Agronomy 212 – Crop Growth, Productivity, and Management

Corn - Development and Selection of Genetics

Yield Determinants

Is Either of These an Interaction?

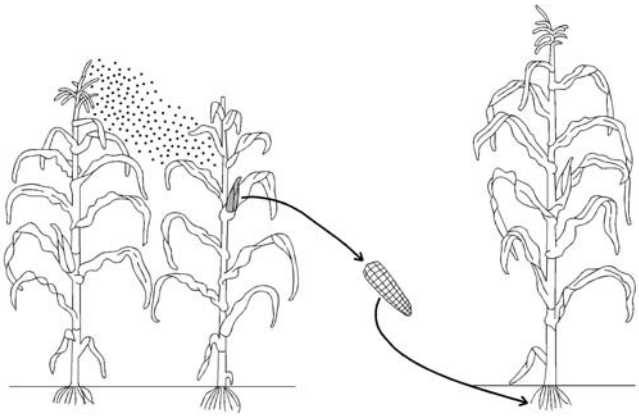
- Example 1

	Grain Yield (Bu/acre)	
Genotype	**Location 1**	**Location 2**
A	180	182
B	177	150

- Example 2

	Grain Yield (Bu/acre)	
Genotype	**Location 1**	**Location 2**
A	180	192
B	160	174

