

PNWHBC – 2017

Barley varieties and your home brew

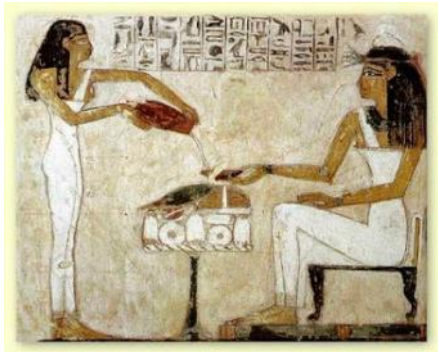
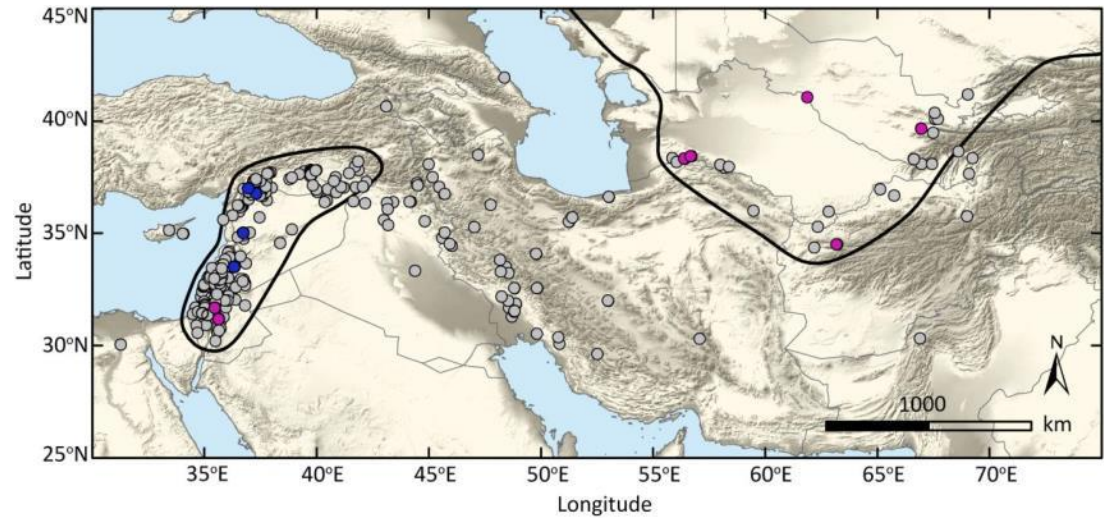
- What is barley?
- What is the barley and beer connection?
- Grow your own barley?
- Make your own malt (next session)

*Random tidbits bits of science and technology
along the way*

What is barley?



What is barley?



Hordeum vulgare
domesticated from
Hordeum spontaneum



What is this beer?



Gold Rush Full Pint
OG 1.049 FG 1.011

Great Western Full Pint
OG 1.047 FG 1.010

Mecca Grade Vanora
O.G. 1.055 FG 1.013

Mecca Grade Metolius
O.G. 1.055 FG 1.016



- 5 gallon batches using The Grain Father
- 10 lbs. Full Pint and 1/8 lb. acidulated malt
- 1 tablespoon gypsum for water conditioning
- Single infusion mash with sac rest at 155 ° F for 60 minutes.
- Bittering hop: 1.5 oz. OSU 2003013-002
- Flavor hop last 10 minutes: 1 oz. OSU 2003013-002
- Aroma hop last 0 minutes: 1 oz. OSU 2003013-002
- Imperial Organic Yeast, Joystick
- Primary ferment 7-10 days, Secondary 7 days
- Kegged 5 days before the PNWHC
- Brewed by Evelyn Squire, Heart of the Valley Homebrewers and Corvallis Brewing Supply employee



What is barley?

