WORKSHOP ON HYBRID WHEAT

KEY FACTS

Date: **6 February 2019, 9 am – 5.30 pm**

Location: **University of Hohenheim, Stuttgart, Germany**
Room: we are in the **Aula of the castle, where you can read Schloss Mittelbau, 4.11, see the map**

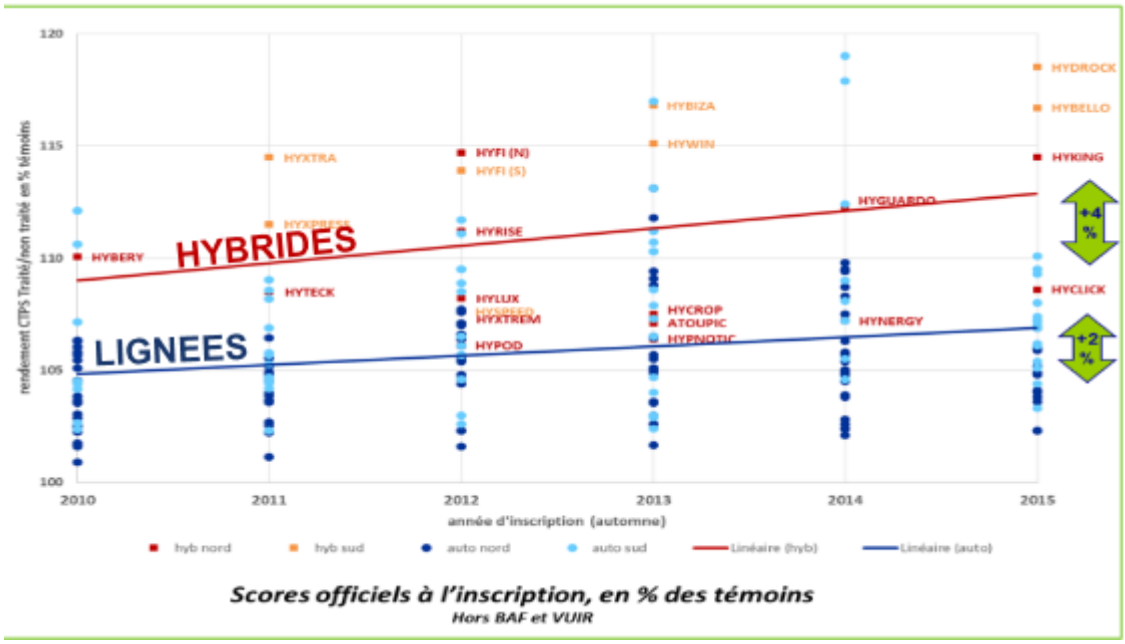
Additional: **7 February 8-12 am, internal meeting of the Expert working group "Breeding methods" from the International Wheat Initiative**
http://www.wheatinitiative.org/events/ewg-breeding-methods-workshop-hybrid-wheat

Link to register:
https://docs.google.com/forms/d/e/1FAIpQLSdV_8_lhau3nTZU1mxR5OlpJ0EtV9a03K9rXKAwouoA69KfHg/viewform?c=0&w=1

BACKGROUND

Since the first maize in 1908, hybrids varieties have been developed in many crops, mostly cross-pollinated, and have proved many advantages over former population or synthetic varieties in terms of hybrid vigor, crop homogeneity, yield stability…

In wheat, hybrid varieties are also developed in the last decades, and for example 19 hybrid varieties have been registered in France in 2011-2015, and showed a 4% overyielding over pure line varieties in official registration trials. However this yield surplus is often too weak to compensate the cost of seeds.



(From http://www.saaten-union.fr/data/documents/saaten-union.fr/Faire%20face%20avec%20la%20g%C3%A9n%C3%A9tique%20SU%20vf.pdf)

Considering the potential of hybrid wheat to better adapt climate change and stimulate investment in research (10 times less in wheat than in maize worldwide), several challenges need to be addressed by public and private research, among others:

- How to exploit/create heterotic groups
- How to produce cheaper hybrid seeds using CMS or other systems, enhancing cross pollinations…
- How to adapt breeding schemes to hybrid wheat, is copying maize schemes enough, place of genomic prediction…
- Which economic model to better exploit genetic diversity in a context of hybrid varieties: how to protect innovation, funding conservation and pre-breeding activities…

AIM

This workshop aims to gather actors from public and private sector already involved or planning to develop hybrid programs to discuss these challenges, identify lock-in in knowledges and possibly organize future cooperative programmes on hybrid wheat breeding.

AGENDA (subject to change)

Wednesday, 6 February 2019	
Morning	**Welcome** 09h00 Scene setting and the aims of the workshop (Chris Burt / Chris Tapsell)
	Hybrid wheat in practice - 09h15 Volker Lein (Independent Expert): Historical Overview about hybrid wheat breeding - 09h35 Thierry Moittie (Hybrid wheat breeder ASUR) and Mario Gils (Hybrid wheat breeder Nordsaat): ASUR's and Nordsaat 's experience in hybrid wheat breeding **Heterosis in wheat** - 10h00 Heterosis for grain yield and other traits in Central European Germplasm. (Patrick Thorwarth, University of Hohenheim) - 10h25 Heterosis and the need for hybrid wheat from a U.S. perspective (Stephen Baenzinger, University of Nebraska)
Coffee break 10h50 – 11h10	
Morning cont'	**Heterosis in wheat (cont')** - 11h10 Heterosis and perspectives for hybrid durum wheat (Friedrich Longin, University of Hohenheim) - 11h35 Genetic distance and hybrid wheat breeding: how diverse should we get? (Philipp Boeven, Limagrain) **CMS systems and sterility restoration** - 12h00 Mapping for restorer genes in the CMS-timophevii background (Manuel Geyer, Bayrische Landesanstalt für Landwirtschaft, Freising) - 12h25 Characterization and resequencing of the RFL-PPR gene family as a source of markers and candidate genes for Rf genes in wheat (Nils Stein, IPK Gatersleben) - 12h40 CMS hybrid breeding at CIMMYT (Bhoja Raj Basnet, CIMMYT)

