

DRAFT

AGRICULTURAL ACTIVITIES IN
THE LOWER UMATILLA BASIN
GROUNDWATER MANAGEMENT AREA

6/20/25

Edits from RAC #2 4/23/25

Edits from RAC #3 5/22/25

Edits from DEQ 6/6/25

603-XX-XX01

Purpose and Authority

(1) The Lower Umatilla Basin Groundwater Management Area (LUBGWMA) is comprised of about 550 square miles in northern Morrow and northeastern Umatilla counties as shown in **Appendix A**. The Oregon Department of Environmental Quality (DEQ) has designated the area as a groundwater management area because of high levels of nitrate observed in monitoring wells within the LUBGWMA in water wells used for human consumption. High levels of nitrate in groundwater that is consumed by persons drinking water can cause serious health effects to vulnerable populations within the LUBGWMA, and is particularly dangerous for infants and pregnant persons.

(2) Understanding that agriculture within the LUBGWMA provides valuable food and fiber products to communities worldwide, these area rules are intended to ~~prevent~~ minimize nitrates from entering groundwater as a result of agricultural activities while also maintaining the economic viability of agriculture within the LUBGWMA. These area rules implement the Umatilla and Willow Creek Agricultural Water Quality Management Area Plans as those plans address nitrate pollution in groundwater within the LUBGWMA and contain actions necessary to minimize nitrate leaching to groundwater.

(3) The Oregon Department of Agriculture's authority for these rules is ORS 561.191, ORS 568.900 – 930 and ORS 468B.184(2). Other authorities include ORS 561.200 and ORS 561.275 - 290 as applicable.

Commented [RM1]: Change per DEQ comment — good clarification.

603-XX-XX02

Geographic and Programmatic Scope

(1) Operational boundaries for the agricultural lands subject to these area rules are as provided in **Appendix A** and include all lands within the LUBGWMA in agricultural use that are not otherwise subject to a permit issued by the Oregon Department of Agriculture or the Oregon Department of Environmental Quality.

(2) Unless otherwise required by law, these area rules do not apply to public lands managed by federal agencies, lands that make up the Reservation of the Confederated Tribes of the Umatilla Indian Reservation, and land or activities subject to Oregon's Forest Practices Act.

(3) All landowners conducting agricultural activities on lands in agricultural use within the LUBGWMA shall comply with these area rules as applicable to the size and type of agricultural operation.

Commented [RM2]: Added per comment by DEQ — good clarification.

- (4) These area rules do not authorize violation of any federal, state, or local law or regulation.
- (5) These area rules do not constitute a National Pollutant Discharge Elimination System Permit or Water Pollution Control Facilities Permit issued pursuant to the Federal Clean Water Act or ORS 468B.050. Compliance with these area rules does not exempt a landowner from the Federal Clean Water Act or state water pollution control laws.
- (6) The fact that it is necessary to halt or reduce activities contributing to the placement of wastes into waters of the state shall not be a defense for violation of these rules.
- (7) The requirements in these area rules do not authorize the commission of any act causing injury to property of another or protect the landowner from liabilities under other federal, state, county, or local laws.
- (8) These area rules do not apply to conditions ~~resulting from unusual weather events or other exceptional circumstances~~ beyond the reasonable control of the landowner. “Beyond the reasonable control of the landowner” means the violation resulted from:
- (a) An act of war, sabotage, or unforeseeable and unpreventable vandalism;
 - (b) An extreme act of nature;
 - (c) Negligence on the part of local, state or federal government;
 - (d) An act or omission of a third party (not including an agent of the violator) without regard to whether any such act or omission was not negligent; or
 - (e) The violation could not have been reasonably anticipated or prevented. ~~An example of reasonable control of the landowner means that technically sound and economically feasible measures are available to address conditions described in these rules.~~

Commented [RM3]: RAC comment: “Who keeps track of declaring unusual weather events”?

Commented [RM4R3]: Adopted DEQ’s proposed language rather than referring to “unusual weather events or other exceptional circumstances.”

Commented [RM5]: Change per DEQ comment

603-XX-XX03

Definitions

For the purposes of these rules unless the context requires otherwise.

- (1) “Agricultural activities” means engaging in any generally accepted, reasonable and prudent method of growing or harvesting agricultural crops and commodities.
- (2) “Agronomic application rate” or “agronomic rate” means the application rate of fertilizers, compost or manure required to achieve estimated crop yield with minimal leaching of nitrate beyond the crop root zone.
- (3) “Agricultural land(s)” means lands that ~~are~~ are permitted to be used for agricultural activities.
- (4) “Agricultural operation” means (a) all agricultural land, whether or not contiguous, that is under the effective control of a landowner engaged in any commercial activity relating to the growing or harvesting of agricultural crops or the production of agricultural commodities; (b) synonym for a “farm” as defined in ORS 30.930(1).
- (5) “Area Plan” or “Agricultural Water Quality Management Area Plan” means a plan for the prevention and control of water pollution from agricultural activities and soil erosion in a management area that has been designated under ORS 568.909.
- (6) “Area Rules” are administrative rules adopted by the Oregon Department of Agriculture, in consultation with the Oregon Board of Agriculture and the Oregon Department of Environmental Quality, for the implementation of the Area Plans referenced in these rules.
- (7) “Biosolids” means solids derived from primary, secondary, or advanced treatment of domestic wastewater which have been treated through one or more controlled processes that significantly reduce pathogens and reduce volatile solids or chemically stable solids to the extent

that they do not attract vectors or as consistent with 21 CFR §112.54 – 55 (2025). This term refers to domestic wastewater treatment facility solids that have undergone adequate treatment to permit their land application. This term has the same meaning as the term “sludge” referred to in ORS 468B.095 and the term “sewage sludge” as referenced in OAR Chapter 340 Division 50 (2018) and as defined in 40 CFR §503.9(w)(2025).

