

DRAFT

AGRICULTURAL ACTIVITIES IN
THE LOWER UMATILLA BASIN
GROUNDWATER MANAGEMENT AREA

8/8/25

Edits from RAC #2 4/23/25

Edits from RAC #3 5/22/25

Edits from DEQ 6/6/25

Edits from RAC #4 6/26/25

Edits after call with OSU 7/14/25

Edits from RAC #5 7/24/25

Edits from DEQ 8/8/25

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 people within the LUBGWMA drinking water can cause serious health effects to vulnerable populations, 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 agricultural lands within the LUBGWMA in agricultural use that are not otherwise subject to a National Discharge Elimination System or Water Pollution Control Facility permit issued by the Oregon Department of Agriculture or the Oregon Department of Environmental Quality.

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

- (2) ~~Unless otherwise required by law, t~~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.
- (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. 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"?

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) "Certifier" means a qualified irrigation and nitrogen management plan specialist as provided in OAR 603-XX-XX14.
- (8) "Compost" has that meaning given in ORS 633.311(5).
- (9) "Department" means the Oregon Department of Agriculture.

(10) "Director" means the director of the Oregon Department of Agriculture.

(11) "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.

(12) "Fertilizer" has the meaning given in ORS 633.311(12) except that for the purposes of these rules, fertilizer includes "Exceptional Quality Biosolids" as that term is defined in OAR 340-050-0010(14), includes "compost" as that term is defined in ORS 633.311(5), and includes "agricultural amendments" as that term is defined in ORS 633.311(1).

(13) "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. A center pivot is one field

(14) "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.

(15) "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.

(16) "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.

(17) "Land occupier" or "occupiers of land" includes any person who is in the possession of any land, whether as lessee, renter, or tenant.

(18) "Landowner" includes any person or public body as defined in ORS 174.109 shown by records of the county to be the owner of land or having such land under contract to purchase and includes a "land occupier", "occupiers of land" or "operator," has the meaning given in ORS 568.210 and ORS 568.903 and includes an "operator" as defined in ORS 568.900(2).

(19) "Management Unit" means an area in a field or a group of fields with the same crop, fertilizer inputs, irrigation management practices, and nitrogen management practices.

(20) "Manure" means solids or liquids excreted from an animal.

(21) "Nitrate" means readily soluble form of nitrogen, easily taken up by plants, but also prone to leaching, with the chemical formula NO₃.

(22) "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).

(23) "Operator" means any person, including a landowner or land occupier engaged in any commercial activity related to the growing or harvesting of agricultural crops or the production of agricultural commodities. has the meaning given in ORS 568.200(2).

(24) "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.

(25) "Plant Available Nitrogen" means a form of nitrogen in the soil that plants can readily absorb and utilize for growth, with the chemical formula NO₃-N and NH₄-N.

Commented [RM4]: Addressed comment by B. Spencer 5/22

Commented [RM5]:
Definition includes "Compost" and "Agricultural Amendments".

Definition excludes "biosolids" and "biosolids-derived products" because DEQ regulates the application of biosolids and biosolid-derived products under a DEQ-issued NPDES or WPCF permit, management plan and site authorization letter.

The definition is amended to include "Exceptional Quality Biosolids" which, while produced pursuant to DEQ's permit program is not distributed or applied under a DEQ permit. I.e., anyone can purchase it and apply it anywhere without a permit.

Commented [RM6]: New def. Tries to address comments by Brad Spencer 5/22 that def. Of field should be same as management unit.

Commented [RM7]: Clarification regarding sub-classes of persons incorporated in the statutory term "landowner" per several comments received including from DEQ on 8/8. Spelled out definition rather than citing to statutes.

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

(272) “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.

(28) “Total Nitrogen (TN) is the sum of all nitrogen-containing compounds in a sample including both inorganic and organic forms. TN = Total Kjeldahl Nitrogen (TKN) + Nitrate (NO₃) + Nitrite (NO₂).

(294) “Waste” or “wastes” has that meaning given in ORS 468B.005 with the clarification that “waste” or “wastes” includes but is not limited to fertilizer, pesticides, fumigants, commercial fertilizers, soil amendments, composts, animal wastes, vegetative materials and includes or nitrate (NO₃) that enters groundwater as a result of agricultural activities and by any means.

(3025) “Water” or the “waters of the state” has the meaning given in ORS 468B.005.

Commented [RM8]: Amended per comment by B. Spencer 5/22.

