

**Minutes of the 2019 Cereals Advisory Committee  
(CAC)**

to the Certification, Foundation Seed and Plant Materials Board  
Tuesday, December 3, 2019

Hermiston Agricultural Research and Extension Center  
Hermiston, OR

(with participants at remote locations via teleconferencing:  
Madras)

**Present:** Michael Rascon, Chair, Corvallis Feed and Seed; Mindy Duerst, Ioka Farms; Brian Haverkamp, Pioneer; Matt Insko, M&M Farms; Lee von Borstel, Sherman County wheat grower; Kurt Farris, Helena Chemical Company, via telephone; Bob Zielinski, Scenic Valley Farms; Larry Lutcher, OSU Extension Morrow County; Bob Zemetra, OSU Wheat Breeder; Ryan Graebner, OSU Extension Cereal Specialist; Andy Altishin, John Zielinski, Rachel Hankins, Dale Brown, Alex Albion, Tami Brown, OSU Oregon Seed Certification Service.

**Call to order and introductions.**

Meeting was called to Order at 1:16 pm. Those in attendance introduced themselves and gave their respective affiliations. There was a distant meeting location joining via telephone conferencing; from Madras due to weather conditions.

**Item 1. Changes/additions to the agenda.**

An addition was made to the agenda to discuss the fee increase, and notification possibilities in the future.

**Item 2. Minutes of the 2018 CAC Meeting.**

Minutes from the 2018 meeting, as posted on the OSCS website, were approved.

**Item 3. Certification Board actions regarding CAC 2018 recommendations.**

The Certification, Foundation Seed and Plant Materials Board met on February 12, 2019 to review and take action on recommendations received from each of the Advisory Committees: Seed Conditioners, Grass and Legume, Cereals, Mint, Potato and Tree Seed. Two recommendations from the CAC were presented to the Board and both were accepted. The first action was to adjust the field corn land history standard from, Fields signed up for certification must not have been planted to corn of another color or endosperm type during the previous season to Land must not have been seeded to or grown any type of corn in the previous year to produce Foundation or Certified corn. Modifications to this requirement may be made with prior approval from OSCS. The second item was to Change the requirements for seeds per pound testing in the OSCS Handbook. As written now this test is required for wheat, barley, and triticale; proposed and passed is to only require the seeds per pound test on wheat.

#### **Item 4. Cereal Variety Advisory Committee (CVAC) Update.**

A representative to the Cereals Variety Advisory Committee (CVAC) updated the group that the CVAC had not met this year prior to the CAC meeting. An update was provided on two variety proposals. The first was on a two row malting barley (10.0777 suggested name Thunder) developed by Patrick Hayes has been voted on to be released. Data is still pending for the second variety, OR12161250 CI+, but it is on the fast track for release. CVAC voted on this variety and has sent it on to variety release committee.

#### **Appendix A1**

#### **Item 5. Report from the Corn Sub-Committee.**

A representative from this meeting presented a report from the topics discussed in the corn sub-committee. One action item was produced from the corn sub-committee to be voted on at the CAC. This item was to change the isolation requirements in the OSCS Handbook. Proposed change: *A specific Foundation seed field shall be located so that the seed parent is not less than 1,320\* feet from corn of other color or type, and 660 feet from other corn of the same type, excepting pollen parent rows and other seed parents in the same isolated field.*

*\*This distance may be reduced to 660 feet when the area of contaminant is 1/10<sup>th</sup> of one acre or less.*

This was voted on and passed. **Appendix A2**

#### **Item 6. Field History-Regarding Feeding Livestock Cereal Hay**

In discussion it was proposed to remove the following standard from the field history requirements: **All Seed Classes** - Land must not have been used for livestock feeding of cereal hay for the previous two years.

Members decided that this standard did not need to be included in the OSCS Handbook and voted and approved for the removal of this standard.

#### **Item 7. Field history for Foundation fields; seedlings on varieties with variances.**

The group discussed if seedling requirements needed to be adjusted for Foundation classes of small grain production. The following addition was proposed to be added to the requirements,

*A seedling inspection is required for Foundation fields. Exception: the previous crop was of the same variety and passed certification field standards for varietal purity at the Foundation class.*

The new standard will read,

**Field History:** *To produce **Foundation** seed – Land must not have been seeded to, grown and/or harvested for a small grain variety of the same kind (for example, Wheat to Wheat) for two years; land must be 3 years out of Triticale prior to producing a Foundation class of Wheat. A seedling inspection is required for Foundation fields. Exception: the previous crop was of the same variety and passed certification field standards for varietal purity at the Foundation class.*

#### **Item 8. Update on Axigen™ Seed Assay ACR requirement**

Andrew Altishin gave an update that Oregon Seed Certification Services will need to update its Additional Certification Requirements (ACR) in order to meet the minimum requirements set up by AOSCA. The proposed update will be to change item L. under Special Requirements in the OSCS Handbook (page, 39) to read *L. Additional Certification Requirements (ACR) – The developer/owner/maintainer of a variety may request a requirement (e.g., a herbicide resistance trait test) additional to certification standards for purity and viability. A proposed ACR shall be submitted to the Association of Official Seed Certifying Agencies for review and approval; individual seed certifying agencies may accept or decline to administer an ACR. Contact the OSCS office for specifics regarding ACR's currently being administered. An ACR shall be completed prior to issuance of a certificate (tag) of final certification.*

#### **Item 9. Update report On Online Sign-Ups and Online Training Options.**

The group wanted to know if any OSCS outreach programs that have been created. Andrew Altishin explained that this is in the process of happening and that in some situations outreach has been provided to clients who required it. OSCS is hiring an individual who will spearhead the project of outreach and that OSCS will be training new growers with the Hemp program.

#### **Item 10. Small Grain Certification Year In Review.**

John Zielinski gave a brief update on the 2019 small grain inspection season. Acres signed up this year were 24,829 with 122 seedling inspections. There was a slight decrease of 914 acres signed up for crop inspection from 2018. The number of seedlings held steady to last year's record high. John provided a final determination for cereal fields in Certification for 2019, providing the number that passed, withdrawn, rejected, and the reasons why. **Appendix A3**

#### **Item 10.5 Fee Increase**

Members made the point that if fees were going to be increased OSCS needs to do a better job of letting people know. Andrew Altishin explained that information on the fee increase was out there, but agreed that in the future OSCS could do a better job of letting clients know.

## **Item 11. Elections**

A Dealer nominee is needed. A motion was made to nominate Kurt Farris as Vice- Chair for the 2020 CAC. The motion passed unanimously.

Renewing memberships for expiring terms. Mindy Duerst (Dealer/Producer, OWC). Lee Von Borstel (Grower, OWGL). Michael Rascon (Dealer, OFGA). Kurt Farris (Dealer, OFGA) all agreed to continue serving on the committee and were approved by their affiliations.

## **Item 12. Reports**

Andrew Altishin gave the OSU update for Thomas Chastain. This was an update on new hires and the current open positions they are looking to fill in the OSU Crop and Soil Science department. **Appendix A4**

OSU Seed Services report was given by Andrew Altishin for Dan Curry. The update was on stored K31 seed at Hyslop Farms, along with the development of some Gulf annual ryegrass breeder seed. BDI research is continuing and that OSU Seed Services is working with OSU Computer and Engineering students to develop a classification machine for seed analysis. **Appendix A5**

Oregon Seed Certification Services report was given by Andrew Altishin. This report gave a review of the total acres of different certified crops for 2019. A breakdown of staffing and new hires was provided. **Appendix A6**

The group looked over material provided by Lauren Port from Washington State Crop Improvement Association as she was unable to attend. The report was on the acres that were inspected for certification in Washington as well as some information on the Foundation Seed Production Program. **Appendix A7**

The Group looked over a handout provided by Elizabeth Savory of ODA who was unable to attend. **Appendix A8**

## **Item 13. Date and Location for 2020 Meeting**

Bob Zielinski (Chair for 2020) expressed interest in holding the meeting at his farm in the Saint Paul area. The date has not been set at this time.

## **Adjourn.**

The meeting was adjourned at 3:20 pm.