2-row vs. 6-row – *see plants and samples*

Naked vs. covered – *see plants and samples*

Spring vs. winter

Winter is planted. Spring is not (too wet)



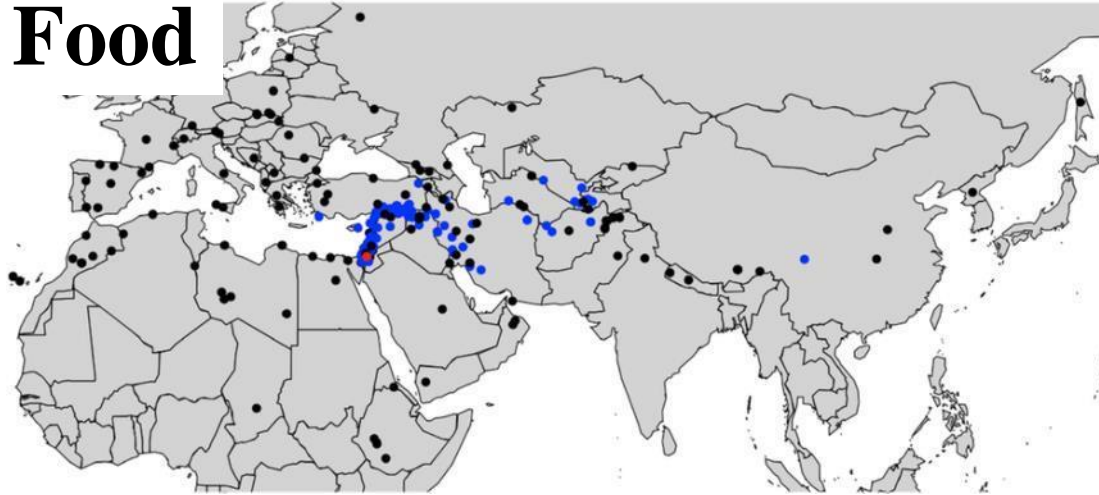
Barley and beer?



2-row covered spring

“The decree known as the Reinheitsgebot, issued in Ingolstadt in 1516, had three aims: to protect drinkers from high prices; to ban the use of wheat in beer so more bread could be made; and to stop unscrupulous brewers from adding dubious toxic and even hallucinogenic ingredients as preservatives or flavourings.”

Barley and Food



2-row and 6-row naked
spring

Barley and Beer and Food ?



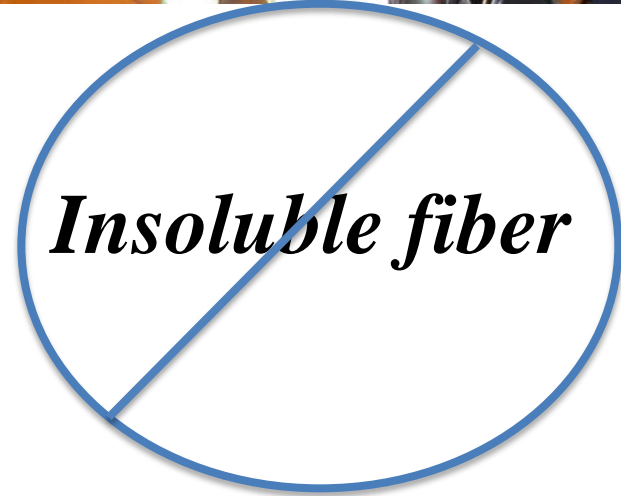
+ *Lautering*



The hull



Insoluble fiber



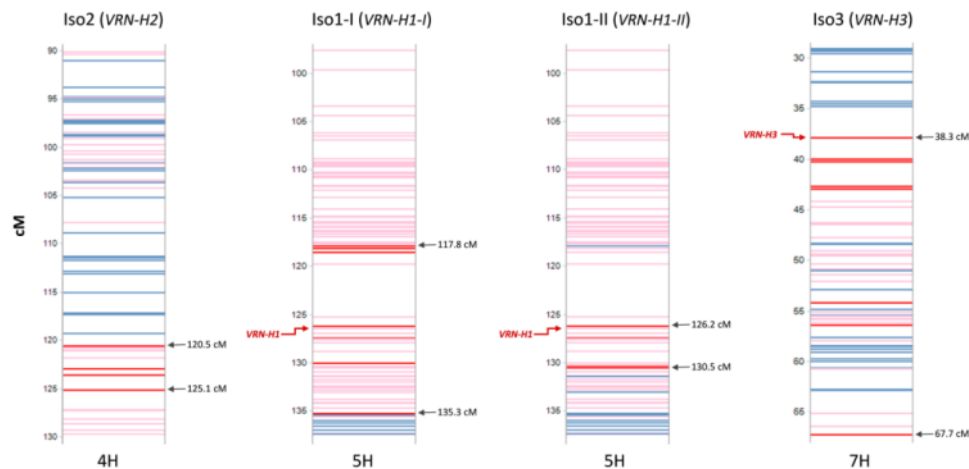
Barley and Beer and Food: OSU at your service

