

Land Stewardship



What is Land Stewardship?

- Stewardship and the whole-property approach
- The good, the bad, and the ugly of small-acreage properties
- Your vision and goals for your property
- Mapping your property
- Your existing resources
 - Soil and water



Being a steward

steward

–*noun* 1. a person who manages another's property or financial affairs...

Land stewardship:

The responsibility to take care of our natural resources to ensure that they are sustainably managed for current and future generations



Looking at your whole property

- Your property is a system of interconnected parts
- The parts are interrelated and rely on functions of other parts
- Looking at the whole helps you see the interactions and cause and effect relationships



A vision for your land

- Why did you want to own a small-acreage property?
- Why did you buy your particular property?
- What do you want your property to look like?
- What would you like to accomplish on your property?

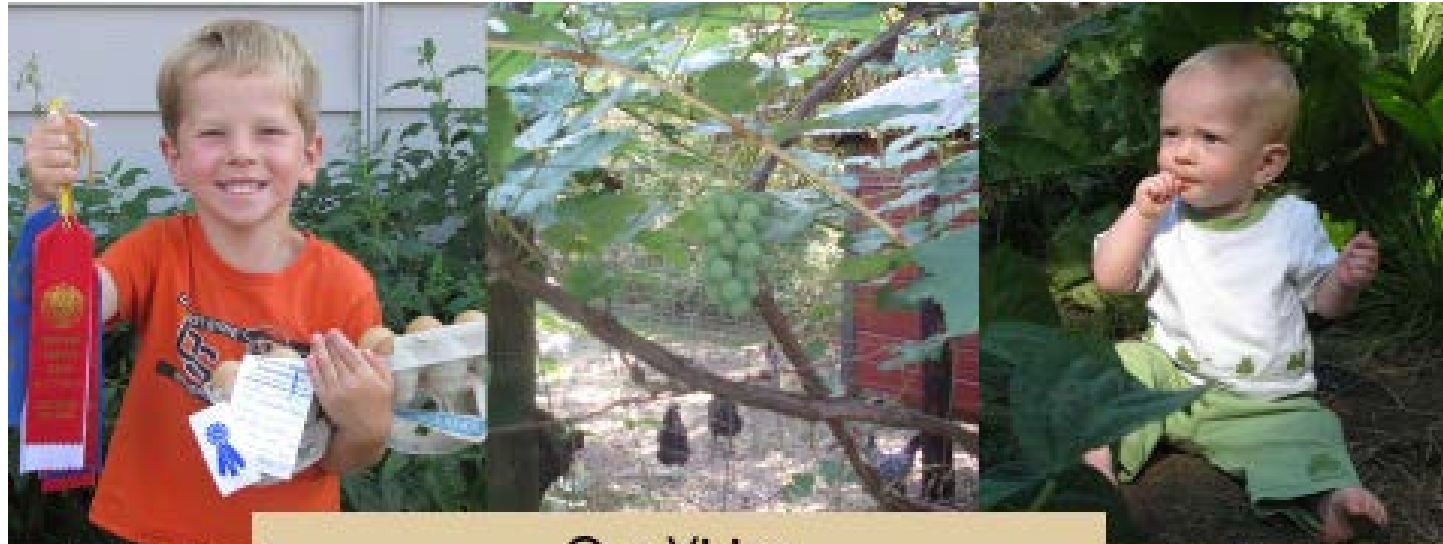


Melissa's Property

– A Homestead

Family ties to the land - wet, clay soils - no irrigation water - minimal infrastructure – livestock, orchard, garden, flowers - provide food for home and neighbors – steward of natural resources- social gatherings





Our Vision



Setting goals: What do you want?

- A more attractive property?
- A more valuable property?
- A more productive property?
- To maintain what you already have?
- To add to your physical structures?
- To own large animals?
- To attract wildlife?
- To protect soil and water resources?
- To make some money?
- To spend less time working on your property?



What are you working with? (resource inventory)

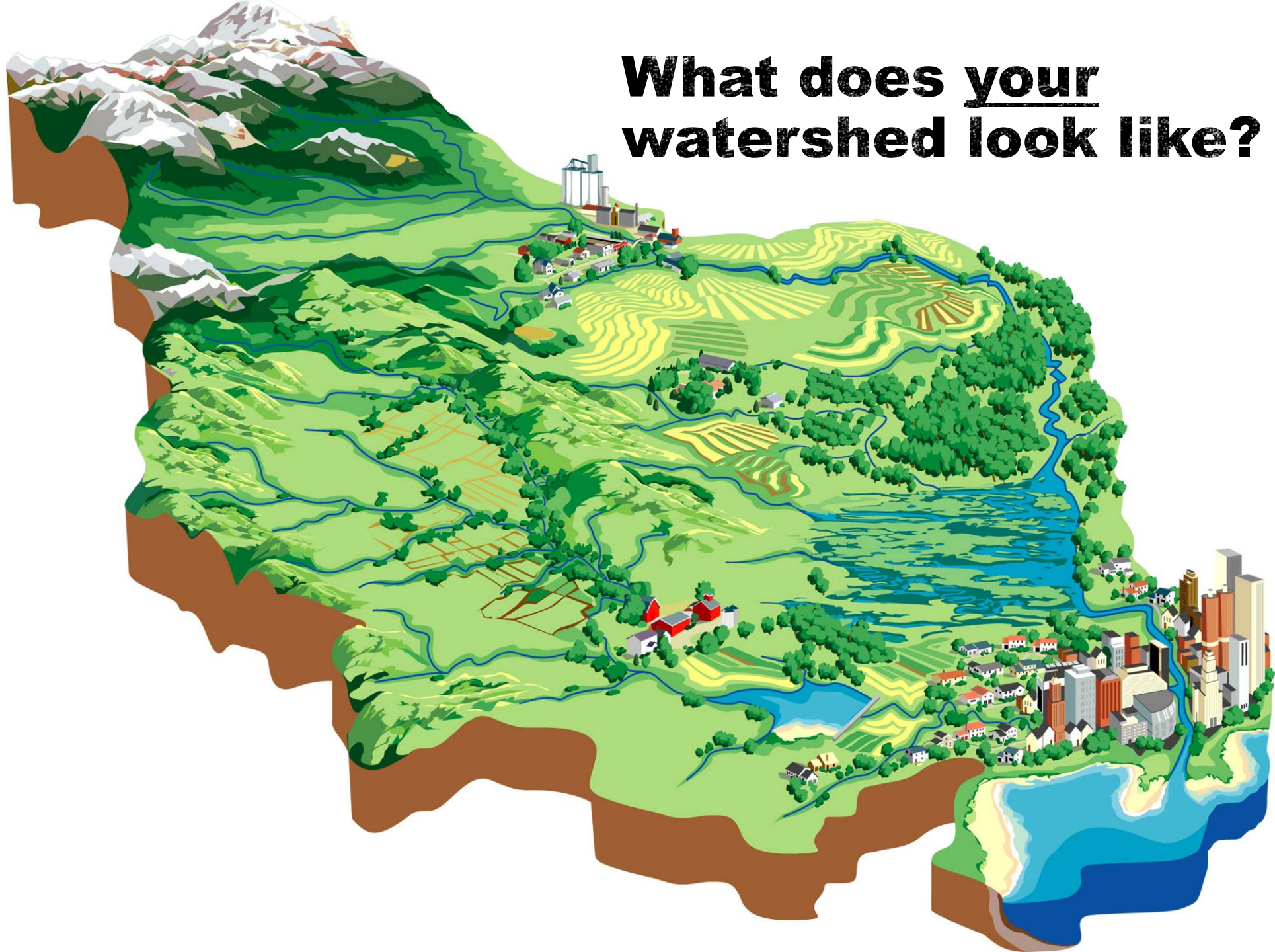


Aerial Photos

- Lane County GIS Maps
<https://www.lanecounty.org>
- Google Earth



**What does your
watershed look like?**







Map your property

Show:

- Buildings: house, barns, shed, etc.
- Facilities: pastures, fences, wells, septic tanks, power lines, sewer lines, etc.
- Assets: existing vegetation, pastures, streams, ponds, wetlands, irrigation, etc.
- Problems: easements, big manure piles, weedy areas, etc.
- What your neighbors are doing



Legend

- W Well
- ☁ Trees
- * Weedy
- ≡ Bare ground
- ✓ Marshy
- Stream
- ≡ Water trough
- ⊕ Gate
- + Fence
- S Septic
- △ Manure pile