(8) “Biosolid-derived products” means material derived from composting domestic wastewater treatment facility solids or other processes such as thermal drying which result in a material that meets pollutant concentrations in 40 CFR §503.13(b)(3)(1993), the Class A pathogen requirements in 40 CFR §503.32(b)(1)(1999) and vector attraction reduction standards in §503.33(b)(8)(1999).

(97) “Certifier” means a qualified irrigation and nitrogen management plan specialist as provided in OAR 603-XX-XX14.

(108) “Compost” has that meaning given in ORS 633.311(5).

(119) “Department” means the Oregon Department of Agriculture.

(120) “Director” means the director of the Oregon Department of Agriculture.

(134) “Estimated crop yield” means the near-maximum or optimum crop yield estimated for each field according to sources such as recommendations by land grant universities, the Natural Resources Conservation Service, commodity groups, certified crop advisors, or according to site-specific knowledge based on previous experience.

(1442) “Fertilizer” has the meaning given in ORS 633.311(12) except that for the purposes of these rules, fertilizer includes biosolids, biosolids-derived products, compost and manure which substances are not packaged and do not contain a grade statement or guaranteed analysis as defined in ORS 633.311(14). The term “fertilizer” also includes reclaimed water or treated effluent regulated under ORS 468B.010 and ORS 468B.015.

(153) “Field” means an area of land that is used for agricultural activities and enclosed or otherwise distinguished by physical characteristics of the property such as roads, fences, topography or other barriers and is characterized by a uniform irrigation system, crop type and system of nutrient management measures. marked by a physical, topographical or other boundary.

(16) “Field capacity” means the content of water, on a mass or volume basis, remaining in a soil two or three days after having been wetted with water and after free drainage is negligible.

(174) “Groundwater” or “groundwater of the state” means water within the LUBGWMA that is in a saturated zone or stratum beneath the surface of land or below a surface water body.

(185) “Irrigated agricultural lands” or “irrigated agriculture” means agricultural lands irrigated to produce crops or pasture and including lands that are planted to commercial crops that are not yet marketable such as vineyards and tree crops. Irrigated lands include nurseries.

(1916) “Landowner” has the meaning given in ORS 568.210 and ORS 568.903 and includes an “operator” as defined in ORS 568.900(2).

(207) “Manure” means solids or liquids excreted from an animal.

(2148) “Nitrogen Management Measures” means measures to match fertilizer and nitrogen applications to agronomic demands and includes a determination of the appropriate agronomic application rate to achieve estimated crop yield. Nitrogen management measures include the 4Rs of nutrient stewardship as provided in NRCS Conservation Practice Standard Nutrient Management Code 590 (2019).

(2249) “Operator” has the meaning given in ORS 568.9200(2).

Commented [RM6]: First part of definition is consistent with OAR 341-050-0010 definition of “biosolids”. Second part of definition allows the treatment of biosolids as consistent with FSMA standards in 21 CFR 112.54 - 55. Third part of definition is consistent with OAR 341-050-0010. Note that ORS 468B.095 does not contain a definition of sewage sludge and OAR 341-050-0010 just refers to biosolids. 40 CFR 503.9(w) supplies the standard for the land application of sludge.

Commented [RM7]: From OAR 341-50-0010.

Commented [RM8]: “Sewage sludge biosolids” means the solid or semi-solid residue generated during the treatment of domestic sewage in a treatment works within the meaning of the definition of “sewage sludge” in 40 CFR 503.9(w). 21 CFR 112.3 (FSMA regs). 112.54 -55 provide the standards for treatment and acceptable pathogen levels. (FSMA regulations).

Commented [RM9]: Taken from OAR 341-50-0010(3) except reference to soil amendments left out to harmonize with ORS 633.311(12)(definition of “fertilizer” which excludes soil amendments.). The references to the CFRs as provided in OAR 341-050-0010(3) is updated to reflect the current CFRs.

Commented [RM10]: Addressed comment by B. Spencer 5/22

Commented [RM11]: Wonder whether we should go back to original definition that excludes biosolids/wastewater and etc. Those covered by DEQ permit as we don't want to have to reconcile with their permits or add a layer of regulation by another agency.

Commented [RM12RM11]: Need to check whether Class A biosolids are applied only pursuant to DEQ permit.

Commented [RM13]: New def. Tries to address comments by Brad Spencer 5/22 that def. Of field should be same as management unit.

(239) “Pasture” means land that sustains vegetative growth in the normal growing season that is primarily used to grow forage for grazing livestock where the livestock are not confined in pens or lots or on a prepared surface and where waste is not managed using a waste water control facility.

(244) “Pollution” or “water pollution” has the meaning given in ORS 468B.005.

(252) “Saturated soil” means soil with all available pore space filled that it is exceeding 100% of field capacity has reached its maximum retentive capacity.

(23) “Synthetic fertilizer” means fertilizer made from ammonia, nitrogen, phosphate minerals, and other chemicals through human-controlled chemical reactions. Synthetic fertilizers include dry fertilizer, liquid fertilizer, foliar fertilizer, and any other type of fertilizer that has a guaranteed nutrient content.