Lunch 13h05 – 14h00	
Afternoon	**CMS systems and sterility restoration (cont')** - 14h00 CMS hybrid wheat breeding at Syngenta (Yann Mannes, Syngenta) **What can we learn from other cereals?** - 14h25 Hybrid barley (Gunther Stiewe, Syngenta) - 14h50 Hybrid rye (Thomas Miedaner, University of Hohenheim)
Coffee break 15h40-16h00	
	Floral biology - 15h15 Genetic architecture of anther extrusion in wheat and its implications for hybrid wheat production (Tobias Würschum, University of Hohenheim) - 15h50 The use of wheat/wild relative introgressions for hybrid wheat (Julie King Univ Nottingham) **Breeding schemes** - 16h25 Reciprocal recurrent genomic selection – an attractive tool to leverage hybrid wheat breeding (Jochen Reif, IPK Gatersleben) **Summing up and general discussion** 16h50-17h30 What are the areas for research and what are the next steps? (Chris Burt / Chris Tapsell)

VENUE

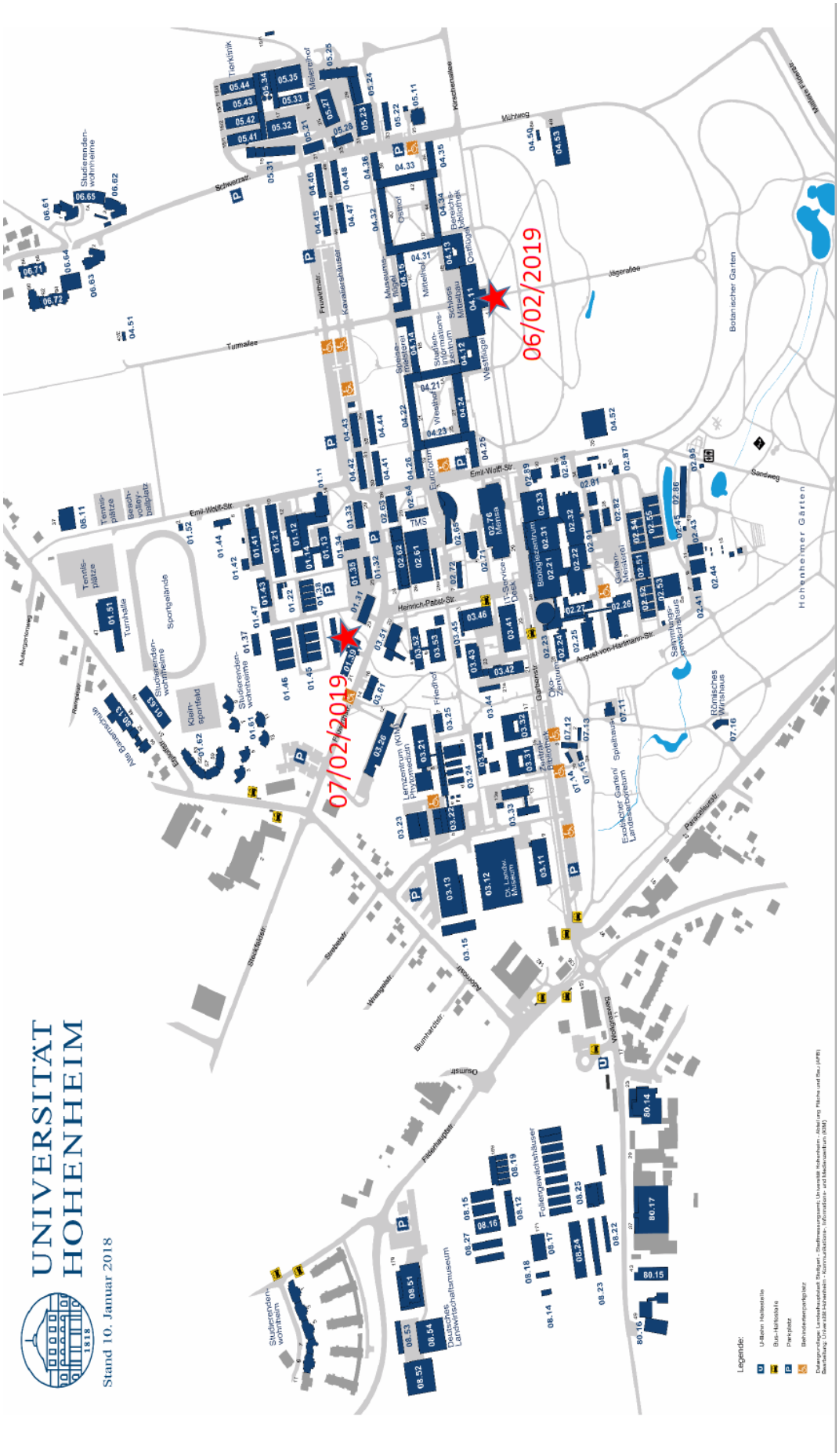
How to come to Hohenheim

https://www.uni-hohenheim.de/en/directions

Some Hotels to book yourself

How to come to Hohenheim
https://www.uni-hohenheim.de/en/directions

Campus Plan
How to come to Hohenheim
https://www.uni-hohenheim.de/en/directions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