Wheat: Currently, club wheat is produced in areas with little rain

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Campbell and industry leaders want to increase the amount of club wheat produced in the region and grow the domestic and international markets for it.

Matthew Weaver/Capital Press File

Washington Grain Commission CEO Glen Squires.

One of a kind

In the world of wheat, Campbell is unique. She is the only breeder in the world who focuses on club wheat.

She began with the USDA Agricultural Research Service in 1999. While other breeders at WSU and Oregon State University do some club wheat work, Campbell said she's not aware of anyone else breeding club wheat.

It takes her eight years to develop a new club wheat variety. She wants farmers to be able to plant it and not worry about diseases. She puts possible varieties through extensive testing.

"I try to make them as bulletproof as I can," she said.

Campbell thrives under the high standards required by the industry — and that she sets for herself.

"I like being held to this quality standard," she said. "So you know when you put it out there, it's the cream of the crop."

Art Bettge

Club wheat vs. soft white

Club wheat is a naturally occurring subclass of the soft white wheat grown by most Pacific Northwest farmers. It has a gene that causes a compact head, instead of the elongated heads of other wheat.

On that head, kernels appear "squished up, humpy-looking," said Art Bettge, an industry consultant in Moscow, Idaho.

The untrained eye, he said, could tell the kernels of soft white wheat and club wheat apart, although some clubs are harder to distinguish. The flours milled from them look the same.

"But if you were to bake cookies using the same recipe, you would for sure be able to tell a difference," Bettge said.

For example, chocolate chip cookies made with club wheat flour would run together all over the pan, while those made with soft white flour would maintain individual cookie shapes, Bettge said.

A baker would have to adjust the formula for the presence of club wheat.

Over the years, club wheat has been bred for use in light cakes and other confections for which bakers in Japan and elsewhere in Asian are known.

Blending club

Before 1958, club wheat was the dominant class of wheat grown in the Pacific Northwest, representing 80% of the crop. Soft white wheat made up the remaining 20%.

Then disaster struck. A rust epidemic in 1958-1959 wiped out all of the club wheat, and soft white wheat became the dominant variety.

"The only reason club wheat is around is because the Japanese market insisted upon it, because club wheat made such excellent cakes," Bettge said.

Last year, 150,000 acres in the Pacific Northwest were planted to club wheat while 3.4 million acres were planted to soft white wheat.

Because club wheat costs more that soft white wheat, using 100% club wheat can be expensive for a milling company.

To meet the high standards of Japanese and other Asian millers, the Pacific Northwest wheat industry developed an export class called Western White Wheat. It can include 10% to 90% club wheat, with the rest being soft white wheat. Most buyers specify 10% to 13% club wheat in the Western White Wheat they buy, but Japan uses a blend of 20% club wheat.

"Club wheat is very soft and therefore difficult to mill on its own without a soft white blend, which is typically why most markets purchase the Western White to a blend specification that works for their product," said Joe Bippert, program director for the Washington Grain Commission. "Those markets that do purchase straight club typically have the blending capabilities and will blend to fill a market niche."

Club wheat also has less gluten, offsetting the somewhat stronger gluten of soft white wheat. That makes for "more excellent, lighter, fluffier, more mouth-appealing cakes," Bettge said.

"The Japanese are extremely picky about their food," he said. "To get the right performance, they need the club wheat blended in with the soft white."

Club wheat also produces 2% more flour than soft white wheat, meaning a miller could get "a hair more" flour out of Western White and an additional 40 pounds of flour per ton of straight club wheat, Bettge said.

"In a flour mill, the margins are very slim to start with," he said. "The extra flour yield you can obtain is critical and beneficial."

Usually, fewer than 50,000 bushels of straight club wheat are exported each year, but last year China went on a shopping spree, buying 336,800 bushels. They also made three other straight club wheat purchases totaling more than 100,000 bushels. That brought the total club wheat sales for the 2020-2021 wheat marketing year to 479,900 bushels.

The grain commission isn't sure what China is using the club wheat for, or whether they'll make more straight club purchases.

For the same marketing year, 35.6 million bushels of Western White Wheat were exported, with an average blend of 23% club.

Bettge sees room for more club wheat production.

"I think anybody who is selling flour to be used for cakes and other fine confections should probably look at Western White very seriously as an option," he said. "And even more so in years where the premium is down, think about using club wheat as a stand-alone class."

Price premiums

For most farmers, soft white is the wheat of choice, Bettge said, because club wheat typically has a lower yield.

