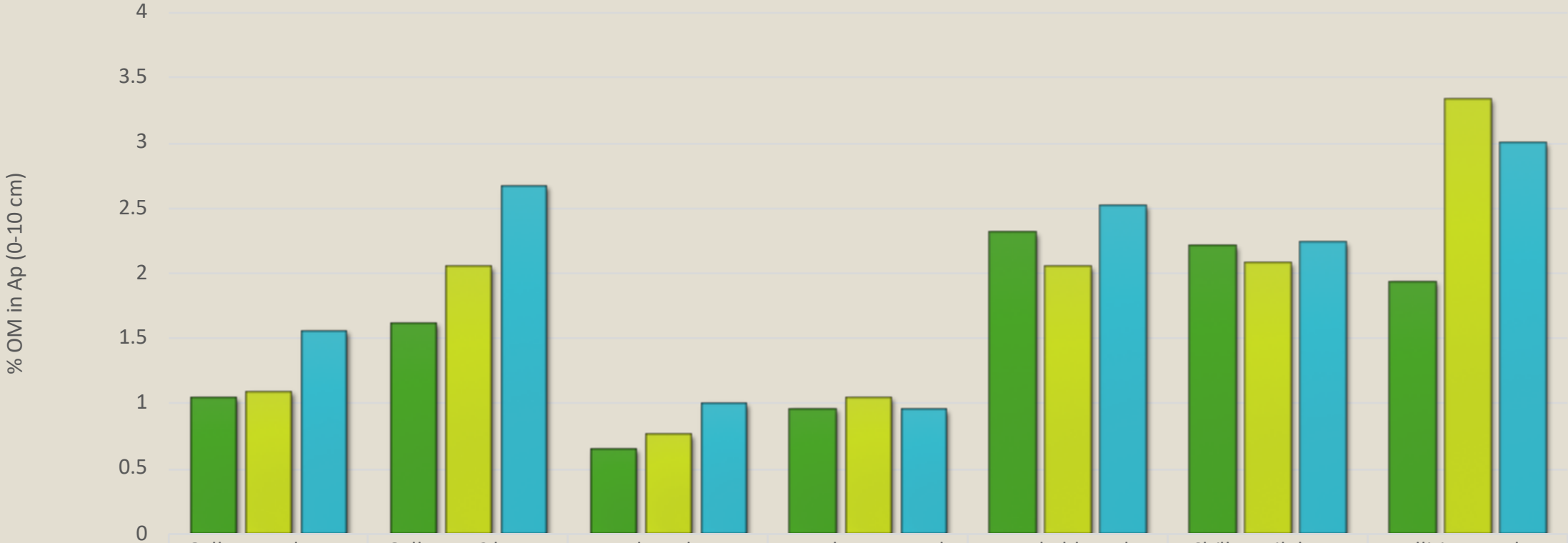
Weathering Water Extremes

INCREASING CROP RESILIENCY


10/14/2011

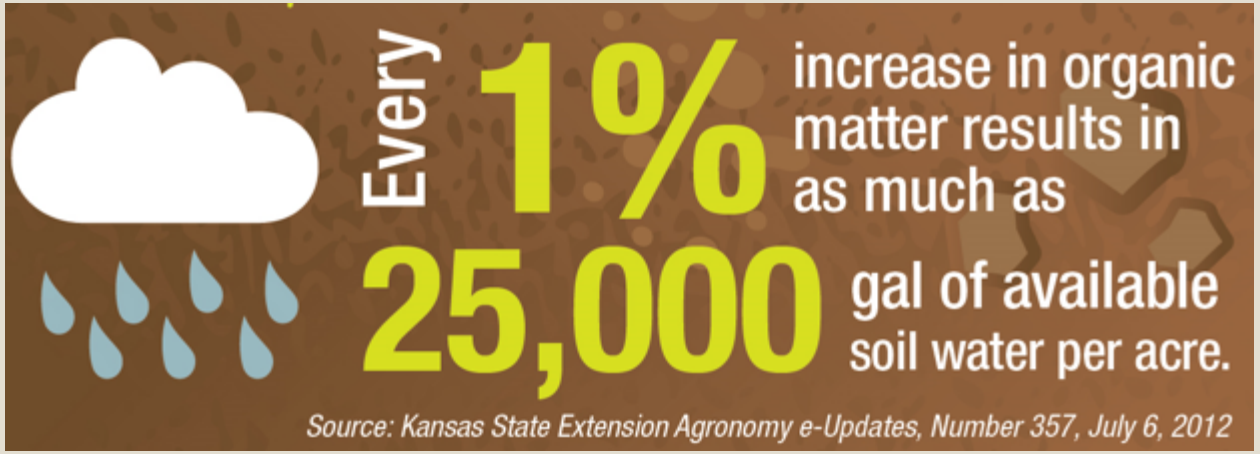
Soil Organic Matter Test Results in New Jersey 2014 - 2016



