Hazelnut Improvement Program

HIPsters Wanted

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Upper Midwest Hazelnut Development Initiative

UW Extension

The Hazelnut Crop

- 99.99% of hazelnuts come from European (*C. avellana*) or Turkish (*C. colurna*) hazelnuts
- European and Turkish species are not hardy to the Upper Midwest and both are susceptible to Eastern Filbert Blight
- US produces 2-3% of world hazelnuts

Midwestern Hazelnut Production

- Two native hazelnut species (American and Beaked) are found throughout the region
- Private and hobby breeders have been making crosses between native species and European
- **There are currently no proven cultivars of hazelnuts for the Upper Midwest**

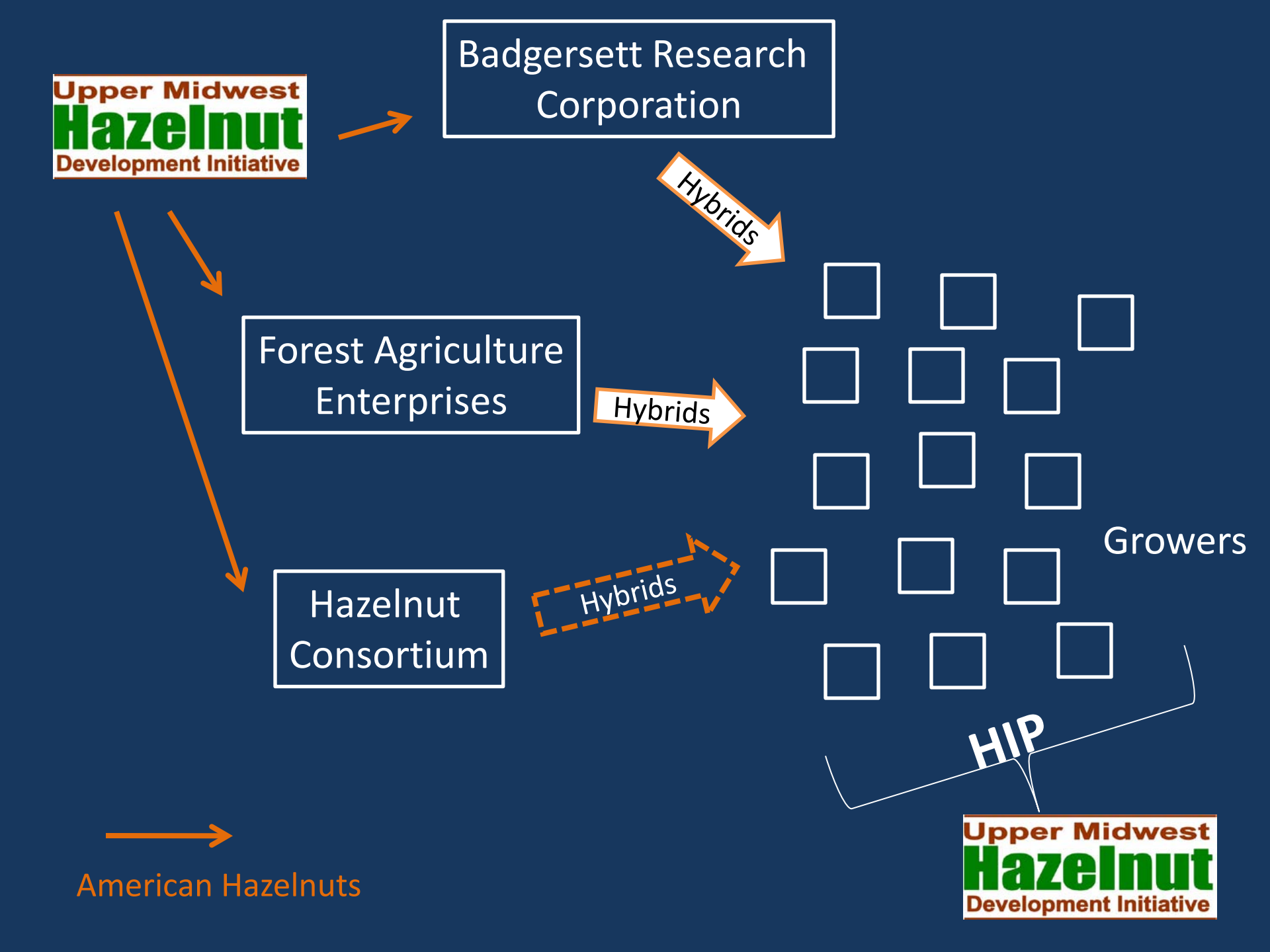
The Original Honeycrisp Apple Tree

2007 Hazelnut Development Strategic Plan

1. Grower outreach and education
2. Develop hazelnut cultivars
   a) Screen hybrid plantings
   b) Screen wild hazelnut plantings
   c) Develop propagation tools
3. Develop suitable processing technologies
4. Support grower organizational development

Developing A Hazelnut Cultivar

- Find a high-performing plant (mass-selection)
  - Wild American populations
  - Hybrid populations