Acres = 25

Animals = 6 cows,
1 horse, 3 goats

Pastures = 1

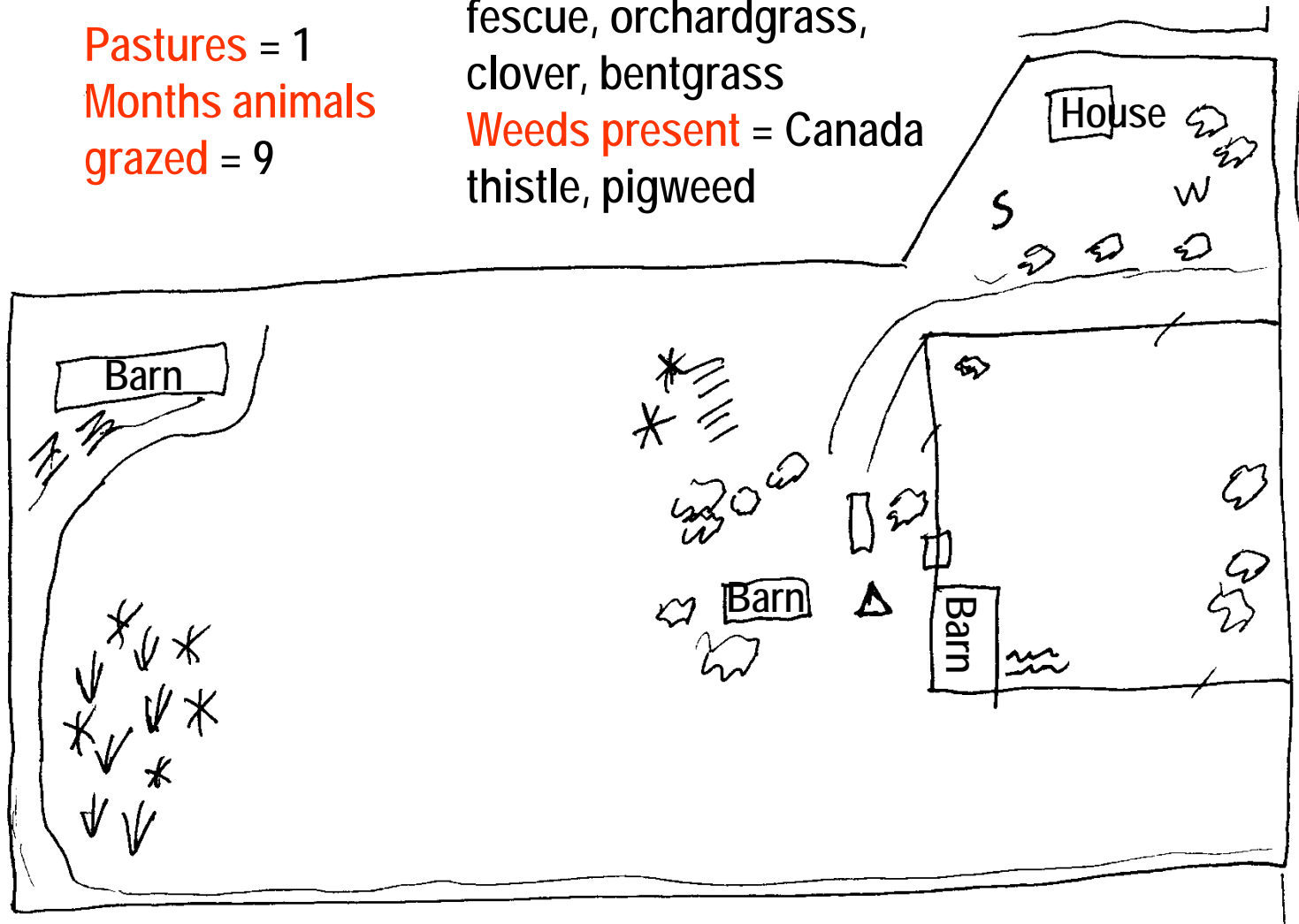
Months animals
grazed = 9

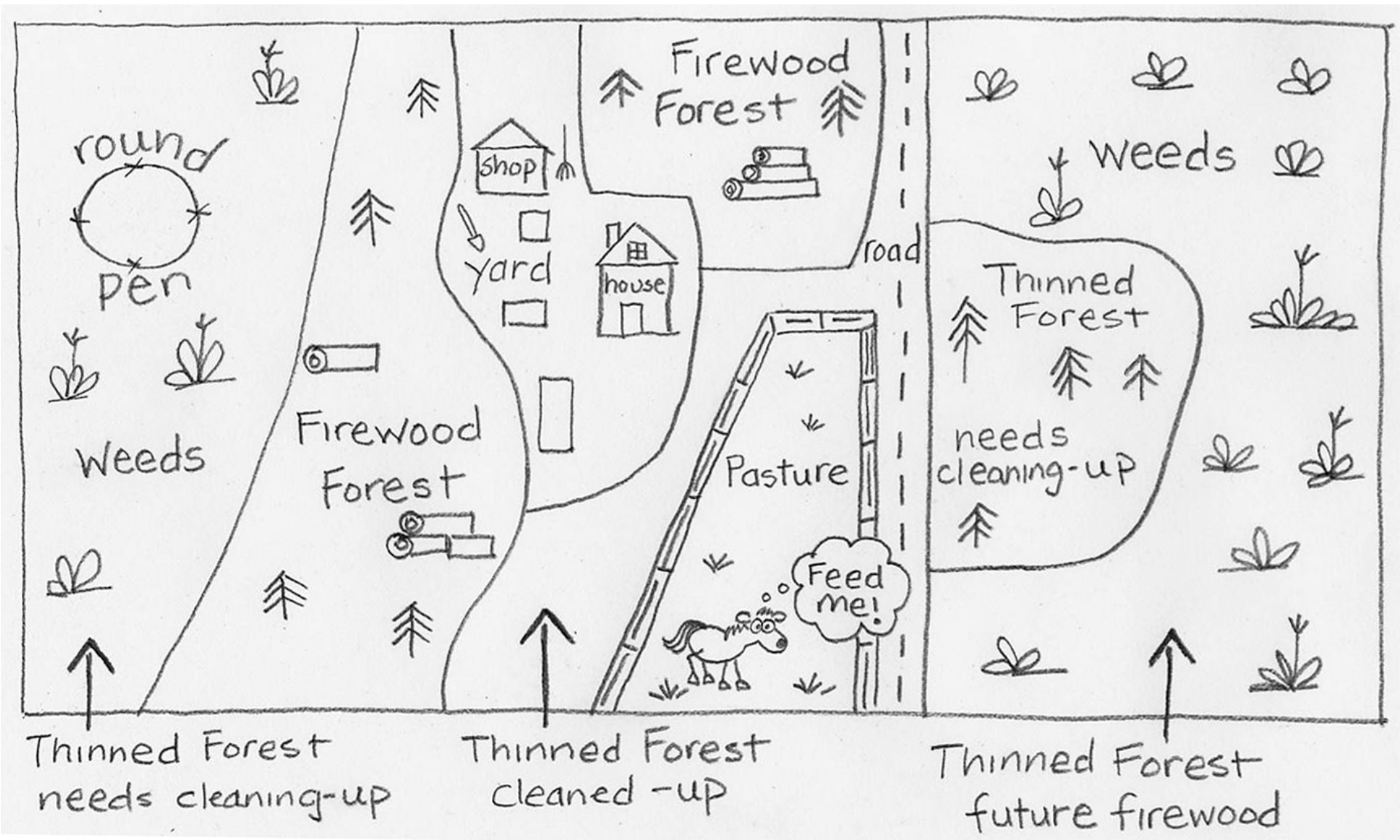
Soils = sandy clay
loam, silt

Grasses present = Tall
fescue, orchardgrass,
clover, bentgrass

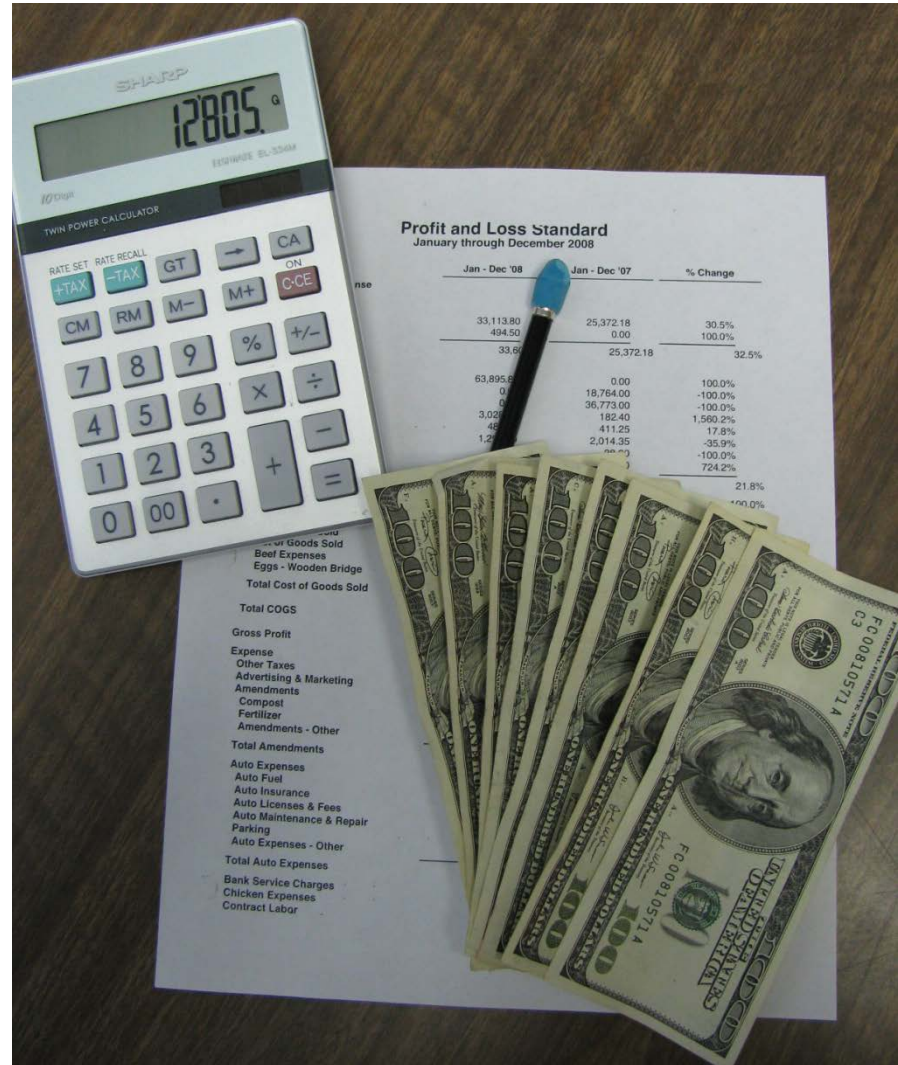
Weeds present = Canada
thistle, pigweed

Property Map





Your financial resources



Your human resources



Identify challenges

Challenges

- Invasive Weeds —————→
- Erosion —————→
- Blocked fish passage —————→
- Livestock in river —————→
- Mud/manure accumulation —————→
- No quality forage grasses —————→

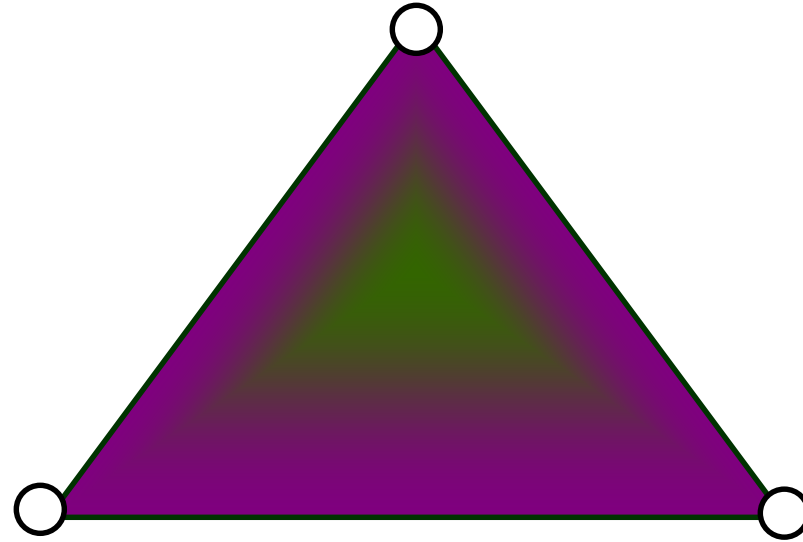
Opportunities

- Improve wildlife habitat
- Improve stability with vegetation
- Improve culvert/crossing
- Improve animal health and riparian vegetation, fencing
- Create safe place for animals
- Improve pasture for livestock production



Goal-setting is a balancing act

Your **goals** as landowners:
Are they realistic?
Do they reflect your priorities?



Your **investments**:
Money, time,
maintenance

Your **resources**:
Soil, water, plants, animals
and other features



Keep some records

- Write it down
- Take photographs
- Document challenges, changes
- Track what worked and what didn't
- Look back at all you've done to make your vision a reality



Water resources

- Do you have surface water (streams, creeks, or ponds) on your property?
- Do you have water rights to use some of this surface water?
- Do you need to worry about flooding?
- Do you have a high water table?
- Wells – do you have limitations on the amount and type of usage?
- Do you have wetlands on your property?
- Are you required to maintain a buffer zone around the water on your property?



Water rights

- Water rights need to be used to be current
- Stay with the property
- Exemptions:
 - Domestic use- 15,000 gallons/day
 - ½ acre of land (typically lawn and garden)
 - Livestock watering, fire control, springs, rainwater
- Michael Mattick
 - Watermaster, District 2
 - Springfield, Oregon



A Water Right Consists of:

- Point of diversion (POD)
 - Where surface water is drawn or captured
- Point of appropriation
 - From a ground water source
- Place of use
 - Where the water is applied
- Type of use
 - The “beneficial use” of water

Form A-1 (1988-8-28) State Printing 4249