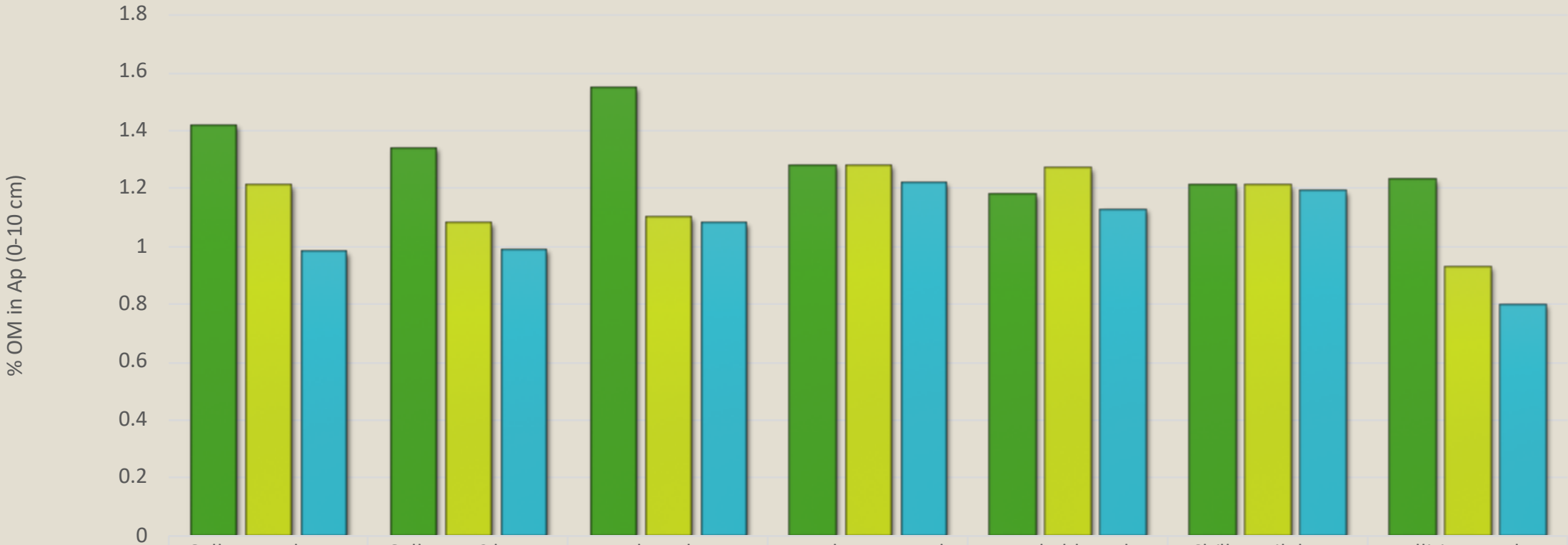
	Galloway 1 loamy sand (Atlantic)	Galloway 2 loamy sand (Salem)	Evesboro loamy sand (Gloucester)	Woodstown sandy loam (Burlington)	Freehold sandy loam (Burlington)	Chillum silt loam (Cumberland)	Fallisington clay loam (Mercer)
2014 Baseline	1.05	1.62	0.65	0.96	2.31	2.21	1.94
2015	1.09	2.05	0.76	1.05	2.05	2.08	3.34
2016	1.56	2.67	1	0.95	2.52	2.24	3

Water Savings

- Increase in soil organic matter = increased water holding capacity
- Better drought resiliency
- Better infiltration and filtering during times of excessive rain



Bulk Density Test Results in New Jersey 2014 - 2016



	Galloway 1 loamy sand (Atlantic)	Galloway 2 loamy sand (Salem)	Evesboro loamy sand (Gloucester)	Woodstown sandy loam (Burlington)	Freehold sandy loam (Burlington)	Chillum silt loam (Cumberland)	Fallisington clay loam (Mercer)
2014 Baseline	1.42	1.34	1.55	1.28	1.18	1.21	1.23
2015	1.21	1.08	1.1	1.28	1.27	1.21	0.93
2016	0.98	0.99	1.08	1.22	1.13	1.19	0.8

Water Savings

Decreased erosion = increased organic matter = increased water holding capacity

Table 3.1
Effects of Erosion on Soil Organic Matter and Water

Soil	Erosion	Organic Matter (%)	Available Water Capacity (%)
Corwin	slight	3.03	12.9
	moderate	2.51	9.8
	severe	1.86	6.6
Miami	slight	1.89	16.6
	moderate	1.64	11.5
	severe	1.51	4.8
Morley	slight	1.91	7.4
	moderate	1.76	6.2
	severe	1.60	3.6

Source: Schertz et al. (1985).

