# Soil Conservation Practices for Vegetable Farms



Vern Grubinger February 1, 2019

#### key concerns

#### key practices

Pollution

**Erosion** 

Flooding

Compaction

**Nutrient Management** 

Soil cover (all kinds)

Buffers (permanent sod)

Tillage (minimize)

#### RAPS requirements / expectations

- 25-foot buffer to ditch, pond, stream, etc.
- 25-foot setback of manure piles and nutrient applications
- 100-foot setback from (private) 200-foot (public) wells
- No visible erosion (!)
- Flood risk mitigation
- Maintain "soil health"

## A = RKLSCP

Universal Soil Loss Equation

### A = RKLSCP

A = average annual soil loss in t/a (tons per acre)

R = rainfall erosivity index

K = soil erodibility factor

LS = topographic factor. L is for slope length, S is for slope

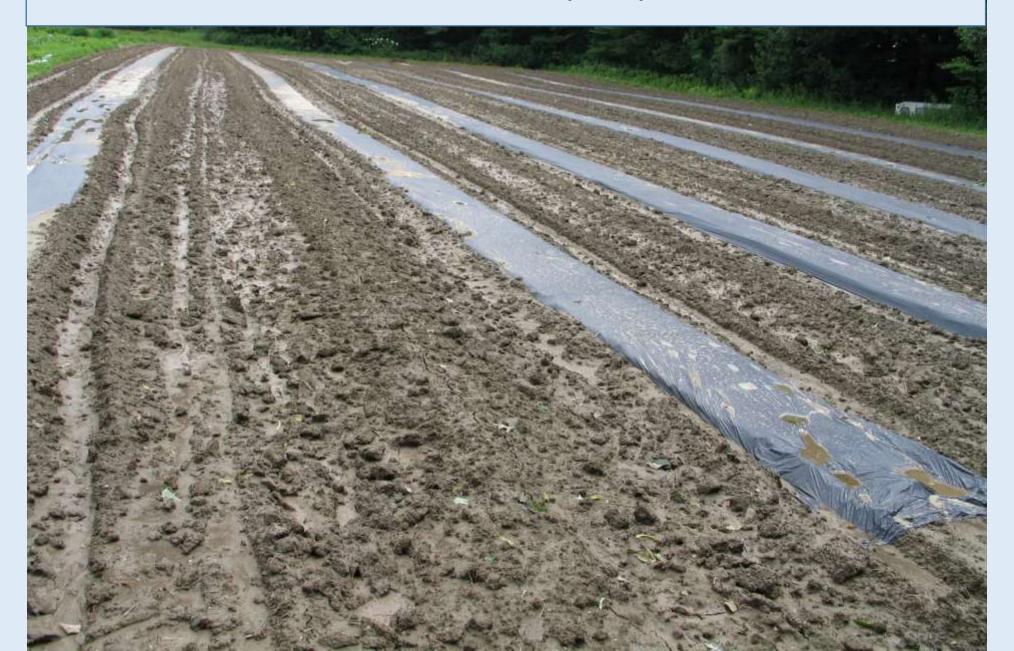
C = cropping factor

P = soil conservation practice factor... you can manage

#### Gully erosion – pre-plant



#### Sheet erosion – pre-plant



#### Gully (and sheet) erosion – post-plant



#### Nutrient-rich leachate – thus the setbacks



Flood water receding, with soil and nutrients.



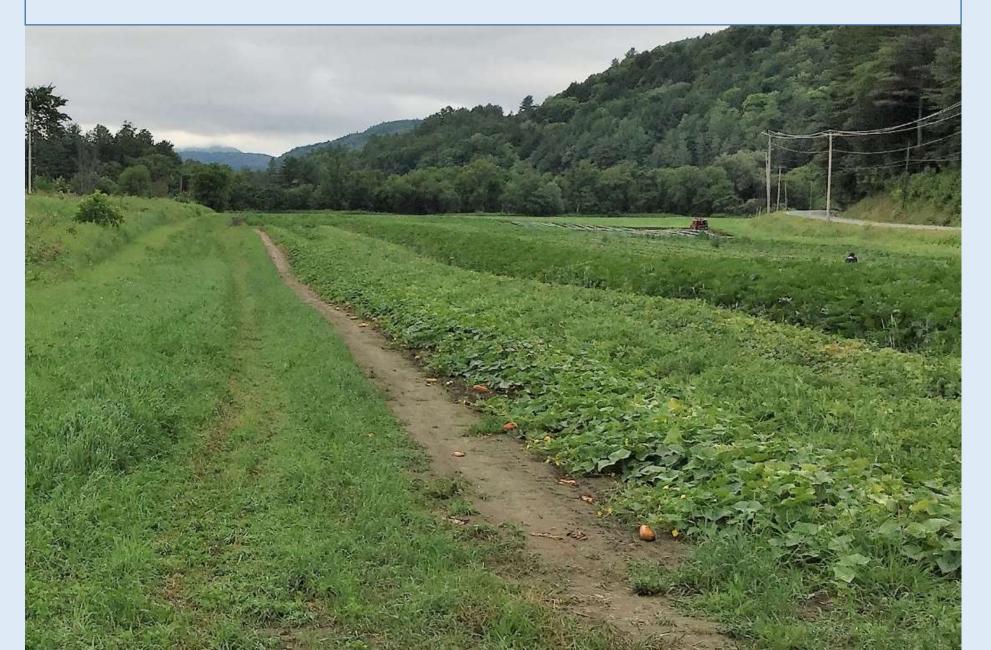
Goal: avoid soil nudity ...so many ways to cover it up.



#### Buffer (sod) by river, plus winter rye in early April



#### Buffer (sod) by field in summer



Over-winter cover: dead Japanese millet, late April.



#### Organic minimum-till into J. millet, late April.



#### Over-winter cover: dead oats early May.



#### Over-winter cover: dead oats mid-May.



#### Over-wintered rye late April.



#### Over-winter rye left in strips, early May.



#### Deep zone tillage strips in rye, early May.



#### Slit-till squash into crimp-killed rye, mid-August.



#### Weed mat between plastic beds early June.



#### Landscape fabric between plastic beds mid-July.



#### Annual ryegrass strips between plastic, early June.



Annual ryegrass strips between bare beds, early June.



#### Seeding annual ryegrass strips, early June.



#### Strips tilled into annual ryegrass, early July.





Annual ryegrass/crabgrass strips, mid-August.

#### Interseeded ryegrass late October.



Spring-seeded annual ryegrass alleys, mid-June.



#### Spring-seeded white clover alleys, mid-August.



#### Hay mulch early summer.



#### Hay mulch between plastic.



Hay mulch between after a couple months.



#### Round bale hay mulch, in mid-August.



What have you tried/what are you doing on your farms to conserve soil in vegetable production systems?