Cc:

Cereals Advisory Committee  
Corn seed producers subcommittee  
Certification and Foundation Seed and Plant Materials Board  
Russ Karow, Executive Director, OSU Agricultural Research Foundation  
Scott Reed, Vice Provost for University Outreach and Engagement  
Alan Sams, Dean, OSU College of Agricultural Sciences (CAS)  
Dan Edge, Associate Dean, OSU College of Agricultural Sciences, CAS  
Sam Angima, CAS Assistant Dean for Outreach and Engagement  
Robert Zemetra, Leader, Wheat Breeding Project,  
CSS Pat Hayes, Leader, Barley Breeding Project,  
CSS Marvin Kropf, Oregon Feed and Grain Association  
Blake Rowe, CEO, Oregon Wheat  
Sally Christensen, Oregon Wheat Growers League  
Tana Simpson, Associate Administrator, Oregon Wheat  
U.S. Wheat Associates West Coast Office  
Elizabeth Savory, Oregon Department of Agriculture  
Victor Shaul, Manager, Seed Inspection Program, Washington Department of Agriculture  
Doug Boze, Idaho Crop Improvement Association (ICIA)  
Scott Blake, North Area Manager, ICIA  
Mick Goff, Southwest Area Manager, ICIA  
Kathy-Stewart Williams, Southcentral Area Manager, ICIA  
Alan Westra, Southeastern Area Manager, ICIA  
David A. Hoadly, University of Idaho Foundation Seed Program  
Lauren Port, Manager, Washington State Crop Improvement Association and Foundation Seed Services (WSCIA) Karen  
Olstad, Program Manager, Certification Services, WSCIA  
John Palmer, Executive Director, California Crop Improvement Association (CCIA)  
Mike Moore, Manager, Wyoming Seed Certification Service

# Appendix A1

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Oregon Agricultural Experiment Station  
Oregon State University  
Corvallis, OR 97331

Proposal for release of 10.0777  
Two-row Winter Malting Barley

10.0777 is a two-row winter malting barley (*Hordeum vulgare* subsp. *vulgare*) developed by Oregon State University (OSU). The variety is proposed for release based on its malting quality profile and agronomic performance, primarily under irrigated conditions in Idaho. These results warrant commercial assessment of 10.0777 under irrigated conditions in the Columbia Basin (Oregon and Washington). The selection has potential under dryland conditions in Oregon and Washington. In high rainfall environments, west of the Cascades, a comprehensive program of fungicide protection is required for optimum performance. 10.0777 has passed the American Malting Barley Association (AMBA) pilot and plant scale programs and will be on the AMBA recommended list for 2019. The proposed name for 10.0777 is "Thunder", based on the enthusiastic response it has elicited from growers and Great Western Malting. This name is approved by the USDA.

10.0777 is a rough-awned, two-row winter barley with short rachilla hairs. It is a doubled haploid derived from the F1 of the cross "Wintmalt" x "Charles". Wintmalt is a two-row winter barley developed by KWS (Germany). It is the most widely-grown winter two-row malting barley in the Pacific Northwest. Charles, developed by the USDA-ARS program (Aberdeen, ID), was the first winter two-row malting barley variety approved by AMBA. The cross between Wintmalt and Charles was made in 2009 at Oregon State University. 10.0777 was tested in Preliminary, Advanced, and Elite yield trials by the OSU Barley Program prior to submission to regional trials and the AMBA qualifying program. It passed the AMBA Pilot and Plant Scale Programs and is now on the AMBA Recommended Variety List.

### **Malting quality**

Malting barley varieties must meet stringent requirements for AMBA approval. The two AMBA checks are currently Wintmalt and Endeavor. Endeavor is a successor to Charles, and was also developed by the USDA-ARS program (Aberdeen, Idaho). 10.0777 meets or exceeds the performance of both checks for adjunct malt specifications. Meeting adjunct malt specifications is the goal of 61% of AMBA members. In malting quality specifications for adjunct malts, higher values are better for plump seed, malt extract, diastatic power, alpha amylase, and free amino nitrogen (FAN). There are no upper limits. There are upper and lower boundaries for grain protein, wort protein, and the soluble/total protein ratio (S/T). Lower values are better for wort beta-glucan. For all characters except S/T, 10.0777 is better than the checks, or equivalent, in thirteen micro-malting tests (Table 1). It has a noticeable improvement for malt extract (1% higher than the high check) and wort beta-glucan (126 ppm lower than the high check). The S/T value is just over the AMBA thresholds, as is that of Endeavor. The S/T can be adjusted by minor modifications to the malting protocol. For purposes of perspective, micro-malting quality is summarized for 10.0777 and the checks from four locations in the national Winter Malting Barley Trial (WMBT) (Table 2). In these data, 10.0777 comes closest to meeting AMBA specifications. Commercial malting generates the best possible malting quality data, but is only

available at large scales. 10.0777 meets commercial expectations in commercial assessment by Great Western Malting (Table 3).

#### **Agronomic performance**

In the overall agronomic summary (Table 4), there are more station years of data for agronomic traits than for malting quality traits. This is due to the limited availability of no-cost malt analyses and the high cost of for-fee analyses. Overall, 10.0777 is higher yielding than Endeavor and equivalent to Wintmalt. 10.0777 and Endeavor are both seven days earlier to head than Wintmalt, an advantage for reducing the number of irrigations required and avoiding summer heat stress, which can reduce malting quality. 10.0777 has the shortest height of the three varieties, usually an advantage for avoiding lodging. In these data, however, Wintmalt had the lowest percentage of lodging. Brackling (a measure of straw breakage at harvest) is highest for Thunder and Endeavor. Brackling can result from uncontrolled fungal diseases and by harvest beyond the optimum date. Brackling is measured only by programs west of the Cascades, a region where - as is noted in the section on abiotic and biotic stress resistance - a comprehensive program of fungicide protection is recommended. Furthermore, in small plot trials, harvest must be delayed until the latest maturing entry is ready. This can penalize early-maturing types, such as 10.0777 and Endeavor, in terms of brackling scores.

The South Central Idaho Extension data from irrigated trials (Table 5) show the potential of 10.0777 where available data indicate that it is most adapted. 10.0777 has a ~ 900+ lb/acre yield advantage over the checks, together with excellent test weight, earliness, short plant height, lodging resistance, good grain protein, and a high percentage of plump kernels. The area represented by these trials is where 10.0777 has been tested by Great Western Malting for commercial potential. In a broader sample of irrigated environments (Table 6), 10.0777 maintains an edge over the checks for all agronomic traits.

Under higher rainfall dryland conditions (Table 7), the limited data available indicate that 10.0777 is higher yielding than the checks and has excellent test weight, kernel plumpness, and short plant height. Lodging was not observed. The potential of 10.0777 in the region represented by these trials (e.g. Pendleton and into the Palouse) merits assessment. Under even drier conditions (Gilliam County, OR) in 2018, 10.0777 had a 240 lb/acre yield advantage over Wintmalt and met all other agronomic criteria for malting barley (Table 8). Endeavor was not included in this trial. Malting and malt analyses of this grain are in progress.

10.0777, and the checks, can potentially produce high quality malting barley west of the Cascades and in regions beyond the intended area of adaptation. In 13 station years of testing in western Oregon (Table 9), Wintmalt maintained a slight edge over 10.0777 for all traits. 10.0777, in turn was generally superior to Endeavor. At 18 sites across the US in the WMBT (Table 10) Endeavor has a slight advantage over 10.0777 and Wintmalt for most traits. At Bonner's Ferry, ID, 10.0777 was higher yielding than Endeavor and slightly higher yielding than Wintmalt. Other attributes were similar, except for lodging, where 10.0777 had the highest value. A lodging percentage of 21%, while not ideal, is acceptable.

In summary, 10.0777 is agronomically competitive with the checks under all production systems. It is superior to the checks under irrigated conditions in South Central Idaho, warranting

commercial assessment with irrigation elsewhere in the Pacific Northwest (e.g. the Columbia Basin, Central Oregon, and the Klamath Basin of Oregon and California). The limited data available indicate that 10.0777 merits commercial assessment under dryland conditions. West of the Cascades, the agronomic data indicate that a comprehensive program of fungicide protection is recommended for maximum yield and quality.

#### **Resistance to abiotic and biotic stresses**

Winter injury is the principal threat to fall-planted malting barley. In most trials, 10.0777 and the checks had no issues with winter survival. Results from trials where differential injury was observed are shown in Table 12. In the South Central Idaho Extension trials, 10.0777 had the highest average survival, followed by Endeavor and then Wintmalt. The reverse was true across other irrigated breeding trials. In this data set, the advantage of Wintmalt over Endeavor and 10.0777 was due to two environments: Oakley, ID and Hermiston, OR. At these locations and years, the lowest temperatures were -12°F and -9°F, respectively. In the dryland data set, Wintmalt had the higher survival, followed by 10.0777 and Endeavor. At Mt. Vernon, WA, Wintmalt had the highest winter survival. However, survival issues were likely due to factors other than temperature. The lowest temperature at this location was 20°F. At Ithaca, New York, 10.0777, Endeavor, and Wintmalt had comparable survival values. In the TCAP LTT trial, a set of 882 winter and facultative barley accessions were evaluated at 23 locations around the world. Averaged across the 8 environments where there was differential winter survival, 10.0777 was superior to Wintmalt and Endeavor. Across all environments, Wintmalt had the highest average survival: a 1% advantage over 10.0777 and a 9% advantage over Endeavor. Winter survival was 100% in all the western Oregon trials.