Water Savings

Decreased erosion = increased infiltration = reduced water needs

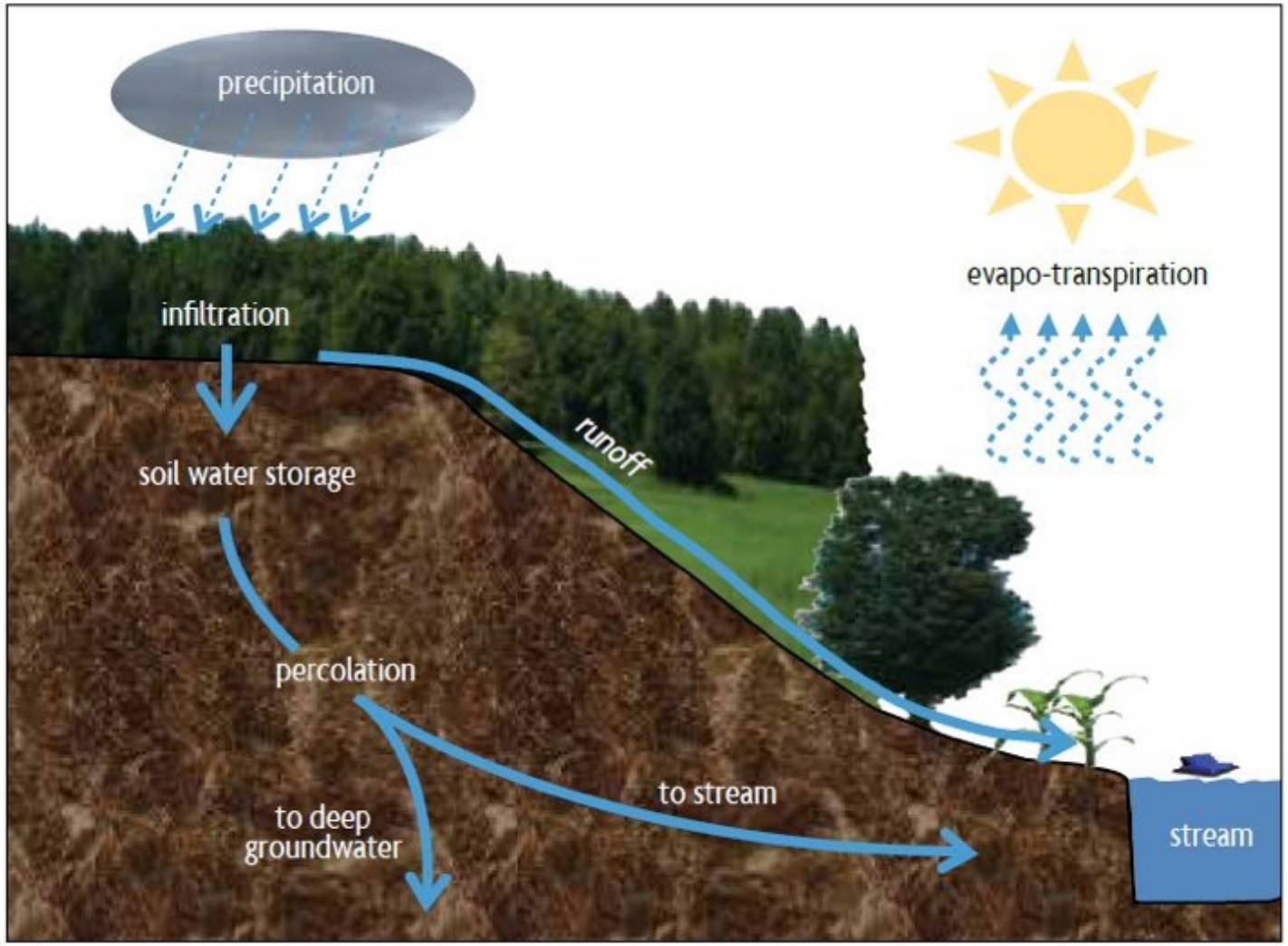
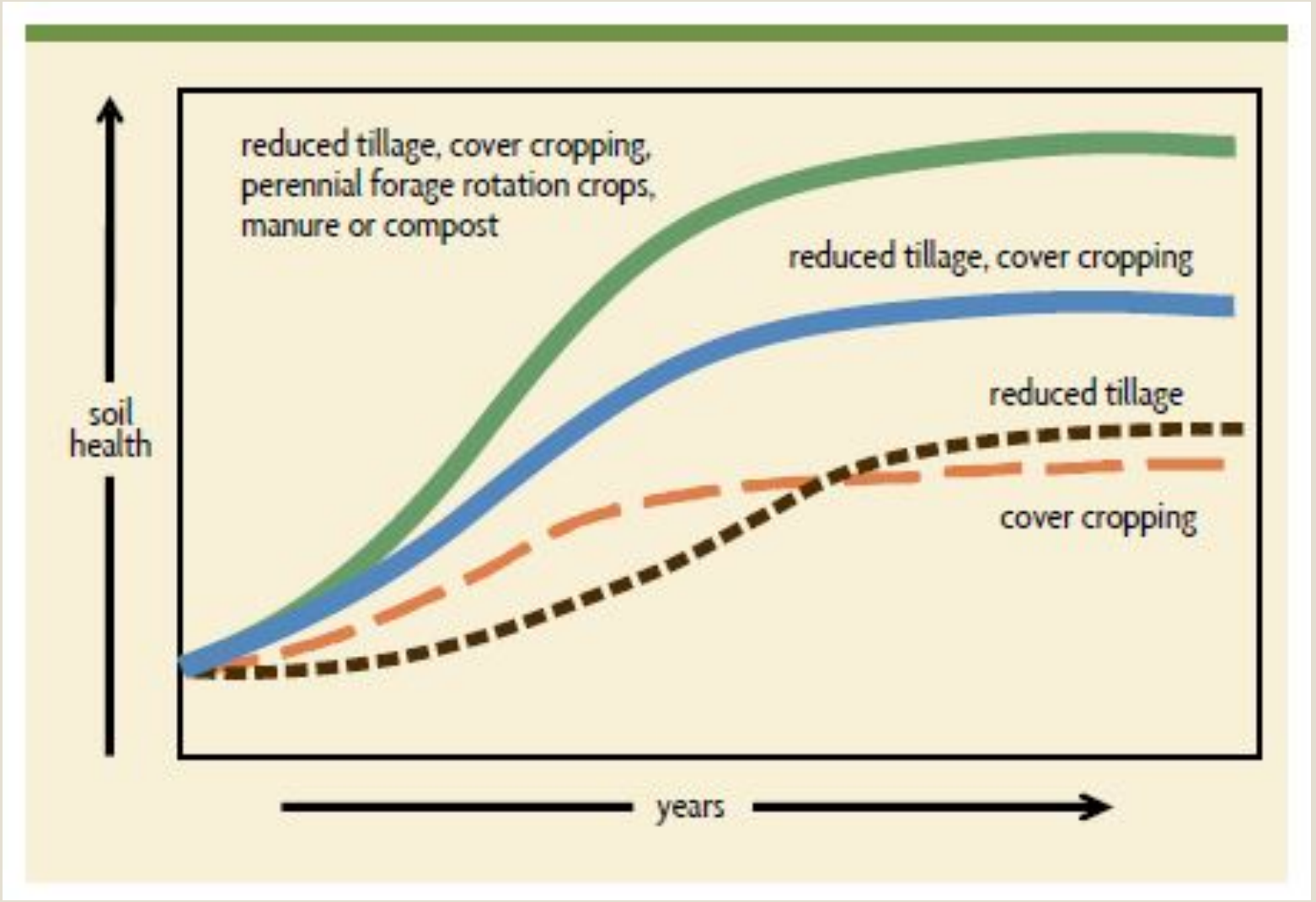


