National Barley Improvement Committee

March 6, 2017

Honorable XX
Office Building
Washington, D.C.

Dear Senator or Representative X:

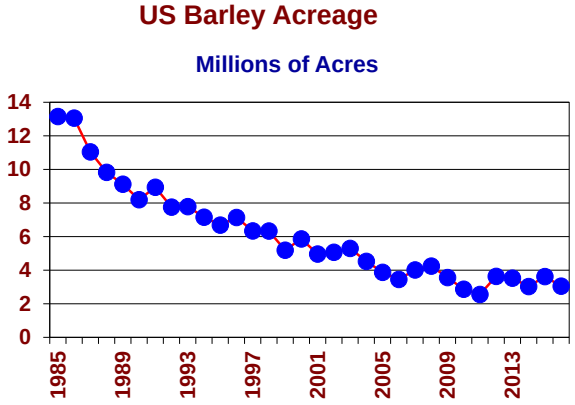
The National Barley Improvement Committee (NBIC) represents the US barley community of growers; researchers; malting, brewing, distilling, and food end-users; and allied industries (**Tab E**).

Barley production, and the manufacture and sale of value-added barley products (malt, beer, distilled products, food, livestock, fish & biofuels) have a significant impact on the US economy (Tab A).

* $1.2 Billion/Year Crop * 65% Used in Beer *27% Feed * 3% Food * 3% Seed * 2% Whiskey

>Critical and primary raw material for beer (**NO BARLEY = NO BEER**)

* $253 Billion/year brewing industry business activity
* 1.8 Million jobs
* $49 Billion business, personal, consumption taxes



Large US brewers, maltsters, and distillers make a significant contribution to the economy and employ a substantial workforce. The rapidly growing craft brewing, malting, and distilling industries are providing a substantial additional boost to the US economy through expansions and start-ups, with considerable capital & operating expenditures and new employment. There are now over 5,250 breweries, with 2.1 net openings per day; 84 malt plants operating or under construction in the US; and 809 whisky distillers. These start-ups are small businesses, without the resources to invest in barley research and are dependent on public sector research programs to meet their needs.

Federal investment in barley research is needed to keep barley a viable option for US growers and to maintain and enhance value-added job generating enterprises in the US.

> **Barley is primarily a public sector non-GM crop**, with most barley research and development at state universities and USDA-ARS facilities

> **Little interest by biotechnology seed companies** in barley research & variety development
* Low acreage = limited seed sale potential

> **Barley is facing stiff competition from corn, soybeans, and other crops** that are receiving substantial private and public sector investment, including GM variety development

> **Barley end-users provide some research support, but public funding is needed**
* Unlike seed companies, there is limited incentive for end-users to invest in variety development
* In a competitive worldwide economy they can economically purchase quality barley & malt from other countries
* Thus US growers, the economy, and government revenue are the losers without adequate federal and state support of barley research that keeps barley a viable US crop

> Funding agricultural research is a justified federal expenditure and needed to maintain and enhance the agricultural economy and job creation
* Crop production and agricultural based industries are a strong component of the US economy
* Generates new employment, grower income, and federal, state, & local tax revenue
* Crop and value added product exports reduce unfavorable trade balance, providing a $31 billion annual trade surplus, the highest of any sector (2012-2016)
* Helps maintain US dominance in agricultural world markets
* Vital federal role in funding research that is not being conducted in private sector
* $10 in benefits for $1 invested (*President's Council of Advisors on Science & Technology -2012*)

We thank Congress for restoring USDA Agricultural Research Service (*Salaries & Expenses*) and National Institute of Food and Agriculture discretionary funding to near FY2010 levels by increasing funding through FY2016. This has helped reestablish the nation's research capacity needed to help maintain and enhance the agricultural economy.

We are requesting the assistance and support of your office to increase USDA research funding to levels approved by the House and Senate Appropriation Committees' FY2017 Agriculture Appropriations bills, and to add further funding in FY2018, as permitted within current budget restraints, to further restore the nation's agricultural research capacity.

