

Upper Midwest Hazelnut Development Initiative

**Strategic Action Plan
2018-2027**

**Upper Midwest
Hazelnut
Development Initiative**



**UNIVERSITY
OF MINNESOTA**



THE UNIVERSITY
of
WISCONSIN
MADISON



**College
of Natural Resources**

2018 Strategic Priorities

The purpose of the Upper Midwest Hazelnut Development Initiative (UMHDI) is to support the growth and commercialization of the hazelnut industry in the Upper Midwest through research, outreach education, and business development. The following goals and action items were identified as key priorities for the UMDHI through the fall 2017 strategic planning process.

1. Secure Stable and Long-Term Funding To Implement the UMHDI Strategic Plan (Pg.1)

Although UMHDI researchers will continue applying for grants, grants are getting increasingly hard to secure, so new funding sources are needed, such as from foundations and private donors.

2. Develop and Evaluate Improved Germplasm for the Upper Midwest (Pg. 2)

The short-term goal is to populate on-farm trial plantings with 1st generation selections to support industry scale-up and the long-term goal is to continue the UMHDI breeding program to develop even better 2nd generation material.

3. Make Field-Ready Plant Material from Proven Genotypes Available to Growers (Pg. 3)

Additional work is needed to develop viable methods of vegetative propagation of top selections and production of field-ready nursery stock.

4. Develop Harvesting and Husking Equipment for Hazelnut Hedgerow Production (Pg. 4)

Harvesting hazelnuts directly from the plants offers many economic and environmental benefits, but will require improved harvesting and de-husking equipment.

5. Develop Establishment, Fertilization, and Plant-Size Management Protocols (Pg. 5)

Additional field research and outreach education is needed to optimize the agronomics of hedgerow hazelnut production and deliver such information to growers.

6. Support Entrepreneurs with Business Development Assistance (Pg. 6)

Building a new industry will require navigating entrepreneurs through the start-up and scale-up phase at all levels of the value-chain from production to processing to marketing.

1. Secure Stable and Long-Term Funding To Implement the UMHDI Strategic Plan

10-Year Goals

2018 Goals

- Strengthen collaboration among researchers and stakeholders to identify grant opportunities and submit collaborative and competitive grant proposals to implement the action items in this strategic action plan.
- Launch the Hazelnut Development Fund to enable private giving to support the work of the UMHDI and its researchers.
- Establish a **Hazelnut Development Council** consisting of businesses in the Upper Midwest working to secure financial support of the UMHDI from businesses, Foundations, and government.

By 2022

- Donations to the Hazelnut Development Fund combined with funding secured by the Hazelnut Development Council will provide baseline operating funds for the UMHDI researchers.
- In recognition of the investment by donors and the Council, the Universities of Wisconsin and Minnesota will continue their support of faculty and staff working on hazelnuts.
- At least five grower and supply-chain clusters will be established around the Upper Midwest, each with local funding sources supporting a lead networking and outreach education organization.

By 2027

- UMHDI researchers will have a dependable funding stream from the industry itself, such as royalties and check-off dollars, to support a long-term plant breeding and industry development program.

**Upper Midwest
Hazelnut
Development Fund**

**Upper Midwest
Hazelnut
Development Council**

2. Develop and Evaluate Improved Germplasm for the Upper Midwest

10-Year Goals

2018 Goals

- Establish Joint Performance Trials at 6 locations to evaluate 1st generation selections from public and private breeding programs.
- Generate clonal field-ready liners from the top 8 UMHDI 1st generation selections sufficient to establish 20 on-farm trial plantings starting in 2019.
- Secure funding for a post-doctoral researcher to begin performance evaluation and analysis of the UMHDI F1, BC1, and F2 breeding populations.
- Continue to evaluate the performance of F1 families to determine their efficacy as an alternative or compliment to clonal plantings.

By 2022

- The six Upper Midwest Joint Performance Trials will be fully populated with top selections from the UMHDI, Hazelnut Consortium, Grimo, and other breeding programs.
- At least 20 on-farm trial plantings populated with 1st generation selections from the UMHDI will be established and beginning to bear nuts.
- The top plants from the oldest F1, BC1, and F2 breeding populations will have been identified, propagated, and established in replicated germplasm trials for further evaluation.

By 2027

- Locally-adapted germplasm will have been identified and growers will be establishing new hazelnut plantings to meet the demand of the Upper Midwest industry.