Commented [RM9]: Edited definitions of “waste” and “water” or “waters of the state” per comment by DEQ (addressing scope of rules).

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) A landowner within the LUBGWMA shall employ nitrogen management measures when making land applications of synthetic fertilizers, compost or manure to agricultural lands.

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

(a) Take soil samples consistent with OAR 603-XX-XX13(1); and

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

(3) A landowner shall document, on a worksheet provided by the department or according to a format otherwise used by the landowner, and upon request by the department make available for

Commented [RM10]: 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 [RM11R10]: Included Dani Lytle’s suggested changes from 5/9

Commented [RM12]: From RAC #4 comments — Edited to include other format otherwise used by landowner to accommodate landowners who will keep this information in another format — so as to eliminate duplication of effort. Other format is fine as long as it includes all of the information required by the rules.

Edited OAR 603-XX-XX05(3) to reflect that landowners conducting activities on large irrigated acreages (1,000 Acres +) may use format other than worksheet provided by department.

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 fertilizer nitrogen applications containing nitrogen;
- (b) The weather conditions and soil moisture at the time of application; and
- (c) The agronomic application rate used.

~~(4) Records required in subsection (3) 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 12-24 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.~~

~~(e5f) Except as is otherwise required by law for application of manure or compost, 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.

603-XX-XX06

Irrigation Water Management

[This rule applies to all landowners within the LUBGWMA]

(1) All landowners within the LUBGWMA shall manage irrigated agricultural lands to 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

Commented [RM13]: Per DEQ comment. Changed to 24" for consistency with DEQ programs.

Commented [RM14]: RAC Comment: (c) and (e) seem redundant, so deleted (e).

Commented [RM15]: 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 [RM16R15]: 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. Did not find a conflict with the National Organic Standards either. Notwithstanding, the draft is amended to refer to other law requirements that may be applicable.

Commented [RM17R15]: Should we delete biosolids from def. of fertilizer, but keep compost and manure?

(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 [RM18]: Edits in this section made during conversation with Dr. Bonilla on 5/23.

603-XX-XX07

Animal Pasturing

[This rule applies to all landowners within the LUBGWMA]

Commented [RM19]: 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.

(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.

Commented [RM20]: 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.

(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.

Commented [RM21]: 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."

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

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

(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.

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.

(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.

603-XX-XX08

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.

Commented [RM22]: RAC members think that these rules won't reach enough growers (28) rules should apply to everyone.

(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. In addition to conducting agricultural activities consistent with OAR 603-XX01 – XX07, landowners subject to these rules must also prepare an annual nitrogen plan as described in [CITE RULE], prepare annual post-harvest summary records as provided in OAR 603-XX-XX11, and implement adaptive management measures as described in OAR 603-XX-XX12.

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.

~~(a) Measures include irrigation water management, an annual nitrogen budget, and annual post-harvest summary records.~~

(a) Documents created as specified in OAR 603-XX-XX08 -- XX14 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 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-XX09

Annual Nitrogen **BudgetPlan**

[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 or according to a format otherwise used by the landowner, an annual nitrogen **budgetplan** 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 **budgetplan** shall cover the entire growing season and include double-crops, and winter cover crops.

(2) An annual nitrogen **budgetplan** 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 **budgetplans** 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 **budgetplan**.

(a) Where crop season conditions differ from those forecasted, an annual nitrogen **budgetplan** may be adjusted to reflect changes in weather, water availability, or other unanticipated circumstances.

(b) Should an adjustment to an annual nitrogen **budgetplan** be necessary, a landowner ~~should~~ **shall** document the reasons for the adjustments in the annual nitrogen **budgetplan**. 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 **budgetplan** may not result in enforcement action by the department. However, failure to submit proof of certification of an annual nitrogen **budgetplan** 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 **budgetplan** shall be submitted to the department by January-May 1 of each year.

Commented [RM23]: Edit pursuant to comments during RAC #4. Replaced "budget" with "plan" throughout document.

Commented [RM24]: From RAC #4 comments — Edited to include other format otherwise used by landowner to accommodate landowners who will keep this information in another format — so as to eliminate duplication of effort. Other format is fine as long as it includes all of the information required by the rules.

Edited OAR 603-XX-XX05(3) to reflect that landowners conducting activities on large irrigated acreages (1,000 Acres +) may use format other than worksheet provided by department.