In summary, the causes of winter injury will likely vary with environment and can include absolute low temperature, frost heaving, and/or snow mold. Therefore, it is reasonable to focus on winter survival data from target areas of adaptation. It is also important to establish an acceptable threshold for winter injury: 50% damage may be acceptable in many circumstances, due to the ability of barley to tiller profusely in response to reduced inter-plant competition. 10.0777 is not a breakthrough in winter survival, but it is competitive with current varieties. Growers are encouraged to use agronomic practices that enhance the likelihood of survival, such as maximizing surface residue and planting into deep furrows.

The principal fungal disease threats to fall-planted barley in the Pacific Northwest are scald (incited by *Rhynchosporium commune*), stripe rust (incited by *Puccinia striiformis* fsp. *hordei*) and leaf rust (incited by *Puccinia hordei*). These diseases are generally most prevalent west of the Cascades. Severe epidemics of leaf rust in the region are a new, if occasional, phenomenon. No disease was reported from the Southern Idaho Extension trials. Considering all the environments where disease was reported (Table 13), 10.0777, Endeavor, and Wintmalt are susceptible to scald and leaf rust. 10.0777, Endeavor, and Wintmalt would be considered resistant/moderately resistant to stripe rust. Data from the Regional Barley Stripe Rust trial (Table 14), however, indicate that 10.0777 can develop higher stripe rust disease severities (similar to those of the Baronesse, the moderately susceptible check). Wintmalt and Endeavor were not included in these trials.

Barley Yellow Dwarf Virus (BYDV) can be a serious disease of fall-planted barley. Determining levels of resistance to this disease can be challenging when relying on natural and even infestations of the aphid vector. One approach is to assess germplasm planted very early in the fall, when aphid flights are most likely to occur. Under these conditions, 10.0777 - when compared with other the recently released variety “Buk” and the average of advanced breeding lines - displayed the lowest level of symptoms in 2017 and was slightly above average in 2018 (Table 15). Endeavor and Wintmalt were not included in these trials.

Preliminary data are available on diseases not yet endemic (*Fusarium* Head Blight (FHB)) or reported (race TTKSK (aka UG99) of stem rust) in the Pacific Northwest. With only one environment of data available, 10.0777 was more resistant to FHB than Endeavor and Wintmalt (Table 16). At the seedling stage, 10.0777 is resistant to stem rust race TTKSK with an infection type of 0;1- (under controlled conditions). At the adult plant stage the disease severity was 25% compared to the wheat check (Jagger) at 100% under field conditions in Kenya.

In summary, 10.0777 is comparable to the checks in terms of resistance to pathogens most prevalent west of the Cascades. Growers of fall-planted malting barley in this region are encouraged to use insecticide seed treatments for control of BYDV and foliar fungicides for control of scald, stripe rust, and leaf rust. Organic growers need to consider the risks of producing 10.0777, and the commercially available checks, west of the Cascades. In all environments, disease resistance is an excellent insurance policy and future variety releases will have higher levels of resistance to the endemic diseases.

#### **Seed production of 10.0777**

Breeder’s seed was produced from head row purification blocks at Hyslop Farm in 2017 and 2018. The 2017 seed was used for Research Foundation seed production at Burley, ID. The block was inspected and certified by the Idaho Crop Improvement Association and used to plant Registered seed at Burley in the fall of 2018. The 2018 Breeder’s seed was sent to Washington Crop Improvement for Foundation seed production and was planted at Othello, WA in the fall of 2018.

#### **Licensing and royalties**

10.0777 is recommended for release with non-exclusive licenses. Release with non-exclusive licenses is a condition for receipt of research funding from the American Malting Barley Association. There will be a one-time application fee of \$250 for each non-exclusive license. Those interested in a license should contact Denis Sather at the OSU Office of Commercialization and Corporate Development ([denis.sather@oregonstate.edu](mailto:denis.sather@oregonstate.edu)). 10.0777 can only be sold as a class of certified seed with a royalty of \$0.03/lb, except for the fall of 2019. In the fall of 2019, the sale of common seed will be allowed by Golden Valley Warehouses, Inc (Burley, Idaho) in order to meet production needs of Great Western Malting for the 2020 harvest. The reason for this exemption is that there will not be sufficient volume of certified classes of seed to meet the projected demand of Great Western Malting. The amount of common seed sold in 2019 by Golden Valley Warehouses, Inc. will not exceed 450 tons. All grain harvested in 2020 must be disposed of by malting or feeding, unless permission is obtained - in writing – from OSU to use the seed for other purposes, including re-planting.

**Variety protection**

Plant Variety Protection will not be sought for 10.0777 because the malting barley supply chain is based on sale of certified seed. By specifying that all seed sales must be a class of certified seed (except for fall, 2019) we will ensure that growers will be purchasing seed from the seed dealers with non-exclusive licenses. It is possible that some growers would elect to purchase certified seed, grow out the seed, and retain seed for future feed production. Given the availability of other feed varieties and the generally low price of feed barley – as compared to malting barley – the potential loss of revenue is not significant. The variety will be protected by Federal Seed Law and OSU recognized as the owner of the variety. Furthermore, Oregon, Idaho and Washington state trademarks will be applied for that specify the variety and only be sold under the name of “Thunder”.

**Notice of the release and deposition in seed repositories**

A variety release for 10.0777 will be submitted to the Journal of Plant Registrations and seed will be deposited with USDA collections, as required for such releases.

**Acknowledgements**

The development of 10.0777 was supported by the American Malting Barley Association, Great Western Malting, the Oregon Agricultural Experiment Station, and the Oregon Wheat Commission.

**Authors**

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**Oregon Agricultural Experiment Station  
Oregon State University  
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**Proposal for release of ORI2161250 Cl+  
Two-Gene Clearfield Resistant Soft White Winter Wheat**

ORI2161250 Cl+ is a common soft white winter wheat (*Triticum aestivum* L.) developed by Oregon State University (OSU) that is being proposed for release based on its yield potential, disease resistance and adaptation to growing conditions in the low to intermediate rainfall production areas of Oregon. ORI2161250 Cl+ carries two genes conferring resistance to Beyond herbicide and is intended for use in wheat producing areas that have issues with jointed goatgrass (*Aegilops cylindrica*) and downy brome (*Bromus tectorum*). ORI2161250 Cl+ has an earlier heading date than currently available CL+ varieties and has moderate resistance to stripe rust (*Puccinia striiformis* Westend). End-use quality is acceptable to good. The proposed name for ORI2161250 Cl+ is Appleby CL+ in honor of Dr. Arnold Appleby who was an internationally known professor of weed science at Oregon State University. This name has been cleared through the USDA.

ORI2161250 Cl+ is an awned semi-dwarf soft white winter wheat from the cross ORCF-101//AP100CL/Skiles. ORCF-101 is a soft white winter wheat released by the OSU breeding program that carries *Imi1* for herbicide resistance and moderate stripe rust resistance. AP100CL was used as the source of the BASF approved *Imi2* gene for herbicide resistance. Skiles is a soft white winter wheat released by the OSU breeding program that has excellent stripe rust resistance and good to excellent end-use quality.

The initial cross was made in the greenhouse on the OSU campus in Corvallis, OR in 2009 between AP100CL and Skiles. A top cross was made between a F<sub>2</sub> selection of AP100CL/Skiles to ORCF-101 in the greenhouse in 2011. The F<sub>1</sub> generation was grown in the field at the Hyslop field laboratory in 2012 and bulked. The F<sub>2</sub> was planted in the field in 2013, sprayed with a 2X rate of Beyond herbicide, and then bulked. The F<sub>3</sub> bulks were planted in the field in 2014, sprayed with a 2X rate of Beyond herbicide and then heads were collected from selected bulk populations. F<sub>4</sub> head rows were planted at the Hyslop field laboratory in 2015, screened with a Beyond herbicide application, and head rows that showed herbicide resistance, stripe rust resistance and agronomic uniformity were advanced to preliminary F<sub>5</sub> yield trials in 2016. ORI2161250 CL+ was initially selected from the F<sub>5</sub> preliminary yield trials based on its herbicide resistance, stripe rust resistance, heading date, yield, test weight and end-use quality. It was advanced to Clearfield efficacy testing in three locations (Corvallis, Pendleton and Moro) in 2017. Based on its performance ORI2161250 CL+ was advanced to statewide testing in 2018 and 2019. Molecular marker screening for *Imi1* and *Imi2* was done starting in the F<sub>4</sub> generation to confirm the presence of both herbicide resistance genes in ORI2161250 CL+. End-use quality

evaluation in intermediate and advanced generations was done both at OSU and at the USDA-ARS Western Wheat Quality Laboratory in Pullman, WA.