(264) “Waste” or “wastes” has that meaning given in ORS 468B.005 with the clarification that “waste” or “wastes” includes but is not limited to commercial fertilizers, soil amendments, composts, animal wastes, vegetative materials and includes nitrate that enters groundwater as a result of agricultural activities by any means.

(275) “Water” or the “waters of the state” has the meaning given in ORS 468B.005.

603-XX-XX04

Prohibited Acts

[This rule applies to all landowners in the LUBGWMA]

(1) Fertilizer may not be applied to agricultural lands in a manner that causes pollution of the groundwater of the state or in a manner that places wastes in a location where such wastes are likely to escape or be carried into the groundwater of this state. Agricultural activities may not cause pollution to the groundwater of this state.

(2) Wastes resulting from agricultural activities may not be placed in a location where such wastes are likely to escape or be carried into groundwater by any means.

(23) The placing of fertilizers, fumigants, or pesticides into groundwater via back flow through a water supply well is prohibited.

(34) The placing of fertilizers, fumigants, or pesticides down a groundwater well casing is prohibited.

(5) A landowner within the LUBGWMA may not violate the provisions of 603-XX-XX05 these rules.

603-XX-XX05

Land Application Rates and Restrictions

[These rules apply to all landowners within the LUBGWMA]

(1) All landowners within the LUBGWMA shall employ nitrogen management measures when making land applications of synthetic fertilizers, compost or manure.

(2) Prior to the first application of Before synthetic fertilizers, compost or manure may be applied a landowner shall:

(a) Take soil samples consistent with [SOIL SAMPLE PROTOCOL RULE]; and

(b) Take into consideration existing plant available nitrogen levels (NO₃-N), plant uptake, and estimated crop yields when making an application of fertilizers, compost, or manure.

Commented [RM14]: Amended per comment by B. Spencer 5/22.

Commented [RM15]: RAC Comment: Requiring everyone to soil test before applying will result in people putting all of their N on in one slug which will increase the likelihood of N getting into the groundwater.

Commented [RM16R15]: Included Dani Lytle's suggested changes from 5/9

(3) ~~On a worksheet supplied by the department, a~~ landowner shall document; ~~and upon request by the department make available for inspection, the following information for each field to which synthetic fertilizers, compost, or manure are applied:~~

- (a) The date(s) and location(s) of all nitrogen applications;
- (b) The weather conditions and soil moisture at the time of application; and
- (c) The agronomic application rate used.

~~(4) Worksheets shall be retained by the landowner for five years and made available to the department upon request by the department.~~

~~(4) A landowner shall prevent the downward movement of nitrate in the soil by managing irrigation water so that the amount of water applied from the combination of precipitation and irrigation does not exceed the water holding capacity of the soil beyond the crop root depth.~~

~~(5) A landowner may not apply synthetic fertilizers, compost, or manure in a manner that causes direct, indirect, or precipitation-related discharge to groundwater.~~

~~(5) A landowner may not apply synthetic fertilizers, compost, or manure:~~

- (a) To fields with a frozen surface crust (2 inches) or deeper, or if the soil is at or below zero degrees Celsius (32 degrees Fahrenheit).
- (b) To fields that are snow covered.
- (c) To fields with soils that are or will become saturated with forecasted precipitation prior to infiltration or incorporation.
- (d) If the water table is within 12 inches or less to the surface.

~~(e) If precipitation is forecasted in the next 24 hours for the field location and it is likely that application will result in a prohibited act.~~

~~(e) Except as is otherwise required by law for application of manure, compost, biosolids or biosolid-derived products, a landowner may not apply fertilizer to~~ fields that are bare unless the landowner is preparing the bare fields for the current year's annual crop ~~or cover crop~~ planting and the application is within 30 days of ~~planting~~.

Commented [RM17]: RAC Comment: (c) and (e) seem redundant, so deleted (e).

Commented [RM18]: RAC Comment: The 30-day limit is "too hard a line." There is also concern that the 30-days of planing standard could conflict with federal law regarding application of compost.

Commented [RM19R18]: Asking Dr. Bonilla for guidance for agronomist perspective. Regarding a conflict with FSMA, I read the relevant CFRs and did not see a conflict. The regs. Refer to a 3 - 15 day period for composting followed by an undefined "curing" period. It would be good to get more feedback on how long the "curing" period is for the climate and temps. In the LUBGWMA. Organic Standards either. Notwithstanding, the draft is amended to refer to other law requirements that may be applicable.

Commented [RM20R18]: Should we delete biosolids from def. of fertilizer, but keep compost and manure?

603-XX-XX06

Irrigation Water Management

[This rule applies to all landowners within the LUBGWMA]

~~(1) All landowners within the LUBGWMA shall prevent the downward movement of nitrate in the soil by managing irrigation water so that the amount of water applied from the combination of precipitation and irrigation does not exceed the field capacity of the soil beyond the crop root depth.~~

~~(2) All landowners within the LUBGWMA shall base the volume of water needed for each irrigation event on at least the following information as relevant to a crop or field:~~

- ~~(a) Field capacity of the soil for the crop rooting depth;~~
- ~~(b) Management allowed soil water depletion;~~
- ~~(c) Current soil moisture status of the soil for the crop rooting depth;~~
- ~~(d) Distribution uniformity of the irrigation event;~~
- ~~(e) Water table contribution if applicable; and~~
- ~~(f) Computerized irrigation scheduling recommendation if available.~~

~~(3) A landowner shall plan the rate and volume of irrigation water to minimize the transport of nutrients to groundwater by:~~

- (a) Controlling the rate of water application to limit the transport of nitrogen through the soil profile to groundwater; and
- (b) Matching irrigation application quantities and rates to the crop, soil type, soil moisture content, and agronomic demands of each crop type such that irrigation does not exceed the soil's infiltration rate or field capacity beyond the crop root zone.