STATE OF OREGON
COUNTY OF LAKE
CERTIFICATE OF WATER RIGHT

This Is to Certify, That ROLAND L. and LOUISE L. ANGST
of 221 Knapp Lane, Eugene, State of Oregon, has made proof
to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of
Debrick Slough,
a tributary of Willamette River for the purpose of
irrigation
under Permit No. 20461 of the State Engineer, and that said right to the use of said waters
has been perfected in accordance with the laws of Oregon; that the priority of the right hereby
confirmed dates from August 20, 1951.

That the amount of water to which such right is entitled and hereby confirmed, for the purposes
aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed
0.1 cubic foot per second.

or its equivalent in case of rotation, measured at the point of diversion from the stream.
The point of diversion is located in the NE 1/4 of Sec. 30, as projected within J. Gillespie L.L.C.,
No. 70, Section 30, Township 17 South, Range 3 West, N. E.

The amount of water used for irrigation, together with the amount secured under any other
right existing for the same lands, shall be limited to one-eighth of one cubic foot per second
per acre or its equivalent for each acre irrigated and shall be further limited
to a diversion of not to exceed 2 1/2 acre feet per acre for each acre irrigated
during the irrigation season of each year.

and shall
conform to such reasonable rotation system or way be ordered by the proper state officer.
A description of the place of use under the right hereby confirmed, and to which such right is
appurtenant, is as follows:

6.2 acres in the NW 1/4 NE 1/4
1.8 acres in the NE 1/4 NW 1/4
As projected within J. Gillespie L.L.C., No. 70
Section 30
Township 17 South, Range 3 West, N. E.

Land on which water is to be used is a part of that described as follows:
Further described as the NW 1/4 NE 1/4 lying N. of Debrick Slough within
J.L.C. No. 70 and the E 1/4 NE 1/4 bounded on the N. by Debrick Slough and
on the S. by U.L.C. No. 70 line, in Sec. 30, T. 17 S., R. 3 W., N. E.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of
use herein described.

WITNESS the signature of the State Engineer, officiated
this 28th day of May, 1986.

LOUISE L. STANLEY
State Engineer

Recorded in State Record of Water Right Certificates, Volume 15, 88821311.



