

STRATEGIC PLAN

FOR THE

HOP RESEARCH COUNCIL

Prepared by the Strategic Planning Committee

**Revised August 2010
Revised August 9, 2005**

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Introduction

The Strategic Planning Committee (SPC) of the Hop Research Council (HRC) was founded as a standing committee in 1995. The SPC prepared a strategic plan (SP) based on a survey of priorities among the membership. Additionally a mission statement was prepared. In 1997, with the breakout of powdery mildew in the USA, the plan was appended and updated for 1998. In 2003, at the suggestion of the HRC president and members, the SPC held discussions to update the SP, with consideration of quickly emerging tools from molecular biotechnology and with a perceived need for concordance with research occurring in the EU and elsewhere.

Additionally, in 2003, a survey of Washington Hop Growers, conducted by the Commission, informed the membership on grower directives.

In 2010 with the ever changing face of the brewing industry a update to the SP is needed again. The changes pointed to by the survey of 2010 point to a broader goal of breeding and efficiency in communication between the stake holders and breeders. It was felt that the “crisis” of powdery mildew has been met and more emphasis should be placed towards overall varietal development.

The original SPC mission statement calls for a repeat of the member survey every 5 years. This document is an updated strategic plan which reflects the results of the 2005 and 2010 survey of priorities among the membership.

Mission

- The purposes of the Hop Research Council are to
 - Solicit and provide funds for scientific investigation and research related to the agricultural production and quality of hops in the United States; and to
 - Serve the needs of all segments of the hop industry by maintaining a membership which covers the entire industry and by supporting research that meets the needs of its members.
 - Facilitate communication between the council, brewers, growers and the scientific community.

Research Program Core Values

The results of the 2005 and 2010 priority survey identified and reaffirmed three key areas of research, or “Core Values” important to HRC membership and added a 4th goal of communication. (Detailed results of the priority survey can be found in the Appendix).

- 1. Improvement of agronomic and quality traits of U.S. hops.**
- 2. Lower cost of production and processing of U.S. hops.**
- 3. Elimination or control of diseases and pests of U.S. hops.**
- 4. Foster information flow from stakeholders to breeders of U.S. hops.**

Determination of funding priority for new and existing projects should adhere to the Core Values. Projects with objectives which do not support these Core Values should be considered only as special projects if funding is available.

The following summary reflects concerns and issues regarding the research program and operating guidelines from past and present priority surveys.

- The key strategic focus should be to maintain and enhance the HRC research base, organization, research program, funding and direction by:
 - Ensuring the HRC has a role in selecting new researchers, setting program priorities and doing formal program reviews.
 - Maintaining adequate investment from brewers to ensure brewers’ needs are met. While respecting the fiscal restraints the current market imposes on them.
 - Ensuring adequate research positions by appropriate lobbying of public officials and other means.
 - Consider international concordance and promote harmonization.
 - Addressing the issues of finances, membership, relationships and planning as dealt with in following sections.
 - The HRC is generally supporting research in line with members’ wishes and priorities. Most, but not all, current research programs, priorities and funding are satisfactory.
 - The HRC should continue to maintain an emergency reserve (contingency fund) of \$30,000 per year for such projects.

- The HRC must assure that all members' needs are met. The Strategic Planning Committee should act as a forum for members who have concerns with regard to projects and priorities.

Financial

- The major threats to HRC's financial health and thus ability to continue funding research programs are loss of membership and loss of public funding. Therefore:
- Membership should be well informed of HRC researcher's progress and impact.
- The major approach to ensure continued public funding is for the HRC executive and researchers to maintain regular contact with the appropriate public officials and provide them with at least annual information on the benefits to the industry by the publicly-funded research programs. See below regarding these key relationships.
- The HRC must be creative in developing other sources of funding (see Appendix for examples).

Membership

- The keys to continued healthy HRC finances are keeping our existing members and adding new members, by
 - Ensuring the HRC keeps members advised of progress of researchers and identifies direct benefits of sponsored research. Periodically review goals and accomplishments to membership.
 - Ensuring the HRC keeps its existing members by assuring that the needs of all members are met and by defining and promoting the benefits and return on investment of HRC membership.
 - Informing potential members of benefits of HRC membership and actively invite participation.
 - Suggestions for recruiting new members are presented in the Appendix, item No. 3

Key Relationships

- The HRC must maintain and / or develop key relationships and key contacts with members, researchers, university departments, university administrators, state officials and federal officials.