Then there's the price.

"The club wheat guys benefit greatly in the years where the premium is up and suffer a bit in the years when it isn't, because they aren't able to produce as many bushels per acre," Bettge said.

Hartline, Wash., farmer Ryan Poe, president of the Washington Association of Wheat Growers, plants some club wheat every year.

"We don't really have to do anything different to grow club other than some combine settings at harvest," Poe said. "It usually is a little tougher to thresh than soft white."

On his farm, Poe said club wheat usually yields as high or higher than soft white varieties.

"So on a non-premium year we feel we are doing as well as if we would have had soft white," Poe said. "Then on the premium years we are ahead of the game doing well."

This year is a good example, Poe said.

"We were almost 75% club with no real clue what the premium would turn out to be," he said.

As of Sept. 15, club wheat was selling for a premium of roughly $1.46 a bushel over soft white wheat.

Glen Squires, CEO of the Washington Grain Commission, expects that premium to continue. The club wheat supply is at a 12-year low, with this year's drought dragging down yields.

"When there's dry years and short supply, the premium goes up," Squires said.

Demand for Western White Wheat fluctuates between 1 million metric tons and 1.2 million metric tons, Squires said.

"Price tends to ration demand," he said. "Japan's relatively stable, but when there (is) a premium, some of the other markets back away from it."

Getting 'mouth feel' right

In the midst of trade uncertainty, the grain commission in 2018 signed a letter of intent to work closer with the Japanese Flour Millers Association to develop new club wheat varieties.

They committed to more technical dialogue between millers and bakers and USDA's breeding program, enabling Campbell to receive more feedback and fine tune her program.

One of the things Campbell heard back was the importance of "mouth feel."

"They've joked with us that they think we need Japanese people to evaluate," Campbell said. "They don't think Americans are sensitive enough to mouth feel."

Campbell knows the importance of that "melt in your mouth" feeling. She's establishing tests to better predict cake volume and texture.

Japanese buyers also like plumper kernels, so Campbell is working to increase kernel size.

The agreement emphasized the economic value of Campbell's program for the region's wheat industry to USDA officials, Squires said.

Campbell estimates USDA invests $100,000 a year in her club wheat breeding efforts. The grain commission invested $93,000 in club wheat breeding this year.

A stable supply

Right now club wheat is primarily produced in growing areas with relatively little rain. Campbell wants to develop a variety of club wheat that is resistant to stripe rust, allowing it to be grown in higher rainfall zones.

More club wheat could necessitate a shuffling of the industry, exporting Western White with higher percentages of club wheat or more club by itself, Bettge said.

The ultimate need is agronomic varieties with good end-use quality and enough of a price premium to motivate farmers, Squires said.

A more stable supply would likely mean a more consistence premium, he said.

"It's something that is unique to the Northwest, and unique for customers," Squires said.

Other markets could also use more club wheat, he said.

The Philippines used to be the No. 2 buyer of Western White Wheat, but switched to straight soft white wheat when the price of club wheat jumped.

With modern mills and sophisticated customers, Squires thinks the market is primed to buy more Western White Wheat.

Millers from the Philippines spent a week in 2019 at the Wheat Marketing Center in Portland learning about Western White Wheat and how club wheat could be used in their products. They have since purchased some club wheat, Squires said.

Singapore and Malaysia also buy club wheat, but supply shortages can be a factor.

"We just need a greater supply to meet those needs," Squires said. "If they're going to develop a product using it, they're going to want to be able to have access all the time."

Future varieties

Campbell monitors her lines for key traits, such as snow mold tolerance and avoidance of falling number problems, an indicator of starch damage that can occur when temperatures vary dramatically or when rain falls during particular stages of maturity.

Overall, she professes a love for working with her team and WSU's breeders.

"The department is really strong, we've got a lot of good scientists," she said. "Who wouldn't want to work with wheat in the Pacific Northwest?"

'C' is for club wheat

By MATTHEW WEAVER
Capital Press

USDA wheat breeder Kim Garland Campbell distinguishes her club wheat varieties by giving them names that begin with the letter "C" — Chukar, Cara, Crescent and Chrystal.

Campbell and Washington State University jointly released Cameo, targeted for farmers near Genesee, Idaho, and slated for wider release in the next few years.

Castella had its first wide use last year. It fits intermediate rainfall regions and performs well in dryland areas, with good emergence from the soil, Hessian fly resistance and aluminum tolerance.

