PhytoGene Resources Inc.

Selection for enhanced kernel fill

A.R. McElroy PhytoGene Resources

M.S. McElroy PhytoGene Resources

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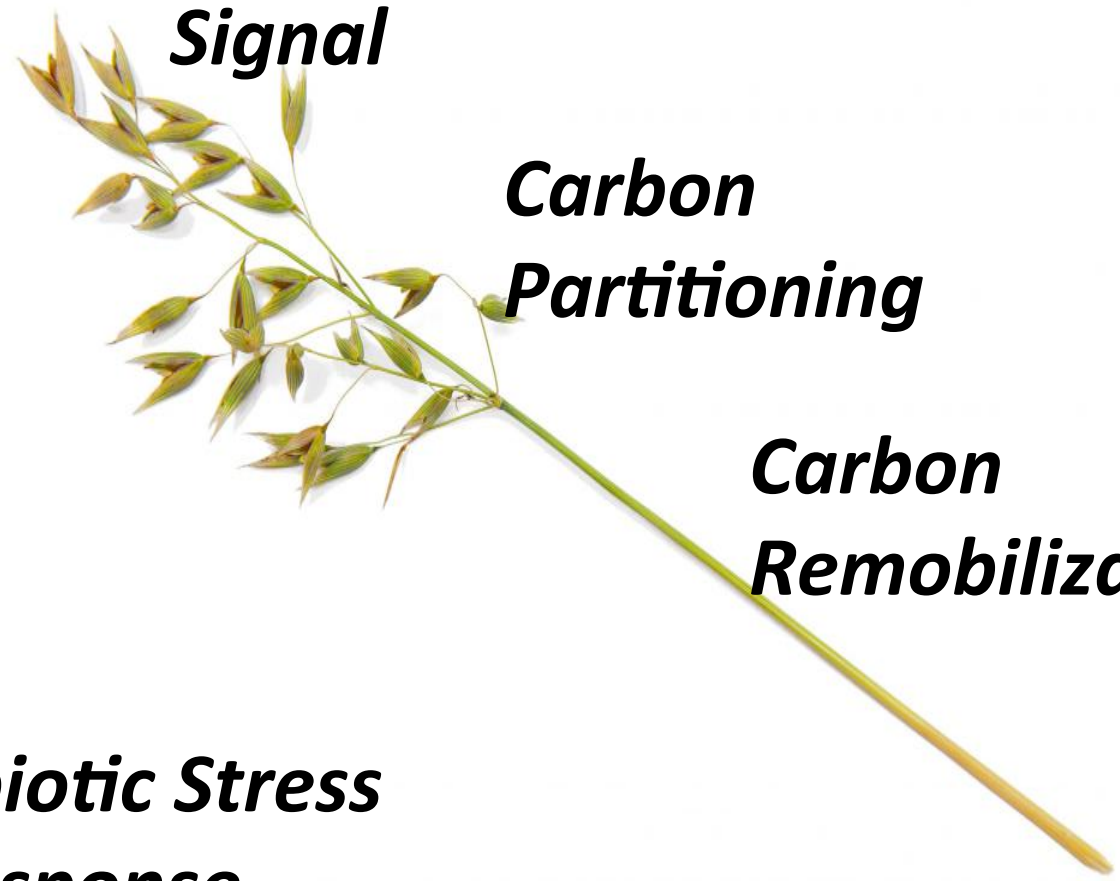
Genetic Factors Affecting Grain Fill



Maturation Signal

Carbon Partitioning

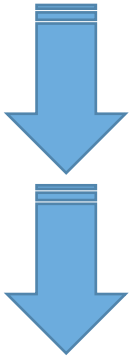
Carbon Remobilization

Abiotic Stress Response

Carbon Storage

Generation of Near Isogenic Lines (NILs)