- A plan for maintaining and / or developing these relationships and contacts must be developed.

The Strategic Planning Process

- Maintain the Planning Committee as a standing committee.
- The key functions, duties, responsibilities and mandate of the Planning Committee are to
 - Conduct an annual review of the strategic plan and establish an annual plan.
 - Recommend how to implement the HRC Strategic Plan.
 - Survey the members at least every five years to identify changes in research priorities.
 - Set priorities for research projects and make recommendations to the other committees.
 - Address strategic issues not covered by the other committees, including setting priorities, deciding which issues to raise with the members, and determining how to implement the solutions.
 - Provide a formal mechanism for progress accounting of sponsored projects and report impact assessments to membership.
 - Consider and recommend changes in structure of the Council to the membership.
 - Seek and employ external advice and assessment expertise as needed.

APPENDIX TO THE HRC STRATEGIC PLAN

LAST REVISION: August 9, 2005

HRC Strategic Planning Committee Members:

- Darwin Davidson(SS Steiner, 2005)
- John Henning (ARS, USDA 2005)
- Paul Matthews (SS Steiner, 2005)
- Jason Perrault, Chair (Yakima Chief, 2005)
- Kevin Riel (Washington Hop Commission, 2005)
- Mike Wood
- Fred Geschwill, Chair (Oregon Hop Commission, 2010)
- Reggie Brulotte, (Washington Hop Commission, 2010)
- Charlie Matt . (Trinity Procurement GmbH, 2010)
- Paul Matthews (SS Steiner, 2010)
- Paul Cobet (Anheuser Busch, 2010)
- Darwin Davidson (SS Steiner, 2010)

1. THE HOP RESEARCH COUNCIL (HRC) RESEARCH PROGRAM

Based upon the 2005 priority survey results and SPC discussion, the Strategic Planning Committee has the following comments/suggestions to add:

- There is continued interest in most current HRC funded projects.
- There is a shift in interest towards funding HRC projects that focus on or effect breeding as the primary goal.
- There is increased interest in finding additional sources of funding.
- The membership seems to favor shorter term research which benefits the brewer and the grower.
- The highest priority items have not changed considerably since the last priority survey, thus the development of the “Core Values.”
- There have been some changes in HRC priorities since the last revision of this strategic plan. At the August 13, 1997 meeting of the HRC Strategic Planning Committee, it was agreed that, in view of the 1997 outbreak of hop powdery mildew in the Yakima Valley, the HRC must address hop powdery mildew both as an emergency, short term project and as a strategic, long term project. It is apparent from the surveys that the view of powdery mildew as an emergency shall be downgraded to on ongoing breeding goal..
- In support of the mandates of the planning committee a survey has been developed to assess research projects.
- Hop breeding has consistently had high priority with the members of the HRC. The U.S. hop industry has the unique and beneficial position of supporting both private

and public breeding programs. Therefore it is the suggestion of the SPC that an official meeting between the public and private hop breeders occurs at each winter meeting in an effort to facilitate further communication between the programs.

2. FINANCIAL

Following are additional details on this aspect of the strategic plan.

- The HRC needs to be creative in developing other sources of funding, for example
 - Consider sharing projects with other commodities.
 - Consider grant programs and / or funding.
 - Consider matching endowed research positions.

3. MEMBERSHIP

Following are additional details on this aspect of the strategic plan.

- The Strategic Planning Committee recommends the HRC take a more aggressive approach to the recruitment of new members, including but not limited to
- Consider the development of alternative membership categories. For example group memberships for micro/craft breweries, allied industry memberships, etc.
- Approaches to recruiting new members include
 - Develop a package of promotional information demonstrating the strengths of the HRC and the benefits of membership.
 - Stress the leverage of HRC research dollars.
 - Select new officers from new members to demonstrate the benefits of membership.
 - Define and promote return on investment of HRC funds.
 - Stress achievements of the HRC. Maintain a current list of publications by researchers supported by HRC.

