



2020/21 Plan Summary

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G2F Cooperators Annual Meeting

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www.Genomes2Fields.org

What We Attempted for 2020-21:

STIFF STALK SET	PHBW8 <i>PHJ40 type</i>	3AZA1 <i>B14 type</i>	PHB47 <i>B37 type</i>	FBLL <i>B73 type</i>	
GEMS-0061 <i>Cristalino Colorado</i>	DH1	DH2	DH3	DH4	
GEMS-0113 <i>Tuxpeño</i>	DH5	DH6	DH7	DH8	
GEMS-0219 <i>GEM x GEM derived</i>	DH9	DH10	DH11	DH12	
GEMS-0227 <i>Inbred-tropical</i>	DH13	DH14	DH15	DH16	
NON STIFF STALK SET	PHP02 <i>Iodent type</i>	PHJ89 <i>PHT77 X PHG47</i>	PHN46 <i>PH848/814 /595 type</i>	LH212Ht <i>Mo17 type</i>	PHK76 <i>PHK76 type</i>
GEMN-0096 <i>Hybrid-tropical</i>	DH17	DH18	DH19	DH20	DH21
GEMN-0097 <i>Mixed</i>	DH22	DH23	DH24	DH25	DH26
GEMN-0192 <i>Tusón</i>	DH27	DH28	DH29	DH30	DH31
GEMN-0225 <i>Composite (Suwan)</i>	DH32	DH33	DH34	DH35	DH36

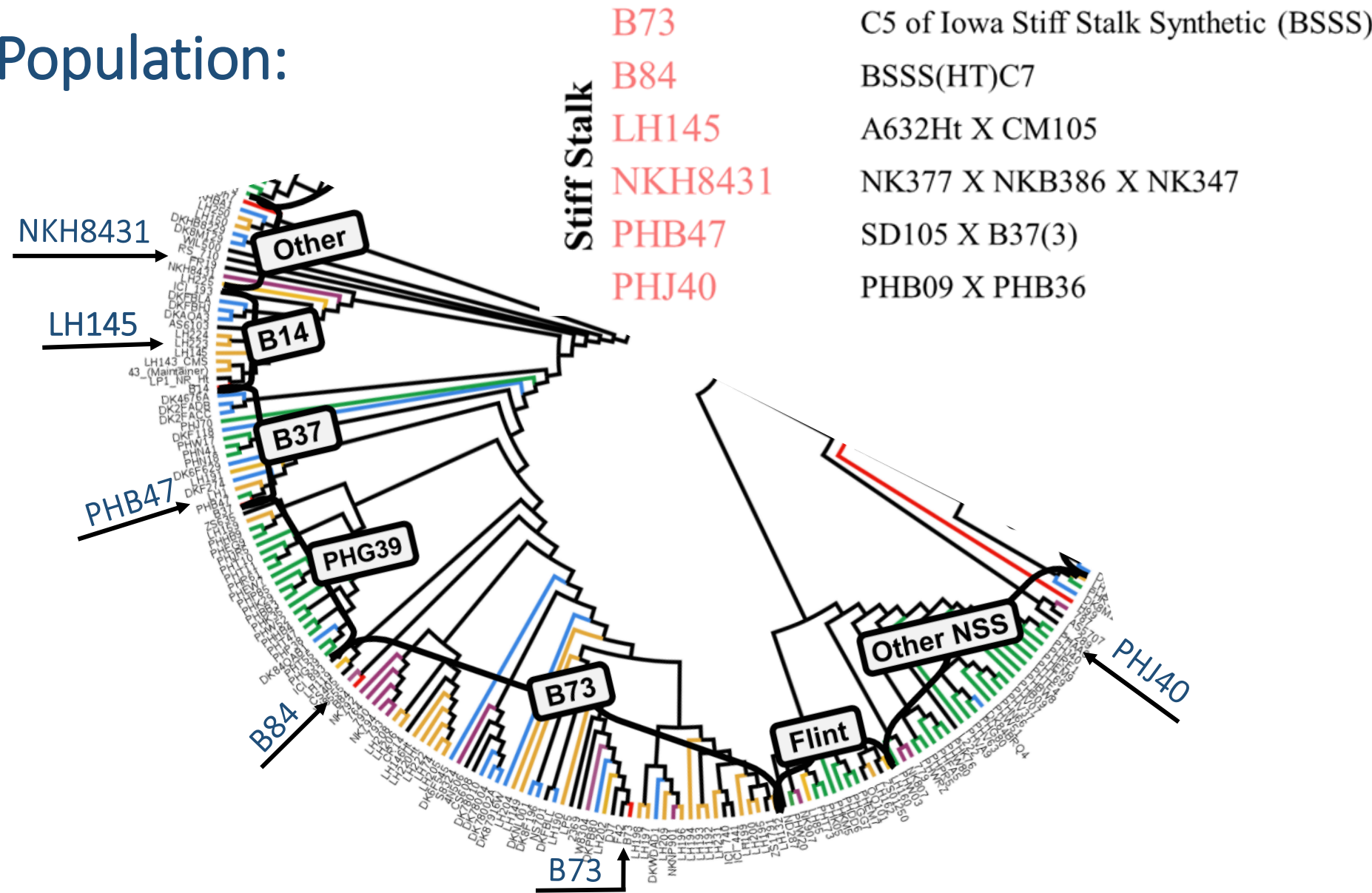
Results from DH (Tuniche):