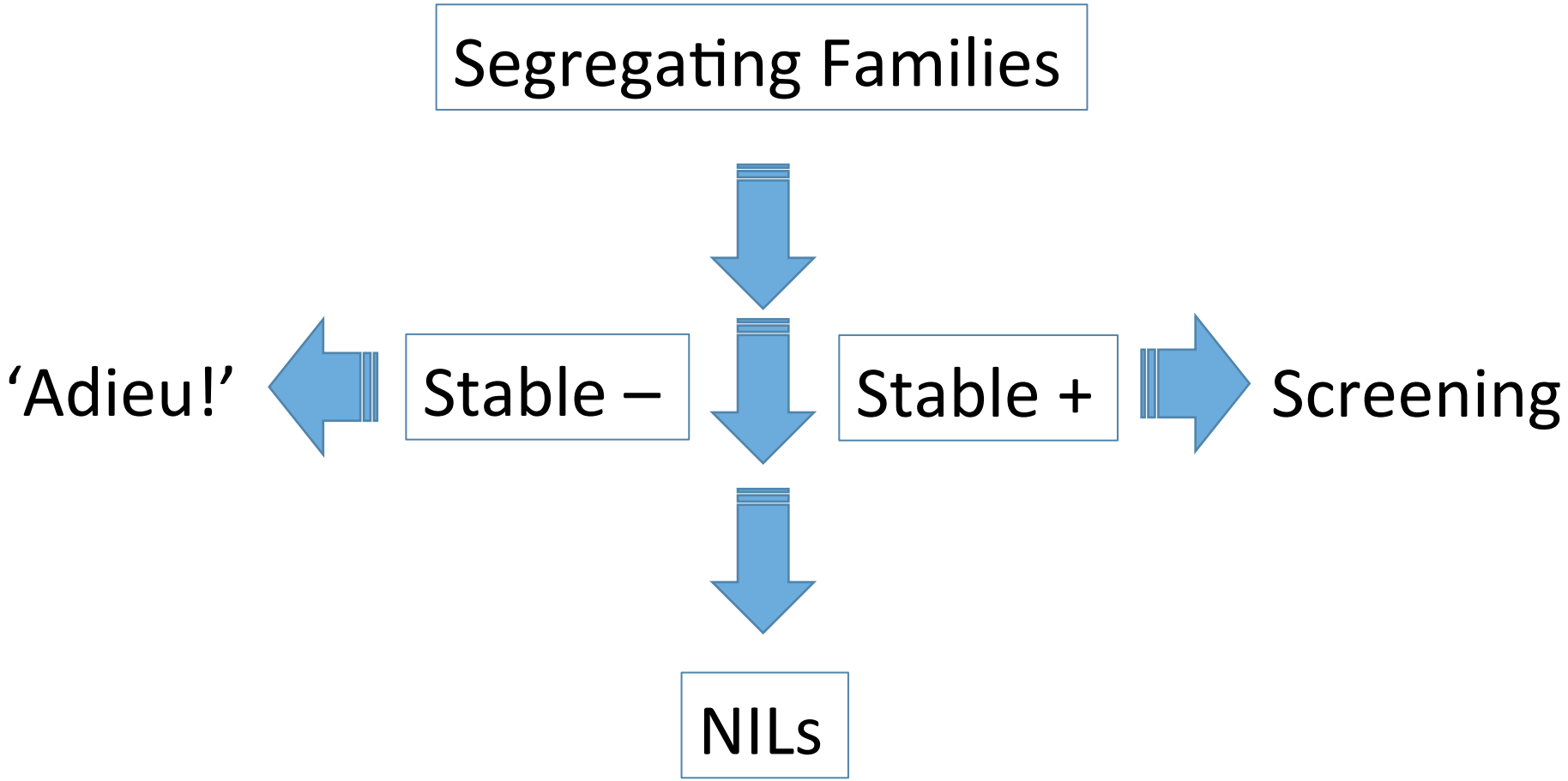
Aa Bb Cc Dd Ee



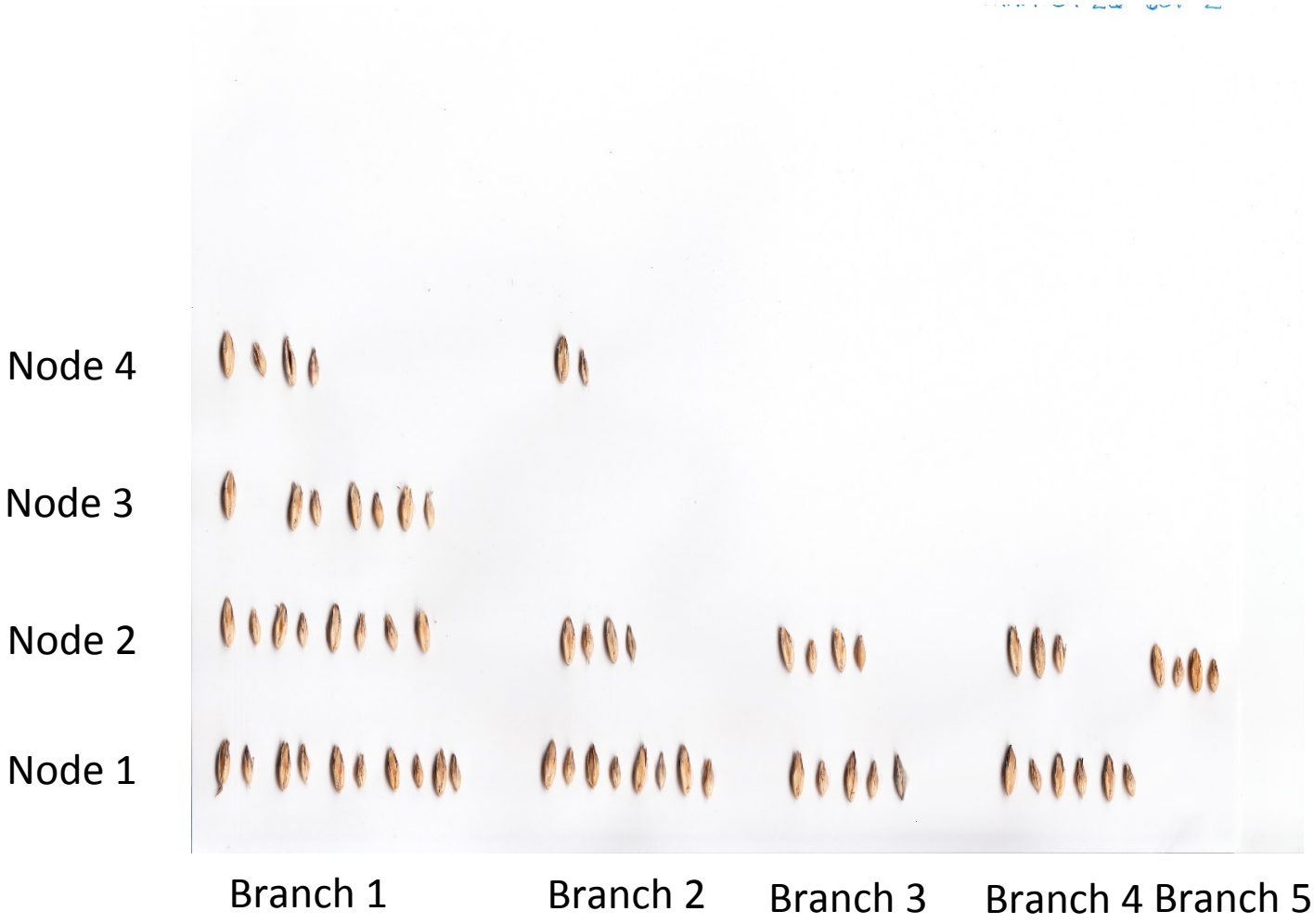
Selection of Heterozygote

AA bb CC dd EE

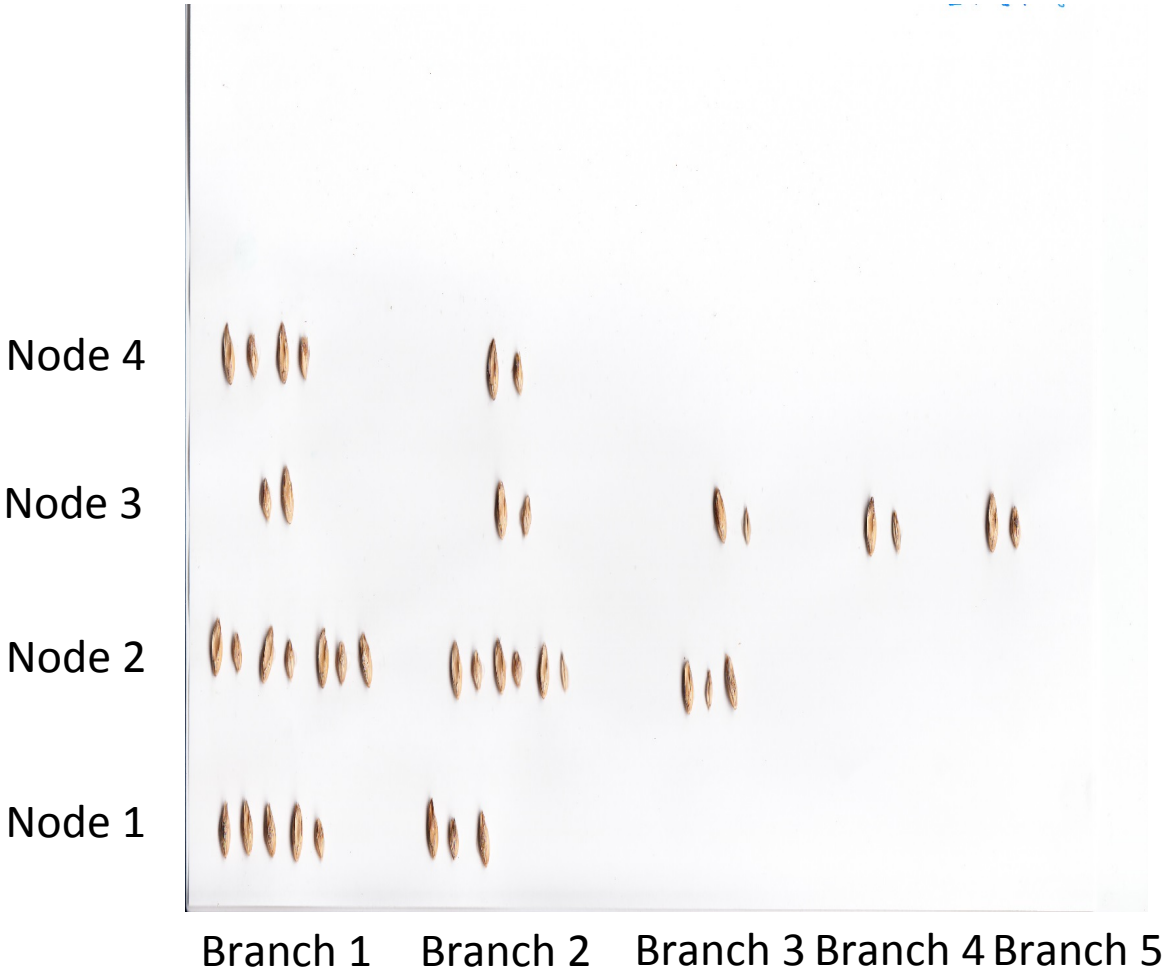
AA bb cc dd EE


Segregating Families
‘Adieu!’
Stable –
Stable +
Screening
NILs