**2010
Hop Research Council
Survey to update strategic plan**

First rank each major section in order of importance then within each main section circle a priority for each group item. Please return completed surveys by email to Michelle Palacios, HRC Business Manager:

michelle@hopresearchcouncil.org

Due date: July 19, 2010

Major Section 1

Information Transfer in Hop Breeding

Goal: To establish a mechanism within the HRC membership for the transfer of information into the breeding program. Along with the harmonization of brewers economic, quality and confidentiality needs with the agronomic and financial needs of the hop grower.

Major Section 2

Quality Control through Analytical Improvements

Goal: To define the production level at which the HRC membership feels the greatest improvements in analytical technique can improve quality control in the industry.

Major Section 3

Funding Sources

Goal: To identify sustainable sources of funding for the council including possible new members and HRC membership fees structure.

Major Section 4

Genetic Improvement to enhance brewing, economic and integrated pest management characteristics within hops

Goal: Using breeding as a primary tool in advancing brewing traits, industry economics and Integrated Pest Management (IPM). Deciding what area the HRC membership wants to focus resources in their genetic program.



Major Section 5

Integrated pest management through insect and disease study

Goal: To ascertain the council's goals in the area of pest and disease management. Integrated pest management influences the supply chain economics from the grower to brewer; correct placement of research dollars will allow all segments to achieve high levels of satisfaction.

Major Section 6

(please review each and rank individually in this section)

Alternative direction and areas of study

Goal: To ascertain the council's interest in a few entirely independent matters.

Major Section 1

Information Transfer in Hop Breeding

Goal: To establish a mechanism within the HRC membership for the transfer of information into the breeding program. Along with the harmonization of brewers' economic, quality and confidentiality needs and the agronomic and financial needs of the hop grower.

Sub Section 1-1: Foster interaction among breeders, growers, processors and brewers at the pre-breeding stage

Discussion: Establish the value to the breeder and membership in gathering maximum information from all segments prior to the cross being made.

Examples:

- The construction of a minimum set of required traits for brewing
- The construction of a of minimum set of required traits for agronomics
- The construction of a minimum set of traits for processing

Time to Impact: 5-12 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 1-2: Foster interaction among breeders, growers, processors and brewers at the field trial stage

Discussion: Establish the value for breeder and the membership in reviewing and commenting on data provided from the field and chemical analysis.

Examples

- Distribution of agronomic performance and disease resistance
- Distribution of evaluation of general brewing characteristics
- Assimilation of memberships' acceptance or rejection of given cultivar along with notes and direction from membership

Time to Impact: 3-5 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 1-3: Foster interaction among breeders, growers, processors and brewers with food scientists

Discussion: Establish value the breeder and membership can receive from food and brewing scientist.

Examples

- Evaluation and review of chemical traits
- Evaluation and review of olfactory traits (hand-rub evaluation)
- Evaluate the usefulness of Pilot and single hop brews
- Evaluate the usefulness of Flavor evaluations

Time to Impact: 8-10 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 1-4: Foster interaction among breeders, growers, processors

and brewers in downstream products

Discussion: Establish the value to breeder and membership in furthering research in down stream products.

Examples:

- Evaluation of pelleting process and quality
- Evaluation of extractability and analysis of extraction processes
- Evaluation of isomerization products and related processes.
- Evaluation of storage and combustibility of raw hops and downstream products

Time to Impact: 1-5 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 1-5: Foster interaction among breeders, growers, processors and brewers and the public

Discussion: Establish the value to breeder and membership in prioritizing “environmental, social and economic sustainability” into the breeding process.

Examples:

- Evaluate natural pest and disease resistant cultivars
- Evaluate cultivars ability to utilize natural resources efficiently
- Select cultivars that leading to improved working conditions.(i.e.dwarf)
- Cultivar selection that meets the economic needs across supply chain.

Time to Impact: 5-10 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Major Section 2

Quality control through analytical improvement

Goal: Define the supply chain level at which the membership feels the greatest improvements in Quality control can be affected.

Sub Section 2-1: Quality control through analytical improvements at the growing and harvest level

Discussion: Establish value to membership in increased quality control at farm level. Will increased quality from this level deliver value down the supply stream?