Hybrids



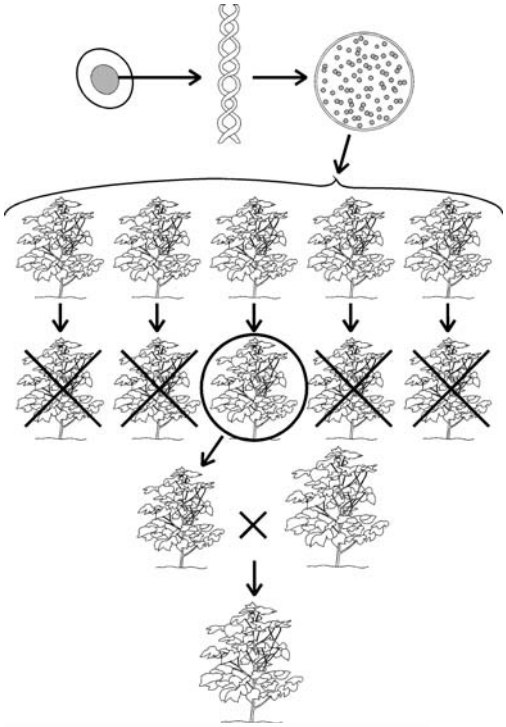
Hybrid Development

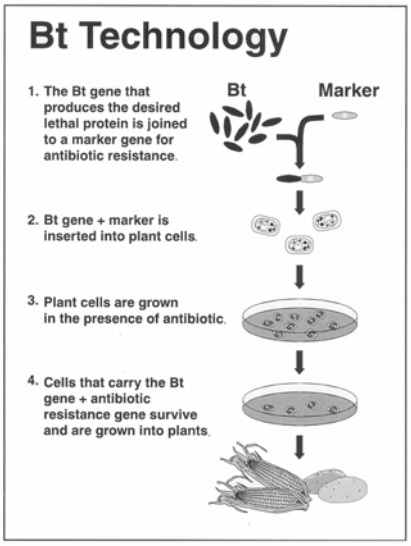
Hybrid Vigor

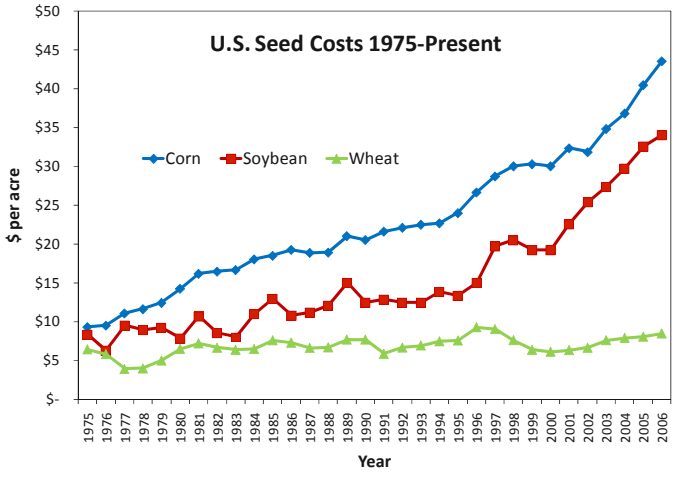
	AB	Ab	aB	ab
AB	160	160	160	160
Ab	160	110	160	110
aB	160	160	80	80
ab	160	110	80	60