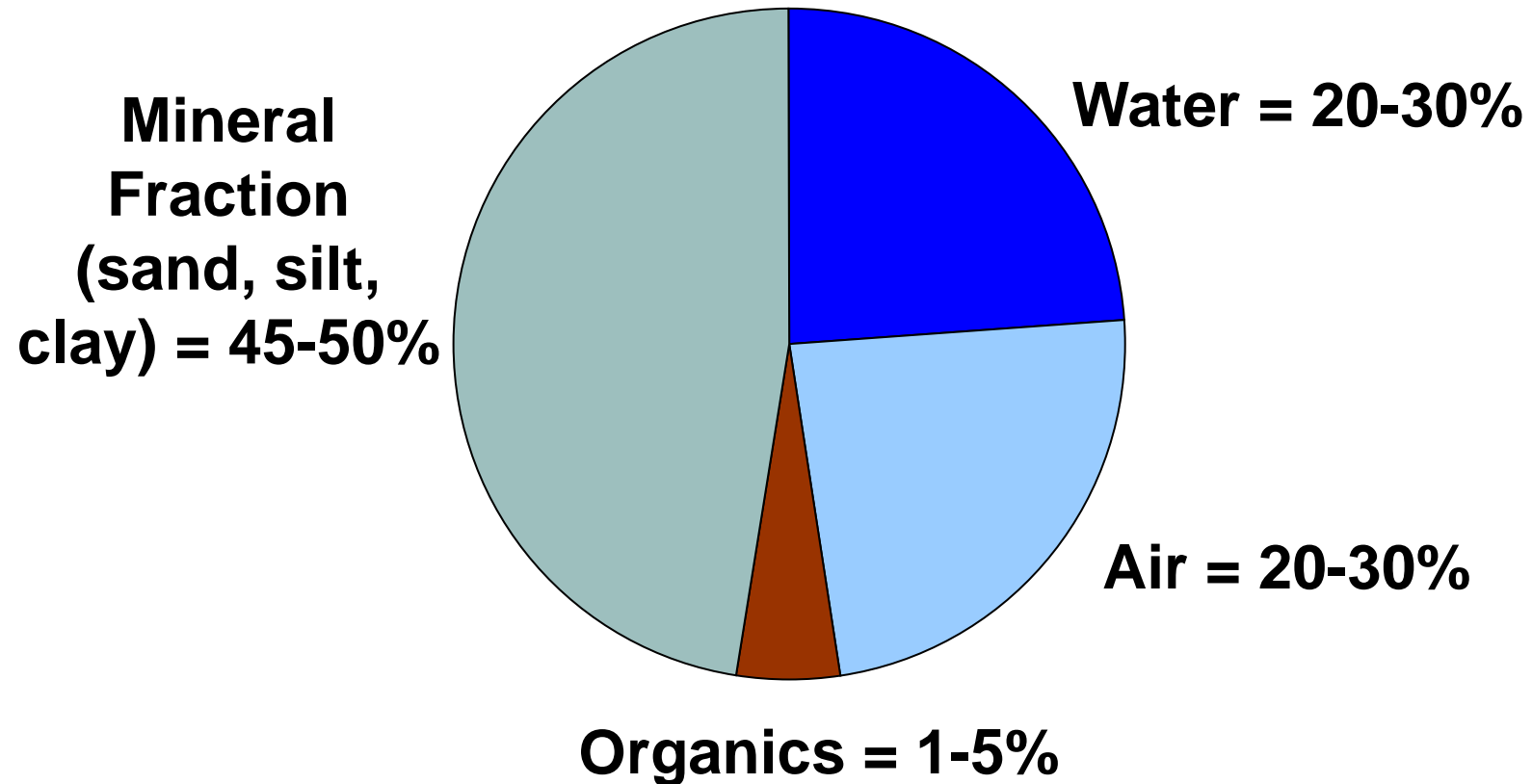
Soil resources

Soil...

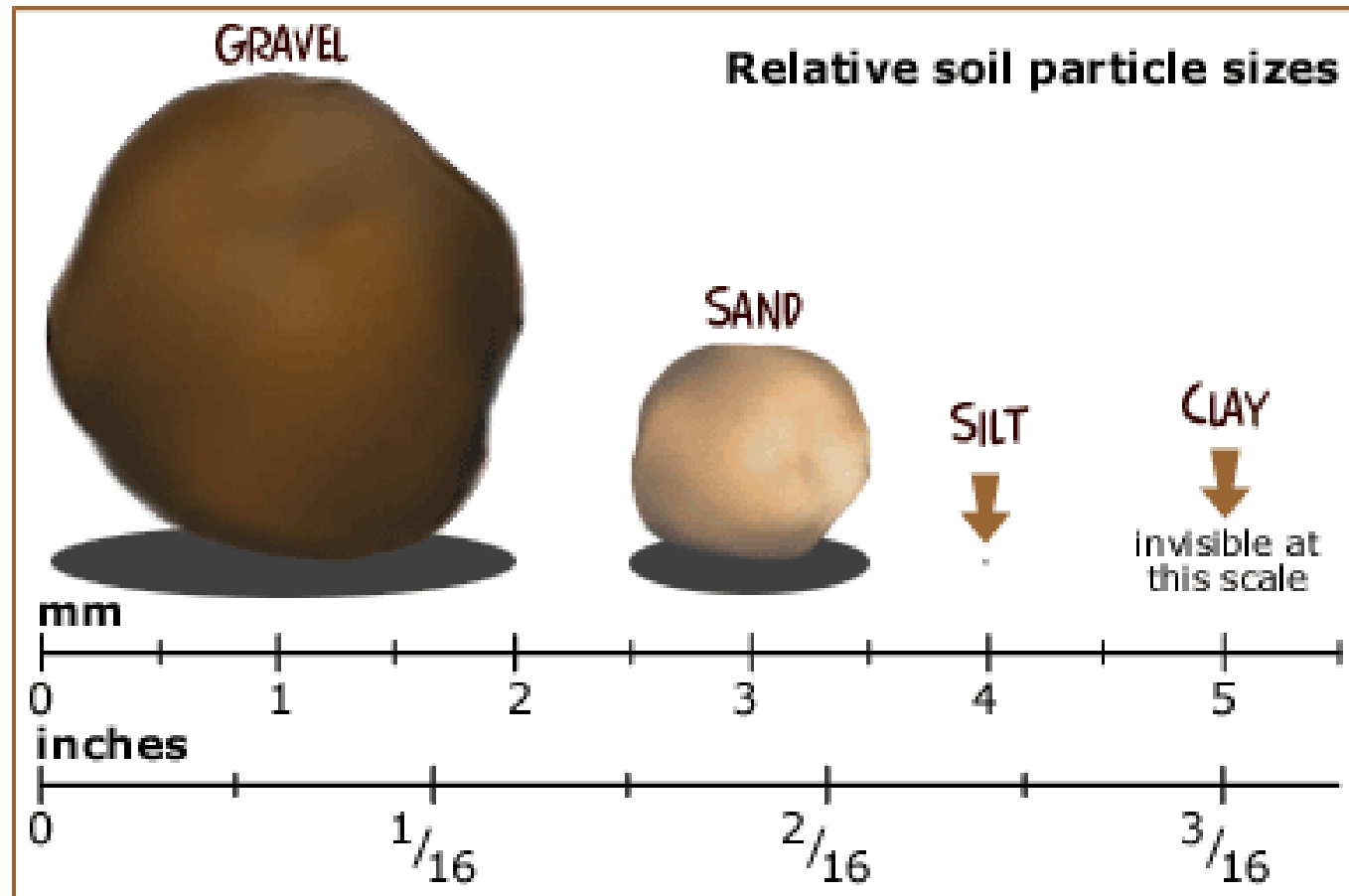
- is a living, dynamic resource that supports plant life.
- captures, cleanses, stores and releases water
- sustains plant and animal life



Soil is made of...

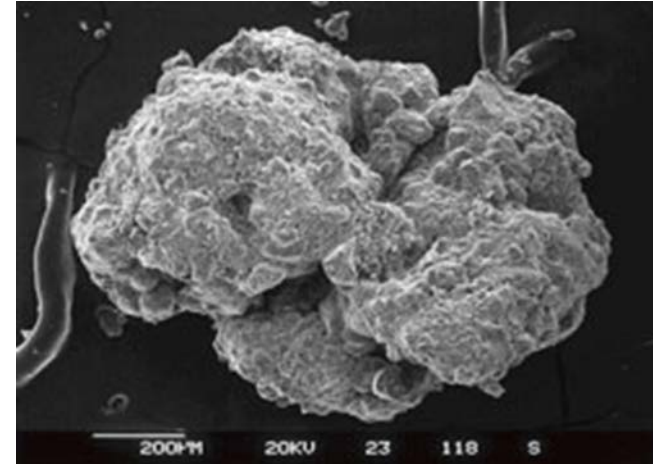


Soil texture

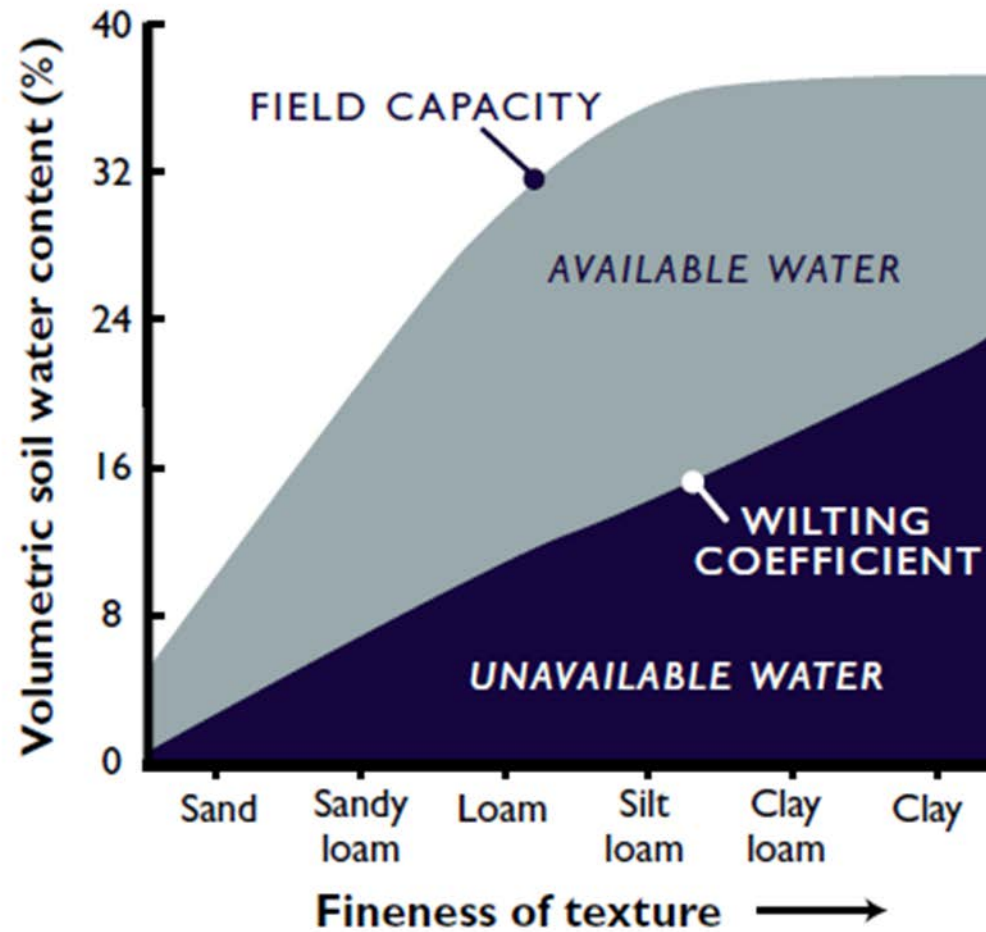


Soil structure

- Soil Aggregate Stability
- Soil Organic Matter
- Biological Activity
- Water Holding Capacity
- Erosion potential
- Permeability