- ❖ Goal was 50 to 100 DH per cross (1,800 to 3,600 total)
- ❖ Success was lower than anticipated due to environment
- ❖ We increased 1153 DHs in summer 2019 from one seed to 20+ per row
- ❖ Unbalance representation of families, some almost not at all
 - 3AZA1 very poor
 - Segregation on some GEM parents
- ❖ (Re)Started SSD process from crosses



Stiff Stalk MAGIC Population:

✧ Diallel of 6 parents per population, followed by intermating of F₁ hybrids, bulked seed was randomly intermate for subsequent DH generation

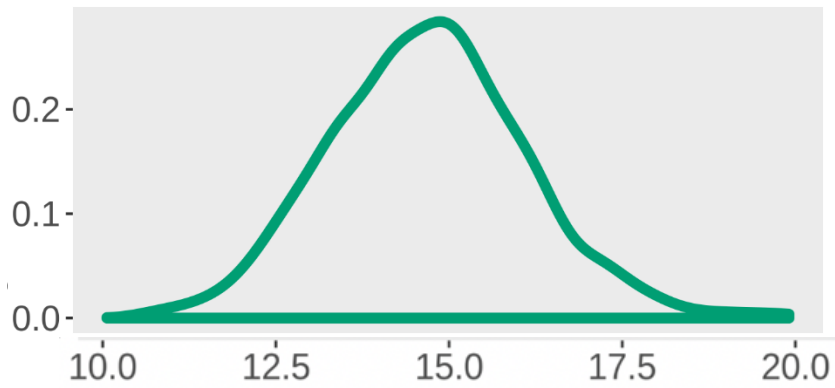


Stiff Stalk MAGIC Population:

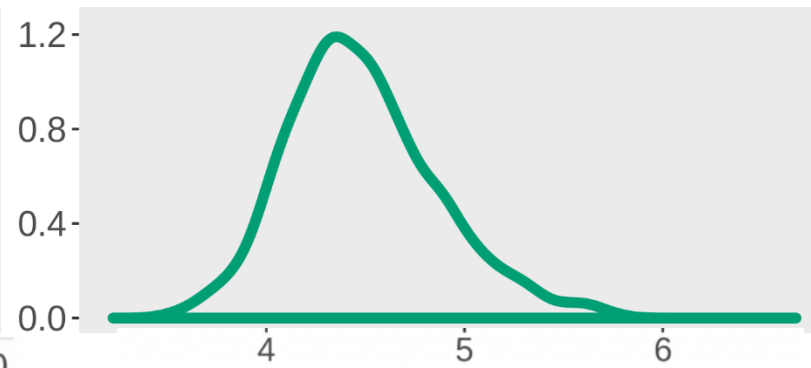
- ✧ Lines genotyped
- ✧ Isolation summer 2019 with PHP02 (Iodent - PHG44 X PHG29 - early tester) – *limited success*
- ✧ Isolation this winter:
 - ✧ Puerto Rico (3MG) – **PHK76** (Lancaster C103 - PHAD18 X PHB02 - intermediate tester)
 - ✧ Chile (Tuniche) **PHP02** (repeat) and **PHZ51** (Lancaster - PH814 X PH848 - late tester)