Examples:

- Development of consistent moisture content analyses, especially in bales
- Real-time, in-line analytical methods(e.g. videometrics, scanalytics, IR)
- Quick response bitter acid determination
- Polyphenol determination (LCMS2)
- Hand held dry matter analyses

Time to Impact: 3-5 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 2-2: Quality control through analytical improvements at the handler and processor level

Discussion: Establish value to membership in increased quality control at the handler/processor level. Will increased quality from this level deliver value up and down stream?

Examples:

- Improvements in storage and handling methods
- Improvements in downstream processing methods
- Improvements in packaging and tracking applications
- Logistical and transportation system analysis

Time to Impact: 3-5 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 2-3: Quality control through analytical improvements at the analytical labs

Discussion: Establish value to membership in increased quality control at the analytical labs.

Examples:

- Value derived from mechanization of process at lab
- Information system distribution development
- Standardization of methods and check procedures

Time to Impact: 3-5 years

Please circle the level of priority you would give this activity

High Priority **Medium Priority** **Low Priority** **Not a Priority**

Sub Section 2-4: Quality control through development of varietal testing for “trueness to type”

Discussion: Establish value to membership in developing methods and standards for evaluation of a cultivars varietal identity and purity.

Examples:

- DNA fingerprinting
- Oil composition profiling
- Polyphenol and flavonoid profiling

Time to Impact: 3-5 years

Please circle the level of priority you would give this activity

High Priority **Medium Priority** **Low Priority** **Not a Priority**

Major Section 3

Funding Sources

Goal: To identify sustainable sources of funding for the council including possible new members and HRC membership fees structure.

Sub Section 3-2: Recruiting Additional Council Members

Discussion: Should the council members encourage smaller brewers or brewers associations to join the council?

Example:

- Having a lower the barrelage requirements to allow smaller brewers into the council
- Inviting brewery associations to join the council for example: Oregon Brewers Guild, Washington Brewers Guild, etc.

Time to impact: 1-3 years

Please circle the level of priority you would give this activity

High Priority **Medium Priority** **Low Priority** **Not a Priority**

Sub Section 3-3: Restructure of HRC dues assessments

Discussion: There has been some discussion at previous HRC meetings about restructuring the dues fees. An evaluation of the council's commitment to move ahead in this endeavor may be useful.

Example:

- Restructuring of current fees
- Instituting a non-voting membership fee
- Allowing truly international membership from other growing regions

Time to impact: 1-3 years

Please circle the level of priority you would give this activity

High Priority

Medium Priority

Low Priority

Not a Priority

Major Section 4

Genetic improvement to enhance brewing, economic and integrated pest management characteristics within hops

Goal Definition: Using breeding as a primary tool in advancing brewing traits, industry economics and Integrated Pest Management (IPM). Deciding what area the HRC membership wants to focus resources in their genetic program.

Sub Section 4-1: "Basic Science" as the primary tool in advancing HRC's goals in the area of breeding

Discussion: Two priorities "basic science" in terms of usefulness in HRC's scope of funding and germplasm development and mapping for future use in breeding.

Examples:

- Building new germplasm to be used in future breeding efforts that have superior traits for the industry.
- Defining and mapping specific traits within a cultivar or strain that is genetically superior in terms of disease resistance and brewing traits.
- Mapping total genome of species for better understanding of specific gene

interaction

Time to impact: 5-15 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 4-2: “Cultivar Development” as the primary tool in advancing HRC’s goals in the area of breeding

Discussion: Prioritizing development and release of new cultivars as a goal for HRC membership. Using cultivar release as a means of advancing the industries breeding efforts

Examples:

- Developing and releasing new cultivars that have superior disease resistance
- Releasing new cultivars that exceed current varieties for brewing character
- New cultivars that utilize natural resources more effectively
- New cultivars that meet both the brewers and growers economic realities

Time to impact: 2-12 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 4-3: “Cultivar Improvement” as the primary tool in advancing HRC’s goals in the area of breeding

Discussion: Prioritizing improvement and release of existing cultivars as a goal for HRC. Using cultivar improvement as a means of advancing the industries breeding efforts

Examples:

- Utilizing the “triploid” process to exaggerate current varieties traits
- Rescreening of existing varieties as a means of trait enhancement
- Continuing existing breeding tracks to enhance selections
- Continuing existing breeding lines to introduce new traits i.e. dwarf genes, ect.