Commented [RM21]: Edits in this section made during conversation with Dr. Bonilla on 5/23.

Commented [RM22]: Made the irrigation rule applicable to all landowners within LUBGWMA pursuant to suggestion by RAC commenter. This comment is supported by the agronomic literature that points out that carefully managed irrigation is a key component to preventing leaching of N, particularly in sandy soils that are predominate in the LUBGWMA.

603-XX-XX076

Animal Pasturing

[This rule applies to all landowners within the LUBGWMA]

(1) A landowner grazing livestock on pasture within the LUBGWMA shall rotate livestock and limit livestock numbers to prevent bare ground and promote and maintain adequate vegetative cover.

(a) In determining an appropriate stocking rate for livestock grazing on pasture, a landowner shall match livestock requirements with the available forage and frequently monitor forage growth and adjust the stocking rate and grazing period to prevent runoff or overgrazing.

(2) Where animals are concentrated to a distinct heavy use area during the rainy season so that when the soil is prone to compaction or when inadequate forage growth would result in overgrazing, a landowner shall:

(a) Remove manure and waste feed from these heavy use areas; and and maintain grassy buffer strips around the area.

(b) Cover accumulated manure and waste feed during the rainy season and, if spreading during the growing season, spread at an agronomic rate.

(3) A landowner applying synthetic fertilizer, compost, or manure to irrigated pasture shall conduct nutrient management in a manner that prevents the over-application of nitrogen and reduces the likelihood of nitrate leaching to groundwater.

(a) A landowner mechanically applying synthetic fertilizers, compost, or manure to pasture shall first conduct a soil test consistent with [CITE SOIL SAMPLE RULE] to establish plant available nitrogen in the soil.

(4) A landowner shall prevent the downward movement of nitrate in the soil by managing irrigation water so that the amount of water applied from the combination of precipitation and irrigation does not exceed the soil's field water holding capacity within the forage root depth.

Commented [RM23]: RAC comment: This standard is not measurable and will be hard to enforce. Other commenters wondered whether this standard would violate county livestock density standards. One commenter asked for incorporation of a BMP standard (e.g. NRCS standard for pasturing). Looked at NRCS Prescribed Grazing Code 528 and rules are consistent with this code as to protecting GW quality.

Commented [RM24]: Several RAC members commented that the grassy buffer strip was to manage surface water pollution and should be deleted from these rules. Other commenters asked whether grassy strip had to be planted only on the uphill side and others asked for a definition of "rainy season."

Deleted reference to grassy buffer strips and require covering accumulated manure instead.

Still other commenters questioned whether "compacted soil" was too prescriptive. Rules describe conditions (density of animals in a heavy use area that make soil prone to compaction and inadequate vegetative growth) that require gathering accumulated manure and covering it to prevent leaching of accumulated wastes into the soils.

603-XX-XX087

Control Measures for Irrigated Agriculture on Large Acreages

[This rule applies only to landowners irrigating large acreages]

(1) [OAR 603-XX01 – XX19] govern agricultural activities on irrigated agricultural lands where the total land acreage under the ownership or control of a landowner is equal to or greater than 1,000 acres and where irrigation is used to grow crops or pasture on those acreages.

(2) These area rules describe those irrigation and nitrogen management measures necessary to minimize percolation of waste to groundwater and prevent excess nitrogen application relative to crop need.

(a) Measures specific to irrigated agriculture on large acreages include irrigation water management, an annual nitrogen budget as described in 603-XX-XX09 – XX10, and annual

Commented [RM25]: RAC members think that these rules won't reach enough growers (28) rules should apply to everyone.

Have addressed this comment in a limited way by moving the irrigation water management requirements up in the rules and specifying that they apply to all landowners.

post-harvest summary records ~~as described in 603-XX-XX11, and implementation of adaptive management measures as described in 603-XX-XX12.~~

~~(b) Documents as must be created as specified in these rules Records that implement these measures shall be retained for five years by the landowner at the landowner's principal place of business for the agricultural operation; and~~

~~(c) Mand made available for inspection at the request of the department.~~

(3) Each landowner shall employ best practicable management practices to implement the irrigation and nitrogen management measures in these area rules according to the site-specific attributes and needs of each agricultural operation.

603-XX-XX08

Irrigation Water Management

[This rule applies only to landowners irrigating large acreages]

~~(1) A landowner subject to these rules shall prevent the downward movement of nitrate in the soil by managing irrigation water so that the amount of water applied from the combination of precipitation and irrigation does not exceed the soil's water holding capacity within the crop's rooting depth.~~

~~(2) A landowner subject to these rules shall base the volume of water needed for each irrigation event on at least the following information as relevant to a crop or field:~~

~~(a) Available water holding capacity of the soil for the crop rooting depth;~~

~~(b) Management allowed soil water depletion;~~

~~(c) Current soil moisture status;~~

~~(d) Distribution uniformity of the irrigation event;~~

~~(e) Water table contribution;~~

~~(f) Computerized irrigation scheduling recommendation.~~

~~(3) A landowner subject to these rules shall plan the rate and volume of irrigation water to minimize the transport of nutrients to groundwater by:~~

~~(a) Controlling the rate of water application to limit the transport of nitrogen through the soil profile to groundwater; and~~

~~(b) Matching irrigation application quantities and rates to the crop, soil type, soil moisture content, and agronomic demands of each crop type such that irrigation does not exceed the soil's infiltration rate or water holding capacity within the crop root zone.~~

603-XX-XX09

Annual Nitrogen Budget

[This rule applies only to landowners irrigating large acreages]

(1) Each year, prior to the first application of ~~synthetic fertilizers, compost, or manure~~, a landowner subject to these rules shall prepare, ~~on a worksheet provided by the department~~, an annual nitrogen budget that demonstrates that ~~synthetic fertilizers, compost, or manure~~ will be applied only at the agronomic application rate necessary to support estimated crop yield.

