March 5, 2018

Honorable XX
Office Building
Washington, D.C.

Dear Senator or Representative X:

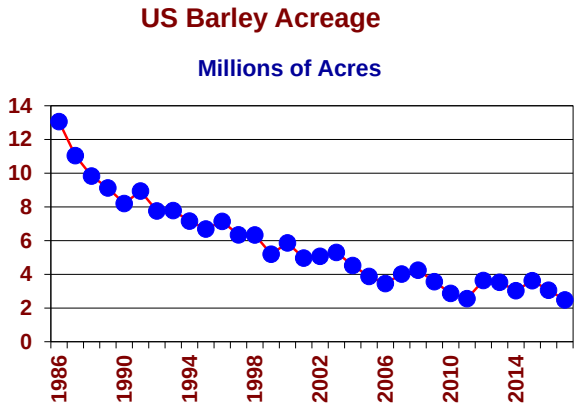
The National Barley Improvement Committee (NBIC) represents the US barley community of growers; researchers; malting, brewing, distilling, and food end-users; and allied industries (**Tab D**).

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 * 70% Used in Beer *22% Feed * 3% Food * 3% Whiskey * 2% Seed

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

* $351 Billion/year brewing industry business activity
* 2.2 Million jobs
* $64 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 **6,000 breweries**, with 2.0 net openings per day; **128 malt plants** operating or under construction; and **823 whiskey distillers in the US**. Many of these 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

> 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 $29 billion annual trade surplus, the highest of any sector (2013-2017)
* 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 (ARS, *Salaries & Expenses*) and National Institute of Food and Agriculture (NIFA) *discretionary funding* to FY2010 levels. This has helped reestablish the nation's research capacity needed to help maintain and enhance the agricultural economy.

We also thank Congress for the **$2 million increase for the ARS US Wheat & Barley Scab Initiative and $1 million for the ARS Small Grains Genomic Initiative in FY2017**; and language in the FY2018 appropriation bills that maintains this increased funding.

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.

The Administration's budget for FY2019 proposes a $151 million or 13% decrease from FY2017 for ARS *Salaries & Expenses* through program and extramural funding terminations, and location closures. Extramural programs of importance to barley include the US Wheat & Barley Scab Initiative, Wheat and Barley Stripe Rust Initiative, Ug99 (aka African) wheat and barley stem rust and wheat & barley root disease research. **With the President's budget including an increase of $42 million for ARS to take ownership of the National Bio and Agro-Defense Facility, Manhattan, KS**, **the closures and terminations are for $193 million**, to also cover that new cost.

The NBIC does not support the funding reductions and redirections proposed in the President's FY2019 budget. We are requesting the assistance and support of your office to support FY2018 and FY2019 funding at or above FY2017 and FY2018 levels, respectively, to enhance the nation's agricultural research capacity and agricultural economy.

USDA-ARS Hiring Freeze

(NO SCIENTISTS = NO RESEARCH)

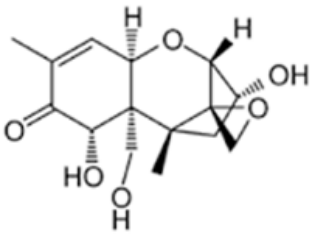
The NBIC is very concerned about the **negative impact of the ongoing USDA-ARS hiring freeze in place since January 20, 2017**, and **calls for it to be lifted immediately and permanently** to reestablish the nation's research capacity needed to help maintain and enhance the agricultural economy.

Prior to the hiring freeze, ARS was making progress, but was behind in filling vacancies, and this backlog has now been substantially exasperated by the freeze. It is our understanding that over 1,000 of over 6,000 ARS positions nationwide are currently vacant, with the number continuing to grow as the freeze continues.

The freeze is harming the ability of ARS to meet its mission, objectives, and serve its stakeholders. Funding is available at most ARS locations to fill positions. But now, without adequate scientist and support staff, essential research is not being conducted. A hiring freeze is arbitrary, since key positions in important program areas become vacant randomly, primarily due to retirements. This often ends critically needed research programs and opportunities to bring new scientific talent into ARS as replacements.

