



# KliWiResse

## Klima-Widerstandsfähige Rebsorten zur Sicherung des Ertrags

Newsletter #2 (March 2023-May 2023)

### UPCOMING EVENTS

*June 13, Weincampus Neustadt "Wein und Klimawandel – zusammen schaffen wir das" (KIT, Weincampus)*

<https://www.weincampus-neustadt.de/>

### Project meetings:

**15.02.2023** video meeting with associated partners to define activities in knowledge transfer and public reach out. KIT, Weinbauinstitut Freiburg, Weincampus Neustadt, University of Freiburg, Bauern- and Winzerverband Südpfalz participated with several members.

### Interactions

- 1. KIT-ScreenSYS-JKI:** KIT has provided cell cultures of Hördt 29 and Chardonnay to ScreenSYS to establish the screening system.
- 2. JKI-KIT:** JKI has provided to KIT cell cultures of Riesling along with wood cuttings for the core set of genotypes defined in the meeting in December
- 3. KIT-IBMP:** KIT has provided IBMP samples from a comparative heat-stress study with Riesling and Hördt 29, and IBMP has mapped the jasmonate signatures of those (see below).
- 4. FiBL-KIT-JKI:** FiBL has provided to the other partners wood cuttings belonging to the core set of genotypes, mainly of PiWi varieties.
- 5. KIT-WBI-ScreenSYS:** Partner provides ScreenSYS with flower buds to launch the double-haploidisation.
- 6. JKI-FIBL:** JKI transferred wood cuttings for the core set of genotypes to FIBL
- 7. IBMP-KIT:** On April 24, 2023, an online meeting was conducted by the partners at IBMP and KIT headed by Dr Thierry Heitz and Dr Michael Riemann to discuss the latest data on heat stress experiments in grape varieties Riesling and Hö29. The follow-up experiments planned are discussed in detail in terms of the experimental design, number of replicates and leaf-disc model of heat stress.

### Website:

We are glad to inform you that the KliWiResse website is now online and can be accessed via <https://kliwiresse.wine-science.eu/index.php#page-top>. Big thanks to all the partners who have helped design the website and curate the content. We welcome any further comments and suggestions on improving the design and contents of the website.

### Newsletter:

Following the huge success of Newsletter #1 which collected and disseminated important information to all the partners, Newsletter #2 is expected to be out by May 2023. While the sections remain the same, the header of Newsletter #2 has

now been redesigned to include the brand-new KliWiResse logo. Newsletters will find a separate home soon on the KliWiResse website.

## **Flyers and roll-ups:**

Flyers with comprehensive information about KliWiResse were designed in German and French and sent out to partners and associated partners. These will be exceptionally beneficial in gaining attention and creating awareness among farmers, scientists and the general public about the effects of climate change on viticulture and what we do about it in KliWiResse. The flyers will also serve as 'contact cards' that will help the public to reach out to us in future. We greatly appreciate the efforts of all the partners and associated partners in designing the flyers.

Reusable roll-up banners are another form of a public outreach tool which can be installed in any place where people congregate, such as in seminars and conferences. A carefully designed roll-up will serve as an 'eye catcher' attracting people with a wide range of interests and tastes. Roll-up banners in German and French are being designed and are expected to send out to all the partners and associated partners by the end of May 2023.

## **Outputs:**

### **Surveys:**

### **Public relation events:**

### **Media outreach (press release, TV/Radio programs):**

Press release of the KIT on our work on the evolution and domestication of grapevine and its impact, mentioning Kliwiresse (see below).

### **Talks and seminars:**

12.04.2023 Project was presented by Peter Nick (KIT) to a delegation from Geo-Ecology (Almuth Arnet, KIT Campus Alpin), 18.04.2023 Seminar "Wein, Pilz und Klimawandel at the Ambassador Club at Ettenheim by Peter Nick (KIT)

### **Symposia:**

On March 27<sup>th</sup>, a public outreach program was organized by KIT, called "Frühjahrstage der Nachhaltigkeit" with contributions from the public and private sectors aiming at promoting sustainable agriculture. Dr Michael Riemann attended the program representing KliWiResse and distributed flyers and initiated exciting discussions on the topic of sustainable viticulture.

### **Farmers' awareness:**

## **Scientific achievements:**

### **Latest scientific breakthroughs:**

A Master's thesis at KIT (Shefqet Dibra) comparing heat-stress responses of different grapevine cell lines shows that the heat-stress patterns of the source plants can be recapitulated in cell culture. Mitochondrial oxidative stress was identified as a sensitive early marker, linked with the activation of genes involved in retrograde signalling and specific members of the heat-shock protein family. A PhD thesis (Manasi Nabar), a Master thesis (Paula Venzke), and a Bachelor thesis (Ruslan Eliseev) will address during the next month non-invasive methods for stress monitoring, mapping of heat-responses in leaf discs, and screening heat tolerance in the *sylvestris* population.

Dennisse Beltran will start to work in KliWiResse as a part of IBMP from May 2023. She was trained as a master's student in molecular sciences at Unistra and specifically in plant sciences in another IBMP team, and is, hence, familiar with in-house life. Dennisse is eager to learn the procedures linked to non-targeted metabolomic analyses and jasmonate measurements. Dr Thierry Heitz and other colleagues involved in Kliwiresse will guide her progressively through protocols and knowledge.

**Methods developed:****Results arising from collaborations:**

Cooperation between IBMP and KIT on the jasmonate signatures under heat stress showed significant differences between the susceptible variety Riesling and the tolerant wild genotype Hördt 29. Interestingly, Riesling accumulated higher levels of JA-catabolites. This analysis will be repeated and refined in the next month, and the population of experimental plants is already prepared. Partners exchanged material for the core collection defined at the meeting last December to ensure synergy.

**Manuscripts published:**

Along with the collaborators in China, scientists at KIT analyzed 3500 cultivated and wild grape varieties around the world, which revealed the effect of climate on historic population sizes and identified the variants associated with desirable domestication traits. The exciting results obtained that increase our understanding of how humans and environments shaped grapevine domestication were published in the prestigious journal Science.

The original paper can be accessed at <https://www.science.org/doi/10.1126/science.add8655>.

A press release from KIT regarding this impressive work can be found at [https://www.kit.edu/kit/pi\\_2023\\_007-genomforschung-wiege-und-weg-des-weins.php](https://www.kit.edu/kit/pi_2023_007-genomforschung-wiege-und-weg-des-weins.php). Youtube by Peter Nick on the significance of this work for climate change ([https://www.youtube.com/watch?v=xdL\\_cJH7lcU](https://www.youtube.com/watch?v=xdL_cJH7lcU)) and an interview with the Washington Post on the same topic (<https://tinyurl.com/zdkpr33m>)