(a) An annual nitrogen budget shall cover the entire growing season and include double-crops, and winter cover crops.

(2) An annual nitrogen budget shall include all anticipated nitrogen management measures including the anticipated agronomic application rate for each crop. To determine agronomic rates:

- (a) A landowner shall test soil to determine plant available nitrogen prior to planting; and
- (b) Where consistent with land grant university guidance for management of a specific crop type, a landowner may shall conduct soil sampling to determine plant available nitrogen and/or conduct plant tissue sampling and analysis to determine nitrogen need prior to mid-growing season application, and prior to late-season application;
- (3) Because annual nitrogen budgets are prepared in advance of the crop season and based on circumstances that are forecasted, actual conditions may differ from those forecasted in a certified annual nitrogen budget.
 - (a) Where crop season conditions differ from those forecasted, an annual nitrogen budget may be adjusted to reflect changes in weather, water availability, or other unanticipated circumstances.
 - (b) Should an adjustment to an annual nitrogen budget be necessary, a landowner should document the reasons for the adjustments in the annual nitrogen budget. The documentation shall be retained at the landowner's principal place of business for the agricultural operation and be made available upon request by the department.
- (4) A landowner's inability to follow an annual nitrogen budget may not result in enforcement action by the department. However, failure to submit proof of certification of an annual nitrogen budget by January-May 1 of each year, may result in an enforcement action by the department, and conditions that indicate a violation of ORS 468B.025(1) may result in an enforcement action by the department.
- (5) Proof of certification of an annual nitrogen budget shall be submitted to the department by January-May 1 of each year.

Commented [RM26]: DEQ comments that this is requirement is more stringent than many permitted operations currently perform.

Commented [RM27R26]: Amended to make discretionary rather than mandatory and only as consistent with LGU guidance for specific crops.

Commented [RM28]: Per DEQ comment.

Commented [RM29]: Changed to May per comments from RAC.

603-XX-XX10

Annual Nitrogen Budget Contents

[This rule applies only to landowners irrigating large acreages]

Annual nitrogen budgets shall include each of the following elements as recorded on a worksheet provided by the department.

- (1) Landowner name: Record the name of the landowner and the name of the operator if operator is not the owner of the land. If a certifier prepares the form, then the name of the certifier shall also be included.
- (2) Crop year: Record the crop year for the calendar year that the crop is harvested.
- (3) Field identification and acreage: Identification and the acreage of each field.
- (4) For each field:
 - (a); Rrecord the soil type(s);
 - (b) of the field and Rrecord pre-planting levels of plant available nitrogen ($\text{NO}_3\text{-N}$) in the root zone as determined by pre-planting soil sample results; and;
 - (ca) For the first annual nitrogen budget prepared after the effective date of these rules, record the residual soil nitrate levels for each field as provided in [CITE RESIDUAL SOIL RULE].
- (5) Nitrogen management measures: For each field, record anticipated nitrogen management measures and specify the anticipated agronomic application rate.
 - (a) An agronomic application rate shall include total nitrogen ($\text{TKN plus NO}_3\text{-}$) applied from all sources including irrigation water.

Commented [RM30]: Responding to RAC commenter and clarifying in rule that ODA will be developing worksheets for easier implementation of these rules.

Commented [RM31]: Edits per DEQ comments

(6) Irrigation Water Management Measures: For each field:

(a) Record the predominate irrigation method that will be used for crop irrigation during the growing season.

(b) Record methodology that will be used to determine appropriate water application rates so that the amount of water applied from the combination of precipitation and irrigation does not exceed the soil's field water holding capacity within the crop's rooting depth.

(7) Crop type(s): For each field identify the crop type(s) for the upcoming season.

(8) Estimated crop yield: For each field, estimate yield per acre for each crop type.

(9) Anticipated Total Nitrogen (TKN plus NO₃-): For each field, record estimated total nitrogen to be applied from all sources, in irrigation water, synthetic fertilizers, compost, or manure and estimated mineralization and atmospheric deposition.

~~(10) Recommended or planned total nitrogen: For each field, record the nitrogen recommended or planned to meet the estimated yield.~~

~~(10+)~~ Adaptive management measures provided in 603-XX-XX12 as applicable.

(112) Certification. A landowner shall provide proof of certification of an annual nitrogen budget to the department by [SPECIFY DATE] May 1 of each year.

Commented [RM32]: Talk to RAC (9) and (10) seem redundant — suggest deleting (10).

603-XX-XX11

Post Harvest Summary Records

[This rule applies only to landowners irrigating large acreages]

(1) Each year, following implementation of an annual nitrogen budget, a landowner subject to these rules shall prepare a post-harvest summary record on a worksheet provided by the department. The post harvest summary record is to be that is used to evaluate the effectiveness of their an annual nitrogen budget.

(2) A post-harvest summary record shall be retained for five years at the landowner's principal place of business for the agricultural operation and made available to the department for inspection upon request by the department.

(3) A post-harvest summary record shall include each of the following elements.

(a) Landowner name: Record the name of the landowner and the name of the operator if operator is not the owner of the land. If a certifier prepares the form, then the name of the certifier shall also be included.