ARS US Wheat & Barley Scab Initiative (Tab B)

Scab on Barley



DON aka Vomitoxin

Scabby Barley

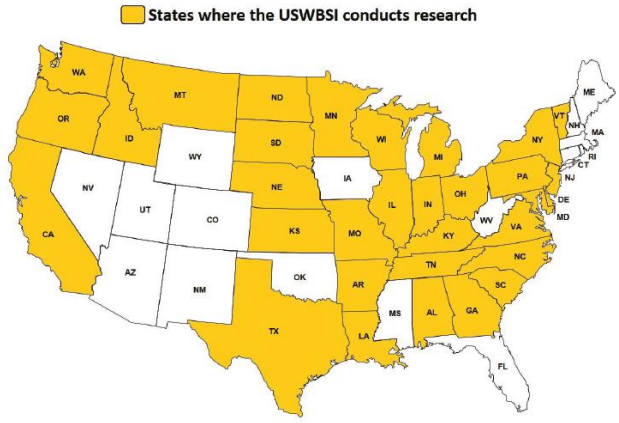
Scab on Wheat

Fusarium head blight (or scab), is a serious disease of wheat and barley. Scab related losses to farmers, food processors, and brewers run in the hundreds of millions of dollars. Losses to farmers take the form of lower yield, reduced grain quality, and price discounts. The presence of deoxynivalenol (DON or vomitoxin), a toxin associated with scab, results in additional losses for growers, processors, and end users.

The National Barley and National Wheat Improvement Committees request:

(A) <u>Increased funding of $1.3 Million</u> for the US Wheat & Barley Scab Initiative (USWBSI) to bring appropriated funding levels to the $10 Million authorized in the 2014 and 2018 (*requested*) Farm Bills.

From FY98 to FY03, Congress incrementally increased funding for the USWBSI to $6.7 million/year, with no subsequent additions until FY2017. The $2 million FY2017 addition brings total funding to $8.7 million/year ($5.93 million USWBSI competitive grants and $2.77 million USDA-ARS base funding). The mission of the USWBSI is to enhance food safety and supply by reducing the impact of scab on barley and wheat. The Initiative is the consortium of land-grant colleges and universities authorized in the farm bill, in partnership with USDA-ARS scientists and research locations throughout the US. The USWBSI grower, researcher, and industry stakeholders provide annual recommendations to ARS for this mission directed, competitive grant program.



For FY2017 and FY2018, the USWBSI recommended that ARS provide $5.93 million/year in research grants (includes indirect costs) to state university and ARS scientists in 32 states. Substantial progress has been realized, however much work remains to be done and additional funding is needed to meet the mission and objectives of the USWBSI and address the substantial economic threat scab poses to the US agricultural economy.

A recently completed economic study "Economic Impact of USWBSI's Scab Initiative to Reduce Fusarium Head Blight" *Agribusiness and Applied Economics No. 774, September 2017* (https://scabusa.org/pdfs/AAE774.pdf) **determined that for every $1 invested by the USWBSI there were $71 in benefits.**

(B) <u>Reauthorization</u> of the US Wheat & Barley Scab Initiative (USWBSI) in the <u>2018 Farm Bill</u> at $10 Million/year, with language added that limits indirect costs (overhead) charged by universities for USWBSI research grants to no more than 10%.

Since its inception in FY1998, the USWBSI has set an indirect cost (IDC) rate of 5%. However, **USDA is now requiring that the Initiative follow administrative rules for ARS extramural funding, which sets IDC at 22%** (of Total Direct Costs) with the USWBSI prohibited from negotiating a lower rate with universities. As expected, most

universities have chosen the 22% IDC, and thus, **most of the $900,000 net increase provided by Congress in FY2017 for grants is going to university administrations through the increased IDC on the $5.9 million total, not research, as expected by stakeholders and Congress.**

ARS Small Grains Genomic Initiative (Tab C)

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

The National Barley and National Wheat Improvement Committees request:

(C) Increased funding of $2.44 million for the Small Grains Genomic Initiative (SGGI) to bring appropriated levels to the total $3.44 million requested by the National Barley & Wheat Improvement Committees. (***Congress provided $1 Million for the SGGI in FY2017***).

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 barley, oats, and wheat. 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.

Next Generation Phenomics - 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, oat, and wheat traits are also needed to provide the complete information needed to efficiently and successfully breed improved varieties.

High throughput barley, oat, and wheat quality phenotyping of experimental lines is critical to the development of varieties by US public sector small grains breeding programs. Barley, oat, and wheat 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 (& Oat) 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.