Soil holds water



[Home](#) » [Soils](#)

Soil Surveys

Learning about the different types of soils on a farm is invaluable. Oregon alone has nearly 1,000 different kinds of soil, ranging from deep to shallow, clayey to sandy, nearly level to steeply sloping. These differences are important, because different soils require different kind of management practices.

Soil Survey Guide - This guide give detailed instructions for finding soil maps on-line or using paper copies.

Oregon Soil Surveys - Find the county soil survey on this interactive website or contact the USDA Natural Resources Conservation Service, county Soil and Water Conservation District or local library for a paper copy of a local soil survey.

- ↓ [Croptime](#)
- ↓ [Organic Fertilizer & Cover Crop Calculator](#)
- ↓ [Women's Farmer Networks](#)
- ↓ [Food Safety Modernization Act](#)
- ↓ [Oregon Agritourism](#)
- ↓ [Dry Farming Project](#)

Feature Stories

[Small Farms Program Videos on Vimeo](#)



Oregon Small Farms Program Videos from events such as the Oregon Small Farms Conference, Oregon...

[Growing Farms Workshops](#)



The course is intended for people in their first 5 years of farming, people seriously...

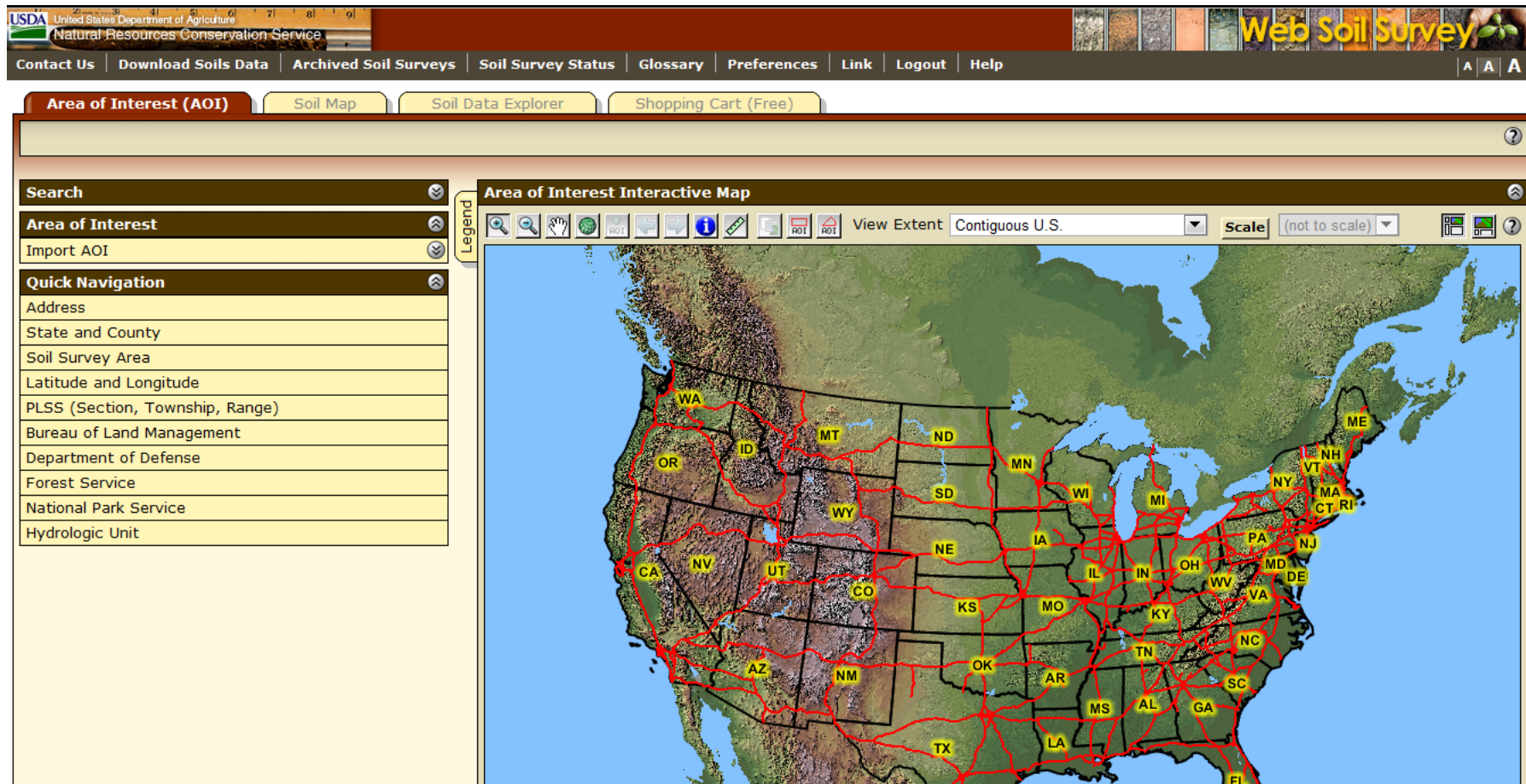
[Small Farms Have Big Impact in Oregon Communities](#)



Small farming is no small thing in Oregon. In the space of a generation, farmers and food advocates...



USDA Soil Survey



<http://websoilsurvey.nrcs.usda.gov>



Web Soil Survey - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Getting Started Latest Headlines Microsoft Outlook W...

United States Department of Agriculture
NRCS Natural Resources Conservation Service

Web Soil Survey

Contact Us Download Soils Data Preferences Logout Help

Area of Interest **Soil Map** Soil Data Explorer

Create Printable Document ?

Map Unit Legend Summary

Lane County Area, Oregon

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
78	McAlpin silty clay loam	2.5	25.1
130	Waldo silty clay loam	7.4	74.9