Figure 5.8. The fate of precipitation at the land surface determines whether water infiltrates or runs off the surface.

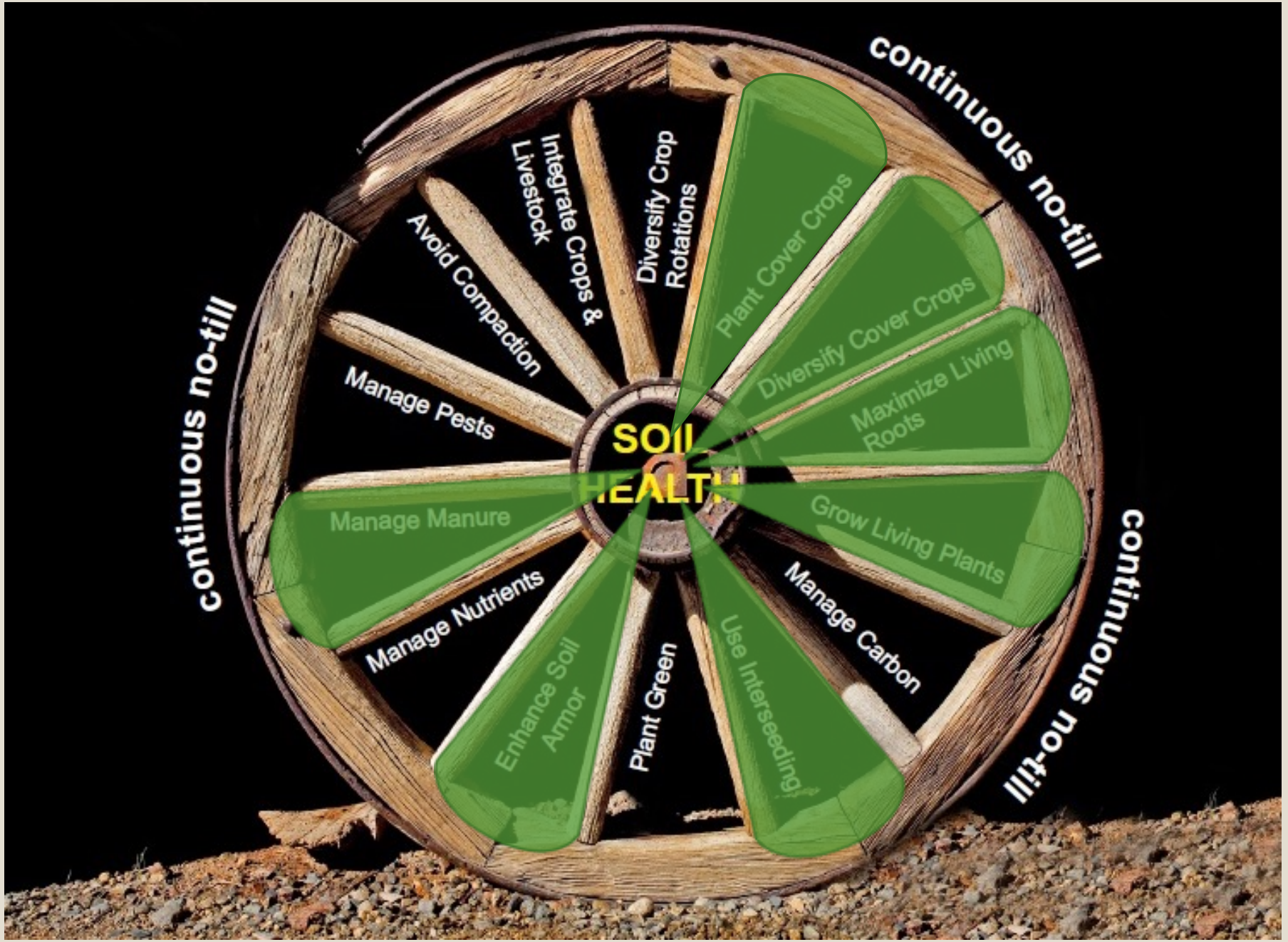
Crop Tolerance to Wind Erosion

Table 502–1 Crop tolerance to blowing soil

Tolerant T	Moderate tolerance 2 ton/a	Low tolerance 1 ton/a	Very low tolerance 0 to 0.5 ton/a
Barley	Alfalfa (mature)	Broccoli	Alfalfa seedlings
Buckwheat	Corn	Cabbage	Asparagus
Flax	Onions (>30 days)	Cotton	Cantaloupe
Grain Sorghum	Orchard crops	Cucumbers	Carrots
Millet	Soybeans	Garlic	Celery
Oats	Sunflowers	Green/snap beans	Eggplant
Rye	Sweet corn	Lima beans	Flowers
Wheat		Peanuts	Kiwi fruit
		Peas	Lettuce
		Potatoes	Muskmelons
		Sweet potatoes	Onion seedlings (<30 days)
		Tobacco	Peppers
			Spinach
			Squash
			Strawberries
			Sugar beets
			Table beets
			Tomatoes
			Watermelons


reduced tillage, cover cropping, perennial forage rotation crops, manure or compost
reduced tillage, cover cropping
reduced tillage
cover cropping
soil health
years


continuous no-till
continuous no-till
continuous no-till
SOIL HEALTH
Diversify Crop Rotations
Plant Cover Crops
Diversify Cover Crops
Maximize Living Roots
Grow Living Plants
Manage Carbon
Use Interseeding
Plant Green
Enhance Soil Armor
Manage Nutrients
Manage Manure
Manage Pests
Avoid Compaction
Integrate Crops & Livestock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