

New CIM00012 germplasm exchange project

- Five years: 07/2008 to 06/2013
- Sending only SAWYT and ESWYT candidates to limit numbers
- Sending breeder selections (one year every two), rotation CIMMYT/ICARDA
- Still sends ~ 50 primaries every year
- Will implement HFN testing from Obregon to eliminate constitutive High LMA lines. Need to check SERI levels first.

New CIM00010 Drought project

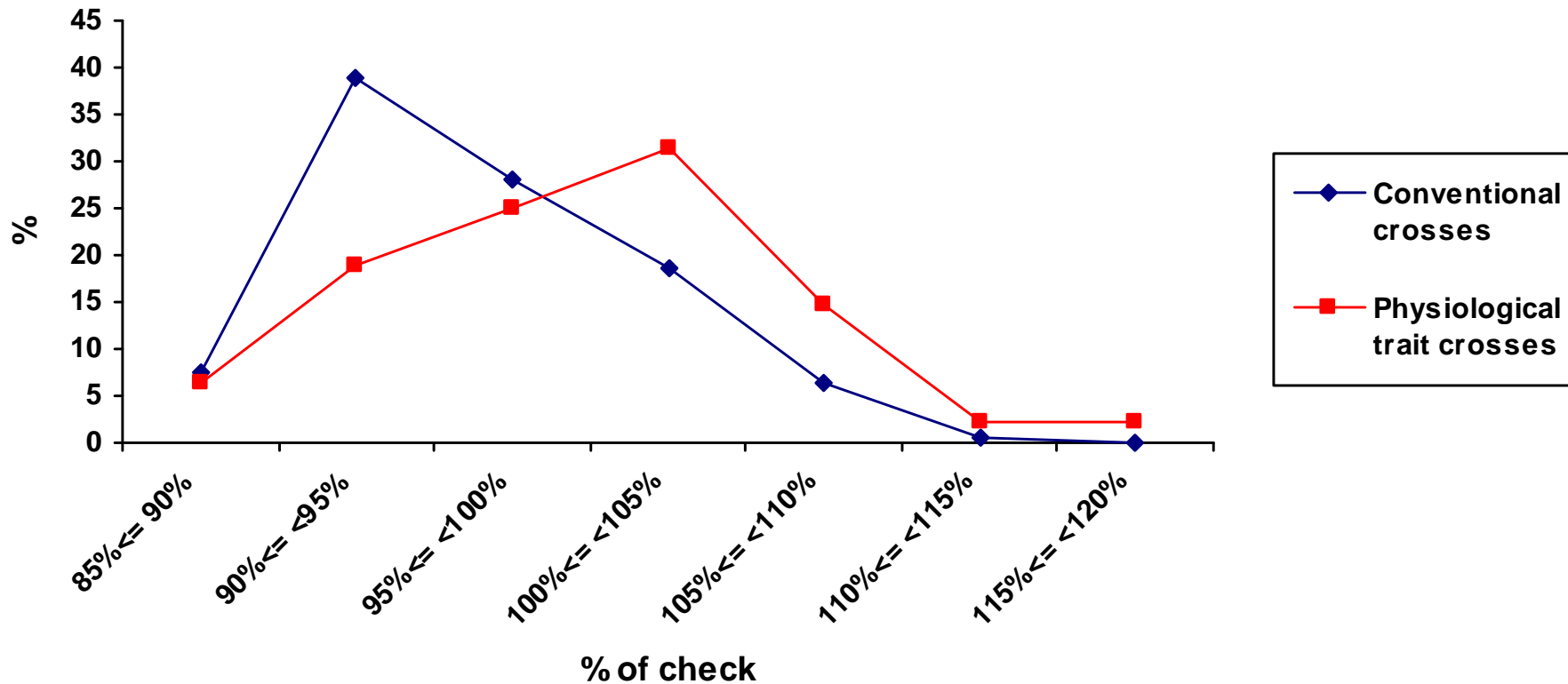
- Five year project: 07/2008 to 06/2013
- Three modules:
 - Development of drought tolerant germplasm based on application of physiological model
 - Strategic Trial: Determination of the relative importance of several stress-adaptive traits in various stress scenarios.
 - Systematic Drought Tolerance screening of CIMMYT primary Synthetics

CIM00010: germplasm development

- Each year, set of elite lines sent to physiological characterization under drought.
- Wheat physiology on its way to finish landrace screening
- Physio traits-based crosses:
 - Elite x Elite two-way and top crosses
 - Introgression of the best landraces into elite germplasm

Impact of physiological breeding

Yield distribution of 3 years mean drought trials
(Cd Obregon, Mexico)



CIM00010: Strategic trial

- Try to reply to key question: how relative importance of stress-adaptive traits changes in various stress situations.
- Strategic trial set up:
 - 30 lines from 11thSAWYT with narrow phenology range (< 10 days in flowering) and spanning bad to good performance in low yielding international sites.
 - Several environments varying for stress type (drought and heat), stress intensity, plot type (flat versus bed), seed density, tillage treatment (see next table)
- Julian Pietragalla does his Phd on this trial

Strategic trial environments Y08-09

	2 beds 2 rows	Flat 8 rows	Flat 4 rows
Full Irrigation gravity (check)	X		
Full Irrigation Heat Stress (late planting)	X		
Drip Continuous drought stress (25 mm post planting)	X at 2 DENS		
Drip Continuous drought stress (25 mm post planting)		X at 2 DENS	X at 2 DENS
Drip Continuous drought stress (25 mm post planting) Late Dec planting	X		
Sprinklers CT drought		X at 2 DENS	
Sprinklers CT moderate drought	X		
Sprinklers ZT moderate drought	X		

DENS = 125 K/M2 and 250 K/M2

Strategic trial

- Sent to AWCC in December 08, to get it multiplied in Australia.
- Intention is to have three volunteers to trial it, one in SA, one in WA, one in NSW.
- Who is interested ? Who is willing to do it ?

Primary Synthetics Drought Screening

- Primaries were almost used at random by CIMMYT, and we may have missed many drought tolerant accessions
- This project undertakes systematic screening of all available primaries for drought tolerance, and will start introgression of the best accessions into elite germplasm

Primary Synthetics Drought Screening

- We have multiplied and purified most available primaries in Batan during summer cycle 2008.
- Wheat physiology has planted 843 primaries in a single rep design with replicated checks in Obregon cycle 08-09. Will measure:
 - Early vigor (NDVI), CT, Biomass, and on the best biomass lines, yield and TKW.
 - Will select the 10-15% best for detailed characterization in 09-10.

Primary synthetics drought screening

- Best 20 to 30 primaries will be selected at the end of 09-10 and:
 - Introgression to elite CIMMYT and Australian cvs will start.
 - A third year of trial (10-11) will confirm their drought tolerance status and refine their stress-adaptive trait expression (so best elite germplasm can be chosen accordingly)

Post-Doc Rainfed Breeding

- Post-Doc Wuletaw Degu has been recruited to support Rainfed CIMMYT breeding and prebreeding activities (starting first of March 2009).
- This position is funded by CIM00010 project.