

## Personal Details

*Date of birth* December 6th, 1983  
*Place of birth* Esslingen am Neckar, Germany  
*Nationality* German

## Skills & Competences

*Statistics* Design and analysis of field trials with advanced designs  
Analysis of multi-environment trials  
Mixed models, employment of covariance structures  
Population and quantitative genetics  
Meta-analysis  
Multivariate methods (PCA, PLSR)  
Machine-learning  
*Practical field work* Management and supervision of field trials from sowing to harvest  
Scoring of plant diseases and canopy architecture traits  
Spectral phenotyping  
*Laboratory work* Genetic markers: PCR, KASP  
Baking quality assessment  
*Computer skills* R (expert), SAS (advanced), GIS (intermediate), Linux (advanced)

## Work Experience

*Since Oct 2019* **Finishing PhD Thesis**  
Preparing and submitting manuscripts. Planning to submit thesis by May 2020.

*Jun 2019 - Sep 2019* **Herdsmen and dairyman**  
Alp Bryscheru, Canton Valais, Switzerland  
Herding and milking cows, making cheese, on an alp hut at 2000 m altitude.

*Apr 2015 - May 2019* **Researcher - PhD Student**  
Technical University of Munich, Chair of Plant Nutrition, Freising, Germany  
Investigating breeding progress in winter wheat and reaction to environmental conditions in German variety testing trials. Field trials with winter wheat under several competitive scenarios to test the relationship between different levels of competition. Analysis of yield stability and development.

- Feb 2017 - May 2017*    **Research Internship**  
 CIMMYT, Wheat Physiology Group, Ciudad Obregon, Mexico  
 Conducting research in a field trial on the role of canopy architecture and physiological traits for adaptation to high plant density in wheat.
- Feb 2013 - Mar 2015*    **Researcher**  
 Agroscope, Institute for Plant Production Sciences, Zürich, Switzerland  
 Responsible for variety testing field trials of rape seed, winter wheat and durum wheat. Analysis of stability of baking quality and meta-analysis of yield stability under organic and no-tillage management.
- Sep 2011 - May 2012*    **Research Assistant**  
 John Innes Centre, Department of Crop Genetics, Norwich, United Kingdom  
 Genetic analysis of evolved populations of winter wheat, which were grown for several generations at different locations, using genetic markers and population genetics.
- Feb 2010 - Feb 2011*    **Student Assistant**  
 University of Hohenheim, Institute of Plant Breeding, Seed Science and Population Genetics, Stuttgart, Germany  
 Literature research and tutoring a statistics course.
- Jun 2009 - Sep 2009*    **Herdsmen and dairyman**  
 Bruchgehren Alp, Canton Bern, Switzerland  
 Herding and milking cows, making cheese, on an alp hut at 1500 m altitude.
- Apr 2008 - May 2008*    **Internship**  
 Agroscope, Zürich, Switzerland  
 Internship in forage grass breeding
- May 2007 - Feb 2008*    **Student Assistant**  
 University of Bonn, Chair of Crop Science, Bonn, Germany  
 Field sampling, lab work, and literature research.
- Sep 2007 - Oct 2007*    **Internship**  
 DSV, Nienburg, Germany  
 Internship in forage grass breeding
- Jul 2005 - Aug 2006*    **Farmer Trainee**  
 Gut Rheinau, Switzerland  
 Apprenticeship in farming
- Sep 2003 - Sep 2004*    **Civilian Service**  
 Camphill Village West Coast, Cape Town, South Africa  
 Taking care of handicapped people, working on farm and in dairy

## Education

- Since Apr 2015*    **Technical University of Munich, Germany**  
Phd Student
- Oct 2009 - Oct 2012*    **University of Hohenheim, Germany**  
Master of Science, Crop Science  
Thesis: Signs of Natural Selection in a Diverse Composite Cross Population of Winter Wheat (conducted at John Innes Centre, Norwich, UK)
- Aug 2008 - May 2009*    **University of Copenhagen, Denmark**  
Erasmus Exchange, Agricultural Sciences  
Thesis: Diversity, Evolution and Clustering. A Breeding Strategy for Sustainable Crop Production
- Oct 2006 - Jul 2008*    **University of Bonn, Germany**  
Intermediate diploma, Agricultural Sciences
- Jul 2005 - Aug 2006*    **Strickhof Winterthur, Switzerland**  
Apprenticeship in farming

