

LUBGWMA

Strategic Implementation Area

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AGRICULTURE**

Strategic Implementation Area

Focused on-the-ground efforts to locally identify and collaborate on water quality issues

Local Partner is Morrow SWCD


Collaboration & Cooperation

Very First Groundwater SIA

Lower Umatilla Basin Groundwater Strategic Implementation Area



The SIA – What's ahead?

- LEARN – Agricultural data, crops, irrigation, management
 - LISTEN – Irrigation & Nutrient Management Practices being utilized
 - DEMONSTRATE & DOCUMENT – Ag producers utilizing effective management practices with demonstration projects
 - VERIFY – Effectiveness of management practices to limit leaching
- 

Irrigation – Know the Science

- Water carries the nutrients to groundwater – don't overapply
- Keep the nutrients/water in the crop's root zone – nutrients below the root zone is money lost
- Flood irrigation is not conducive to the LUB area, wastes 50% of irrigation water, most of which goes to groundwater
- Irrigation quantities must change through the season with weather and crop demand
- If irrigation water is flowing over land, the application rate is too high



Why is ODA
Promoting Efficiency
in Irrigated Ag?

***It's the right thing to do,
and it's the law***

Oregon Statute 468B.025: Waste Law

No person shall cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means

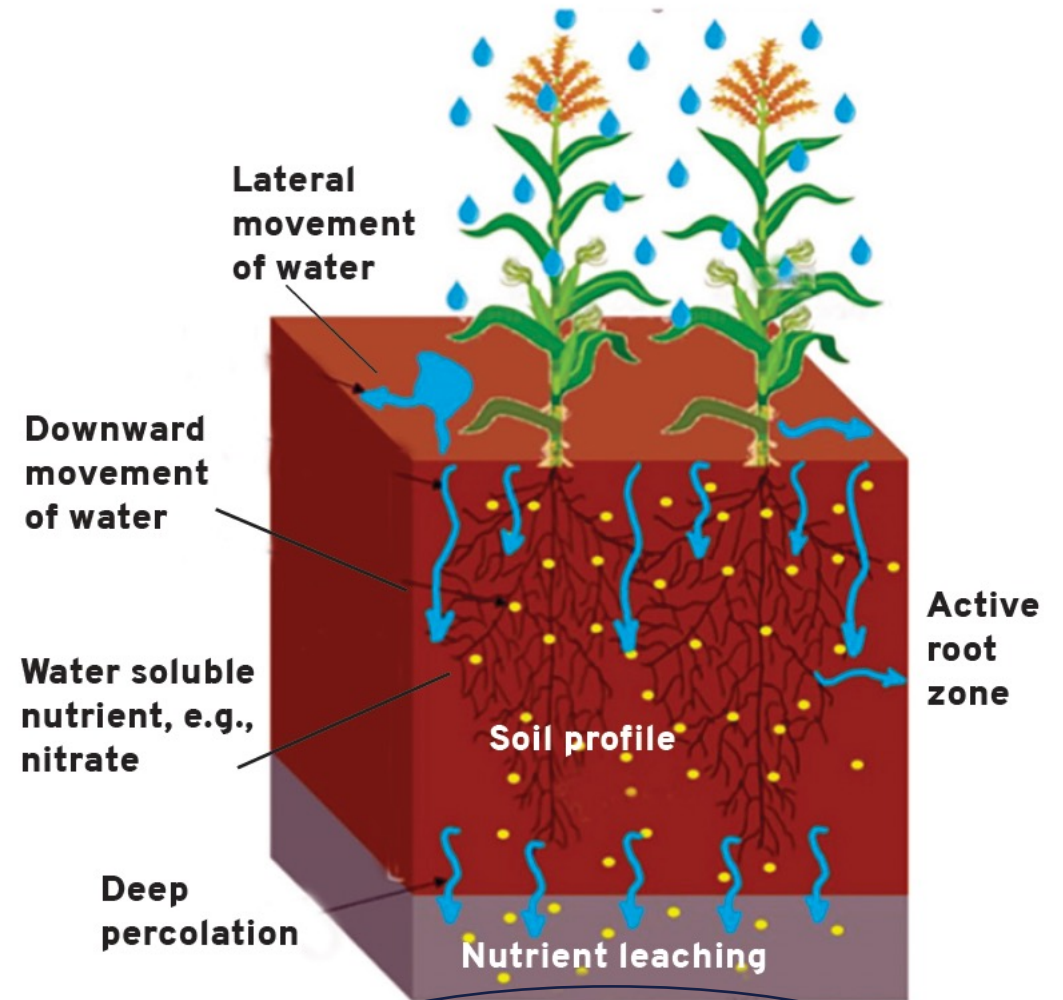


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Waste Rule

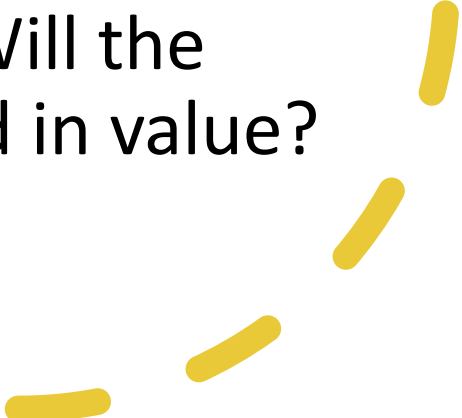
Waste – includes manure & fertilizer; when leached

Waters of the State – includes rivers & groundwater!