Facultative 2-row covered malting

Facultative 2 (6) row multi-use naked

Plots, malts, and beers

Genes, traits, and germplasm



The OSU Barley Project



Crossing

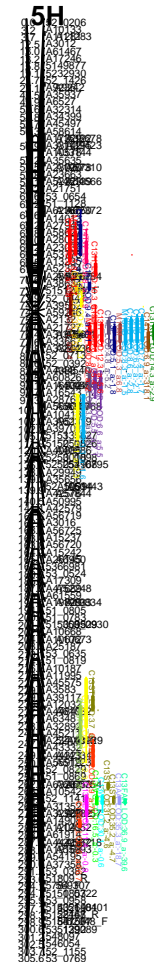
Doubled haploids



Genetics and Breeding

Knowledge, Variety/Germplasm release

www.barleyworld.org



What is barley?

Spring vs. winter vs. *facultative*:



What is barley?

Spring vs. winter vs. *facultative*:

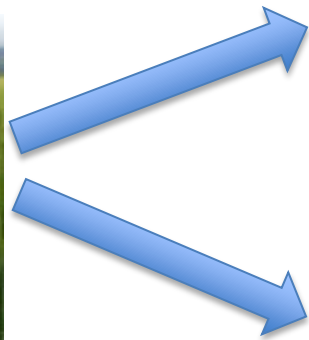
Spring:

- Plant in spring and grows normally. Harvest late summer.
- Plant in fall and dies of low temperature injury.

Winter:

- Plant in spring and won't flower – stays vegetative. No harvest.
- Plant in fall, vernalizes, and grows normally starting in the spring. Harvest mid-summer.

Facultative growth habit **Flexibility!**



Fall planting
Cold tolerance
on demand



Spring planting
Cold tolerance
not needed



Facultative 2-row malting barley

American Malting Barley Association

OSU Pilot candidates: all facultative

DH130718: TC6W261/3/LPZ276/Charles//Full Pint

DH120412: TC6W265//Herz 29494/2991

DH130004: TC6W265//Herz 29494/2991

DH120228: Wintmalt/Charles//Full Pint

DH130939: Full Pint/Violetta







<http://barleyworld.org/malt-house>

Barley contributes to beer flavor

<http://barleyworld.org/flavor>



Golden Promise x Full Pint

The Flavor 7-Pack

Bells, Deschutes, Firestone-Walker New Glarus,
Summit, Russian River, Sierra Nevada

Mecca Grade Estate Malting, Rahr Malting

Is it time for barley to go naked after 10,000 years?

Multi-use naked barley for malt/food/feed: The NIFA-OREI grant













Grow your own barley?



Grow your own barley?

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Blogging with **BRIESS**
MALT & INGREDIENTS Co.
All Natural Since 1876

A handcrafted blog about malt and all that goes into it...

◀ Toll malt your local grains with Briess

A taste of trends from 2016 ▶

Grow Your Own Barley

Posted on **March 4, 2017** By **Mercedes Hemmer**



Why should they get all the fun?

When the day's spike above 60°, we can't wait to get outside and start yard work and landscaping. This also goes for our growers in Wyoming and Montana. Each year is slightly different, but for Wyoming barley growers field preparation and spring planting begins mid-to-late March and wraps up in April. In Montana, the barley season starts a little later, beginning in early-to-mid April.

Timing is essential to ensure the best crop with high yields is grown. Also around this time, each year Briess sends out packets of raw barley to breweries in states with climates suited for growing so they can have their own "Grow Your Own Barley" experience. These packets are a perfect for display planters outside of your brewery or for a small 3' x 3' patch in your garden.

When planting barley, it is best to sow it in early spring as soon as the ground has thawed and is ready to be worked. But you also want to ensure your soil is not over saturated with rain or snow melt, which can hinder the growing process. As a rule of thumb, barley likes dry, loamy soil – this is why it thrives in the arid regions of Wyoming and Montana. The second component to a successful crop is ample sunlight.

The rest is pretty easy, just follow these simple instructions to *Grow Your Own Barley*:

blog.brewingwithbriess.com

The best handcrafted beer starts with the finest handcrafted malt.