## Awards & Grants

- Nov 2019*    Award for best PhD Student talk at 70. Jahrestagung der Vereinigung der Pflanzenzüchter und Saatgutkaufleute Österreichs, Raumberg-Gumpenstein, Austria
- Aug 2011*    Helmut-Aurenz-Scholarship for conducting research for Master thesis
- Aug 2008 - May 2009*    EU Erasmus Program, University of Copenhagen

## Personal skills & Activities

- Languages*    German (native), English (fluent), French (basic), Spanish (beginner)
- Driving licenses*    Car and tractor
- Scientific Memberships*    Eucarpia, Gesellschaft für Pflanzenzüchtung, Gesellschaft für Pflanzenbauwissenschaften, International Biometric Society
- Journal Referee*    Ecology and Evolution, Euphytica, European Journal of Agronomy, Evolutionary Applications, Organic Farming, Scientific Reports

## Internet Profiles

- Personal homepage*    [www.samuelknapp](http://www.samuelknapp)
- LinkedIn*    [www.linkedin.com/in/samuelknapp](http://www.linkedin.com/in/samuelknapp)
- ResearchGate*    [www.researchgate.net/profile/Samuel\\_Knapp](http://www.researchgate.net/profile/Samuel_Knapp)
- Google Scholar*    [tinyurl.com/SamuelKnapp-Scholar](http://tinyurl.com/SamuelKnapp-Scholar)

## Publications

- Yunca Hu, Samuel Knapp, Urs Schmidhalter, 2020. *Advancing High-Throughput Phenotyping of Wheat in Early Selection Cycles*. Remote Sensing. DOI: [10.3390/rs12030574](https://doi.org/10.3390/rs12030574)
- Samuel Knapp, Thomas F. Döring, Luzie U. Wingen, Hannah E. Jones, John Snape, Martin S. Wolfe, Michelle Leverington-Waite, Simon Griffiths. 2019. *Natural selection towards wild-type in composite cross populations of winter wheat*. Frontiers in Plant Science. DOI: [10.3389/fpls.2019.01757](https://doi.org/10.3389/fpls.2019.01757)
- Samuel Knapp, Marcel G. A. van der Heijden, 2018: *A global meta-analysis of yield stability in organic and conservation agriculture*. Nature Communications. DOI: [10.1038/s41467-018-05956-1](https://doi.org/10.1038/s41467-018-05956-1)
- Samuel Knapp, Cécile Brabant, Michael Oberforster, Heinrich Grausgruber, Jürg Hiltbrunner, 2017: *Quality traits in winter wheat: Comparison of stability parameters and correlations between traits regarding their stability*. Journal of Cereal Science. DOI: [10.1016/j.jcs.2017.08.011](https://doi.org/10.1016/j.jcs.2017.08.011)
- Marianna Rakszegi, Péter Mikó, Franziska Löschenberger, Jürg Hiltbrunner, Rosalie Aebi, Samuel Knapp, Karolina Tremmel-Bede, Mária Megyeri, Géza Kovács, Márta Molnár-Láng, Gyula Vida, László Láng, Zoltán Bedő. 2016. *Comparison of quality parameters of wheat varieties with different breeding origin under organic and low-input conventional conditions*. Journal of Cereal Science. DOI: [10.1016/j.jcs.2016.04.006](https://doi.org/10.1016/j.jcs.2016.04.006)
- Thomas F Döring, Samuel Knapp, Joel E Cohen. 2015. *Taylor's power law and the stability of crop yields*. Field Crops Research. DOI: [10.1016/j.fcr.2015.08.005](https://doi.org/10.1016/j.fcr.2015.08.005)
- Samuel Knapp, Rosalie Aebi, Martin Anders, Cécile Brabant, Jürg Hiltbrunner. 2015. *Einfluss von Sorte und Umwelt auf Qualitätsparameter bei Bio-Winterweizen*. Agrarforschung Schweiz. [Link](#)
- Rosalie Aebi, Samuel Knapp, Jürg Hiltbrunner. 2014. *Mechanische Regulierung der Begleitflora bei Rispenhirse*. Agrarforschung Schweiz. [Link](#)
- Samuel Knapp, Rosalie Aebi, Jürg Hiltbrunner. 2014. *Wie die Rispenhirse auf Stickstoff reagiert*. Agrarforschung Schweiz. [Link](#)
- Thomas F. Döring, Samuel Knapp, Geza Kovacs, Kevin Murphy, Martin S. Wolfe. 2011. *Evolutionary Plant Breeding in Cereals - Into a New Era*. Sustainability. DOI: [10.3390/su3101944](https://doi.org/10.3390/su3101944)