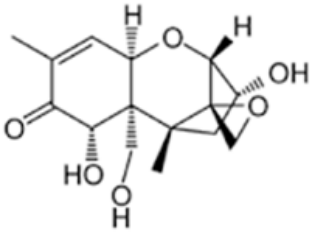
We urge Congress to include the following Senate FY2017 Agriculture Appropriations bill language reported out of Committee for the Agricultural Research Service **in the final FY2017 Appropriations bill, and something similar if needed for FY2018**. **"*The Committee does not concur with the President's budget request regarding the termination of research programs. The Committee expects extramural research to be funded at no less than the fiscal year 2016 levels*."**

USDA Agricultural Research Service (ARS)

The Agricultural Research Service, USDA's in-house scientific research agency, conducts intramural research and funds extramural projects of high national priority to develop, and make available, solutions that address agricultural challenges, including those faced by barley.

We are requesting the assistance and support of your office for the following two ARS Programmatic Funding Increases and a Language Request proposed by the National Barley and Wheat Improvement Committees.

Scab on Barley



DON aka Vomitoxin

Scabby Barley

Scab on Wheat

(A) Funding of $3.3 Million for the US Wheat & Barley Scab Initiative (USWBSI) to bring appropriated funding levels to the $10 Million authorized in the 2014 Farm Bill (Tab B).

FY2017 - $2 Million increase in the FY2017 House and Senate Agriculture Appropriation bills reported out of the House and Senate Appropriations Committees.

FY2018 – Additional $1.3 million increase to bring appropriated funding levels to the $10 million authorized in the 2014 Farm Bill.

From FY98 to FY03, Congress incrementally increased funding for the USWBSI to $6.7 million/year, with no subsequent additions. The mission of the USWBSI is to enhance food safety and supply by reducing the impact of Fusarium Head Blight (scab) on wheat and barley. The USWBSI is an organization of grower, researcher, and industry stakeholders, providing annual recommendations to ARS for a mission directed competitive grant program. For FY2017, if funding remains unchanged from FY2016, the USWBSI is recommending that ARS provide $5.03 million in research grants to state university and ARS scientists in 29 states (AL, AR, CA, DE, GA, ID, IL, IN, KS, KY, LA, MD, MI, MN, MO, MT, NC, ND, NE, NJ, NY, OH, PA, SD, TN, TX, VA, VT, WI), funding 125 individual research projects. USWBSI funding, authorized in farm bills over the years, allows a consortium of land-grant colleges and universities, to work in partnership with USDA-ARS scientists and research locations throughout the US.

Scab continues to be an ongoing and serious problem in those areas of the US where the disease is established. Each year, favorable conditions throughout the US result in scab outbreaks, negatively impacting yields and resulting in high levels of the mycotoxin deoxynivalenol (DON, aka vomitoxin) in grain that is rejected by elevators, mills, maltsters, and brewers. These epidemics cause disruptions in food and feed supply, economic losses to growers, and increased costs for end users. The intransigence of this disease requires a sustained and increased multi-faceted approach and much work remains to be done to meet the mission of the USWBSI and address the substantial economic threat scab poses to US barley and wheat stakeholders, and the agricultural economy.

Economic Return **— A just completed study (*North Dakota State University*) estimates that every dollar invested by the USWBSI provides an economic return of approximately 71 dollars.**

(B) Language that limits the indirect costs (overhead) charged by universities for US Wheat & Barley Scab Initiative (USWBSI) research grants to no more than 10%.

Since its inception in FY98, due to the severe economic impact of this disease on wheat and barley, and to ensure that most funding was applied to critical research efforts **the USWBSI has set an indirect cost (IDC) rate of 5%.** The USWBSI has been informed that a **new USDA rule, developed by the previous Administration**, will be applied starting in FY2017 to ARS Extramural funding, including the USWBSI. **The rule sets the IDC ceiling at 22%** and the USWBSI is prohibited from negotiating IDC rates with universities**. This will result in most all funded universities taking the ceiling rate of 22% to fund their administrative offices and personnel.**

This jump in IDC will reduce funding going directly to researchers to fight this important disease by up to $1 million, which will have a substantial and negative impact on the ability of researchers to address this disease threat to the US wheat and barley crops. The USWBSI proposes an IDC rate of 10% that will mitigate the reduction in researcher funding and still provide funded universities additional funds to cover their expenses.