Search

Blog Contributors

The rest is pretty easy, just follow these simple instructions to *Grow Your Own Barley*:

Barley Planting Instructions:

1. For best results, start by pouring yourself a beer.
2. Next, prepare a 3-square-foot planting area or large planter with healthy soil.
3. Break time! Enjoy some hearty sips of your beer.
4. Now evenly spread the seeds on the soil, about one grain per square-inch, and work in until the seeds are covered by one-half to one-inch of soil.
5. Stand back, lean on your hoe and enjoy the rest of your beer.
6. Now have a wonderful summer brewing beer and watching your barley grow.

Be on the lookout in late March for your brewery's packet of raw barley from Briess. We would love to see your photos of barley, so be sure to share them on Facebook, Twitter and/or Instagram with #BriessGYOB or email them to mercedes.hemmer@Briess.com.

Visit the
Briess
company store.

Subscribe to Blog

* Email address

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Grow your own barley?

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- Plant 1 handful (~ 4 ounces) for 100 square feet. Rows or random
- Harvest 1 – 10 lbs
- Year 1: Treat the barley like you would a tomato in terms of sun, fertility, water
- Year 2: Start pushing the limits on this most resilient crop

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- **Harvest**
 - sickle
- **Threshing**
 - Hmmmmmm – organize a threshing bee with your local farmer or grains research program/company
- **Cleaning**
 - A mesh sieve, a fan or organize a cleanathon with your local farmer or grains research program/company

What barley to grow?



What barley to grow?

Malting and malting quality parameters

Barley World malts

Hartwick College CFCFAB malt analyses

Friability %	Extract %	Color °SRM	β-glucan mg/L	S/T %	FAN mg/L	DP °L	Alpha Amylase	Filtration Time	Clarity	pH
81.6	87.4	2.08	427		124	61	31	normal	hazy	5.76
79.3	80.0	4.47	146	47.5	193	110	57.3	normal	clear	5.85
89.0	81.4	4.15	199	46.8	170	72	46.5	normal	clear	5.66

Buck	naked winter 6-row	-	taste the malt
Full Pint	covered spring 2-row	-	taste the beer
Copeland	covered spring 2-row	-	the ace of base

What barley to grow?

Why not take a walk on the wilder side?

- Your local brew shop stocks a wonderful palette of malts
- Your malting process can do amazing things with “non-malting” varieties
- Newer varieties may be subject to intellectual property controls



What barley to grow?

Why not take a walk on the wilder side?

- Your local brew shop stocks a wonderful palette of malts



What barley to grow?


Why not take a walk on the wilder side?

- Alternative malting processes can do amazing things with “non-malting” varieties

OUR BEER #DRINK LOCAL


PIKE LOCALE: SKAGIT VALLEY ALBA

The first ever Washington State varietal beer!



Light, citrusy and crisp with a nutty malt finish.

Just in time for summer, Pike Locale Skagit Valley Alba is light and citrusy with a clean, earthy and nutty malt finish. Subtly seasoned with Yakima Valley hops, Pike Locale Skagit Valley Alba pours a beautiful light amber color with crisp, pale foam.



HISTORY

Malt is the soul of beer; akin to grapes in wine. Brewers have an incredible diversity of hops to brew with and yet since Prohibition have been limited in malt choices. Now Pike Brewing Company is working directly with Skagit Valley farmers to grow barley varieties specifically for craft



The Purple Barley Project

February 21, 2017 - Overlook



Beer and bread. Two staples of history's menu. It is said that agriculture was founded just for the making of these two nutritious vittles. Every corner of the planet had their own ways of doing things, their own flavor profiles. From technique to weather to soil composition, everything that distinguished a given region or artisan from another imparted specific flavor profiles. That is the art and science and terror. Think of it as "terroirial science."

ABOUT THIS BLOG

The COMMONER is Richard's blog, sharing information and updates on Palouse Heritage interests. A full description of the blog's layout is available [here](#). You'll notice posts fall within the following categories:

[Overlook](#)

[Places & People](#)

[School & Library](#)

[Food & Health](#)

[Memory & Story](#)

BLOG ARCHIVE

March 2017

[Sickles and Sheaves — Farming, Faith, and the Frye \(Part 4\)](#)
Mar 1, 2017

February 2017

[The World's Best Eye Bread](#)
Feb 1, 2017

What barley to grow?