Conventional Breeding Improvements to Corn

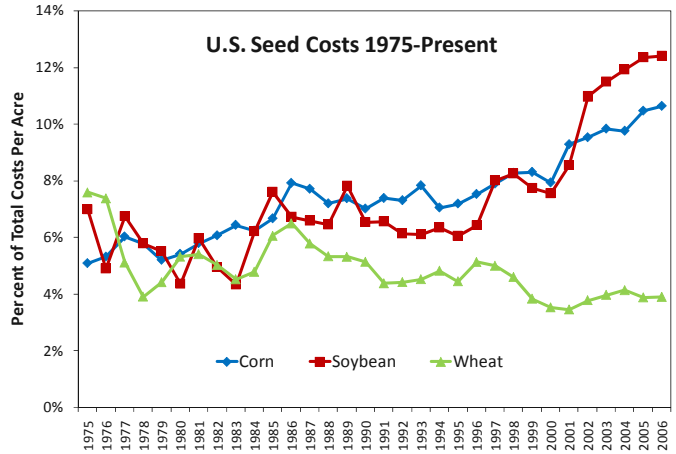
Transgenic plants







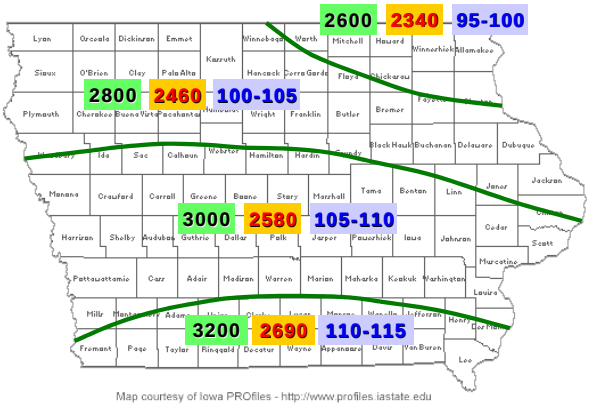
Source: USDA ERS



Corn Hybrid Maturity

Seasonal Growing Degree Days

May 10 - October 10 **Total** **Safely Available** **Days**



Map courtesy of Iowa PROfiles - http://www.profiles.iastate.edu

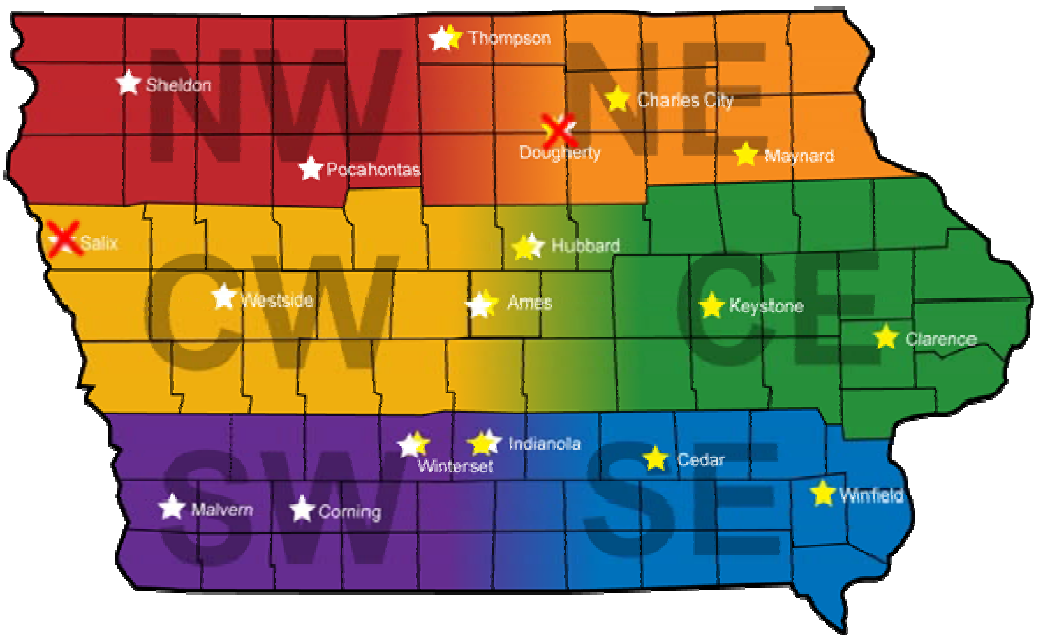
Checklist for Selecting Genetics

Selecting Superior Genetics

Independent Hybrid Tests

F.I.R.S.T

Iowa Crop Performance Test - Corn

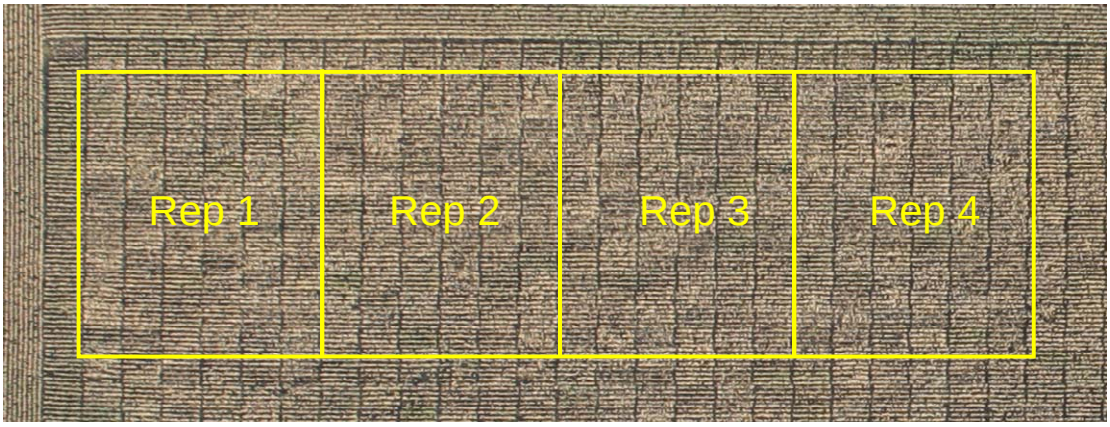


Districts and Locations

Site Layout - Ames

Full Season Central - East	Early Season Central - East
Full Season Central - West	Early Season Central - West

Test Layout



Adjusted gross value = gross value – drying cost

Gross value = dry yield x price per bushel

Dry yield = ((100-total shrink)/100) x wet yield

Total shrink = water shrink + handling loss

Water shrink = shrink factor x (%moisture – 15.5)

Shrink factor = 1.183

Handling loss = 0.5

Drying cost = wet yield x (%moisture - 15.5) x drying cost per point per bushel

Analysis and Use of Crop Performance Tests

Seed Cost

	Hybrid B	Hybrid A	Difference
Seed cost/bag (80,000 units)	$130.00		
Yield history or performance test results	170 Bu/A		
Revenue/A at $2.25/Bu			
Seed cost at 32,000/A			