#### **Agronomics of ORI2161250 Cl+**

ORI2161250 Cl+ is a soft white winter wheat with two genes for resistance to the herbicide Beyond that is targeted at the intermediate to high rainfall / irrigated production areas in the Pacific Northwest. ORI2161250 CL+ is a winter wheat that requires vernalization and, based on field response and genotypic screening using molecular markers, is photoperiod sensitive. Agronomically ORI2161250 Cl+ is taller than both ORCF 101 and UI-Magic (Tables 1-6). The heading date for ORI2161250 Cl+ is on average earlier than both ORCF 101 and UI-Magic (Tables 1-4). In terms of response to herbicide application, ORI2161250 Cl+ showed less injury than the one-gene Clearfield cultivars ORCF 101 and ORCF 102 and a similar level of injury as the two-gene Clearfield varieties UI-Magic and OR2X2 CL+ in Clearfield Efficacy trials in 2017 and 2018 where a 2x rate of the herbicide Beyond was applied and injury was rated fourteen and twenty-eight days after application (Table 1 and 2). Results of the Clearfield Efficacy trials grown in 2017 and 2018 in Moro and Pendleton, Oregon have been submitted to BASF for approval to release ORI2161250 Cl+ as a Clearfield soft white winter wheat.

ORI2161250 Cl+ has performed well in research trials in Oregon and extension trials in Oregon and Washington. In Oregon research trials in 2018 and 2019, ORI2161250 Cl+ was equivalent in yield to UI-Magic averaging 1.3 bushels/acre higher than UI-Magic in 2018 and 2.6 bushels/acre lower than UI-Magic in 2019 (Tables 3 and 4). In terms of test weight in the Oregon research trials, ORI2161250 Cl+ averaged over 60 lbs/bu in both 2018 and 2019, 0.2 lbs/bu higher than UI-Magic in 2018 and 0.4 lbs/bu lower than UI-Magic in 2019 (Tables 3 and 4). In the Oregon statewide extension trials grown at locations in Oregon and eastern Washington, sites were separated in to Low / Intermediate Rainfall sites and High Rainfall / Irrigated sites with results presented for the low rainfall sites from 2018 and 2019 and for the high rainfall sites from 2018 (high rainfall results for 2019 were not available before submission of the release). Under Low / Intermediate Rainfall growing conditions ORI2161250 Cl+ performed well in both years, yielding the same as the check cultivars in both 2018 and 2019 (Tables 5 and 6). For test weight under low rainfall conditions, ORI2161250 Cl+ averaged over 60 lbs/bu both years and was equivalent to the check cultivars for average test weight (Tables 5 and 6). Under High Rainfall / Irrigated growing conditions in 2018, ORI2161250 Cl+ had a similar yield and test weight as the three check cultivars in 2018 (Table 7).

#### **Milling and Baking Quality of ORI2161250 Cl+**

End-use quality of ORI2161250 Cl+ was tested by the USDA-ARS Western Wheat Quality Laboratory, Pullman, WA in 2017 and 2018 using samples from the Clearfield Efficacy trials grown in 2017 and 2018, and the OSU soft white elite yield trials grown in Oregon in 2018. Comparing ORI2161250 Cl+ to the one gene Clearfield cultivars ORCF-101 and ORCF-102 and the two-gene Clearfield cultivars UI-Magic Cl+ and OR2X2 CL+ for grain characteristics

(Tables 8 and 9), ORI2161250 Cl+ was equal to or lower than the check cultivars for kernel hardness except for OR2X2 CL+ over the two years of testing. Kernel hardness for ORI2161250 CL+ was within the acceptable parameters for a soft wheat (less than a score of 40) for all trials over the two years. In terms of milling characteristics (Tables 10 and 11), ORI2161250 Cl+ had a percent break flour yield similar to the three check varieties but less than OR2X2 CL+ in both the Clearfield Efficacy Nurseries and the Soft White Elite Yield Nurseries. ORI2161250 Cl+ had the best sugar snap cookie diameter scores in all the nurseries (Tables 10 and 11) but had the lowest sponge cake volume score among the lines tested in the Soft White Elite Yield nurseries in 2018 (Table 11). In terms of solvent retention profiles, ORI2161250 Cl+ had a similar profile to all the check cultivars except for lactic acid solvent retention where UI-Magic CL+ was higher than ORI2161250 CL+ and all the other check cultivars in both years (Tables 12 and 13). ORI2161250 Cl+ was evaluated by the Pacific Northwest Wheat Quality Council in 2018 and was found to have acceptable end-use quality for a soft white winter wheat.

#### **Disease Response of ORI2161250 Cl+**

ORI2161250 CL+ has moderate resistance to stripe rust (*Puccinia striiformis* Westend) based on two years of testing by X. Chen USDA-ARS, Pullman, WA (Tables 14 and 15). Based on greenhouse testing for seedling resistance, X. Chen determined that ORI2161250 CL+ has a moderate level of high temperature adult plant resistance (HTAP) to stripe rust. ORI2161250 Cl+ is susceptible to Fusarium crown rot (*Fusarium pseudograminearum*) and Septoria leaf blotch (*Zymoseptoria tritici*), and strawbreaker foot rot (*Oculimacula acuformis* and *O. yallundae*). ORI2161250 Cl+ shows a low level of tolerance to Cephalosporium stripe (*Cephalosporium gramineum*) (Table 16).

#### **Seed Production of ORI2161250 CL+**

In summer, 2017 approximately four hundred spikes were snapped from herbicide treated plots of ORI2161250 CL+ grown at the Hyslop field laboratory. These were threshed and head rows were planted at the Hyslop field laboratory in fall, 2017. The head rows were treated with a 2X herbicide treatment in spring, 2018 and were evaluated for uniformity. Approximately one thousand spikes were collected from selected head rows. The spikes were individually threshed and screened for seed color. The seed was then planted as individual head rows in fall, 2018 by Washington State Crop Improvement at Othello, Washington to produce Breeder seed. A bulk of the selected head rows was also planted by Washington State Crop Improvement at Moses Lake, Washington to produce a small amount of Foundation seed. The head rows were evaluated in spring and summer of 2019 for uniformity and selected head rows were then bulked at harvest to produce additional Breeder seed of ORI2161250 CL+. A Plant Variety Protection (PVP) application will be submitted for ORI2161250 CL+ with the Title 5 option allowing the sale of Foundation, Registered, and Certified classes of seed. A royalty will be associated with the sale of ORI2161250 CL+ at \$0.037/lb with \$0.02/lb going to OSU and \$0.017/lb going to BASF. A maximum of 3 red seed / pound (approximately 3/10,000) in Foundation seed, 6 red

seed / pound (approximately 6/10,000) in Registered seed, and 9 red seed / pound (approximately 9/10,000) in Certified seed of ORI2161250 CL+ will be allowed. Seed of ORI2161250 CL+ will be deposited in the USDA National Small Grains Collection in Aberdeen, Idaho. It is requested that the source of this material be acknowledged in future use by wheat breeding and genetics programs.

Acknowledgements: Appreciation is extended to the Oregon Wheat Commission for financial support.

Authors: R.S. Zemetra, M. Larson, A. Heesacker, T. Harran, A. Ross, T. Kongraksawech and C. Mallory-Smith, Department of Crop and Soil Science, Oregon State University, Corvallis, OR 97331; C. Mundt, Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, 97331; X. Chen, USDA-ARS, Johnson Hall, Washington State University, Pullman, WA, 99164; C. Morris and D. Engle, USDA-ARS Western Wheat Quality Laboratory, Washington State University, Pullman, WA, 99164.