Leaching of nutrients to groundwater is a violation of the Waste Rule

Nutrient Management

- Know the expected nutrient requirements for the crop – agronomic rate
 - Know your soil and plant nutrient status through the season
 - Apply nutrients according to when the crop can utilize the nutrients
 - Keep records of nutrient application quantity & timing
 - Know your costs and value: Will the application's cost be returned in value?
- 

**Water and
Nutrients
–
Plan is to
Balance
–
INPUTS
should equal
OUTPUTS**

Irrigation

INPUTS

Irrigation applied

+

Rain (Zero?)

=

OUTPUTS

Water evaporated + Water
transpired (used by crops)

(Evapotranspiration)

+

Runoff (Zero)

Management Practices

Irrigation Scheduling

Nozzle Sizing

Maintaining water in root
zone

Monitoring soil moisture

Keeping records



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Nitrogen Inputs

NITROGEN INPUTS					
Commercial Fertilizer (lbs/acre/yr)	Pounds/acre	Fertilizer Type : Application Method	N-loss(%)	N-Fert(lb/ac)	N-Fert(lb)
	250	Urea or UAN : Fertigation	10	250	27500
Irrigation (in/yr)	Applied Water (in)	N-irr(mg/l)	N-irr(lb/acft)	N-irr(lb/acin)	N-irr(lb)
	32	10	27.19	2.27	7976.91
Manure Application (tons/acre)	Applied Manure (ton/acre)	N Total-Manure (lb/ac)	N Available-Manure (lb/ac)		N-Manure(lb)
	20	146.8	51.38		5651.80
Process Water (in/yr)	Applied Process Water (in)	N-PW(mg/l)	N-PW(lb/acft)	N-PW(lb/acin)	N-PW(lb)
	0	10	27.19	2.27	0.00
Precipitation (in/yr)	Rain (in)	N-rain(mg/l)	N-rain(lb/acft)	N-rain(lb/acin)	N-rain(lb)
	9	0.5	1.36	0.11	433.40
TOTAL INPUTS					41562

Nitrogen Outputs

NITROGEN OUTPUTS

Harvest (units)

Nout-Harvest(lb/ac) Nout-Harvest(lb)
170 18700

Ammonia Loss (lb/acre)

Nout-Ammonia(lb/ac) Nout-Ammonia(lb)
25 10625

Denitrification (lb/acre)

Nout-N(lb/ac) Nout-N(lb)
9.79 1077

Runoff

Nout-Runoff(lb/ac) Nout-Runoff(lb)
0.00 0

Leaching

Nout-Leach(lb/ac) Nout-Leach(lb)
0.00 0

Leachable N =

$$N \text{ Inputs} - N \text{ Outputs} - \text{Change in Storage}$$

Fertilizer
Manure
N Fixation
Irrigation
Process Water
Rain

Harvest
Nitrogen Loss
Runoff

Change in
Soil N
Manure N
availability

Meisenger & Randall;
Estimating N Budgets For
Soil-Crop Systems; 1991



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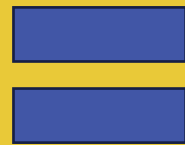
Nitrate Leaching Calculator;
University of Wisconsin-
Madison; 2023

Looking at the LUBGWMA as a Whole

ODA/Morrow SWCD Agricultural Crop
& Rotation Inventory & Irrigation Type
Inventory



Documentation & Verification of Best Management Practices



LUBGWMA Irrigated Ag Management



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Strategic Implementation Area

- * Learn the management practices utilized in the Area**
- * Working with the community, document best management practices for the LUB**
- * Collaborate with community partners on technical assistance and funding opportunities**
- * Verify Water Quality rules are being followed**



Where to get help

Oregon Dept of Agriculture:

Shiloh Simrell – 971.969.6282; Rob Hibbs – 971.719.1576

Morrow Soil & Water Conservation District

541.676.5452 : www.morrowswcd.org

Umatilla County Soil & Water Conservation District

541.278.8049 : www.umatillacountyswcd.com

Natural Resources Conservation District (NRCS)

Heppner: 541.676.5021 ; Pendleton: 541.278.8049

<https://oda.fyi/NRCSAssistance>



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Strategic Implementation Areas Initiative (SIA)-GWMA



Compliance
with Oregon's
Agricultural
Water Quality
Regulations



Collaborative
Partnerships



Incentive-
Based
Conservation



Monitoring to
Track Water
Quality &
Landscape
Conditions

Thank You!

ODA Contact Information
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