Layers Legend

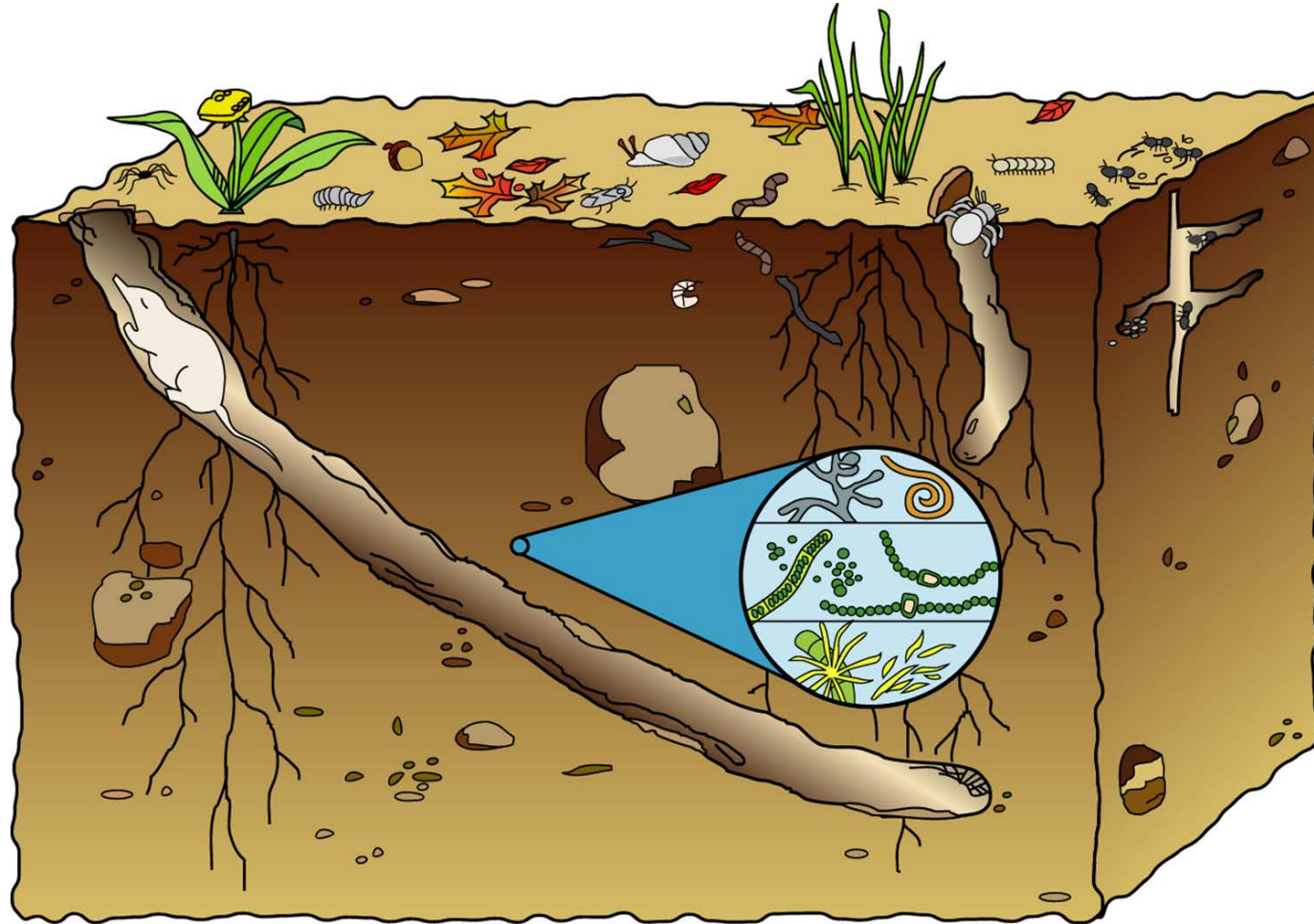
Soil Map

Scale (not to scale)

LYNX HOLLOW RD
E LYNX HOLLOW RD
Lane Oregon
78
130
203ft

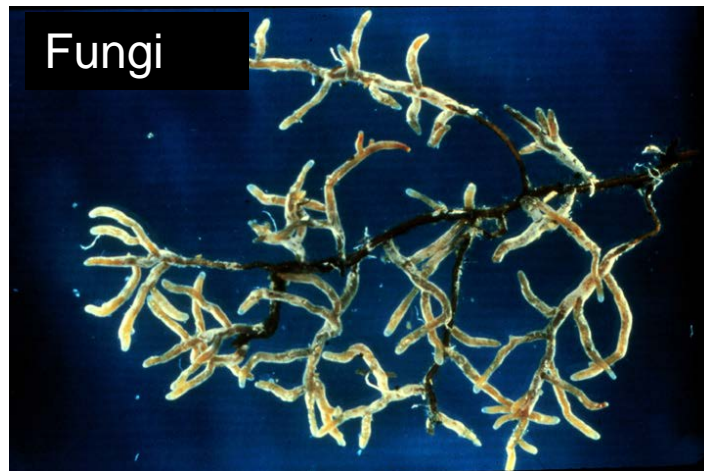
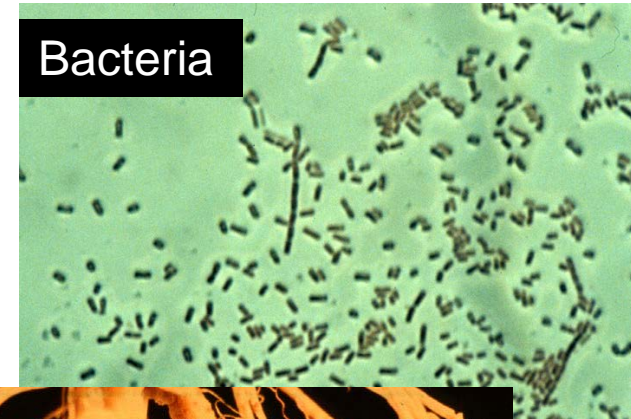
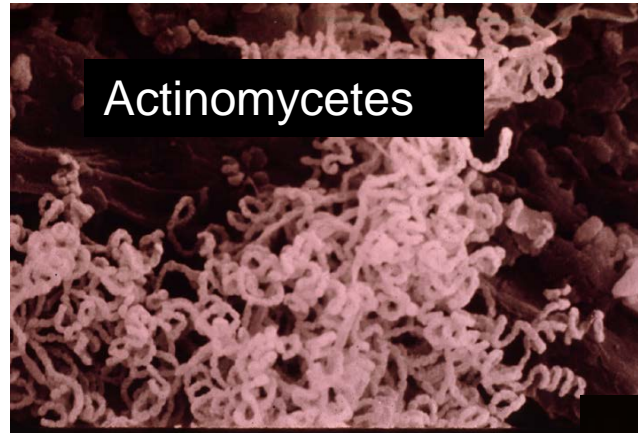
Transferring data from websoilsurvey.sc.egov.usda.gov...

Keep soil healthy

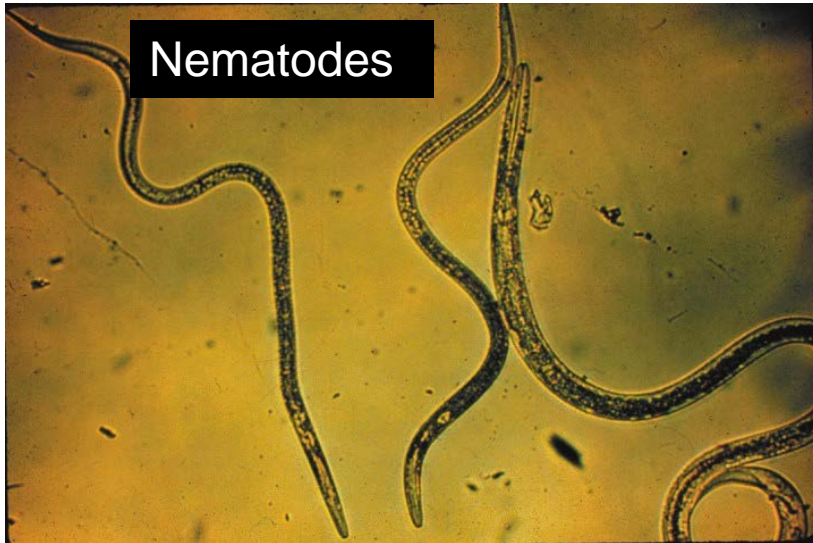


Soil biology

Flora



Many living organisms



From tiny to big



Earthworms

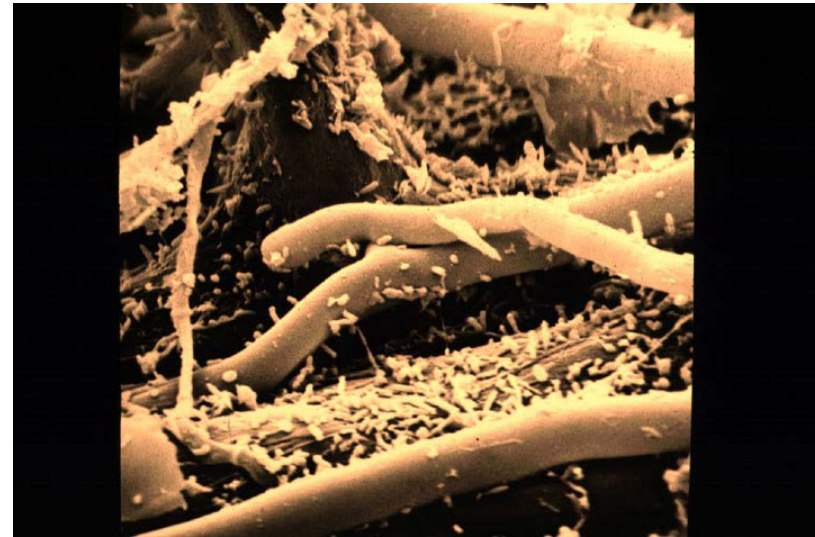


Arthropods



Soil biology is affected by:

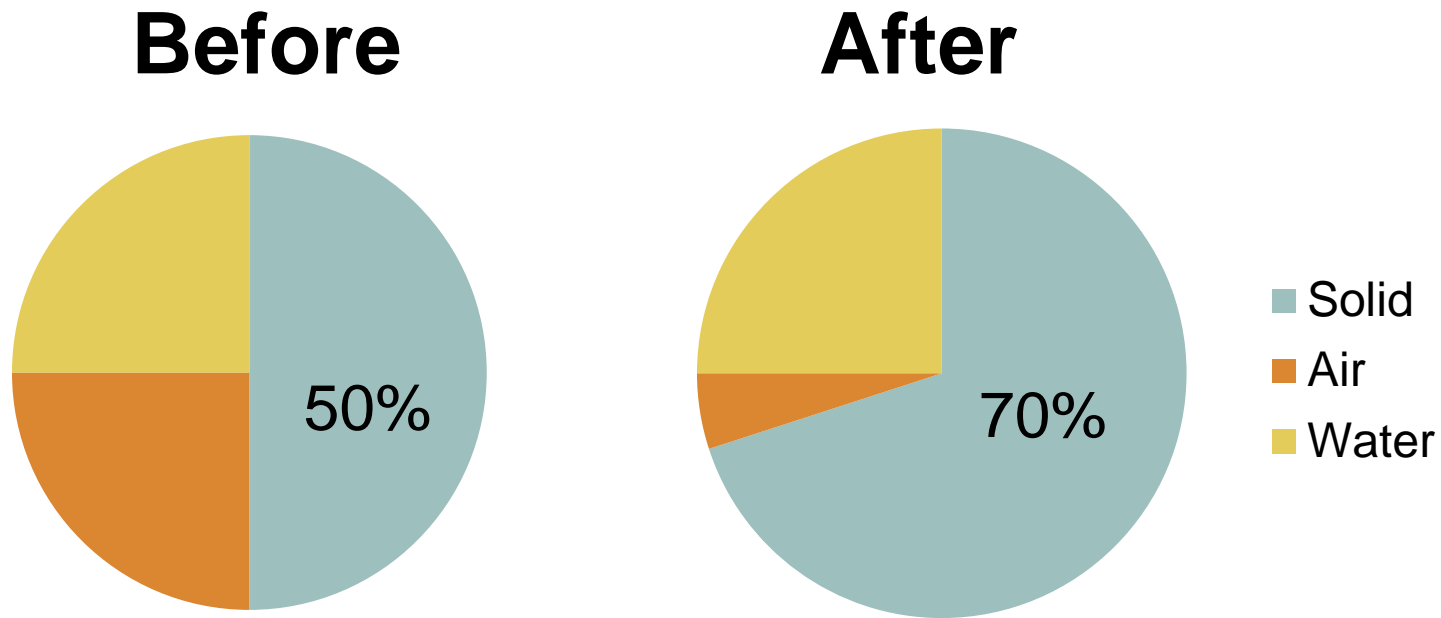
- Residue/Organic matter = food for soil life
- Tillage
- Temperature, moisture, pH
- Fertilization



Soils can be compacted



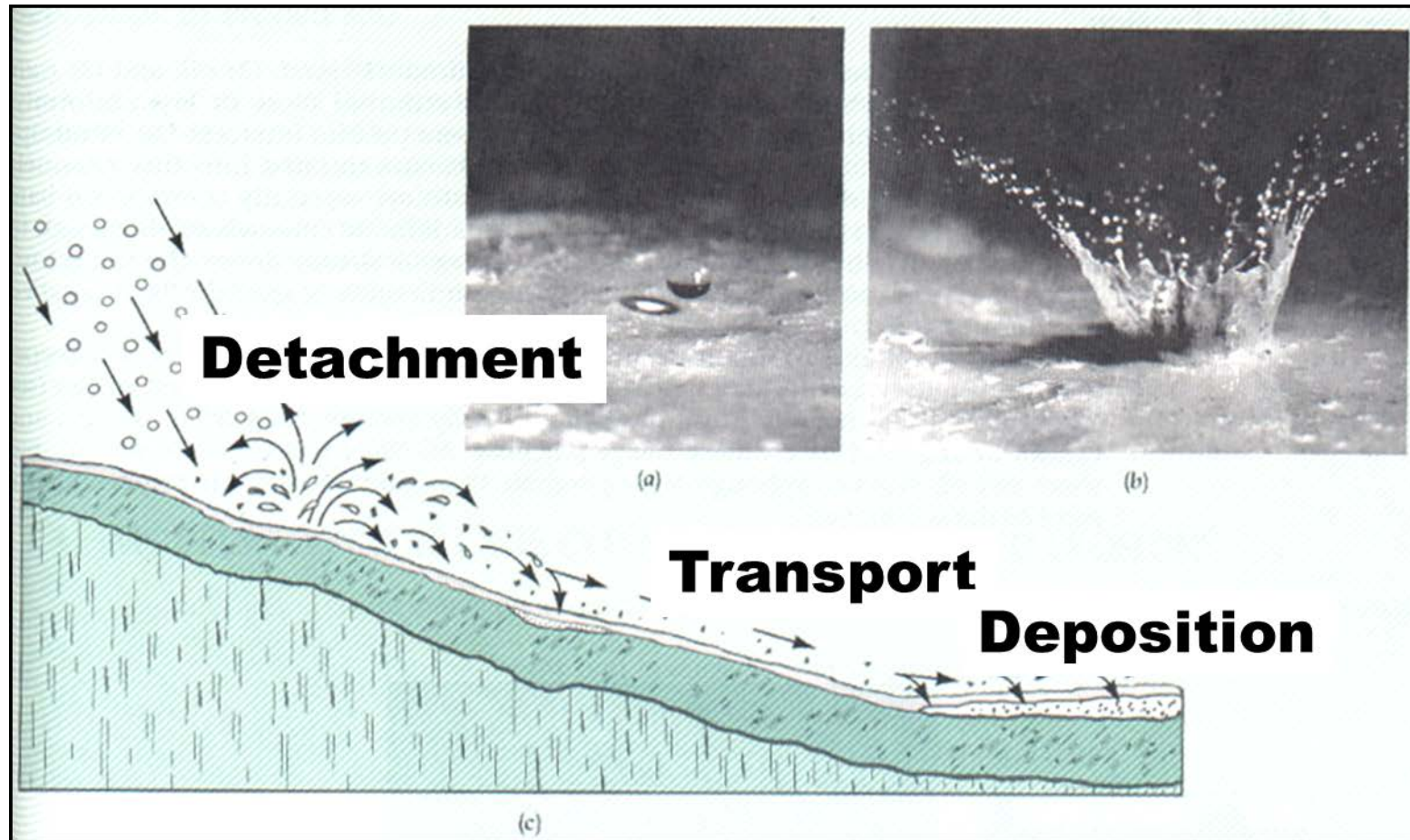
When soil compacts



Compacted soil = reduced air space



Soils can erode



Reduce soil erosion & compaction by

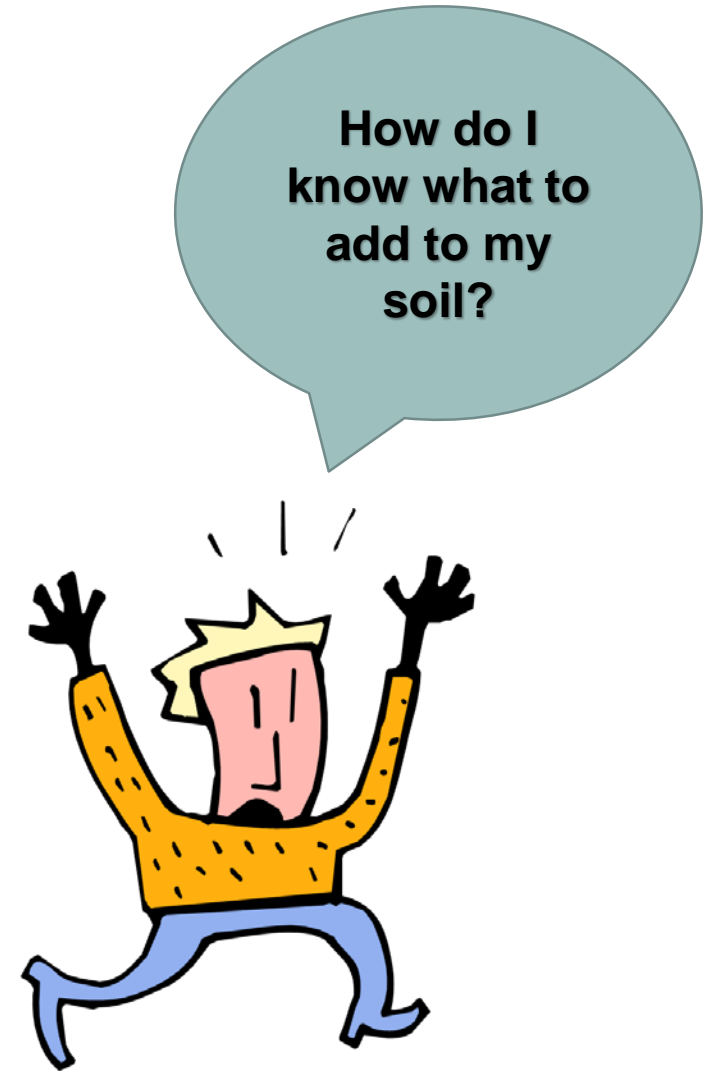
- using common sense
- time soil disturbances like grading, construction, tillage, harvesting to minimize exposure of soil to erosive forces
- stay off bare soil when it is wet
- retaining existing vegetation whenever possible or add protective cover