(b) Crop year (harvested): Record the crop year for the calendar year that the crop is harvested.

(c) Crop type: For each field, record the type of crop harvested.

(d) Crop harvest yield: Record the crop harvest yield in crop production units per acre and include all harvested materials from primary harvest, secondary crop harvests, and crop residue (lb/acre).

(e) Irrigation water management measures: For each field, a landowner shall record the soil moisture level ascertained as necessitating each instance of irrigation.

(f) Nitrogen management measures: Record nitrogen management measures implemented including the agronomic application rate used for each crop.

(g) Total nitrogen applied (TKN plus NO₃-) (lbs/acre): For each field, record the total nitrogen applied as follows:

(i) Total nitrogen applied through irrigation water; and

(ii) Total nitrogen applied through fertilizers.

Commented [RM33]: Edited to clarify that PHS record does not have to be certified nor proof of certification submitted to ODA.

- (h) For each field, a determination according to 603-XX-XX12 of whether the annual nitrogen budget was followed and a description of the methodology used to make this conclusion.
- (i) For each field, describe any applicable adaptive management measures to be employed in the following year's annual nitrogen budget.

OAR 603-XX-XX12

Annual Nitrogen Budget Evaluation

(1) A landowner is following an annual nitrogen budget if: each application is made at an agronomic application rate, and for each field, plant-available nitrogen ($\text{NO}_3\text{-N}$) from all sources does not exceed the total nitrogen required to reach each a-crop's estimated crop yield, and environmental loss or post-harvest soil nitrate levels are low or showing a trend of decreasing.

(a) A landowner may determine whether they followed their annual nitrogen budget by using either one any or both of the methods described in subsections (2) and through (4) of this section.

(2) A landowner may compare the sum of all nitrogen inputs with the sum of all nitrogen outputs to determine environmental loss. Environmental loss indicates that a landowner has not met or followed their annual nitrogen budget. Environmental loss may be determined as follows:

(a) Total nitrogen input (TKN plus NO_3) is calculated as the sum of all nitrogen inputs from applied fertilizer, irrigation water, and estimated mineralization and atmospheric deposition.

(b) Total nitrogen output is calculated as the sum total nitrogen removed from crop yield removal ($\text{lb/acre} \times \text{N content of crop}$) and from crop biomass harvested (lb/acre) multiplied by tissue nitrogen concentration (%).

(c) Environmental nitrogen loss may occur through leaching, denitrification, volatilization or leaching. Environmental nitrogen (N) loss may be estimated as follows:

$$\text{Environmental N loss} = \Sigma \text{N Inputs} - \Sigma \text{N Removal}$$

(3) A landowner may determine whether they have met or followed their annual nitrogen budget by determining soil nitrate levels in post-harvest soil samples consistent with [CITE SOIL SAMPLE PROTOCOL RULE].

(a) Low postharvest soil nitrate concentrations limit the loss of soil nitrate below the root zone during the winter and indicate that a landowner has applied fertilizers at an agronomic rate.

(b) Increasing or high postharvest soil nitrate concentrations may indicate that a landowner has not applied fertilizers at an agronomic rate.

(4) A landowner may determine whether they have met or followed their annual nitrogen budget by determining whether they met or exceeded their estimated crop yield.

(a) If a landowner has met or exceeded their estimated crop yield this is an indication that a landowner has met or followed their annual nitrogen budget, but only if an agronomic application rate was used for each application.

(b) If a landowner has not met or exceeded their estimated crop yield, this may be an indication that excess plant available nitrogen ($\text{NO}_3\text{-N}$) remains in the soil at the 12 to 24 inch depth.

(5) For each field, a landowner shall determine and record in their post-harvest summary report whether their annual nitrogen budget was followed or not.

(6) Adaptive Management Measures: For each field where an annual nitrogen budget was not met or followed, a landowner shall record in the following year's annual nitrogen budget, the adaptive management measures they will employ according to Table 1.

(a) Table 1: Adaptive Management Measures

Commented [RM34]: Clarification that applications must be at an agronomic application rate in response to comment by DEQ that cautions against having only measure of following an ANB is reaching crop's estimated yield.

Commented [RM35]: Additional test added on recommendation from ODA agronomist.

Annual Nitrogen Budget Met or Followed?	Required Actions	Required Actions Based Upon Trends (after 2 Consecutive Years)
Yes	- No changes to current practices required	- N/A
No Year 1	Document reason(s) for not following ANB . Reevaluate nitrogen budget assumptions for estimated crop yield, nitrogen volatilization, mineralization and other sources of nitrogen. - Verify actual land application rates and recalibrate land application equipment as necessary.	- N/A
No Year 3	Continue the actions for Year 1 and: - Document reason(s) for not following the ANB in post-harvest summary record. - Adjust land application timing so nutrient availability aligns with peak crop uptake. - Stop land application after peak crop uptake. - Collect and analyze an additional fall soil sample at the second foot depth (24-36 inches).	Continue the actions in the Required Actions column and: - Reduce nitrogen application to fields. - Hire a professional/consultant to develop annual nitrogen budget and application rates.
No Year 5	Continue the actions for Year 3 and: - Assume no nitrogen losses from denitrification and volatilization on the annual nitrogen budget for all applicable fields. - Enhance nitrogen removal via cropping. - Reduce nitrogen application amount to field.	Continue the actions in the Required Action column and: - Stop land application of nitrogen to the field. - Hire a professional/consultant to develop annual nitrogen budgets and application rates and implement nitrogen management measures advised. - Collect additional post-harvest soil samples at the second, third, and fourth foot depth or until refusal or groundwater is reached and analyze for nitrate.