- Propagate the plant and evaluate at multiple locations (performance trials)
- Make controlled crosses of “best” plants to make even “better” plants


Upper Midwest Hazelnut Development Initiative
Badgersett Research Corporation
Hybrids
Forest Agriculture Enterprises
Hybrids
Hazelnut Consortium
Hybrids
Growers
HIP
American Hazelnuts
Upper Midwest Hazelnut Development Initiative

A Giant Project of Mass Selection

- Early-adopters are leading the way
  - 129+ growers in WI, MN, IA, IL
  - 66,000+ plants in WI, MN, IA, IL
  - Have deployed significant genetic diversity

State	Plants	Growers
IA	4044	16
IL	319	1
MN	22403	30
WI	39064	82
Total	**65830**	**129**

Hazelnut Improvement Program: Working with Growers to Screen Hybrid Plantings for High-Performing Plants

Photos: Brent McCown

Hazelnut Improvement Program

- Find high-performing plants in relation to its neighbors
- Vegetatively propagate the superior plants
- Plant clones of the superior plants in replicated performance trials to sort out genetics vs environment
- If it’s good, plant more and/or cross with other nice plants

UMHDI Performance Trials

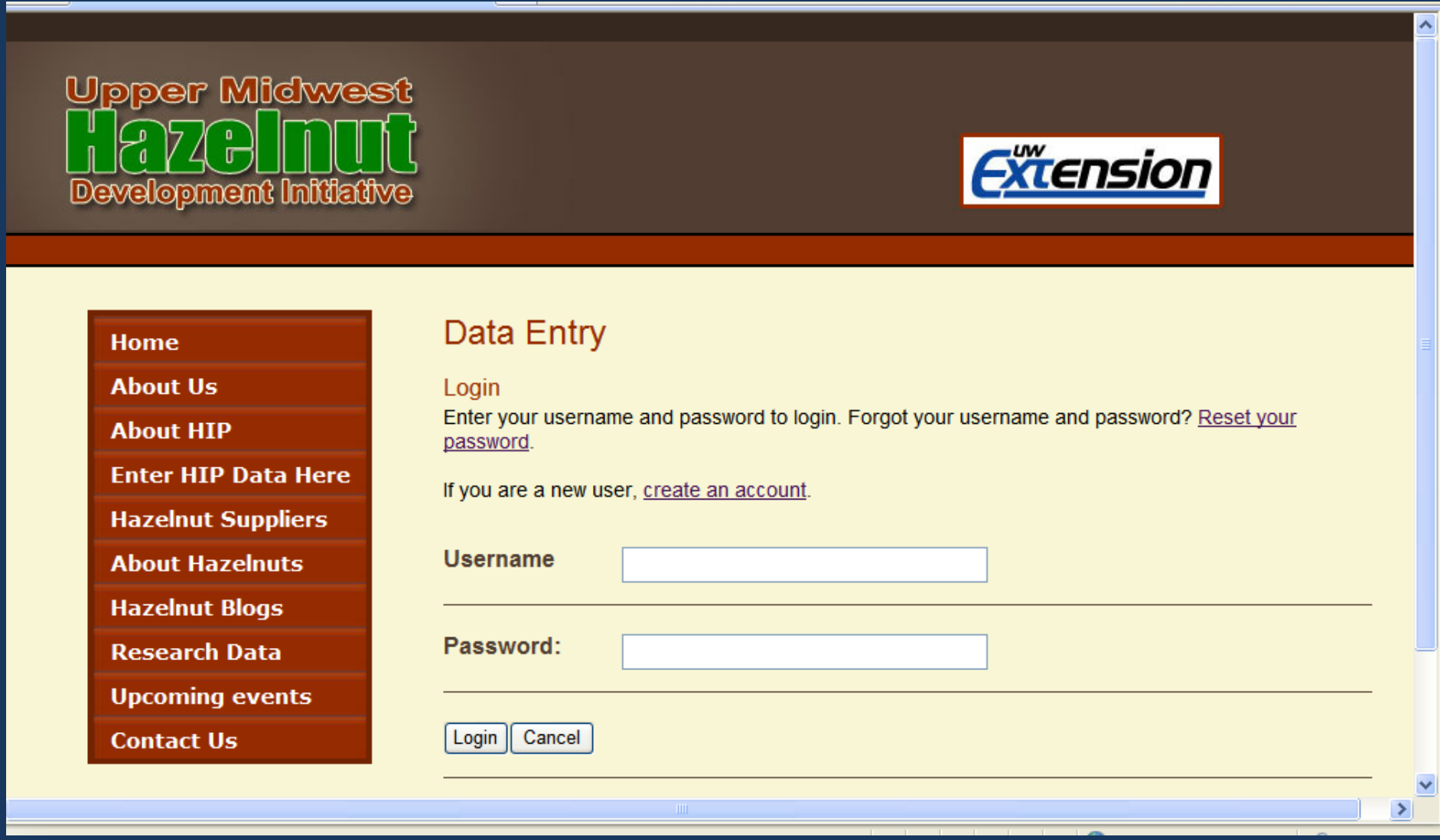
"Evaluating Promising Plants for Growers and Breeders"