Commented [RM25]: Commenters in RAC #4 commented that LGU guidance is not available for all crops. Other commenters did not like replacing LGU guidance with "best available science." Just leaving for now, unless get more input from RAC as to what other guidance to include, because this section is discretionary anyway.

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

Commented [RM27RM26]: 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 ~~BudgetPlan~~ Contents

[This rule applies only to landowners irrigating large acreages]

Annual nitrogen ~~budgetplans~~ shall include each of the following elements.

(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) ; R~~record the soil type(s);

~~(b) of the field and R~~record pre-planting levels of plant available nitrogen in the root zone as determined by pre-planting soil sample results; and:

~~(ca)~~ For the first annual nitrogen ~~budgetplan~~ 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-applied from all sources including irrigation water.

(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: 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.

~~(12)~~ Certification. A landowner shall provide proof of certification of an annual nitrogen ~~budgetplan~~ to the department by ~~[SPECIFY DATE]~~May 1 of each year.

Commented [RM30]: Edits per DEQ comments

Commented [RM31]: A few RAC members commented that ODA prescribe frequency and method for testing irrigation water. Other RAC members feel additional sampling is expensive and unnecessary.

For now, leaving requirement to test irrigation water out since there was not a clear consensus for testing. As the rules are written now, growers will have to test their irrigation water at least annually in order to calculate the total N that would be added by irrigation water. Other growers know that there is no N in their water source (e.g. irrigators using deep aquifers or Columbia River water).

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 ~~budgetplan~~, a landowner subject to these rules shall prepare a post-harvest summary record on a worksheet provided by the

department or according to a format otherwise used by the landowner. The post-harvest summary record is to be that is used to evaluate the effectiveness of their annual nitrogen budget plan.

(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 (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; and

(iii) If applicable, total nitrogen from crop residues or cover crops.

(h) For each field, a determination according to 603-XX-XX12 of whether the annual nitrogen budget plan 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 plan.

603-XX-XX12

Annual Nitrogen Plan Evaluation

(1) A landowner has met or has followed an annual nitrogen plan if, for each field, the annual nitrogen plan is met according to the standards and methodologies in subsections (2) – (4) of this rule, estimated crop yields are obtained, post-harvest plant available nitrogen or nitrate levels are low or decreasing, and estimated nitrate leaching is minimized as provided in subsection (5).

(2) A landowner may determine whether they have met or followed their annual nitrogen plan according to the partial nitrogen balance equation: $\text{Total Nitrogen Applied} - \text{Total Nitrogen Removed} = \text{Change in Soil N storage}$ ($A - R = \Delta N_{\text{soil}}$). An annual nitrogen plan is met or followed if a landowner is approaching or meeting a steady-state condition, i.e., soil N storage (ΔN_{soil}) is zero or within an acceptably small value.

(a) For each field, a landowner may calculate post-harvest plant available nitrogen levels as total nitrogen (N) inputs including inputs from irrigation water (if applicable) minus total crop N removal including removal of crop residue (if applicable) ($\text{Total N Inputs} - \text{Total N Removed}$).

(b) Total crop N removal (lbs/acre) is calculated as actual crop yield (units/acre) plus crop residue (if any) multiplied by the specific nitrogen coefficient (C_N) (lbs/unit) of the harvested crop ($\text{Nitrogen Removed (lbs/acre)} = \text{Crop Yield (units/acre)} \times C_N \text{ (lbs/unit)}$).

Commented [RM33]: From RAC #4 comments — Edited to include other format otherwise used by landowner to accommodate landowners who will keep this information in another format — so as to eliminate duplication of effort. Other format is fine as long as it includes all of the information required by the rules.

Edited OAR 603-XX-XX05(3) to reflect that landowners conducting activities on large irrigated acreages (1,000 Acres +) may use format other than worksheet provided by department.

Commented [RM34]: Edited to clarify that PHS record does not have to be certified nor proof of certification submitted to ODA.

Commented [RM35]: Per DEQ suggestion 8/8/25.

Commented [RM36]: This section was revised after a discussion with OSU scientists on 7/14/25.

Commented [RM37]: Nick's comment that there is no quantitative expression for "low" and the problems inherent with that. DEQ has made same observation. Think we need to address.

Commented [RM38R37]: Addressed per edits to each section.

(3) A landowner may determine whether they have met or followed their annual nitrogen plan by determining post-harvest soil nitrate levels at the crop's rooting depth. A landowner has met or followed their annual nitrogen plan if, for each field, post-harvest soil nitrate levels in the crop root zone are low or showing a trend of decreasing.