Time to impact: 2-12 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 4-4: Expanding Breeding Methodology as the primary tool in advancing HRC’s goals in the area of breeding

Discussion: Prioritizing the use of advanced and cutting edge breeding methods to further HRC’s efforts in breeding.

Examples:

- Use of F1 generation breeding technology in hop
- Development of high-frequency transformation for American breeding lines
- Applications of molecular polymorphisms (MAS) in parent and progeny selections for disease sensitivity and resistance
- Pyramiding of resistance genes by MAS
- Targeted introgression of alien traits followed by reconstitution with MAS recursive backcrossing

Time to Impact: 5- 12 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 4-5: Exploration into biological engineering of hops

Discussion: Gauging the council’s response to genetically modified crosses as a possible future for hop breeding.

Examples:

- Engineering the insertion of a possible super alpha gene into a hop with favorable aroma characteristics
- Engineering a crop with total powdery mildew resistance

Time to Impact: 10-20 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Major Section 5

Integrated pest management through insect and disease study

Goal Definition: To ascertain the council’s goals in the area of pest and disease management. Integrated pest management influences the supply chain economics from the grower to the brewer; correct placement of research dollars will allow all segments to achieve high levels of satisfaction.

Sub Section 5-1: Basic entomology and disease study

Discussion: Gauging the council’s willingness to fund studies into basic disease and insect lifecycles. Basic science of this nature may reach into areas of pesticide

interaction with the insects and beneficial along with environmental impacts.

Examples:

- Lifecycle and disease cycle studies.
- Chemical target specificity or lack thereof
- Ecosystem impact by control methods

Time to Impact: 3-8 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 5-2: Disease forecasting and Model building

Discussion: Gauging the council's willingness to fund studies in disease forecasting and modeling. Disease forecasting impacts the amount of control measures used at a specific time in growing season. Model building can forecast the down range effect of a given action on the system throughout time.

Examples:

- Weather patterning for disease and insect level predictions
- Micro cell weather forecasting that leads to block specific action in the field
- Chemical interaction studies on beneficial and predatory insect levels taken into future

Time to Impact: 3-8years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 5-3: Cropping system evaluation

Discussion: Gauging the council's priorities in funding studies on improved cropping systems. This will lead to studies on dwarf hops as well as alternative sustainable methods.

Examples:

- Evolution of timing strategies and their effects on the crop
- Studying the effect of dwarf varieties on supply chain economics
- Understanding the effect sustainable growing has on crop quality and magnitude
- Chemical usage programs and the holistic dynamics presented by varying

them

- Understanding the effect cover cropping and other methods can have on disease pressure and insect levels

Time to Impact: 3-8 years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 5-4: Beneficial and predatory organisms

Discussion: Gauging the council's priorities in funding studies on beneficial and predatory organisms. The need to produce crops with less synthetic inputs will require a deeper understanding of natural defenses and systems.

Examples:

- Insect cycling and population balances
- Effects of fertilizers on disease pressure and insect populations
- Pheromones and their effect on beneficial and harmful insects
- Natural plant defenses and natural plant reactions to attack

Time to Impact: 3-8years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 5-5: Organic production methods

Discussion: Gauging the councils desire to expand study into organic product methods.

Examples:

- Organic fertilizers.
- Cultivar screening.
- Organic labeled chemical investigation
- Organic product standards from an end user perspective

Time to Impact: 3-8years

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Major Section 6

Please review each and rank each sub section individually from 1 to 5 and then circle a priority for each sub-section

Alternative direction and area's of study

Goal Definition: To ascertain the council's interest in a few entirely independent matters.

Sub Section 6-1: Alternative uses for hops

Discussion: There is an ongoing effort to produce other uses for hops. Please rank the priority the council should give this endeavor.

Examples

- Feed additive
- Pharmaceutical

Please circle the level of priority you would give this activity

High Priority

Medium Priority

Low Priority

Not a Priority

Sub Section 6-2: Information systems

Discussion: The industrial world is becoming ever more interconnected. Other industries have put forth efforts to keep themselves at the forefront of the technological world.

Examples:

- Real time test results
- Shipping and logistic advances

Please circle the level of priority you would give this activity

High Priority

Medium Priority

Low Priority

Not a Priority

Sub Section 6-3: Defining sustainable growing practices

Discussion: The word sustainable seems to be ever present in today's vocabulary. Some industries have taken upon themselves to create the definition for "sustainable".