Why not take a walk on the wilder side?

- Newer varieties may be subject to intellectual property controls

Plant Variety Protectionand Beyond

The PVP is a federal law designed to promote the developments of new varieties by allowing the variety owner to determine who may sell seed of that particular variety. The law prohibits the sale of any PVP seed, including farmer saved, without the permission of the variety owner. Title V of the Federal Seed Act specifies that PVP protected varieties can be sold by variety name only as a class of certified seed. The PVP law also states that the seller must also give notice that the lot is a PVP variety. Enforcement of the PVP law is left up to the owner of the PVP variety through civil court action.

System Use Requirements

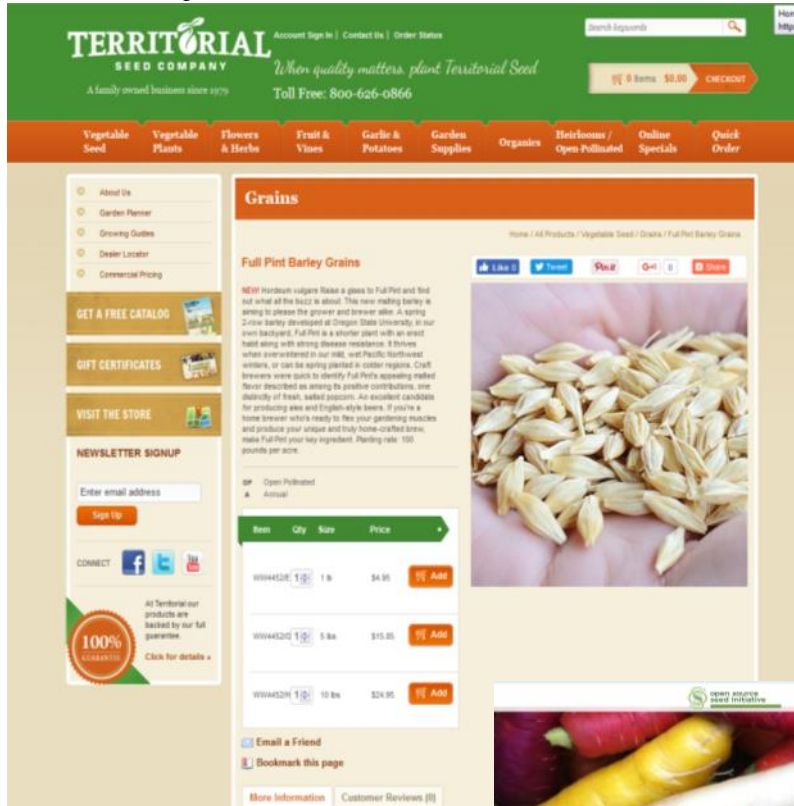
As listed in the CLEARFIELD Stewardship Agreement, growers must purchase new seed (registered or certified) every year from an authorized CLEARFIELD seed retailer. This means that saving seed to plant next year's crop is not allowed (NO "brown-bagging" or "bin-running"). Seed increase fields (foundation, registered, and certified) can be grown following strict guidelines to ensure that fields are free of noxious weeds and "off-type" wheat.

Use of registered or certified seed ensures proper herbicide tolerance to Beyond herbicide and prevents contamination from a non-CLEARFIELD variety. Proof-of-purchase records for CLEARFIELD wheat seed and Beyond herbicide must be provided prior to servicing of any claim by BASF. If the grower uses an imidazolinone herbicide, the grower agrees to use Beyond herbicide, in accordance with the product label, including stated label rate and timing.

CLEARFIELD Wheat Stewardship Guidelines

What barley to grow?

Why not take a walk on the wilder side?



The Territorial Seed Company website features a green header with the company name and a navigation bar with categories like Vegetable Seed, Flowers & Herbs, and Grains. A sidebar on the left includes links to 'About Us', 'Garden Planner', and 'Newsletter Signup'. The main content area is titled 'Grains' and features a section for 'Full Pint Barley Grains' with a description of the 'New! Hardtun' variety and a list of products with prices.