## Appendix A2



### Oregon Seed Certification Service

031 Crop Science Building,  
Oregon State University, Corvallis, OR 97331  
T 541-737-4513 | [seed-cert@oregonstate.edu](mailto:seed-cert@oregonstate.edu) | <http://seedcert.oregonstate.edu>

### OSCS Corn Subcommittee to the Cereals Advisory Committee November 5, 2019

#### Meeting Minutes

In attendance:

Brian Haverkamp (Chair), Corteva / Pioneer  
Paul Wilkerson, Corteva / Pioneer  
Trevor Patterson, Corteva / Pioneer  
Kyle Schmidt, Bayer / Monsanto  
Taylor Houghton, Bayer / Monsanto  
Andrew Altishin, OSCS  
Tami Brown, OSCS  
Mary Beuthin (Secretary), OSCS

The meeting was called to order at 10:15AM at the Hermiston Agricultural Research & Experiment Center conference room.

#### Tasks

- 1) Approve the 2019 meeting agenda

It was moved and seconded to accept the meeting agenda as prepared with no changes or additions. All in favor.

- 2) Approve the 2018 Corn Subcommittee minutes

Mary reviewed the committee minutes from the previous year. It was moved and seconded to accept the 2018 Minutes as written. All in favor.

- 3) Review of the 2018 Cereals Advisory Committee meeting and 2019 Certification Board meeting minutes

Mary briefly covered the minutes from the subsequent meetings that enacted the standards change from 2018 relating to the Land History requirement.

- 4) Certification news

Andy provided a brief overview of the OSCS committee process for members new to the group. He also provided a brief review of 2019 Certification activities, OSU Crop and Soil Science department and OSCS staffing/office updates.

- 5) Review of 2019 Corn Certification activities

Tami led the group through the Corn Program Overview handout (attachment 1). In general, acreage was down but the number of fields held steady compared to 2018.

- A shortage of temporary employees this year meant that full-time staff was taken from other programs, putting a strain on all Certification inspection activities across the state. OSCS continues to work to recruit local, long-term employees and hone processes to accommodate staffing shortages.

- She reiterated that OSCS is not a conduit for information between companies; any isolation or other issues related to adjacent fields must be resolved between companies and then provided to OSCS.
- OSCS will not cease inspections for fields pending any issue that follow-up documentation would fix.

6) Standards Change Proposal: Isolation from “other” corn

The Corteva /Pioneer representatives provided a standards change proposal that would allow the isolation requirement from smaller patches of “other” corn to be reduced from 1320ft to 660ft (attachment 2). This applies most frequently to small sweet corn patches in neighboring yards. Thoughts and discussion about the request centered around the low pollen load and decreased likelihood of contamination. The change applies to the Field Corn Standards, Foundation Field Standards item B1, Isolation from Contaminating Pollen (p 7) and would read:

*A specific Foundation seed field shall be located so that the seed parent is not less than 1,320\* feet from corn of other color or type, and 660 feet from other corn of the same type, excepting pollen parent rows and other seed parents in the same isolated field.*

*\*This distance may be reduced to 660 feet when the area of contaminant is 1/10<sup>th</sup> of one acre or less.*

It was moved and seconded to approve this change as worded by OSCS. All in favor.

In practice, the OSCS corn inspectors will notify a field representative when “other” corn is found within the 1,320 foot isolation distance; OSCS does not have permission to be on property outside of what’s signed up for certification. When a company has this isolation issue, they will need to provide documentation to prove that the contaminant acreage is less than 1/10<sup>th</sup> of one acre in order to reduce the requirement to 660 feet.

This action item will move forward to the CAC and on to the Board for review and approval.

7) Call for other business

Brian asked to revisit the Land History change that was proposed at the 2018 meeting and approved in 2019.

The update changed the verbiage from

*Fields signed up for certification must not have been planted to corn of another color or endosperm type during the previous season. Modifications to this requirement may be made with prior approval from OSCS.*

to

*Land must not have been seeded to or grown any type of corn in the previous year to produce Certified corn.*

*Modifications to this requirement may be made with prior approval from OSCS.*

Effectively this is a one year out history requirement for any type of corn, with the option for a special circumstance request to OSCS in the event of a need to use a field two successive years. Brian’s concern was that given the hardship of finding new acres, land is at a premium and particularly when a previous crop failed it seems an unnecessary extra step.

Tami explained that the history requirement is not intended to be a hardship and that inspectors check fields and would be aware of failed fields during the course of the season. The former field history wording allowed the most similar types (yellow dent) to be planted immediately instead of corn that would be more a more obvious volunteer problem.

It was recommended to table the topic until next year’s meeting when all parties had more time to prepare for the discussion, given that there has not been an issue. The current wording allows for exceptions to be made with advanced notice to OSCS.

8) Nominate a committee member to attend the 2019 CAC meeting

A motion was made and seconded that Corteva represent the group at the meeting given they proposed the action item moving forward. All in favor. Brian agreed that one of their group will attend the December 3<sup>rd</sup> meeting to represent this subcommittee.

The meeting adjourned at 11:00 AM.



**Oregon Seed Certification Service**  
31 Crop Science Bldg  
Corvallis, OR 97331  
541-737-4513, fax: 541-737-2624  
website: [seedcert.oregonstate.edu](http://seedcert.oregonstate.edu)  
email: [corn-info@oregonstate.edu](mailto:corn-info@oregonstate.edu)

## Corn Program Overview

### Program: 2019

- 1,921 Acres (35% decrease from 2018)
- 3 Growers
- 218 Oregon fields (4% decrease from 2018)
- 192 Foundation class
- 26 Certified class

### Hiring/Training of staff

- Average field assignments are 50-60 fields/inspector for the season
- 5 inspectors—3 in Milton-Freewater, 2 in Hermiston/Boardman/Pendleton
- Hire local employees—knowledge of area (mostly not possible this year)
- Must use own vehicles
- Training workshop/meeting mid-June;
  - in-field training continues when season begins around July 1
  - training continues as needed through the summer

### Field Inspections

- Each field is inspected at least 4 times
- One isolation inspection prior to pollination (locate field, purity of plant type, contamination checks), and a minimum of 3 inspections during pollination
- Acreage determines number of counts (1 count = 50 plants; 50 m/f if hybrid)
- Counts performed at three increments of silk presence during pollination (5-15%, 16-65%, over 66%)
- Intensive timing; time between inspections can vary highly due to variety, weather/field conditions, inputs but averages one inspection every 2 days
- Field information is available on-line to ensure all fields are signed up and confirm they have been inspected

### Seed Movement

- Ear inspections are required for Foundation corn single crosses and inbred lines (inspect corn ears for off-colored or different textured kernels)
- Begin end of August, run through end October - not all day, but every day
- Transfers Pending Final Certification are required to maintain certification; use the eCertification site to print transfers

11/5/19

**Standards Change Proposal to Corn Standards  
Foundation Field Standards Item B1 (p7)  
Isolation from Contaminating Pollen**

Wilkerson, Paul

Inbox - Oregonstate Yesterday at 10:40 AM

PW

Proposed Change to Parent Corn Seed Certification

Details

To: Mary Beuthin, Cc: Patterson, Trevor, Haverkamp, Brian

Current State: A specific Foundation seed field shall be located so that the seed parent is not less than 1,320 feet from corn of other color or type, and 660 feet from other corn of the same type, excepting pollen parent rows and other seed parents in the same isolated field.

Proposed Change: A specific Foundation seed field shall be located so that the seed parent is not less than 1,320 feet from corn of other color or type when the contaminant is greater than 1/10<sup>th</sup> of acre, and 660 feet from other corn of the same type or corn with a different color or type when contaminant is 1/10<sup>th</sup> of an acre or less, excepting pollen parent rows and other seed parents in the same isolated field.

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OSCS proposed change:

A specific Foundation seed field shall be located so that the seed parent is not less than 1,320\* feet from corn of other color or type, and 660 feet from other corn of the same type, excepting pollen parent rows and other seed parents in the same isolated field.

\*This distance may be reduced to 660 feet when the area of contaminant is 1/10<sup>th</sup> of one acre or less.

Attachment 2

## Appendix A3

### Small grains certification year in review 2019

Total Small Grain Acres Signed up for Crop Inspections in 2019 were 24,829 Acres

2019 Crop inspections started on 07/08/2019

122 Seedling Inspections and of those:

106 Passed

1 Passed on Condition

Reasons: Inadequate Seed Source Documentation, Variety unlisted

14 Withdrawn

1 Rejected

357 Crop Inspections and of those:

280 Passed

30 Fields Withdrawn or Removed as per grower request prior to crop inspection

34 Passed on Condition or To Be Verified

Reasons: Seed Source Documentation or Eligibility, also Variety and Contractor approval.