Examples:

- One definition the industry stands behind for labeling
- Defining what practices meet labeling requirements from farm to downstream product

Please circle the level of priority you would give this activity

High Priority

Medium Priority

Low Priority

Not a Priority

Sub Section 6-4: Maintenance of clean rootstock

Discussion: The industry has put considerable effort into “cleaning” rootstock. This material will need to be maintained.

Examples:

- Multiple non-growing region depots
- Enhanced germplasm repository activities

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Sub Section 6-5: Advanced MRL (maximum residue limit)**harmonization**

Discussion: The industry has put considerable effort into harmonization through USHIPPC. With the stricter testing requirements and countries being ever more vigilant, will extra efforts need to be made to keep product flowing through the supply chain.

Examples:

- Increased funding into IR4 testing efforts
- Increased funding into lobbying efforts
- Increased funding into Bryant Christi’s harmonization efforts

Please circle the level of priority you would give this activity

High Priority Medium Priority Low Priority Not a Priority

Please let us know which segment of the industry you are representing:

Dealer Grower Scientist Breeder Brewer

Respondant	Major Section 1	Major Section 2	Major Section 3	Major Section 4	Major Section 5
	<i>Information Transfer in hop Breeding</i>	<i>Quality Control through Analytical Improvements</i>	<i>Funding Sources</i>	<i>Genetic Improvement to enhance brewing, economic and IPM characteristics within hops</i>	<i>Integrated Pest management through insect and disease study</i>
#1	1	5	3	2	4
#2	2	1	5	4	3
#3	3	5	4	1	2
#4	3	5	4	1	2
#5	1	4	5	3	2
#6	2	4	5	1	3
#7	1	5	4	2	3
#8	1	5	4	2	3
#9					
#10					
Average Score	1.75	4.25	4.25	2	2.75
Growers only	1.0	4.5	4.0	2.5	3.0
Brewers only	2.7	3.7	4.3	2.0	2.3
Dealers only	1.3	4.7	4.3	1.7	3.0

Major Section 1	Sub Section 1-1	Sub Section 1-2	Sub Section 1-3	Sub Section 1-4	Sub Section 1-5
	<i>Foster interaction among breeders, growers, processors and breeders at the pre-breeding stage</i>	<i>Foster interaction among breeders, growers, processors and brewers at the field trial stage</i>	<i>Foster interaction among breeders, growers, processors and brewers with food scientists</i>	<i>Foster interaction among breeders, growers, processors and brewers in downstream products</i>	<i>Foster interaction among breeders, growers, processors and brewers and the public</i>
Respondant #1	1	2	3	2	2
#2	2	3	1	3	4
#3	1	3	3	1	1
#4	1	1	4	3	4
#5	2	1	2	1	2
#6	2	1	2	1	1
#7	1	1	1	3	3
#8	1	1	2	3	1
#9					
#10					
Average level of importance	1.375	1.625	2.25	2.125	2.25
Growers only	1.5	1.5	2.5	1.5	2.0
Brewers only	1.3	2.3	2.7	2.3	3.0
Dealers only	1.3	1.0	1.7	2.3	1.7

Major Section 2

Respondant

Average level of importance

	Sub Section 2-1	Sub Section 2-2	Sub Section 2-3	Sub Section 2-4	
	<i>Quality control through analytical improvements at the growing and harvest level</i>	<i>Quality control through analytical improvements at the handler and processor level</i>	<i>Quality control through analytical improvements at the analytical labs</i>	<i>Quality control through development of varietal testing for "trueness to type"</i>	
#1	1	2	3	1	
#2	2	2	3	1	
#3	4	4	2	2	
#4	1	4	2	4	
#5	2	1	2	2	
#6	2	1	1	2	
#7	3	3	3	3	
#8	2	3	3	1	
#9					
#10					
Average level of importance	2.125	2.5	2.375	2	0
Growers only	1.5	1.5	2.5	1.5	0.0
Brewers only	2.3	3.3	2.3	2.3	0.0
Dealers only	2.3	2.3	2.3	2.0	0.0

Major Section 3

Respondant

- #1
- #2
- #3
- #4
- #5
- #6
- #7
- #8
- #9
- #10

Sub Section 3-2	Sub Section 3-3
<i>Recruiting Additional Council Members</i>	<i>Restructure of HRC dues assessments</i>

