HEAT is the world’s NUMBER ONE crop

~ More land is planted to wheat in the world than any other crop.
~ Wheat is a staple food for more than 35 percent of the human population.
~ Wheat provides 20 percent of the world’s nutritional needs.
~ In 2020, the US exported 926 million bushels of wheat to nearly 60 countries.
~ Washington, Oregon and Idaho together are called the Pacific Northwest (PNW).
~ The PNW produces enough wheat each year to fill the Seahawks’ Stadium!

HEAT grows JOBS

~ Washington wheat farmers support 9,443 jobs in the state, including their own.
~ The state benefits from 5,353 jobs in businesses and industries directly supporting Washington wheat farmers.
~ An additional 4,090 jobs are supported from personal purchases of both farmers and their employees.
~ At least $0.88 of every $1.00 generated by Washington wheat goes to businesses that support farmers.
~ Washington’s wheat farmers and their employees contribute to the state’s economy by spending $0.87 of every $1.00 earned for off-farm purchases.
~ This results in a total of $1.75 in economic activity, beyond farmers’ own sales.

2020 PNW ALL WHEAT PRODUCTION

<table>
<thead>
<tr>
<th>State</th>
<th>Bushels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington</td>
<td>165.6 mbs</td>
</tr>
<tr>
<td>Idaho</td>
<td>112.5 mbs</td>
</tr>
<tr>
<td>Oregon</td>
<td>46.4 mbs</td>
</tr>
<tr>
<td>Total</td>
<td>324.5 mbs</td>
</tr>
</tbody>
</table>

2020/21 TOP TEN WHEAT PRODUCING COUNTRIES

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Mmt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>European Union</td>
<td>135.8</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>136.0</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>107.6</td>
</tr>
<tr>
<td>4</td>
<td>Russia</td>
<td>84.0</td>
</tr>
<tr>
<td>5</td>
<td>US</td>
<td>49.7</td>
</tr>
<tr>
<td>6</td>
<td>Canada</td>
<td>35.2</td>
</tr>
<tr>
<td>7</td>
<td>Australia</td>
<td>30.0</td>
</tr>
<tr>
<td>8</td>
<td>Ukraine</td>
<td>25.5</td>
</tr>
<tr>
<td>9</td>
<td>Turkey</td>
<td>19.0</td>
</tr>
<tr>
<td>10</td>
<td>Argentina</td>
<td>18.0</td>
</tr>
</tbody>
</table>

*Projected  mmt=million metric tons
Wheat is a type of grass. Einkorn and Emmer are the earliest cultivated forms of wheat. Einkorn has 14 chromosomes, and Emmer has 28 chromosomes. Research scientists believe Emmer crossed with a weed called Jointed Goatgrass to produce modern wheat.
**HEAT WORDS**

4. Earliest known wheat (14 chromosomes)
6. When wheat plants fall down before harvest, it is called ________
8. This US state ranks fourth in wheat production
11. The second-largest market for US white wheat
12. Top WGC priority
14. Super soft wheat variety!
15. Wheat class used in bread
16. ______ train loading facilities process 110 cars at a time
19. Part of a wheat kernel used in refined flour
21. A wheat plant wears a ________ just above its roots
22. Number of pounds in an average bushel of wheat

**HEAT has CLASS**

Wheat is divided into six classes based on kernel color, hardness, and planting season.

**SOFT WHITE**

- Western White is a customized blend of 10 percent or more very soft club wheat with common soft white wheat varieties.
- Gluten is a protein in wheat that gives dough elasticity.
- Gluten, protein, and falling numbers are important industry measures of US wheat quality.