~~(7) A landowner shall certify the post-harvest summary record as described in [CITE CERTIFICATION RULE] and provide proof of certification to the department by [x-date].~~

603-XX-XX13

Residual Soil Nitrate Levels

[This rule applies only to landowners irrigating large acreages]

(1) A landowner subject to these rules shall determine residual soil nitrate levels for each field under their ownership or control using the soil sampling protocol in [CITE SOIL SAMPLE PROTOCOL RULE]:

- (a) Initial residual nitrate soil samples shall be taken in the spring prior to planting; and
- (b) Thereafter, residual soil nitrate samples shall be taken in the fall, post-harvest, once every five years.

~~(c) Soil sample results shall be certified by the processing laboratory.~~

(2) A landowner shall record residual soil nitrate levels for each field under their ownership or control on a worksheet supplied by the department and shall submit completed worksheets to the department ~~by December 30 of each reporting year. within 30 days of obtaining sample results from the processing laboratory.~~

(a) Notwithstanding who the operator is, a landowner shall assure that residual soil nitrate samples are taken, recorded, and sample results submitted consistent with this rule.

(3) Where a residual soil nitrate sample indicates a violation of ORS 468B.025(1), the department may proceed to determine a landowner's compliance with the rules governing a landowner irrigating large acreages and if necessary, may proceed with appropriate enforcement.

**603-XX-XX14 ~~[MOVE this SECTION TO AFTER SOIL SAMPLING PROTOCOL]~~
Certification of Annual Nitrogen Budgets, Post Harvest Summary Records and Residual Soil Nitrate Levels**

[This rule applies only to landowners irrigating large acreages]

(1) Annual nitrogen budgets, ~~post-harvest summary records~~, and residual soil nitrate sample results shall be certified in one of the following ways:

(a) Certified by an irrigation and nitrogen management plan specialist. In certifying a plan, a specialist shall attest that the record accurately reflects the conditions and management of the agricultural operation, that they can answer questions relevant to the document certified and are competent and proficient by education and experience relevant to the development of the document. These specialists may include Professional Soil Scientists, Professional Agronomists, or Crop Advisors certified by the American Society of Agronomy, Technical Service Providers certified in nutrient management in Oregon by the National Resource Conservation Service (NRCS);

(b) Self-certified by the landowner who attests that the document adheres to a site-specific recommendation from the NRCS or the Oregon State University Cooperative Extension [NEED SPECIFICS]; or

(c) Self-certified by the landowner if the landowner states that they apply no fertilizer to any field on the agricultural operation.

(2) Each record for which proof of certification is required shall include the name of the farm operator if different than the landowner, certifier, the date of plan certification, and certification method used.

(a) Each submission of proof of certification shall be contained on a form provided by the department and contain a statement stating that under penalty of law, the certified record is true, accurate and complete.

**603-XX-XX15
Soil Sampling Protocol**

(1) A landowner taking pre-planting soil samples or soil samples taken prior to application of ~~synthetic fertilizer s, compost, or manure~~ shall collect separate composite soil samples at the depth of the root zone according to guidance contained in EC628 (2022).

(2) A landowner using post-harvest soil samples to determine whether they have followed an annual nitrogen budget shall collect separate composite post-harvest soil samples after harvest of

annual crops and before 3 inches of rainfall accumulates. September 1 shall be the start date for tallying the accumulation of rainfall.

(a) Separate composite soil samples shall be collected at the 0-12 inch depth, the 12-24 inch depth and the 24 – 36 inch depth according to guidance contained in PNW 570-E (2003), EM 8832-E (2021) for post-harvest nitrate-nitrogen.

(b) If the soil sample is taken after 3 inches of rainfall accumulates, a landowner shall collect an additional composite soil sample for the 72 - 84 inch depth to account for nitrate leaching.

(3) To determine soil nitrate residues as required in [CITE RESIDUAL SOIL NITRATE RULE], a landowner shall collect separate composite soil samples after harvest of annual crops and before 3 inches of rainfall accumulates. September 1 shall be the start date for tallying the accumulation of rainfall.

(a) Separate composite soil samples shall be collected at the 36 – 48 inch depth according to guidance contained in PNW 570-E, EM 8832-E for post-harvest nitrate-nitrogen.

(b) If the soil sample is taken after 3 inches of rainfall accumulates, a landowner shall collect an additional composite soil sample for the 72 - 84 inch depth to account for nitrate leaching.

(4) Soil samples shall be processed at a laboratory accredited by the North American Proficiency Testing (NAPT) Program and the Performance Assessment Program (PAP).

Commented [RM36]: Is there a better resource than EM 8832-E (2021)?

603-XX-XX16

Large Irrigated Acreages Program Evaluation

[This rule applies only to landowners irrigating large acreages]

(1) The department shall conduct an evaluation of agricultural operations with large irrigated acreage areas to determine whether and to what extent the nitrogen management measures, and annual nitrogen budgets have been implemented and adaptive management measures adopted.

(a) The department shall not conduct an evaluation under this subsection for at least three growing seasons subsequent to the effective date of these rules.

(b) The department's evaluation shall include an audit to determine the percentage of landowners who have submitted proof of certifications for annual nitrogen budgets ~~and post-summary harvest records~~ and the percentage of total landowners who have submitted residual soil nitrate sample results;

(c) Upon inspection of documents for which proof of certification shall be submitted; and

(d) Upon inspection of the agricultural operation.