13 Fields were rejected

Reasons: Lack of sign-up for re-inspection, or by Growers Request  
Cereal rye, or Triticale  
Jointed goatgrass.  
Excessive other Small Grains  
Excessive Canada thistle, or Field bindweed  
Harvested before crop inspection or Reinspection  
Excessive other Varieties

Fields with specified contaminants:

\*Prohibited weeds

201	Prickly lettuce	24	Lambs-Quarter	16	Russian-thistle
103	Cheatgrass	24	Redroot pigweed	10	Sowthistle
50	Field Bindweed*	24	Sowthistle	9	Tarweed
41	Canada thistle*	24	Green Foxtail	6	Annual ryegrass
32	Kochia	18	Wild Carrot	5	Bedstraw
30	Mustard	18	Dog Fennel	4	Mallow
25	Wild Oat	17	Quachgrass*	1	Jointed goatgrass*

**Summary of Small Grain Inspections  
1995 - 2019**

<b>Year</b>	<b>Total Acres signed up for Crop Inspection</b>	<b>Total Number of Fields Signed up for Seedling Inspection</b>	<b>Total Number of Fields Signed up for Crop Inspection</b>
1995	11,814	*	*
1996	10,304	*	*
1997	10,159	*	*
1998	8,803	*	*
1999	9,138	*	*
2000	8,524	*	*
2001	8,165	12	158
2002	12,589	24	228
2003	14,209	45	268
2004	15,106	60	264
2005	14,705	62	237
2006	13,742	66	232
2007	14,521	43	226
2008	17,914	47	309
2009	21,341	61	317
2010	21,115	62	362
2011	23,690	76	358
2012	19,853	83	353
2013	25,639	85	405
2014	25,722	85	393
2015	28,215	71	411
2016	27,630	79	378
2017	23,890	134	371
2018	25,743	130	298
2019	24,829	122	357
2020			
2021			
2022			
2023			
2024			
2025			

\* Information not available

## **Appendix A4**

### **OSU Update 25 November 2019**

The following are highlights of activities over the past few months in Crop and Soil Science (CSS) and the College of Agricultural Sciences (CAS) as they affect clientele groups affiliated with CSS.

#### **Crop and Soil Science**

##### Personnel

Professor of Practice – Sherman/Wasco. Hired Jacob Powell as extension agent for Sherman and Wasco counties effective September 30, 2019. Jacob is from Wasco country and had most recently been serving as the Watershed Coordinator for the Sherman County Soil and Water Conservation District.

IPM Scientist - Madras (COAREC). Dr. John Spring started work on November 1, 2019.

Agronomist – Klamath Falls (KBREC). Dr. Biswanath Dari has been hired as the agronomist at KBREC. Dr. Dari was most recently a post-doctoral fellow at the University of Idaho. He earned his Ph.D. in Soil and Water Science from the University of Florida. He will start on January 6, 2020.

Administrative Assistant – Corvallis. The department has hired Jolene Bunce as Administrative Assistant. She will also serve as the department's office manager. Jolene comes to the department from the Dean's Office at OSU's College of Veterinary Medicine. She will start on December 9, 2019.

Department Head – Corvallis. Interviews of the finalists for the position have been completed.

South Willamette Valley Crops Extension Professor of Practice – Will Jessie has resigned his position effective December 20 and will relocate to Indiana where he will work for Corteva.

#### **College of Agricultural Sciences**

Dan Edge has retired as Associate Dean. Jack Breen has been hired as the Chief of Operations for the college. The search for a new Executive Associate Dean is underway.

#### **Oregon State University**

The search process for the next president of OSU is nearing completion.

## **Appendix A5**

### **OSU Seed Services Update December 3, 2019**

#### Seed Services

- Two years ago the Tall Fescue Commission had requested some breeder K31 seed from Kentucky Foundation Seed (KFS). KFS sent 2 lbs. of endophyte K31 and 14 lbs. of endophyte-free K31 seed and it is being stored at the Hyslop cold room. It is possible that Certified K31 will be produced using these seed lots.
- The Ryegrass Commission asked a group of local folks to see if they can develop a small amount of breeder Gulf seed. The first year of a two-year project has finished. We hope to have a small amount of Gulf breeder seed by the fall of 2020.
- BDI research is continuing. BDI is a PCR test that may determine annual contamination within perennial ryegrass. An ISTA sub-committee is working on this method, trying to see if it will work on a majority of perennial ryegrass varieties. It is hoped results of the research will be finished by May of 2020.
- We are working with OSU Computer Science and Engineering students to develop a classification machine that uses computer vision of seed to try to classify seed into two fractions. This system, if perfected, may be able to help seed analysts during the busy harvest season get through more samples/hour.

## Appendix A6



### Andrew Altishin

Oregon Seed Certification Service

Oregon State University, 31 Crop Science Bldg., Corvallis, Oregon 97331

T 541-737-4513 | F 541-737-2624 | andrew.altishin@oregonstate.edu

## 2019 Year in Review

### Total Acres Certified of all Crops – 229,626

Total Acres of Grass Crops Certified – 192,751

### Total Acres of Small Grains Certified – 24,130

Total Acres of Legumes Certified – 5,813

Total Acres of Misc. Other Crops Certified – 4,076

Total Acres of Potatoes Certified – 2,683

Total Acres of PVG Certified – 173

### New Hires

- Mason McKinney, Office Specialist
- Emily Guzman, Seed Certification Aide (Sampler, Linn Co.)
- Amanda Alps, Seed Certification Aide (Sampler, Jefferson Co.)
- Open position, Seed Certification Aide (Sampler, Union Co.)

### OSCS Staffing

- 3 Administrative staff
- 2 Information Technology Staff
- 7 Seed Certification Specialists
- 8 Part-time/seasonal Seed Certification Specialists
- 9 Seed Certification Samplers
- 1 Manager and Seed Certification Specialist

### Programs Administered

- Oregon Certified Seed
  - o Part of the Association of Official Seed Certifying Agencies (AOSCA)
- OECD Certified Seed
  - o Administered in Oregon for USDA - AMS

## Appendix A7



### WASHINGTON STATE CROP IMPROVEMENT ASSOCIATION

2575 NE Hopkins Court  
Pullman, WA 99163

Phone 509-334-0461  
[www.washingtoncrop.com](http://www.washingtoncrop.com)

**WSCIA Foundation Seed Production Report  
Oregon Cereal Advisory Committee Meeting  
December 3, 2019**

As a maintainer of Foundation Seed for wheat and barley varieties released by Oregon State University, WSCIA-FSS had the following production for the 2018-2019 crop year:

Foundation Seed Production of

- Appleby CL+ soft white winter wheat, 2.3 acres
- Millie hard white winter wheat, 2 acres
- OR2X2 CL+ soft white winter wheat, 1.6 acres
- Thunder winter barley, 0.75 acres

Breeder Seed Production of

- OR2130755 soft white winter wheat
- OR214041 soft white winter wheat
- ORCF-101 soft white winter wheat
- ORI2161244 CL+ soft white winter wheat

In October of 2019, WSCIA-FSS planted

- Bobtail soft white winter wheat, 1.8 acres
- Head rows of OR1250169 hard red winter wheat
- OR2130755 soft white winter wheat, 2 acres
- DH 130910 hulled winter barley, 1 acre
- Buck naked winter barley, 1 acre
- Thunder winter barley, 4.4 acres
- 10.1492 naked winter barley, 1 acre

WSCIA-FSS assigns each variety it is responsible for to a Maintenance Class. These maintenance classes are evaluated annually based on the sales of the variety. Bobtail and Rosalyn both have sporadic sales histories, and are being proposed for Class B Maintenance, meaning that WSCIA-FSS does not have to keep a large inventory on hand and a Year-in-Advance contract is the best way to guarantee that seed needs are met. This YIA program has served the Association well for inventory management, and anyone with questions is encouraged to contact Manager Lauren Port.

Anyone wishing to be included on the Association's email news list can contact [office@washingtoncrop.com](mailto:office@washingtoncrop.com) with a request to join. Association members receive the Seed Buzz newsletter, printed and mailed three times each year. Membership renewal forms will be mailed in December. More information is available by calling the office or emailing [office@washingtoncrop.com](mailto:office@washingtoncrop.com).