3. Make Field-ready Plant Material from Proven Genotypes Available to Growers

10-Year Goals

2018 Goals

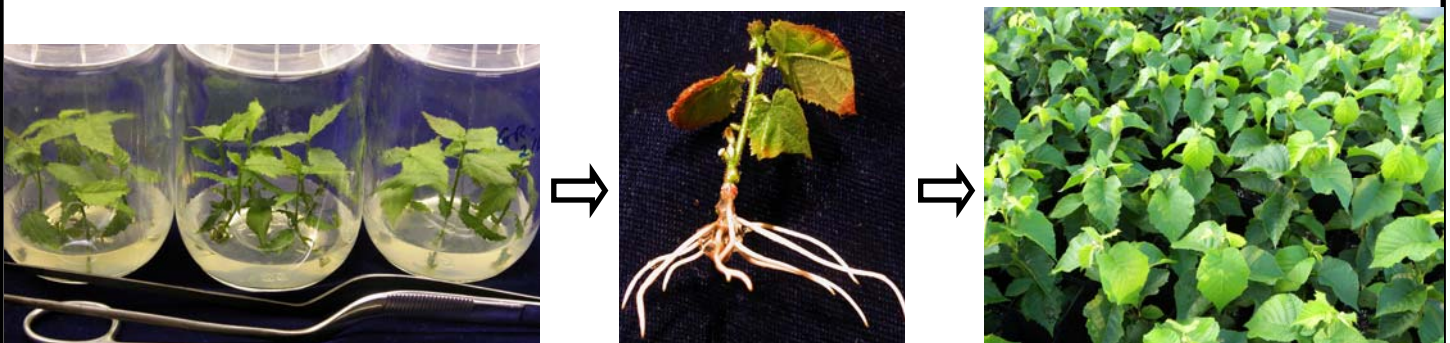
- Continue to micro-propagate 1st generation UMHDI hybrid and *C. americana* selections in order to develop a replicable and efficient micro-propagation protocol.
- Evaluate light and temperature regimes on root development and bud growth of hardwood and softwood stem cuttings.
- Establish stool-beds with 1st generation selections as a back-up plan in the event micro-propagation and/or stem-cutting techniques are not viable.
- Contract with a nursery specializing in liner production from micro-propagules to produce field-ready liners for the on-farm trials of 1st generation UMHDI material.

By 2022

- A micro-propagation and grow-out nursery will be licensed to produce and sell vegetative propagules from 1st generation selections.
- Vegetative propagules from 1st generation selections will be readily available for growers to establish new and expand existing plantings.

By 2027

- Seedling and clonal plant material from improved and proven germplasm will be available on demand from hazelnut growers throughout the Upper Midwest.



4. Develop Harvesting and De-Husking Equipment for Hazelnut Hedgerow Production

10-Year Goals

2018 Goals

- Secure funding to purchase and evaluate a rotary-shaker shrub-fruit harvester on different sized hazelnut shrubs.
- Compare the performance of the rotary-shaker harvester to the slapper harvesters currently being used by Midwest growers.
- Secure funding to develop a de-husker capable of separating husks from in-shell nuts without having to first dry the husks.

By 2022

- An improved hazelnut harvester will be proven to work on a full-range of hazelnut shrubs.
- The de-husker will be fully integrated into the harvester such that de-husking can happen in the field as part of the harvesting process.
- Clusters of growers will own and operate such harvesters.

By 2027

- Fully functional harvesters will be used by growers throughout the Upper Midwest such that harvest is not a limitation to hazelnut production.



5. Develop Establishment, Fertilization, and Plant-Size Management Protocols

10-Year Goals

2018 Goals

- Continue existing fertilization, pruning, weed control, and plant spacing experiments.
- Secure funding to establish new agronomic trials using clonal plants of the 1st generation selections.
- Publish results from the ongoing trials and transfer that information to growers and stakeholders.

By 2022

- Field trials evaluating the economics and agronomics of initial in-row planting density will have been established at at least two locations.
- Field trials evaluating the effect of different nitrogen fertilization rates on the growth and yield of the 1st generation UMHDI selections will have been established at at least five locations, each with different soil types.
- Field trials evaluating the effect of different pruning and plant size management actions will have been established in at least 5 locations each with a different growing climate.

By 2027

- Best management practices for the hazelnut hedgerow system will exist and be taught to growers at field days, at conferences, and through publications.



6. Support Entrepreneurs with Business Development Assistance

10-Year Goals

2018 Goals

- Enterprise budgets for hazelnut production, in-shell to kernel processing, and value-added product production will be published and available to growers.
- Funding will be secured to characterize the properties of kernels, oil, and meal most important to value-added producers.
- Direct assistance will be provided to entrepreneurs looking to establish or expand their hazelnut business.
- Direct assistance will be provided to the American Hazelnut Company in order to provide an option for hazelnut growers to work with other growers to co-own and operate a hazelnut processing and marketing company.

By 2022

- There will be at least three hazelnut processors in the Upper Midwest licensed to turn in-shell hazelnuts into kernels.
- Growers and food processors will have access to information and assistance necessary to develop and implement viable business plans for the production, processing, and/or marketing of hazelnuts.

By 2027

- Hazelnut growers will understand and be capable of developing enterprise budgets and business plans for their production businesses.
- There will be profitable hazelnut processing and value-added businesses in the Upper Midwest using Midwest-grown hazelnuts.