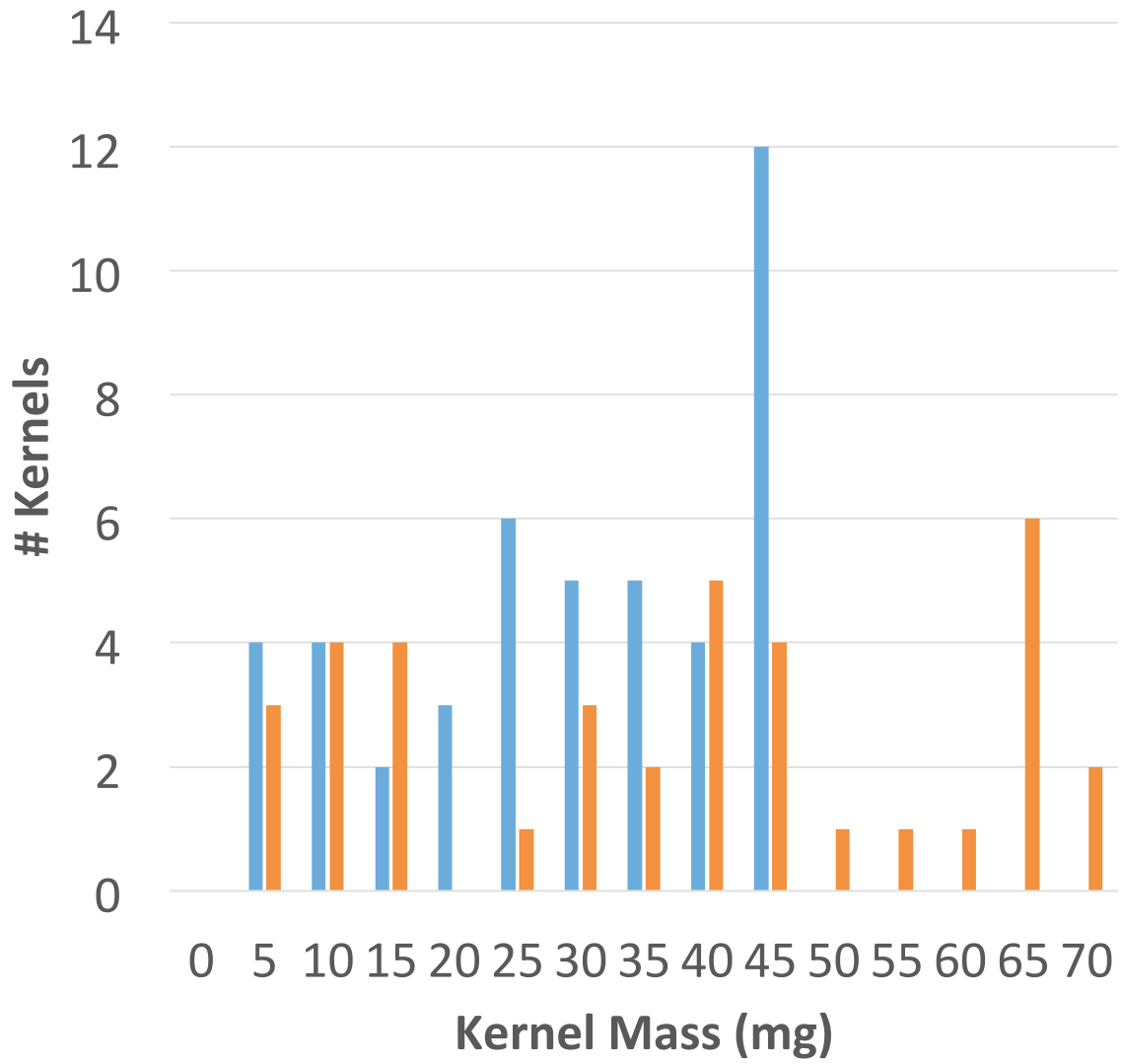
Panicle Digital Image Analysis



Panicle Digital Image Analysis (cont'd)



Kernel Mass Distribution



A: **N=46**
TWK=31.7g
Total Mass: 1.46g

B: **N=36**
TWK=40.3g
Total Mass: 1.45g

Kernel Distribution/Mass Data

node	branch	position	order	fill	mass (mg)
5	1	1	1		67.1
5	1	1	2		44.3
4	1	1	1		67.0
4	1	1	2		41.9
4	1	2	1	u	17.5
3	1	1	1		73.9
3	1	1	2	u	7.1
3	1	2	1	u	17.4
2	1	1	1	u	17.0
2	1	2	1		70.0
2	1	1	2		42.5
2	1	3	1		69.9
2	1	3	2		47.1
2	2	1	1	u	13.9

Traits for Analysis

1. Kernel Number/Mass at each node
2. Location of Unfilled Kernels
3. Primary vs Secondary Mass throughout panicle
4. Kernel distribution/mass response to stress
5. Kernel distribution/mass response to agronomic practices
6. Sequence of grain fill
7. …and many more!

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