2019 ACRES INSPECTED FOR CERTIFICATION (TOTAL 58,300)

Barley	
Havener	95
Hoody	4
Lenetah	924
Survivor	169
Thunder	1
<b>Total Public</b>	<b>1192</b>
<b>Total Proprietary</b>	<b>2112</b>
<b>Grand Total</b>	<b>3304</b>
Chickpea	
CDC Frontier	487
Dylan	23
Myles	7
Nash	1705
Royal	662
Sawyer	12
Sierra	3489
UC Pegasus	40
UC Vega	80
<b>Total Public</b>	<b>6505</b>
<b>Total Proprietary</b>	<b>4</b>
<b>Grand Total</b>	<b>6509</b>
Oat	
Monida	100
<b>Total Public</b>	<b>100</b>
<b>Total Proprietary</b>	<b>83</b>
<b>Grand Total</b>	<b>183</b>
Pea	
Hampton	204
<b>Grand Total</b>	<b>204</b>
Rye	
<b>Total Proprietary</b>	<b>75</b>
Triticale	
<b>Total Proprietary</b>	<b>600</b>

Wheat	
Alum	1082
Appleby CL+	2
ARS Crescent	353
ARS Selbu	1
Bobtail	109
Bruehl	781
Bruneau	170
Cara	3
Castella	7
Chet	68
Curiosity CL+	3534
Earl	2
Jasper	278
Louise	2123
Madsen	90
Mela CL+	1969
Millie	2
Miwok	29
Net CL+	13
Norwest Duet	4646
Norwest Tandem	1124
OR2X2 CL+	2
ORCF-102	345
Otto	2268
Pritchett	897
Puma	872
Purl	15
Resilience CL+	1008
Rosalyn	270
Ryan	3712
Seahawk	1559
Stephens	4
Stingray CL+	9
Tekoa	788
UI Castle	386
UI Magic	5107
UICF-Brundage	20
<b>Total Public</b>	<b>33646</b>
<b>Total Proprietary</b>	<b>13780</b>
<b>Grand Total</b>	<b>47426</b>

Report includes only fields that met standards at field inspection for Foundation, Registered, or Certified Class.

## Appendix A8

### Cereals Advisory Committee Report December 3, 2019



#### Seed Regulatory Program

- A **Seed Civil Penalty Rules Advisory Committee (RAC)** has been established. The purpose of the RAC is to review and update Oregon Administrative Rules (OAR) 603-056-0460 through 603-056-0490 relating to civil penalties for seed law violations. Specifically, the objectives of this committee are to:
  - Review existing civil penalties to determine if they are effective at discouraging seed law violations and update or amend them as appropriate.
  - Develop a civil penalty matrix for seed law violations, incorporating violation class (ie., major or minor), frequency and magnitude of violations, and other relevant information to bring the seed civil penalty rule in line with other Oregon state agency civil penalties.
  - Determine how, when, or if license suspension or revocation should correspond to seed law violations or civil penalty issuance.

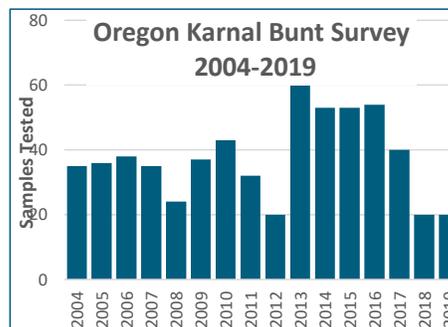
#### Plant Health Program

##### Corn Pest & Disease Survey

- Corn fields in Oregon were surveyed for 11 pests and diseases of regulatory concern. None were identified in Oregon in 2019.
  - **Pests:**
    - *Autographa gamma* (Silver Y), *Diabrotica speciosa* (Cucurbit Beetle), *Helicoverpa armigera* (Old World Bollworm), *Heteronychus arator* (African Black Beetle), *Spodoptera litura* (Tobacco Cutworm), *Thaumatotibia leucotreta* (False codling moth) and *Ostrinia nubilalis* (European corn borer)
    - 20 sites in Baker, Clackamas, Jackson, Klamath, Malheur, Marion, Polk, and Umatilla counties
  - **Diseases:**
    - *Harpophora maydis* (Late wilt of maize), *Peronosclerospora maydis* (Java downy mildew), *P. philippinensis* (Philippine stripe downy mildew), and *Sclerophthora rayssiae* var. *zear* (Brown stripe downy mildew)
    - 56 fields (814 acres) in Malheur and Umatilla counties

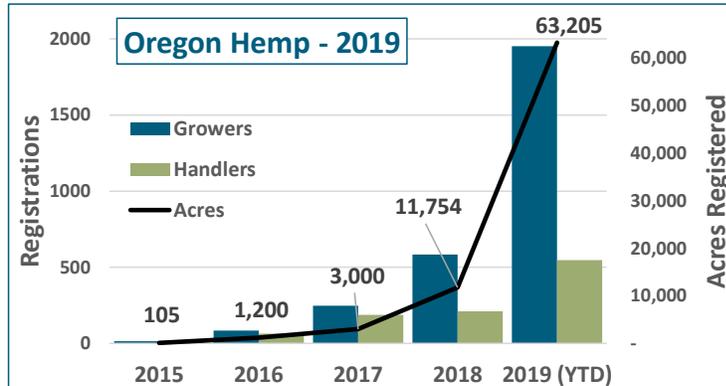
##### Karnal Bunt Survey

- Nineteen samples from nine wheat-producing counties in Oregon were tested for causal agent of karnal bunt, *Tilletia indica*. These counties were Baker, Gilliam, Klamath, Malheur, Marion, Hermiston, Sherman, Union, and Wasco. Samples were sent to the USDA APHIS PPQ lab in Arizona for testing. None of the samples collected in Oregon in 2019 tested positive for karnal bunt. Since 2004, over 600 samples have been collected and tested.



## Hemp Seed

- 849 registered hemp seed producers
- <https://oda.direct/HempSeed> - webpage with hemp seed-specific information
- ODA Agricultural Hemp Seed Requirements Handout – see attached



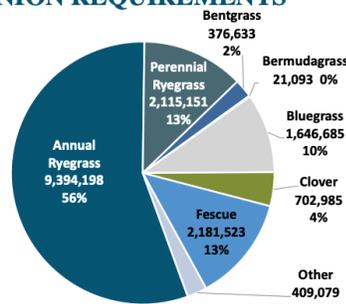
## EU Shipping Requirements

- Beginning December 14, 2019, every “plant” other than listed fruits (pineapple, coconut, durian, banana, and date) will require a Phytosanitary Certificate.
- Please see provided handout for more details or on our website at: <https://oda.direct/EURequirements>



### NEW EUROPEAN UNION REQUIREMENTS

- All plant material requires a phytosanitary certificate as of December 14, 2019
- Seed – most Oregon exporters already get phytosanitary certificates
- ~18.5 million lbs of seed exported\* to the EU in 2019 YTD → ~17% of all seed exports



<https://oda.direct/EURequirements>

Oregon Seed Exports\* to the EU 2019 YTD

\*ODA-issued phytosanitary certificates; does not represent all seed exported



# OREGON CANNABIS

## Agricultural Hemp Seed Requirements



**Oregon**  
Department  
of Agriculture

Seed Regulatory Program  
(503) 986-4620

### Agricultural hemp seed is:

- Sold or intended to be sold for planting;
- Unprocessed or partially processed; and
- Capable of germination.

### How do I know the seed is hemp and not marijuana?

- Agricultural hemp seed was harvested from hemp plants that have been tested pre-harvest and found to contain no more than 0.3% THC.

Involvement with Seed & Sales	Registration Requirements				
	Hemp Grower	Hemp Handler	Hemp Seed Producer	Retail Seed Dealer	Wholesale Seed Dealer
Cleaning or conditioning of agricultural hemp seed	✓	OR	✓	AND	✓
Selling or offering for sale only agricultural hemp seed you produce	✓	OR	✓	AND	✓
Seed broker who <b>does not take possession</b> of agricultural hemp seed					✓
Seed reseller who <b>takes possession</b> of agricultural hemp seed <i>Viable hemp seed is legally defined as hemp, therefore a registration is required.</i>		✓			
A. Selling or offering for sale agricultural hemp seed produced by others to growers for planting				✓	
B. Selling or offering for sale agricultural hemp seed produced by others to retailers, distributors, brokers, or other wholesalers for resale					✓
AND OR					
The state of Oregon does not recognize seed licenses issued by other states. If you sell in Oregon, you must meet the above requirements. More information on hemp: <a href="https://oda.direct/hemp">https://oda.direct/hemp</a> and seed licenses: <a href="https://oda.direct/SeedLicenses">https://oda.direct/SeedLicenses</a>					

### How do I find information about certified agricultural hemp seed varieties?

- Certified agricultural hemp seed does not guarantee any specific THC level in hemp plants grown from that seed. The Oregon State University Seed Certification Service manages seed certification in Oregon. Visit: <https://oda.fyi/OSUSeedCert> or Email: [seedcert@oregonstate.edu](mailto:seedcert@oregonstate.edu)

### I need a purity and germination test for my agricultural hemp seed, who do I contact?

- The Oregon State University Seed Lab offers these services. Visit: <https://oda.fyi/OSUSeedLab> or Email: [seedlab@oregonstate.edu](mailto:seedlab@oregonstate.edu) — There may also be private labs offering purity and germination tests.