A "non-C" variety, Pritchett, came out of a cross with WSU's winter wheat breeding program. The name honors longtime USDA technician John Pritchett, who worked for the USDA-ARS wheat breeding program from 1957 to 2000 under longtime USDA breeder Bob Allan.

Allan released 150 wheat germplasm lines and nine varieties during his 40-year career. He died in March 2021.

Allan published a book on club wheat in 2014. He told the Capital Press at the time that club was "the Cadillac of soft white wheats — the best there is."

For naming inspiration, Campbell refers to the "clever," short names selected by Allan.

Allan's varieties included Madsen, Trace, Crew, Rely, and Coda — his final variety, released when he returned to the program for a year after retiring in 1996.

Allan made Campbell promise never to name a variety after him.

"Dr. Allan told me emphatically that I could not name a wheat after him," she said. "He said, 'You do that, and it will be the dog,'" meaning it would perform poorly.

"I still miss him a lot," Campbell said. "I'm going to honor his wish and not name a wheat after him."

Hemp: USDA requires all hemp be tested no more than 30 days before harvest

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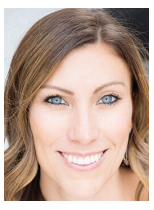
The revised hemp plan sets a cutoff date of May 31 for grower applications. Anyone who submits an incomplete application will have 15 days to provide missing records, or have it rejected, Summers said.

The USDA requires all hemp be tested no more than 30 days before harvest to ensure THC levels do not exceed the legal limit of 0.3%. THC, or tetrahydrocannabinol, is the main component in marijuana that gets users high.

Summers said growers may be subject to random testing as well throughout the growing season. Part of HB 3000 approved ODA's request to hire eight new employees in the hemp program to keep up with the increase in production statewide.



Kim Stuck

When ODA established its pilot program for hemp in 2015, it started with 13 growers. After hemp was legalized in the 2018 Farm Bill, production skyrocketed to 1,940 registered growers and 60,000 acres in 2019.

George Plaven/Capital Press File

Field workers pick hemp flowers at Hemptown USA's Oregon farm in Central Point in late September, 2019.

As of Sept. 6, those numbers had come back down to 752 growers and 7,175 acres, Summers said.

Kim Stuck, a Portland consultant who works with cannabis farms, said she is advising her clients to be ready for more stringent crop testing and record-keeping under the new hemp rules.

"Many of these requirements are normal requirements in most other industries," Stuck said. "Hemp, it kind of got going before regulators could get their feet under them."

Stuck was the city of Denver's first marijuana specialist before she founded her firm, Allay Consulting, in 2017. In her role as a regulator, she was responsible for investigating cultivation, manufacturing and retail businesses.

Regarding Oregon's revised plan, Stuck said growers must ensure they have the proper documentation on hand to present to regulators, including planting records, maps, transportation and crop disposal logs.

Without this type of oversight, Stuck said legitimate hemp businesses may be threatened by illegal marijuana grows operating under the guise of hemp. Such operations have been accused of stealing water from their neighbors.

"Because of the legality of things, a lot of our industry is put in danger without people really realizing it," Stuck said. "This gives regulators more teeth to enforce the laws."

Water: Petitioners claim OWRD exceeded its authority by approving transfer

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Upper Klamath Basin, the transfer will lower streamflows and potentially reduce water available for diversion by the irrigators by 50% or more, the lawsuit said.

"The severe curtailment of petitioners' ability to irrigate and/or stockwater reduces the amount of forage that petitioners and/or their lessees can grow and the number of livestock petitioners and/or their lessees can feed and/or threatens the lease value of the petitioners' real property," the lawsuit said.

OWRD also exceeded its authority by approving the transfer, since the water will ultimately be delivered beyond its jurisdiction in California, the lawsuit claims. Even if the agency did have jurisdiction, the petitioners claim it didn't follow the right laws and regulations for the transfer.

The transfer will also cause a "gross waste of water" contrary to law because the water is to be conveyed through irrigation canals and will likely be lost to evaporation and seepage, the lawsuit said.

The department didn't "substantively address" the concerns about injury to other water rights from the transfer, which means it's not supported by "substantial evidence" contrary to water law, the lawsuit said.

"Rather than analyzing or addressing the potential for injury, the Final Order blatantly ignored it, deferring it for possible future assessment but without providing affected water rights holders like petitioners any legal recourse," the petitioners claim.