(a) A landowner may determine post-harvest nitrate levels using soil nitrate levels derived from post-harvest soil samples taken consistent with the soil sampling protocol in OAR 603-XX-XX14.

~~(a) Decreasing post-harvest soil nitrate concentrations may indicate that a landowner has applied fertilizer at an agronomic application rate and the risk of nitrate leaching is lowered.~~

~~(b) Increasing post-harvest soil nitrate concentrations may indicate over-fertilization which may increase the risk of nitrate leaching.~~

(4) A landowner may determine whether they have met or followed their annual nitrogen plan 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 plan, and the risk of nitrate leaching is lowered.

(b) If a landowner has not met or exceeded their estimated crop yield, this may be an indication that excess plant available nitrogen remains in the soil at the 12 to 24 inch crop root depth and the risk of nitrate leaching may increase.

~~(56)~~ For each field, a landowner shall estimate possible nitrate leaching by determining whether they followed their Irrigation Water Management Plan as provided in OAR 603-XX-XX06.

(a) If one or more irrigation events did not result in the exceedance of the soil's field capacity then the risk of nitrate leaching decreases.

(b) If one or more irrigation events resulted in the exceedance of the soil's field capacity then the risk of nitrate leaching increases.

~~(67)~~ For each field, a landowner shall determine and record in their post-harvest summary report whether their annual nitrogen plan was followed or not.

~~(78)~~ Adaptive Management Measures: For each field where an annual nitrogen plan was not met or followed, a landowner shall record in the following year's annual nitrogen plan, the adaptive management measures they will employ according to Table 1.

(a) Table 1: Adaptive Management Measures

Annual Nitrogen Plan 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	<u>Year 1</u> - Document reason(s) for not following ANP in post-harvest summary record. - Reevaluate nitrogen plan assumptions for estimated crop yield, nitrogen volatilization, mineralization and other sources of nitrogen. - Verify actual agronomic application rates and recalibrate application equipment as necessary.	N/A <u>Year 2</u> Continue the actions in the Required Action column for "No Year 1".

Commented [RM39]: Have received several comments that "low" or "decreasing" is vague and unrelated to quantitative data. Agree, but have not been able to find nitrate numbers for the LUBGWMA. Earlier drafts suggested quantitative nitrate levels from Willamette Valley soils, but these numbers were rejected by OFB.

	- Review irrigation plan to prevent over irrigation. - Consider planting a fall/winter cover crop.	
No Year 3	<u>Year 3</u> Continue the actions for Year 1 and 2 and: - Document reason(s) for not following the ANP in post-harvest summary record. - Adjust N application timing so nutrient availability aligns with peak crop uptake. - Stop N application after peak crop uptake. - Collect and analyze an additional fall soil sample at <u>the second foot depth (24-36 inches or at the depth of the crop root zone).</u> - Plant a fall/winter cover crop.	<u>Year 4</u> Continue the actions in the Required Actions column for “Year 1” through “Year 3” and: - Reduce N application to fields and: (a) Hire a <u>professional/consultant/certified crop advisor</u> to develop annual nitrogen plan and application rates.
No Year 5	<u>Year 5</u> Continue the actions for Year 3 and: - Assume no N losses from denitrification and volatilization for all applicable fields. - Enhance nitrogen removal via cropping. - Reduce N application amount to field.	<u>Year 6</u> Continue the actions in the Required Action column for “Year 1” through “Year 5” and: - Stop N application to the field until the following measures are taken: (a) Hire a <u>professional/consultant/certified crop advisor</u> to develop annual nitrogen plans and application rates and implement nitrogen management measures advised. - Collect additional post-harvest soil samples at the <u>12 – 24 inch, 24 - 36 inchsecond, 36 – 48 inchthird, and 48 – 60 inch fourth foot</u> depth or until refusal or groundwater is reached and analyze for nitrate.

Commented [RM40]: Ask RAC — are there crops with a root zone deeper than 4 feet?

603-XX-XX13 Soil Sampling Protocol

- (1) A landowner taking pre-planting soil samples or soil samples taken prior to application of fertilizer shall collect separate composite soil samples at the depth of the root zone of the planned crop 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 plan shall collect separate composite post-harvest soil samples after harvest of annual crops, and before 1.5 3 inches of rainfall accumulates, and before any post-harvest irrigation, September-October 1 shall be the start date for tallying the accumulation of rainfall.