Test your soil

Most useful analyses (Western OR)

- Organic matter
- pH (acidity) & SMP buffer (Shoemaker-McLean-Pratt)
- NO₃ (nitrate): use 12" deep samples
- P (phosphorous) – Weak Bray
- K (potassium)
- Ca (calcium)
- Mg (magnesium)
- B (boron) & Zn (zinc)





- Yellowing of older leaf material
- NITROGEN Deficiency





- Purpling of leaves, especially in leaf veins
- May result because of cold soil temperatures
- PHOSPHORUS Deficiency



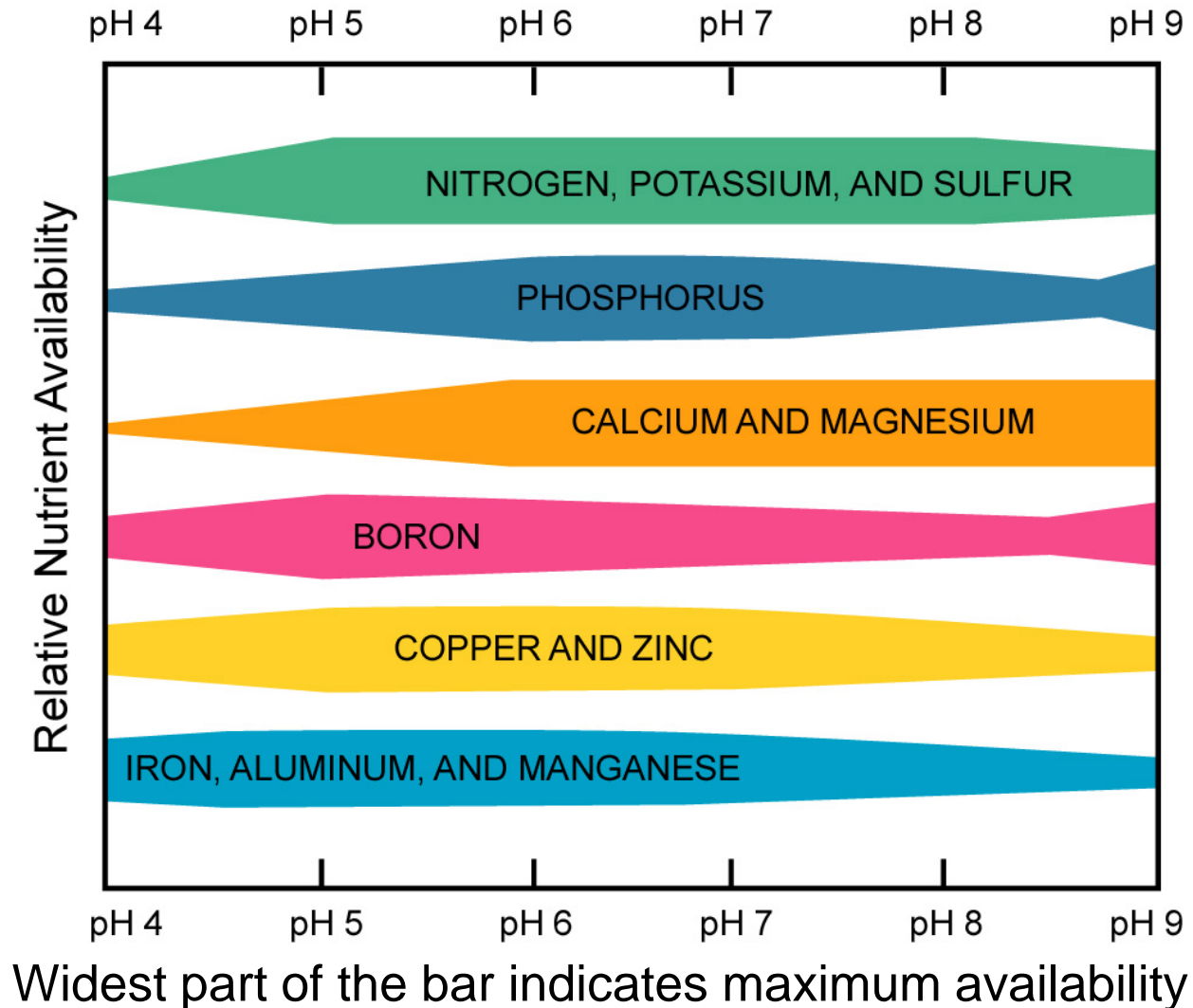
- Blossom-End Rot on tomatoes, peppers and eggplants?
- CALCIUM Deficiency



Ohio State University Extension



Soil pH and nutrients



Adapted from www.soil.ncsu.edu



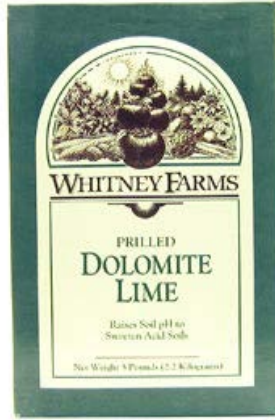
What makes soils acid?

- Acid soils: pH is below 7
- Soils become acid because of heavy rainfall that weathers soils quickly
- Basic elements such as calcium, magnesium, sodium and potassium are used or leached from the soil
- This natural weathering process makes soils acid



pH

- Average pH range in Western Oregon is 4.9 to 6.5



- Most vegetables thrive with pH of 6.2 to 6.8
- Acid-loving plants like blueberries or rhododendrons like 4.5 to 5.5.



Soil organic matter

- Reduce tillage
- Leave some residue
- Manure
- Compost
- Cover crops



Benefits of soil organic matter

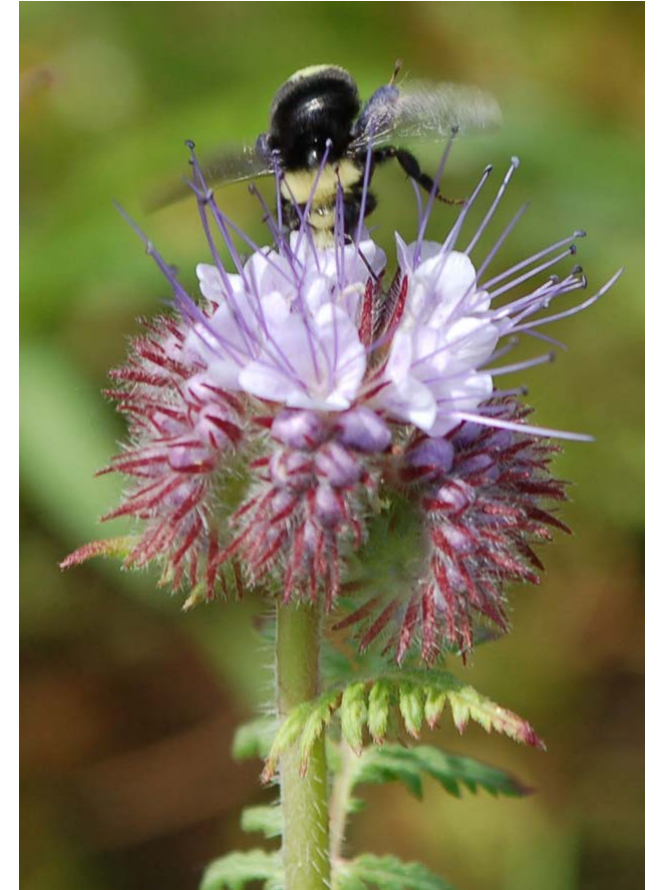
- Nutrient cycling in soil
- Formation of soil into stable aggregates
- Reduced soil compaction
- Improved water infiltration
- Increased water holding capacity







**Phacelia
tanacetifolia
native - borage fam.**



Manure w/ straw bedding, common vetch, wheat & phacilia cover crop.





Cover Crops

- Reduce erosion
- Protect soil structure
- Increase soil organic matter
- Energy efficient N fixation
- Supply N without increasing soil P
- Scavenge residual N
- Reduce weed pressure
- Provide nectar & pollen for beneficial insects
- Management challenges (establishment and incorporation)





Crop Residue or Mulch

- Benefits
 - Organic Matter
 - Nutrient cycling
 - Protects from erosion
 - Suppress weeds, pests and disease



Climate

- Climate- predictable patterns of temperature and rainfall across the seasons. Climate zone limits the crops can grow.
 - Sun exposure
 - Rainfall amount and pattern
 - Air movement
 - Number of frost-free days
 - 150 to 250 in Western Valleys
 - 90 to 120 days in Coast Range



Microclimate

- A microclimate is a particular weather pattern in a small area.
 - How air drains and collects on the land
 - How natural features such as small bodies of water moderate temperatures
 - Tendency to have early or late frosts, or to avoid frost



Melissa Fery

OSU Extension Service

Small Farms Program

Benton, Linn & Lane Counties

Melissa.Fery@oregonstate.edu
(541) 730-3538



Oregon State University

Extension Service