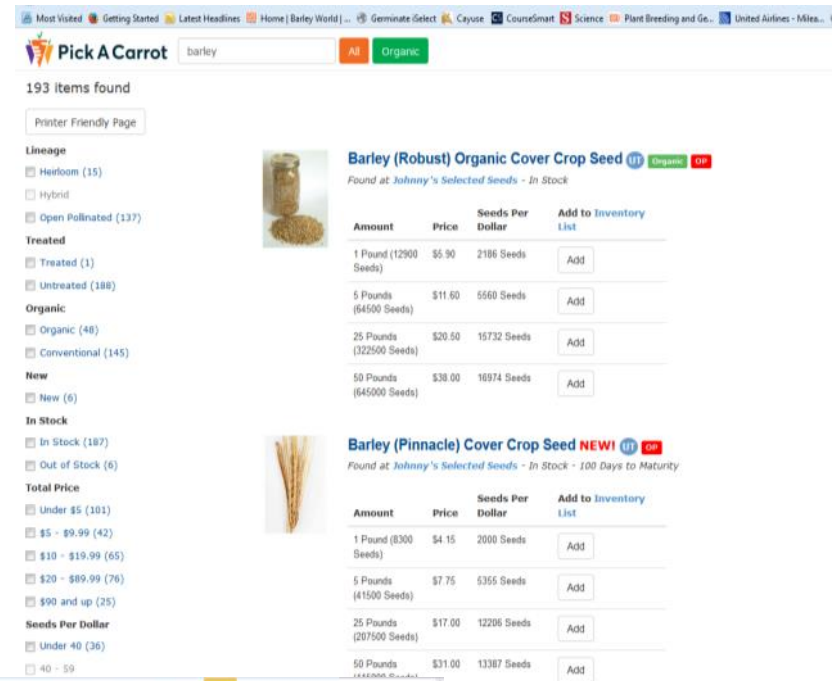
TERRITORIAL SEED COMPANY
When quality matters, plant Territorial Seed
Toll Free: 800-626-0866

Grains

Full Pint Barley Grains

New! Hardtun variety is a grain to Full Pint and find out what all the buzz is about. This new malting barley is sowing to please the grower and brewer alike. A spring 2-row barley developed at Oregon State University, in our own backyard. Full Pint is a winter plant with an erect habit along with strong disease resistance. It flowers when interested in our malt, and Pacific Northwest winters, or can be spring planted in colder regions. Craft brewers were quick to identify Full Pint's appealing malted flavor described as among its positive contributions, one distinct of fresh, malted popcorn. An excellent candidate for producing ales and English-style beers. If you're a home brewer who's ready to flex your gardening muscles and produce your unique and truly home-crafted brew, make Full Pint your key ingredient. Planting rate: 100 pounds per acre.

Item	Qty	Size	Price
WW4432H	1 lb	1 lb	\$4.95
WW4432H	5 lb	5 lb	\$19.95
WW4432H	10 lb	10 lb	\$24.95



The Johnny's Selected Seeds website shows a search for 'barley' with 193 items found. It lists various barley varieties, including 'Barley (Robust) Organic Cover Crop Seed' and 'Barley (Pinnacle) Cover Crop Seed'. Each listing includes a table with columns for Amount, Price, Seeds Per Dollar, and Add to Inventory.

Pick A Carrot barley All Organic

193 items found

Barley (Robust) Organic Cover Crop Seed
Found at Johnny's Selected Seeds - In Stock

Amount	Price	Seeds Per Dollar	Add to Inventory
1 Pound (12900 Seeds)	\$5.90	2186 Seeds	Add
5 Pounds (64500 Seeds)	\$11.60	5568 Seeds	Add
25 Pounds (322500 Seeds)	\$20.50	15732 Seeds	Add
50 Pounds (645000 Seeds)	\$38.00	16974 Seeds	Add

Barley (Pinnacle) Cover Crop Seed NEW!
Found at Johnny's Selected Seeds - In Stock - 100 Days to Maturity

Amount	Price	Seeds Per Dollar	Add to Inventory
1 Pound (8300 Seeds)	\$4.15	2000 Seeds	Add
5 Pounds (41500 Seeds)	\$7.75	5355 Seeds	Add
25 Pounds (207500 Seeds)	\$17.00	12205 Seeds	Add
50 Pounds (415000 Seeds)	\$31.00	13387 Seeds	Add



The Open Source Seed Initiative website features a banner image of various colorful carrots. Below the banner, there is a section titled 'The Open Source Seed Initiative' with a paragraph explaining the initiative's goals and a link to 'Read More'.