Commented [RM41]: Edited to 1.5” according to U.S. Climate data for Umat. County?

Commented [RM42]: Comment from RAC #5 that can't get a soil sample out of a wheat field unless you irrigate first because the soil is too hard.

Commented [RM43]: Comment from RAC #5 that this date is too early because “irrigation season is until 10/31 or 11/1.” This is true as confirmed with Chris Cowitz, however, the date is for the start of tallying rainfall, not irrigation. According to US Climate Data the rainy season in Umatilla county starts in October and total precipitation is usually under 1.5 inches.

(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-the applicable methodology contained in PNW 570-E, EM 8832-E (2021) and EM9221 (2019) for post-harvest nitrate-nitrogen.

(b) If the soil sample is taken after 1.53 inches of rainfall accumulates, a landowner shall collect an additional composite soil sample for the 36 – 48 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.~~

(3) Soil samples shall be processed at a laboratory accredited by the North American Proficiency Testing (NAPT).

Commented [RM44]: Some push back in RAC #5 to the 24-26" inch depth soil sample, but need to capture depths where crop root zone is.

Commented [RM45]: Is there a better resource than EM 8832-E (2021)?

Commented [RM46]: RAC #5 comment that going to this depth is too much. Maybe change to 36 - 48" depth consistent with residual soil sampling depth. What is appropriate for sandy soils in the LUB?

Commented [RM47]: Deleted PAP re: RAC #5 commenter noting unavailability of PAP certified labs and noting that PAP certification is voluntary.

603-XX-XX14

Certification of Annual Nitrogen Plans

[This rule applies only to landowners irrigating large acreages]

(1) Annual nitrogen budget plans, 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-Natural Resource Conservation Service (NRCS);

(b) Self-certified by the landowner who attests that the document adheres to a site-specific recommendation from the NRCS, a certified agronomist or crop advisor, or from a land grant university the Oregon State University Cooperative Extension [NEED SPECIFICS] provided the specific NRCS recommendations or land grant university recommendations are documented along with the certification; 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.

Commented [RM48]: RAC #5 comment — don't need post-harvest nitrate samples certified because come from certified lab.

Commented [RM49]: RAC #5 comment: replace mention of OSU to land grant universities generally, since many of the farmers follow guidance from WSU and Idaho.

Commented [RM50]: RAC #5 request that self-certification be allowed if grower takes ODA-sponsored programs declined because ODA does not have this program set up (nor the resources to do so) and it would put the agency in a tough position if it were a rule requirement.

Commented [RM51R50]: I added the requirement that the recommended standards be specifically included with self-certification as an assurance that the self-certification is based on legit. Recommendations.

603-XX-XX15

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 subsection (2) of this section. ~~[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) 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 1.53 inches of rainfall accumulates, and before any post-harvest irrigation. September~~October 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 below the crop root zone according to guidance contained in PNW 570-E, EM 8832-E and EM9221 (2019) for post-harvest nitrate-nitrogen.~~

~~(b) If the soil sample is taken after 1.53 inches of rainfall accumulates, a landowner shall collect an additional composite soil sample for the 60 - 72 72 – 84 inch depth below the crop root zone to account for nitrate leaching.~~

~~(c) Soil samples shall be processed at a laboratory accredited by the North American Proficiency Testing (NAPT).~~

(3) 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.

~~(4) Where a residual soil nitrate sample indicates a violation of ORS 468B.025, 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.~~

Commented [RM52]: Per DEQ comment 8/8.

Commented [RM53]: RAC #5 comment — 72- 84 inch depth too deep (6 foot). Also, should we change to 1.5 inches of rain v. 3 inches and also changed month to reflect Umat. County precipitation records by U.S. Climate.

Commented [RM54R53]: Edited so that residual soil samples are taken at the 3 - 4 foot depth. If taken after 1.5 inches of rain, then at the 5 - 6 foot depth.

Commented [RM55]: Deleted PAP re: RAC #5 commenter noting unavailability of PAP certified labs and noting that PAP certification is voluntary.

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 ~~budget~~plans 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 ~~budget plans 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.

OAR 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;
 - ~~(b) The department has, after inspection, determined that the landowner is in full compliance with the rules in this division; 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:

Commented [RM56]: Per DEQ comment 8/8 regarding determining LO qualification for program.

- (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 **budgetplans**, soil sampling as appropriate to implement the annual nitrogen **budgetplan**, 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 603-090-60 through 603-090-0120.