Evaluation of Stiff Stalk MAGIC Inbred Population:

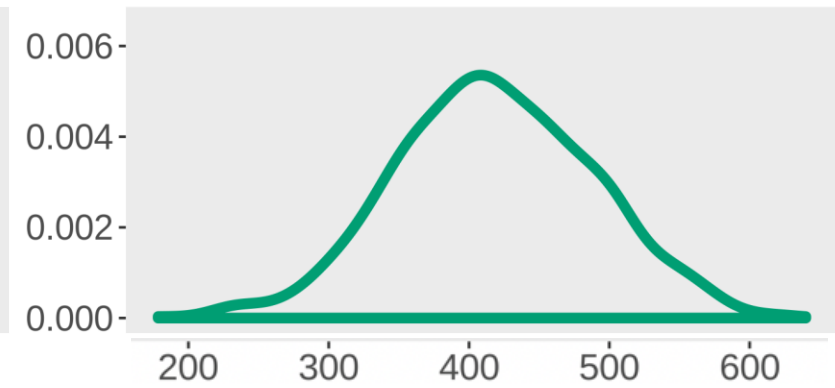
Kernel Row Number



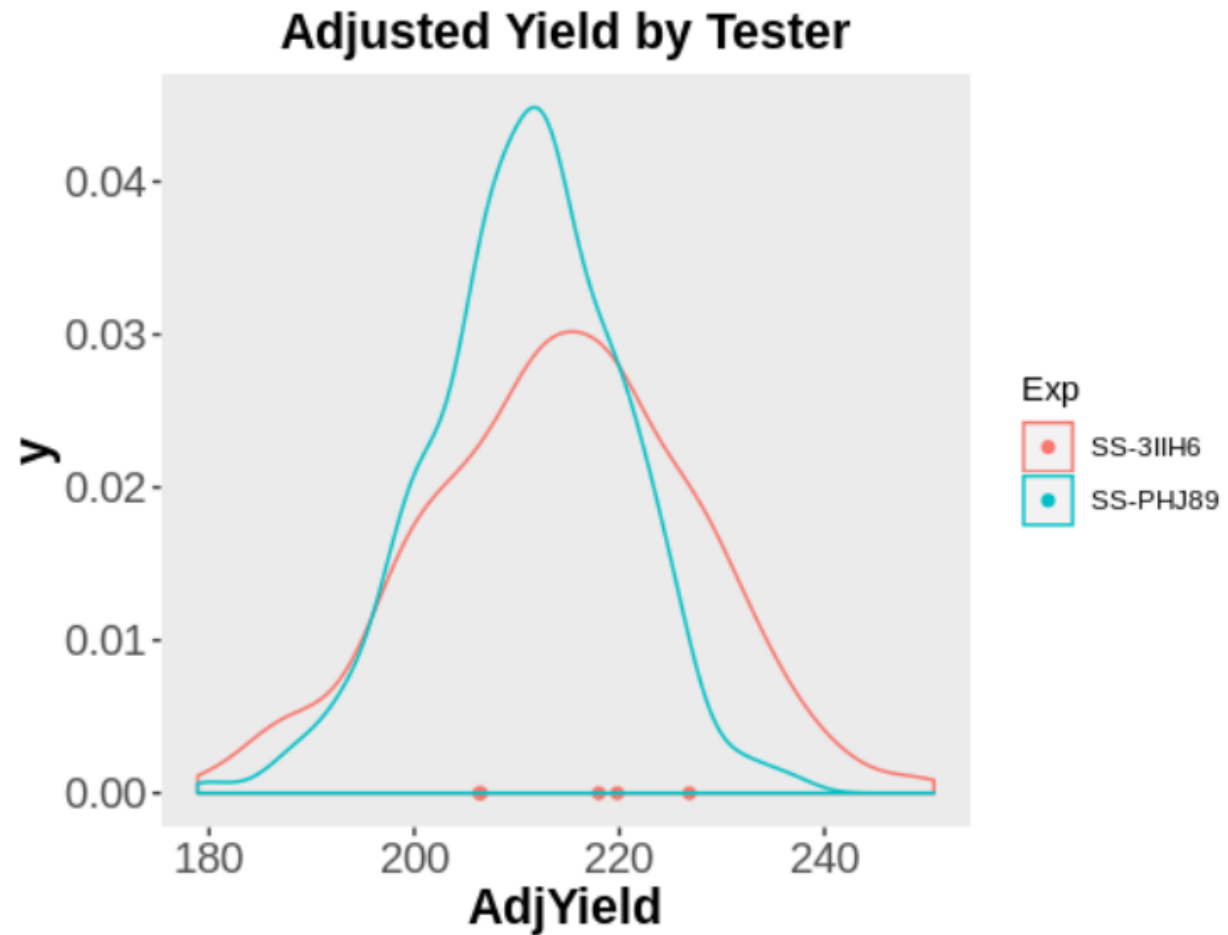
Kernel Thickness



Kernel Number



Evaluation of Stiff Stalk MAGIC Hybrids:



“Side” Projects – limited locations:

- ✧ Limited locations
- ✧ Investigators generated their own seed
 - ✧ Randy Wisser: effect of organellar genome on yield in maize using materials developed by his group for the maize ATLAS project – 64 plots
 - ✧ Seth Murray: characterization of loci affecting photoperiod associated flowering using the Tx773 mini NAM population

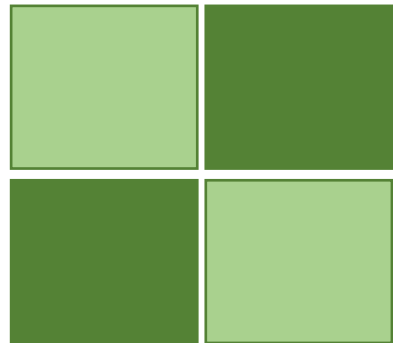
High Intensity Phenotyping Sites (HIPS):