## Labeling and Record Keeping

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### Do I have to label my agricultural hemp seed?

- Yes. Hemp seed is considered an agricultural seed as defined in ORS 633.511 to 633.750 and therefore the labeling requirements outlined in the Federal Seed Act and Oregon Seed Laws must be followed.  
For more information: <https://oda.direct/SeedLabeling>

### What are the record keeping requirements for producing, processing, cleaning/conditioning, or selling agricultural hemp seed?

- The Oregon Hemp Program and ORS 633.680 requires certain records to be maintained. The Oregon Seed Laws and the Federal Seed Act also have record keeping requirements. These requirements may not overlap—check with both programs to ensure that the correct information is maintained.
  - Hemp record keeping requirements: <https://oda.direct/hemp>
  - Oregon and Federal Seed Act record keeping requirements: <https://oda.direct/SeedRecords>

## Shipping and Export

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### I would like to ship my agricultural hemp seed to another state. How do I do this?\*

Check with the state department of agriculture (or other entity that regulates import of agricultural hemp seed) in the state where you want to ship seed to determine their requirements.

A visual phytosanitary inspection (sometimes called a Pest & Disease or P&D inspection) or a phytosanitary certificate is often required. Depending on a state's requirements, other inspections or disease testing may be required.

- To apply for a state phytosanitary certificate, an account is needed with the Phytosanitary Certificate Issuance and Tracking (PCIT) System. For more information: <https://pcit.aphis.usda.gov/pcit/>
- The Oregon Department of Agriculture (ODA) Plant Health Program can provide P&D inspections for agricultural hemp seed lots and other disease testing. For more information: <https://oda.direct/SeedTesting>

*\* Oregon statutes and rules are silent concerning the movement of hemp out of the state. Inspections or certificates do not constitute an endorsement by the Oregon Department of Agriculture of the movement of hemp or hemp products out of the state of Oregon.*

### I would like to ship my agricultural hemp seed to another country. How do I do this?

ODA can assist with processes related to exporting agricultural hemp seed.  
Contact the ODA Plant Health Program at: (503) 986-4620.

A visual phytosanitary inspection (sometimes called a Pest & Disease or P&D inspection) and a phytosanitary certificate are required for all seed exports. Additional inspections or disease testing may also be required.

- You may need an import permit – this should be provided by the importer and will contain the phytosanitary requirements of the importing country.
- To apply for a federal phytosanitary certificate, an account is needed for the Phytosanitary Certificate Issuance and Tracking (PCIT) System: <https://pcit.aphis.usda.gov/pcit/>
- The ODA Plant Health Program can provide P&D inspections for agricultural hemp seed lots and other disease testing. For more information: <https://oda.direct/SeedTesting>

#### For questions regarding hemp registration:

ODA Hemp Program: <https://oda.direct/hemp> | [hemp@oda.state.or.us](mailto:hemp@oda.state.or.us)

#### For questions regarding seed licenses, pest & disease inspections, and disease testing:

ODA Seed Program: <https://oda.direct/SeedLicenses> | ODA Seed Testing: <https://oda.direct/SeedTesting>

#### For questions regarding seed certification and purity & germination testing:

OSU Seed Certification Service: [seedcert@oregonstate.edu](mailto:seedcert@oregonstate.edu) | OSU Seed Lab: [seedlab@oregonstate.edu](mailto:seedlab@oregonstate.edu)

## New Phytosanitary Inspection Requirements for Agricultural Exports to the European Union

Beginning December 14, 2019, all raw and minimally processed plant materials exported to European Union member states will require phytosanitary certificates. Each shipment will require a phytosanitary certificate. Without the necessary certification, the EU will reject shipments without recourse.

The EU has also identified 35 high-risk plant groups that will be completely prohibited from entering the EU until the US Department of Agriculture conducts pest risk analyses for these products. These analyses are currently in progress.

The Oregon Department of Agriculture can provide inspections and phytosanitary certificates for exports. Visit <https://oda.direct/EUNurseryRequirements> (for nursery stock) or <https://oda.direct/EURequirements> (all other commodities) for more information about your specific commodity and how to obtain certification. The ODA is expecting an unusually high demand for services and encourages exporters to get started.

### COMMODITIES AFFECTED

**Living plants or plant products** (unless specifically indicated otherwise in a commodity summary) will now require a phytosanitary certificate for export to EU countries. These commodities include:

- Fruits or vegetables (other than frozen)
- Cut flowers
- Cut trees or branches with foliage
- Grain or grain products
- Hop bales, pellets, and cones
- Seeds
- Other unprocessed or minimally processed plant products, including wood

### HIGH-RISK PLANT GROUPS

Plants for planting, other than seeds, *in vitro* material, and dwarfed woody plants for planting of the following genera:

*Acacia, Acer, Albizia, Alnus, Annona, Bauhinia, Berberis, Betula, Caesalpinia, Cassia, Castanea, Cornus, Corylus, Crataegus, Diospyros, Fagus, Ficus carica, Fraxinus, Hamamelis, Jasminum, Juglans, Ligustrum, Lonicera, Malus, Nerium, Persea, Populus, Prunus, Quercus, Robinia, Salix, Sorbus, Taxus, Tilia, and Ulmus*

### EUROPEAN UNION MEMBER STATES

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro\*, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland\*, and the United Kingdom.

\*Note: Although not European Union member countries, Montenegro and Switzerland follow the European Union requirements.

### QUESTIONS? CONTACT US!

#### FRUITS, VEGETABLES, HOPS, & GRAIN

##### Shipping Point Inspection

Hermiston: (541) 567-2251  
Hood River: (541) 386-2040  
Klamath Falls/Medford:  
(541) 891-2993  
Ontario: (541) 889-5274  
Salem: (503) 986-4620

#### SEEDS

##### Plant Health

[PlantHealth@oda.state.or.us](mailto:PlantHealth@oda.state.or.us)  
Main Office: (503) 986-4620

#### CUT FLOWERS, TREES, & NURSERY STOCK

##### Nursery & Christmas Tree

[Nursery@oda.state.or.us](mailto:Nursery@oda.state.or.us)  
Main Office: (503) 986-4644

Or contact your local nursery inspector directly.

For general questions, please contact Andrea Canto-Schomus (503) 881-9049 or [info@oda.state.or.us](mailto:info@oda.state.or.us)

### Seed Phytosanitary Certificates Issued 2019

Month	Annual Ryegrass	Bentgrass	Bluegrass	Clover	Fescue	Orchardgrass	Perennial Ryegrass	Alfalfa	Timothy	Wheat	Other	Total Pounds
January	2,990,015	149,541	1,568,446	419,310	2,390,240	73,343	1,154,432	39,683	12,568		1,343,508	10,141,086
February	2,862,757	103,217	2,287,684	133,819	3,636,732	76,744	1,400,315	28,748			1,398,690	11,928,706
March	1,980,238	75,958	1,615,238	333,307	4,064,647	111,957	1,399,858		5,280		659,624	10,246,107
April	3,083,499	65,697	1,300,953	293,743	1,794,922	15,721	836,291	22,046	4,401		2,085,127	9,502,400
May	4,525,900	175,662	776,499	169,154	1,447,747	25,012	919,328	110,001	3,354		1,742,363	9,895,020
June	6,421,989	110,642	857,103	291,832	1,201,005	55,560	1,564,777	30,000			918,238	11,451,146
July	9,682,248	4,783	254,665	223,386	2,035,495	93,783	4,141,430	163,952	38,615		1,467,221	18,105,578
August	12,271,916	31,387	276,073	196,568	940,598	124,252	3,194,791	10,250			1,197,661	18,243,496
September	3,856,342	21,707	389,547	103,201	492,505	2,000	697,353				2,555,748	8,118,403
October	3,722,917	61,804	641,030	167,800	1,080,240	41,938	890,084		1		700,176	7,305,990
November	3,015,300	40,250	358,509	386,801	1,362,358	47,502	673,029	6,800			515,108	6,405,657
December												-
<b>Totals</b>	<b>54,413,121</b>	<b>840,648</b>	<b>10,325,747</b>	<b>2,718,921</b>	<b>20,446,489</b>	<b>667,812</b>	<b>16,871,688</b>	<b>411,480</b>	<b>64,219</b>	<b>0</b>	<b>14,583,464</b>	<b>121,343,589</b>