ARS coordinated national and regional **Uniform Small Grains Nurseries** provide small grains breeders throughout the US with invaluable phenotypic data for many agronomic traits (e.g. yield, kernel plumpness, test weight, lodging, disease resistance, etc.) that must be optimized in new small grain varieties to provide economic value to growers and end-users. Funding is needed to support ARS coordinated nurseries in **Aberdeen, ID; Fargo, ND; Lincoln, NE; Pullman, WA; Raleigh, NC; and St. Paul, MN.**

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.** This technique substantially accelerates the breeding of new varieties. Funding is needed to provide US public sector barley and wheat breeding programs with DH production services, improve DH technology, and foster regional and national genomic and breeding research collaborations accelerated with DH technology.

US public sector barley breeding programs rely on the DH production and research program at **Oregon State University, Corvallis,** with additional extramural funding needed to increase capacity to meet national needs.

For **US public sector wheat breeding programs**, extramural funding is needed to **establish regional DH production and research centers** to provide the needed capacity.

USDA National Agricultural Statistics Service (NASS) & USDA USDA Economic Research Service (ERS)

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 Economic Research Service (ERS) provides economic and other social science research and analysis for public and private decisions on agriculture, food, the environment, and rural America. The information that ERS produces is for use by the general public and to help the executive and legislative branches develop, administer, and evaluate agricultural and rural policies and programs.

As with other components of the US agricultural economy, the barley supply chain, from grower to end user has long relied on the USDA-NASS and ERS for unbiased estimates of barley acreage, production, stocks, varieties, economic statistics, and other information. 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 and ERS data 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 Administration's budget for FY2019 proposes a $41.8 million or 48.1% decrease for ERS and $6.24 million or 12.9% decrease for NASS from FY2017.

The NBIC does not support the proposed decreases in funding for ERS and NASS in the President's FY2019 Budget. We are requesting the assistance and support of your office to support FY2018 and FY2019 funding at or above FY2017 and FY2018 levels, respectively, for ERS and NASS, to enhance the nation's agricultural economy.

For FY2018, we requested that Congress include language in the Agriculture Appropriations Bill directing NASS to 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).

The NBIC appreciates the barley estimates reinstatement language added to the NASS budget in the FY2018 Senate Agriculture Appropriations Bill and asks that this language be retained in the final FY2018 Appropriations Bill or added to the FY2019 Appropriations Bill if needed.

SENATE FY2018 USDA-NASS BUDGET

Barley Estimates. *—Barley acreage and production estimates provide critical data to maltster, brewer, distiller, food, and feed end-users in domestic and export markets to make procurement decisions and investment plans; and by policy makers in developing and implementing agricultural programs.* ***The Committee directs NASS to reinstate acreage and production estimates for barley in States that were discontinued in 2016***.

USDA National Institute of Food & Agriculture (NIFA)

NBIC supports funding at FY2017 funding levels for NIFA Hatch Act ($300 Million) & Smith-Lever Formula Grants ($243.7 Million) or higher in the FY2018 and FY2019 Agriculture Appropriations Bills.

> 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 FY2017 funding levels or more for the Agriculture and Food Research Initiative (AFRI) in the FY2018 and FY2019 Agriculture Appropriations bills if increased funding is not at the expense of ARS or important NIFA programs (*e.g. Hatch act and Smith-Lever Formula grants, Organic Agriculture & Extension Initiative, other grant programs*).

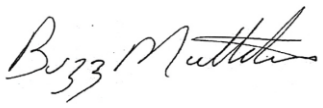
> A group of barley researchers were funded through the **Organic Agriculture Research & Extension Initiative** for a multi-regional integrated project proposal titled **"Developing Multi-Use Naked Barley for Organic Farming Systems."**

>**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 were each funded by an AFRI grant over 5 years (2006 – 2010; 2011- 2015).

> A group of barley researchers have applied for a new Coordinated Agricultural Project under the USDA NIFA Water for Food Production Systems (WFPS) titled **"Barley CAP H_2O: Developing winter barley cropping systems that generate farmer and end-user value and protect and preserve water resources,"** A final proposal was submitted in August, 2017, and the group is awaiting a decision from NIFA.

Thank you for your consideration.



Buzz Mattelin	Ashley McFarland	Mike Davis
Chair	Vice Chair	Executive Secretary