- ❖ Sites where specific tools, conditions or processes are used on a smaller (common set of materials) to assess utility

Hybrids	Hybrids	Inbreds	Inbreds
Tx714 X PHZ51	PHB47 X PHZ51	B73	PHJ89
B73 X Mo17	PHB47 X PHK76	B84	PHP02
B73 X PHN82	LH244 X Mo17	LH145	PHR03
B73 X PHZ51	LH244 X PHN82	LH185	PHRE1
B73 X PHK76	LH244 X PHZ51	LH195	PHT69
LH195 X PHZ51	LH244 X PHK76	LH82	PHTD5
LH195 X Mo17	PHJ89 X PH207	Mo17	PHW65
LH195 X PHN82	LH145 X LH82	PH207	PHZ51
LH195 X PHK76	PHG29 X PHG47	PHAJ0	Tx714
PHB47 x Mo17	PHRE1 X PHTD5	PHB47	W22-Uniform Mu strain
PHB47 X PHN82	PHJ40 X PHAJ0	PHJ40	

Dissection of Genotypes and Environments:

- ✧ Dissect into components
- ✧ Modeling

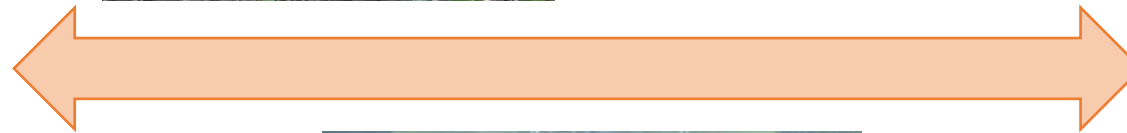


Controlled environments

TerraSentia



Schnable, Tang, ISU



Spalding, U Wisc