(2) The department's evaluation shall include a determination of the trends of residual soil nitrate levels.

0AR XXX-XX-XX17

Water Quality Certification Program and Agreements

[This rule applies only to landowners irrigating large acreages]

(1) The Agricultural Water Quality Certification Program is a voluntary opportunity for a landowner conducting agricultural activities within the LUBGWMA. Through this program, certified a landowner who has entered into an Agricultural Water Quality Certification Agreement with the department may:

- (a) Upon entry into a Water Quality Certification Agreement with the department, receive regulatory certainty. The department shall, during the term of the certification agreement, consider a landowner as in compliance for purposes of enforcement, with ORS 468B.025 and ORS 568.930(1) and any of the department's rules implementing those statutes;
 - (b) Receive recognition that certified landowner's agricultural practices are protective of water quality; and
 - (c) Receive priority access to specially designated technical and financial assistance to implement practices that promote groundwater quality as that assistance is available.
- (2) Qualifying landowners may apply for certification on an Oregon Agricultural Water Quality Certification Program form supplied by the department. Application elements shall include:
- (a) A statement from the landowner agreeing to produce any documents requested for inspection by the department during the term of the Agricultural Water Quality Certification Agreement;
 - (b) A statement from the landowner agreeing to submit to the department post-harvest soil sample results each year for each field;
 - (c) A statement from the landowner agreeing to submit to the department residual soil nitrate samples; and
 - (d) A statement from the landowner agreeing that the department may use the data collected during landowner's participation in the Agricultural Water Quality Certification Program to support the program.
- (3) The department may enter into an Agricultural Water Quality Certification Agreement with a landowner if:
- (a) The application is complete; and
 - (b) The landowner agrees to the terms of the agreement.
- (4) An Agricultural Water Quality Certification Agreement shall, among other terms, contain terms specifying that the landowner's duties include the duty to:
- (a) Maintain compliance with all applicable water quality rules in place at the time of certification and to notify the department within 30 days of a violation of applicable water quality rules;
 - (b) Continue to implement the annual nitrogen budgets, soil sampling as appropriate to implement the annual nitrogen budget, and post-harvest and residual soil nitrate soil sampling regimes.
 - (c) Inform the department upon the sale of any lands subject to the certification agreement or inform the department upon the purchase or lease of any additional agricultural land after the start of the certification agreement;
 - (d) Retain all records pertinent to the certification agreement and make them available to the department upon request;
 - (e) Allow entry by the department at agreed-upon dates and times to lands subject to the certification agreement for the purpose of the department's inspection for compliance with the terms of the agreement; and
 - (f) Inform the department if landowner is unable to comply with the terms of the certification agreement due to circumstances the landowner believes are beyond the landowner's control.
- (5) An Agricultural Water Quality Certification Agreement shall, among other terms, contain terms specifying that the department:
- (a) May conduct periodic audits with the landowner on lands subject to the certification agreement. An audit means a review of land management practices on lands subject to the

certification agreement and a review of documents necessary to determine compliance with the certification agreement's terms;

(b) Shall notify landowner if documents or data retained by the department pursuant to a certification agreement are requested for disclosure under the Oregon Public Records Act;

(c) May recognize that all documents submitted to the department as part of landowner's certification agreement are exempt from disclosure provided that the documents are confidential submissions as provided in ORS 192.355(4), exempt as provided in ORS 192.355(9)(a), are trade secrets as provided in ORS 192.345(2) or are otherwise determined as lawfully exempt from disclosure;

(d) May terminate the certification agreement upon a final determination that the landowner has violated any state water quality law and rule in effect during the period of the certification agreement;

(e) May terminate the certification agreement if the department finds the landowner is no longer complying with any term of the certification agreement.

OAR 603-XX-XX18

Specific Action Requirements

(1) A landowner subject to the rules in this chapter may be required to undertake additional, site-specific practices designed to prevent agricultural wastes from entering the groundwater of the state if after inspection of an agricultural operation, the department determines that a landowner is in compliance with the rules of this chapter but there still exists the potential for agricultural wastes to enter the waters of the groundwater of the state.

(2) A landowner may appeal a specific action requirement as provided in OAR 603-090-0040 – 50.

OAR 603-XX-XX19

Complaints and Investigations

(1) When the department receives notice of an alleged occurrence of agricultural pollution through a written complaint, its own observation, through notification by another agency, or by other means, the department may conduct an investigation. The department may, in its discretion, coordinate inspection activities with the appropriate Local Management Agency.

(2) Each notice of an alleged occurrence of agricultural pollution shall be evaluated in accordance with the criteria in ORS 568.900 to 568.933 and any rules adopted thereunder to determine whether an investigation is warranted.

(3) Any person allegedly being damaged or otherwise adversely affected by agricultural pollution or alleging any violation of ORS 468B.025, ORS 568.900 to 568.933 or any rules adopted thereunder may file a complaint with the department.

(4) The department will evaluate or investigate a complaint filed by a person under OAR 603-095-0380(3) if the complaint is in writing, signed and dated by the complainant and indicates the location and description of:

(a) The waters of the state allegedly being damaged or impacted; and

(b) The property allegedly being managed under conditions violating ORS 468B.025, ORS 568.900 to 568.933 or any rules adopted thereunder.

(5) As used in subsection (4) of this section, “person” does not include any local, state or federal agency.

(6) If the department determines that a violation of ORS 468B.025, ORS 568.900 through 568.933 or any rules adopted thereunder has occurred, the department may proceed with the enforcement procedures provided in OAR 693-090-60 through 603-090-0120.