- Bayfield, WI – 84 accessions
- Tomahawk, WI (to be planted in 2011)
- St. Paul, MN
- Lamberton, MN

How To Participate

1. Create a HIP account
2. Visually-screen your planting every year
   - Yield, vigor, nut size
3. Collect data from your “best” plants
4. Propagate and evaluate (UMHDI)

1. Create a HIP Account
www.midwesthazelnuts.org



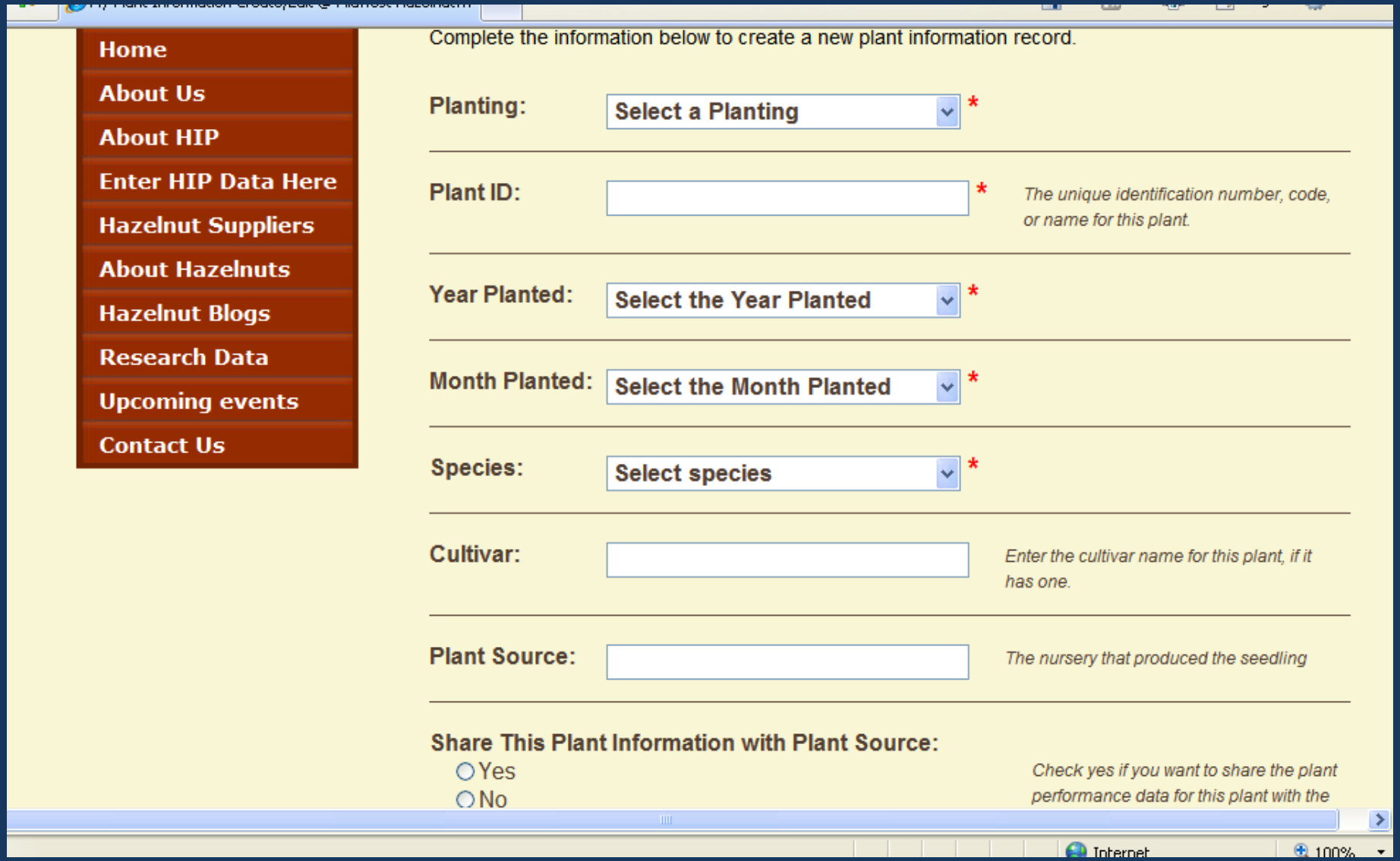
2. Visually Screen Your Plantings

- Tie flags on and label the highest performing plants
- After a few years start recording data on the plants with the most flags

3. Collect Data From Your “Best” Plants

- In-shell fresh weight yield
- Dry kernel yield
- Height
- Width
- Number of clusters
- Maximum cluster size
- Enter the data in your account

HIP Data – Plant Information



HIP Data – Shared Data Example

Planting Details for the state of WI

Planting Identifier	State	County	Soil Type	Soil Series	Number of Plants
2005 planting	WI	Kenosha	Silty Clay		1