The Open Source Seed Initiative

Today, only a handful of companies account for most of the world's commercial breeding and seed sales. Increasingly, patenting and restrictive contracts are used to enhance the power and control of these companies over the seeds and the farmers that feed the world.

Patented and protected seeds cannot be saved, replanted, or shared by farmers and gardeners. And because there is no research exemption for patented material, plant breeders at universities and small seed companies cannot use patented seed to create the new crop varieties that should be the foundation of a just and sustainable agriculture.

Inspired by the free and open source software movement that has provided alternatives to proprietary software, OSSSI was created to free the seed - to make sure that the genes in at least some seed can never be locked away from use by intellectual property rights. [Read More](#)

What barley to grow?

Why not take a walk on the wilder side?



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Find people and pages Search

Barley World

Home »

Grow your own barley!

Submitted by hayesp on Thu, 09/08/2016 - 11:51am

Planting instructions for growing barley at home


Click on a picture to get planting instructions:



We are not in the seed business and are usually able to supply very small amounts of seed of our own germplasm/varieties. If you are interested in more than a few grams (or kilograms in some cases) please see commercial suppliers at this [link](#) or try [PickACarrot](#).

There are currently two Oregon public varieties we can supply in small amounts: Full Pint and Alba. Streaker will not be released as a variety, but rather as a germplasm... a subtle distinction with the immediate result that germplasms do not get variety names but are publicly available. The germplasm - formerly known as the variety Streaker - will be called #STRKR. For the sake of historical continuity, the Streaker naked barley image will live on - forever on the run. We can also supply seed of the Food Composite.

Seed order form and a plea to help us cover costs.
Please follow this [link](#) for an order form and seed costs. The fees are high but they cover the costs of seed multiplication, maintenance, shipping and handling. All profits to research.









United States Department of Agriculture
Agricultural Research Service

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Related Topics

- » NPGS Collections
- » Crop Germplasm Committees
- » Repository Home Pages
- » PI Books volumes 1 through 217
- » Links

National Plant Germplasm System




Global food availability and security is based on intensive agricultural production. Over the past century, this intensification has relied heavily on producing crops with increasing genetic uniformity. Although these practices have benefits, they also include the risks of increasing the vulnerability of crops to pests, diseases, and environmental stress.

Plant breeding and associated scientific research is essential to meet the ongoing challenges of producing plants for food, fiber, animal feeds, industrial and medicinal purposes, and for landscape and ornamental uses. It is important to collect and conserve living plant material, both to help solve immediate agricultural production problems as well as safeguard plant genetic diversity for future needs. This mission is more essential than ever because the loss of genetic diversity is accelerating with threats from many factors including global urbanization, habitat changes associated with climate, and changes in land use related to population growth and economic development.

The U.S. National Plant Germplasm System (NPGS) is a collaborative effort to safeguard the genetic diversity of agriculturally important plants. The NPGS is managed by the Agricultural Research Service (ARS), the in-house research agency of the United States Department of Agriculture (USDA). Funding for the NPGS comes primarily through appropriations from the U.S. Congress. However, the NPGS is a partnership between the public and private sectors. Many NPGS genebanks are located at state land-grant university sites, which contribute lab, office, greenhouse and field space for operations, as well as staff for technical and support services. The private sector is a major user of the NPGS collections and is the primary means by which new and improved plants are commercialized.

The mission of the NPGS is to support agricultural production by:

- acquiring crop germplasm
- conserving crop germplasm
- evaluating and characterizing crop germplasm
- documenting crop germplasm
- distributing crop germplasm



Through these efforts, NPGS assists in improving the quality and productivity of crops. The [GRIN](#) database is

How (Malting)

Steeping
Germination
Kilning

Time (~1 week)
temperature (50° – 350°)
Moisture (10% – 50%)



Malting!!!!!!

Seth Klann and Mecca Grade Estate Malt



Thanks!

The Oregon Barley Project crew – past and present
Joel Rea and Crew for the Full Pint Beers



Brought to you by
*Your Oregon tax dollars, Federal grants, American Malting
Barley Association, Brewers Association, Great Western
Malting, The Flavor-Pack, Mecca Grade Estate Malt,
Oregon Wheat Commission*

Rahr Malting