning *D. suzukii* captures to forested area, edge densities, residential areas and water bodies. The challenges in analyzing this dataset are the relatively homogeneous landscape distribution and the fact that trap captures probably do not reflect pest damage. With data from a wider region at German or European-scale, we expect to minimize the effects of these shortcomings.

Ecological adaptation of *Drosophila suzukii* in northern China

Jin-Ping Zhang[1], Feng Zhang[1], Ren-Ya Liao[1], Xiao Chen[2], Marc Kenis[3]
[1] MoA-CABI Joint Laboratory for Bio-safety, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100193, China
[2] College of Plant Protection, Yunnan Agricultural University, Kunming, 650201 China
[3] CABI, Rue des Grillons 1, CH-2800 Delemont, Switzerland

Drosophila suzukii was first collected in 1935 in China and widely spread at least to 22 provinces. This pest was reported to damage berry, blueberry and bayberry. In order to understand the occurrence, distribution and damage of *D. suzukii* population in Beijing, we have carried out research on the ecology adaptability of this pest. The development of *D. suzukii* Beijing population was tested at different temperatures (15, 19, 23 and 25°C) in the lab. Population dynamics were monitored by sugar-vinegar traps in orchard and forested semi-natural area near the city at five different elevations (from 300 to 1100 m) in Beijing from May 2014 to September 2015. Ovarian maturity and diapause stage of female *D. suzukii* were assessed by dissection. The cold resistance of *D. suzukii* adults was studied by measuring the supercooling point. The results showed that *D. suzukii* completely developed in the range of 15–25°C by feeding on artificial diet and the best temperature was 23°C. Population dynamics trends were similar among all monitoring sites and the population peak was observed from mid-July to early August. *D. suzukii* entered diapause stage from late September to next May. The flies enter reproductive stage one month after terminating diapause stage. The supercooling point of different day-old females was not significantly different, but there was a significant difference for different day-old males. The range of supercooling points of female and male adults was −17.27°C to −18.89°C and −17.59°C to −21.09°C respectively. These results provide a theoretical basis for forecasting and control of this pest.

SIMKEF – Development of a Desion Support System for *Drosophila suzukii*

Benno Kleinhenz[1], Marion Gradl[2], Uwe Harzer[2], Kirsten Köppler[3], Mandy Püffeld[3], Paolo Racca[1], Karl-Josef Schirra[2], Claudia Tebbe[1], Alicia Winkler[1], Jeanette Jung[1]
[1] Central Institute for Decision Support Systems in Crop Protection (ZEPP), Rüdesheimer Straße 60–68, 55545 Bad Kreuznach, Germany
[2] Agricultural Public Service Center Rheinpfalz, Breitenweg 71, 67435 Neustadt, Germany
[3] Center for Agricultural Technology Augustenberg (LTZ), Nesslerstr. 25, 76227 Karlsruhe, Germany

Within the project SIMKEF, a decision support system (DSS) which depicts the complex pathosystem host (fruit/grapevine) – *Drosophila suzukii* will be developed. The DSS is expected to predict the population dynamics of *D. suzukii* as well as the actual pest infestation risk for different berries, stone fruits and grapes. For this reason, the interaction of the entire life cycle of *D. suzukii* with the most important meteorological factors as well as the influence of the different host fruits on the biology and behavior is described or functionally determined. Laboratory tests, monitoring activities and already published data will be combined within the DSS. SIMKEF is divided into three different modules. Regarding the habitat, the potential infestation risk will be analysed in the first module. Orchards and vineyards nearby to forest or hedges could implicate a higher risik for an early occurrence of *D. suzukii* as isolated ones. In addition, in this first module a second factor is the temperature gradient during the winter period. Temperature has a significant influence on the survival and overwintering rate of adult flies. For the quantification of the initial population after winter period, laboratory experiments and monitoring data are analysed. As a result, the first module of the DSS identifies higher risk areas/habitats for fruit infestation and estimates the potential risik as an initial value in the DSS for the beginning of the season. In a second module of the DSS, phenological models describe the availability of host fruits. These ontogenetic models are based on the calculation of a daily growth rate of host plants depending on the daylight period and temperature. The summation of these growth rates will be correlated with monitoring data of growth stages of the different host fruits. In a third module depending on the current weather the population dynamics of *D. suzukii* will be calculated per host plant and over the fruit development period (from its beginning of attractive stage to its ripeness). Here, a multiplication factor per host plant passage and thus a risk factor for the infestation of the following host plant can be determined during growing season. The investigations on population dynamics as a function of temperature and relative humidity are carried out in laboratory trials. The provided output of SIMKEF should improve the timing of monitoring of fruit infestation and pest control of *D. suzukii*.