Each class of wheat has specific end-use qualities:

- **Soft white wheat** (winter, spring and club)—Cakes, cookies, crackers, flatbreads, cereals, pastries, pancakes
- **Hard red wheat** (winter and spring)—Breads, hard rolls, bagels, pan bread, flat bread, pizza crust
- **Soft red winter wheat**—Cookies, crackers, pretzels, pastries, flat breads
- **Durum**—Pasta
- **Hard white**—Asian noodles, steambreads, and blended flours

**HEAT takes TESTS**

~ Washington State University has a Variety Testing Program and the United States Department of Agriculture (USDA) has its Western Wheat Quality Lab to help wheat breeders meet market challenges.

~ The Agricultural Research Service (ARS) is the USDA’s research division.

~ It can take more than ten years for a wheat variety to go from breeding to production in order to prove it can perform for US and world markets.

~ Most wheat classes love Washington’s cool nights and warm days, diverse geographic climates and varied precipitation—from 8 inches to 25 inches annually.

~ A majority of wheat farms in Washington are dryland farms which depend entirely on precipitation and often utilize summer fallow, where fields are left unplanted to gather moisture and nutrients.

~ Lodging occurs when heavy wheat crops fall over from too much rain, wind or root disease.
The Washington Grain Commission (WGC) represents farmers who promote research, marketing and education in Washington state, the nation and throughout the world.

The WGC was formed in 1958 by farmers who voted to tax themselves on each bushel of grain sold.

The WGC budget for 2020/21 is $6.3 million.

In the past five years, the WGC has spent over $20 million on wheat research, marketing and education.

Wheat research is the WGC’s top priority. See www.wagrains.org for more information.

The WGC is proud to sponsor Wheat Week—a fun, hands-on program that teaches Washington’s 4th- and 5th-graders all about wheat.

Tidewater and Shaver are the two barging companies serving the river system.

Together they float an average of 60 percent of Washington’s wheat to port elevator locations.

In 2019/20 the US exported 50 percent of its wheat to nearly 60 countries.

Cargo ships called bulk freighters, and container ships transport wheat to hungry customers in Asia, Latin America and the Middle East.

Shuttle train facilities load 110 grain cars in 15 hours or less—some can load an entire train shuttle in as fast as 8 hours. That’s about four minutes per car!

Washington has five grain shuttle train loading facilities.

BNSF and Union Pacific are Class I railroads that serve Washington’s shuttle train loading complexes.

Captive shippers are wheat farmers in areas of the country where there is only one transportation alternative.

2019/20 US WHITE WHEAT TOP MARKETS

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Philippines</td>
<td>1,511 tmt*</td>
</tr>
<tr>
<td>2</td>
<td>S Korea</td>
<td>727 tmt</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>701 tmt</td>
</tr>
<tr>
<td>4</td>
<td>Indonesia</td>
<td>466 tmt</td>
</tr>
<tr>
<td>5</td>
<td>Yemen</td>
<td>385 tmt</td>
</tr>
<tr>
<td>6</td>
<td>Thailand</td>
<td>271 tmt</td>
</tr>
<tr>
<td>7</td>
<td>Nigeria</td>
<td>219 tmt</td>
</tr>
<tr>
<td>8</td>
<td>Taiwan</td>
<td>168 tmt</td>
</tr>
<tr>
<td>9</td>
<td>Sri Lanka</td>
<td>149 tmt</td>
</tr>
<tr>
<td>10</td>
<td>Vietnam</td>
<td>136 tmt</td>
</tr>
</tbody>
</table>

*Thousand metric tons

About 55 percent of all US wheat exports ship through five port elevators located in Washington and Oregon.

In 2019/20 the US exported 50 percent of its wheat to nearly 60 countries.

1 Philippines 1,511 tmt*
2 S Korea   727 tmt
3 Japan    701 tmt
4 Indonesia 466 tmt
5 Yemen    385 tmt
6 Thailand 271 tmt
7 Nigeria  219 tmt
8 Taiwan   168 tmt
9 Sri Lanka 149 tmt
10 Vietnam 136 tmt

Source: Texas Transportation Institute, Texas A&M University, for the US Maritime Administration.