Berweger Flagged Spring 2009	WI	Ashland	Sandy Loam		4
Big Field	WI	Ashland	Silt Loam	480B	
Old Greenhouse	WI	Ashland	Silty Clay	580B	
Port Wing Flagged Spring 2009	WI	Bayfield	Sandy Loam		
Research Plot #1 MPL	WI	Bayfield	Clay Loam		
Research Plot #10 MPL	WI	Portage	Sandy Loam		20
Research Plot #10 MPL	WI	Portage	Sandy Loam		
Research Plot #11 MPL	WI	Pierce	Loam		22
Research Plot #2 MPL	WI	Bayfield	Sandy Loam		
Research Plot #3 MPL	WI	Ashland	Sandy Loam		20
Research Plot #4 MPL	WI	Ashland	Sandy Loam		13
Research Plot #5 MPL	WI	Ashland	Sandy Loam		21
Research Plot #6 MPL	WI	Sauk	Sandy Loam		20
Research Plot #7 MPL	WI	Vernon	Silt Loam		20
Research Plot #8 MPL	WI	Vernon	Silt Loam		20
Research Plot #9 MPL	WI	Vernon	Silt Loam		15
Swamp Field	WI	Ashland	Silt Loam	480B	2

Data shown are only the data shared by other users.

How to Participate

- Go to: www.midwesthazelnuts.org
- Watch the videos
- Download the HIP Program Guide
- Contact me: jason.fischbach@ces.uwex.edu