(C) Funding of $3.44 Million for a Small Grains Genomic Initiative (Tab C)

FY2017 - $1 Million increase in the FY2017 House Agriculture Appropriation bill reported out of the House Appropriations Committee. The bill reported out of the Senate Appropriations committee has supporting language.

FY2018 – Additional $2.44 million increase to bring appropriated funding levels to the total amount requested by the National Barley & Wheat Improvement Committees.

It is imperative that efforts to address national genomic and breeding needs for US crops include enhanced resources for USDA-ARS barley and wheat programs and research locations to keep small grains viable crops and continue their substantial contributions to the agricultural economy.

Next Generation Genotyping - Funding is needed so that all four of the **ARS Small Grains Regional Genotyping Laboratories (Fargo, ND; Manhattan, KS; Raleigh, NC; Pullman, WA)** can meet their mission to facilitate application of genomics information and DNA marker technologies in improvement and breeding of wheat, barley, and oats. In order to counter threats to the nation's crops from diseases, insects, the effects of changing climates, and challenges to maintaining crop quality, while increasing yields and improving our position in the world marketplace, plant breeders must be equipped with the genotypic data that give them rapid access to traits of value.

Barley & Wheat Quality Phenotyping and Research - In this age of modern genomics, substantial resources have been directed at utilizing cutting edge DNA technologies for genotyping, but adequate resources for the phenotyping (measurable characterization) of barley and wheat quality have not been provided. Wheat and malting barley varieties developed with the aid of genomic technology without the required quality characteristics desired by domestic and export market end-users are of no value. **Quality analyses of malting barley lines** is conducted for US public sector breeding programs at one ARS location, the **ARS Cereal Crops Research Unit (CCRU), Madison, WI**. The CCRU also conducts molecular biology and genetic research to support improvement of the malting and nutritional quality of barley, and develops new technologies for quality evaluation. **Wheat quality evaluations** are conducted at the Hard Spring & Durum Wheat Quality Laboratory, **Fargo, ND**; Hard Winter Wheat Quality Laboratory, **Manhattan, KS**; Western Wheat Quality Laboratory, **Pullman, WA**; and the Soft Wheat Quality Laboratory, **Wooster, OH**. Sufficient resources have not been provided to these facilities to meet demand and increased funding is needed to keep them functional and increase capacities.

Doubled Haploid Research & Production - A biotechnology technique applied to barley and wheat variety development that does not involve genetic modification, is **doubled haploid (DH) line production**, which substantially accelerates the breeding of new varieties. For US wheat breeding programs, services provided by private sector companies are meeting the demand for DH production. However, for barley, this is not the case, and public sector US barley breeding programs rely on the DH production program at **Oregon State University, Corvallis**. Funding is needed to improve barley DH production technology and capacity so as to provide a cost effective service to US barley breeding programs.

USDA National Agricultural Statistics Service (NASS)

The National Agricultural Statistics Service (NASS) is the USDA's statistic branch and provides reports on the economics, production, and demographics of the nation's agricultural sector. In addition to periodic crop and livestock reports, it conducts a detailed Census of Agriculture every five years.

The barley supply chain, from grower to end user has long relied on the USDA National Agricultural Statistics Service (NASS) for unbiased estimates of barley acreage, production, stocks, and varieties.

Growers pay close attention to what other producers are doing in their region or other parts of the country and utilize the data in making their cropping decisions. Government agencies on the state and federal level apply NASS numbers to models that influence legislation and policy decisions. The data is critical for end users such as millers, maltsters, distillers, and brewers, or exporters to make procurement decisions and long range investment plans. This information becomes the foundation on which many important decisions are made, and which helps keep barley a viable crop with a significant contribution to the US economy.