1	2
3	3
4	1
1	1
1	1
1	1
1	2
2	2

**Average level of
importance**

1.75	1.625
1.0	1.5
2.7	1.7
1.3	1.7

- Growers only
- Brewers only
- Dealers only

Major Section 4	Sub Section 4-1	Sub Section 4-2	Sub Section 4-3	Sub Section 4-4	Sub Section 4-5
	<i>“Basic Science” as the primary tool in advancing HRC’s goals in the area of breeding</i>	<i>“Cultivar Development” as the primary tool in advancing HRC’s goals in the area of breeding</i>	<i>“Cultivar Improvement” as the primary tool in advancing HRC’s goals in the area of breeding</i>	<i>Expanding Breeding Methodology as the primary tool in advancing HRC’s goals in the area of breeding</i>	<i>Exploration into biological engineering of hops</i>
Respondant #1	3	1	2	1	3
#2	3	3	3	3	4
#3	1	2	3	2	4
#4	3	1	1	2	4
#5	1	1	1	1	2
#6	1	3	2	1	3
#7	2	3	3	2	2
#8	1	1	1	1	3
#9					
#10					
Average level of importance	1.875	1.875	2	1.625	3.125
Growers only	2.0	1.0	1.5	1.0	2.5
Brewers only	2.3	2.0	2.3	2.3	4.0
Dealers only	1.3	2.3	2.0	1.3	2.7

Major Section 5	Sub Section 5-1	Sub Section 5-2	Sub Section 5-3	Sub Section 5-4	Sub Section 5-5
Respondant	<i>Basic entomology and disease study</i>	<i>Disease forecasting and Model building</i>	<i>Cropping system evaluation</i>	<i>Beneficial and predatory organisms</i>	<i>Organic production methods</i>
#1	1	1	3	2	3
#2	2	3	2	3	2
#3	3	2	1	2	4
#4	1	3	1	2	4
#5	1	1	1	1	3
#6	1	2	3	2	2
#7	3	3	3	2	3
#8	2	3	3	2	2
#9					
#10					
Average level of importance	1.75	2.25	2.125	2	2.875
Growers only	1.0	1.0	2.0	1.5	3.0
Brewers only	2.0	2.7	1.3	2.3	3.3
Dealers only	2.0	2.7	3.0	2.0	2.3

Major Section 6	Sub Section 6-1	Sub Section 6-2	Sub Section 6-3	Sub Section 6-4	Sub Section 6-5
Respondant	<i>Alternative uses for hops</i>	<i>Information systems</i>	<i>Defining sustainable growing practices</i>	<i>Maintenance of clean rootstock</i>	<i>Advanced MRL (maximum residue limit) harmonization</i>
#1	4	5	2	3	1
#2	2	4	5	2	3
#3	4	5	3	1	2
#4	5	4	3	1	2
#5	3	4	5	1	2
#6	4	3	5	2	1
#7	1	3	5	4	2
#8	3	4	5	1	2
#9					
#10					
Average Score	3.25	4	4.125	1.875	1.875
Growers only	3.5	4.5	3.5	2.0	1.5
Brewers only	3.7	4.3	3.7	1.3	2.3
Dealers only	2.7	3.3	5.0	2.3	1.7

Major Section 6	Sub Section 6-1	Sub Section 6-2	Sub Section 6-3	Sub Section 6-4	Sub Section 6-5
	<i>Alternative uses for hops</i>	<i>Information systems</i>	<i>Defining sustainable growing practices</i>	<i>Maintenance of clean rootstock</i>	<i>Advanced MRL (maximum residue limit) harmonization</i>
Respondant #1	1	3	2	1	1
#2	2	3	4	2	3
#3	3	4	2	1	2
#4	4	4	2	1	1
#5	1	2	3	1	1
#6	1	2	1	2	1
#7	1	3	4	2	1
#8	3	3	3	1	2
#9					
#10					
Average level of importance	2.0	3.0	2.6	1.4	1.5
Growers only	1.0	2.5	2.5	1.0	1.0
Brewers only	3.0	3.7	2.7	1.3	2.0
Dealers only	1.7	2.7	2.7	1.7	1.3