## Conference Talks & Posters

- Samuel Knapp, J Peter Baresel, Urs Schmidhalter: *Comparing the breeding progress in winter wheat between organic and conventional management in Germany*. 70. Jahrestagung der Vereinigung der Pflanzenzüchter und Saatgutkaufleute Österreichs, Raumberg-Gumpenstein, Austria; 11/2019 [Talk]
- Samuel Knapp, J Peter Baresel: *Untersuchungen zu Konkurrenzigenschaften von Winterweizensorten*. Öko-Landbautag, Freising, Germany; 09/2018 [Talk]
- Samuel Knapp, J Peter Baresel, Urs Schmidhalter: *Zuchtfortschritt in Winterweizen - Unterschiede zwischen konventioneller und ökologischer Bewirtschaftung und zwischen verschiedenen Anbaubereichen in Deutschland*. Jahrestagung der Gesellschaft für Pflanzenbauwissenschaften, Kiel, Germany; 09/2018 [Talk]
- Samuel Knapp, J Peter Baresel: *Reaction to Different Levels of Competition in Winter Wheat*. 15<sup>th</sup> ESA Congress, Geneva, Switzerland; 08/2018 [Talk]
- Samuel Knapp, Matthias Parzefall, J Peter Baresel: *The relation of intragenotypic, intra- and interspecific competition and related canopy architecture traits*. EUCARPIA Symposium on Breeding for Diversification, Witzenhausen, Germany; 02/2018 [Talk]

- Samuel Knapp, Onur Hancer, Erik Tenstrand: *High-throughput sorting of colored wheat grains to determine competitive effect and response*. 68. Jahrestagung der Vereinigung der Pflanzenzüchter und Saatgutkaufleute Österreichs, Raumberg-Gumpenstein, Austria; 11/2017 [Poster]
- Samuel Knapp, J Peter Baresel: *Sowing and harvesting on weekends - determined by culture and does it affect yield?* 68. Jahrestagung der Vereinigung der Pflanzenzüchter und Saatgutkaufleute Österreichs, Raumberg-Gumpenstein, Austria; 11/2017 [Poster]
- Samuel Knapp, J Peter Baresel, Urs Schmidhalter: *Increased Nitrogen Use Efficiency through Plant Breeding in Winter Wheat - a long-term Analysis of Official Variety Trials in Bavaria*. Annual Meeting of the German Society for Plant Nutrition, Hohenheim, Germany; 09/2016 [Poster]
- Samuel Knapp, Rosalie Aebi, Michael Oberforster, Heinrich Grausgruber, Martin Anders, Cécile Brabant, Jürg Hiltbrunner: *Correlations of Stability Parameters across Quality Traits in a Swiss and an Austrian Dataset of Winter Wheat*. 14<sup>th</sup> ESA Congress, Edinburgh, Scotland; 09/2016 [Talk]
- Samuel Knapp, Marcel van der Heijden: *Comparing the Temporal Stability of Organic and Conventional Cropping Systems - A Meta-Analysis*. 14<sup>th</sup> ESA Congress, Edinburgh, Scotland; 09/2016 [Talk]
- Thomas F Döring, Samuel Knapp, Frank Ellmer: *Systematische Abhängigkeit verschiedener Ertragsstabilitätsmaße vom Ertragsmittelwert: I. Der Variationskoeffizient*. Jahrestagung der Gesellschaft für Pflanzenbauwissenschaften, Braunschweig, Germany; 09/2015 [Poster]
- Thomas F Döring, Samuel Knapp, Frank Ellmer: *Systematische Abhängigkeit verschiedener Ertragsstabilitätsmaße vom Ertragsmittelwert: II. Ökoregression*. Jahrestagung der Gesellschaft für Pflanzenbauwissenschaften, Braunschweig, Germany; 09/2015 [Poster]
- Samuel Knapp, Rosalie Aebi, Martin Anders, Jürg Hiltbrunner: *Heritabilität und Korrelationen von Morphologischen Eigenschaften bei Winterweizen-Sorten unter Bio-Bedingungen*. 13. Wissenschaftstagung Ökologischer Landbau, Eberswalde, Germany; 03/2015 [Talk]
- Samuel Knapp: *The older the stronger, but less effective if alone - Competition in Variety Mixtures of Spring Wheat*. SOLIBAM Congress 'Diversity strategies for organic and low input agriculture and their food system', Nantes, France; 07/2014 [Poster]
- Samuel Knapp, Rosalie Aebi, Jürg Hiltbrunner: *Processing and Baking Quality of Organic Winter Wheat in Switzerland*. SOLIBAM Congress 'Diversity strategies for organic and low input agriculture and their food system', Nantes, France; 07/2014 [Talk]