The NBIC supports adequate funding in FY2017 and FY2018 for NASS to conduct important surveys for barley and other crops, including the 2017 Census of Agriculture.

We are requesting the assistance and support of your office to include language in the FY2017 Agriculture Appropriations Bill directing NASS to:

(A) Reinstate acreage and production estimates for seven states (Kansas, Maine, Michigan, New York, North Carolina, South Dakota, and Wisconsin) that were dropped in 2016.

NASS has provided barley acreage and production data continuously in four of these states since 1866 (KS, MI, SD, WI). The same data was reported for North Carolina since 1924 and for many years in Maine (1866-1959, 2000-2015) and New York (1866-1980, 2000-2015).

Nearly all these states have seen increased interest and production of barley in the last few years since the 2012 Census of Agriculture. Most of the interest stems from brewers, distillers and maltsters (Appendix A) wanting to source barley locally, with additional interest in Kansas on the feed side where barley is making a resurgence for the livestock industry. Malting barley is a higher value crop that is identity preserved and sourced by variety. Having production data in these states helps with industry efforts to find new growers for this emerging market and for locating new value added processing facilities. It also provides national policy makers, growers, and end users more complete and needed national data.

(B) Reinstate annual barley variety surveys, in the states of Colorado, Idaho, Minnesota, Montana, North Dakota, Washington, and Wyoming, entirely funded by NASS (Tab D).

These surveys were conducted as a private-public partnership between growers, end users and NASS through 2012. They were invaluable in establishing what feed, food and malting barley varieties are being grown; critical data for researchers, policy makers, growers and domestic barley end users; and providing export customers with the information they need to source quality raw materials from the US.

USDA National Institute of Food & Agriculture (NIFA)

NBIC supports the funding levels for NIFA Hatch Act ($300 Million) & Smith-Lever Formula Grants ($243.7 Million) in the FY2017 Agriculture Appropriations bills reported out of the House and Senate Appropriations Committees and continuing funding at those levels in FY2018.

> Provides critical support to applied scientists, including crop breeders, and extension personnel at state universities
> Practical research and programs of critical importance to farmers, end-users, and consumers
> Such work is not funded by existing competitive grant programs which focus on basic research

NBIC supports the increased funding of $25 Million for the Agriculture and Food Research Initiative (AFRI) in the FY2017 Agriculture Appropriations bills reported out of the House and Senate Appropriations Committees and continuing or increasing that funding in FY2018. Any increased funding for AFRI should not be at the expense of ARS funding or NIFA Hatch act and Smith-Lever Formula grants.

>AFRI is a competitive biological sciences grant program that provides valuable supplemental support to researchers in agriculture and related sciences to capitalize on recent technological advances to respond to agriculture challenges.
> AFRI supported the very productive **Barley Coordinated Agricultural Project (Barley CAP-1)** and subsequently the **Triticeae (Barley & Wheat) Coordinated Agricultural Project or TCAP** which competed its fifth and final year and was funded by an AFRI grant over 5 years (2011 – 2015).

* Applied latest genomic technology to barley and wheat variety development
* Improved? traits in barley and wheat associated with nitrogen and water use efficiency, disease resistance, and low temperature tolerance (winter hardiness) in barley
* 56 funded university and ARS researchers & educators from 21 states

(CA, CO, ID, KS, KY, MN, MO, MT, NC, NE, ND, NY, OH, OK, OR, SD, TX, UT, VA, WA)

TCAP funding has expired. Much has been accomplished, but continuation of long-term collaborative projects will be essential to harvest the benefits of the TCAP research. **The barley community is disappointed that a proposal for a Barley CAP-2, although it was rated one of the top proposals submitted to NIFA in 2016, was not funded.**

Thank you for your consideration.

Buzz Mattelin	Ashley McFarland	Mike Davis
Chair	Vice Chair	Executive Secretary