

Digging Deeper into Cover Crops



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Oregon State
University

What are your goals and what type do you expect impact from your cover crop choices?



Fruit & Wine



**Landscape &
Global
Ecosystem**



**Consumer
Perception**

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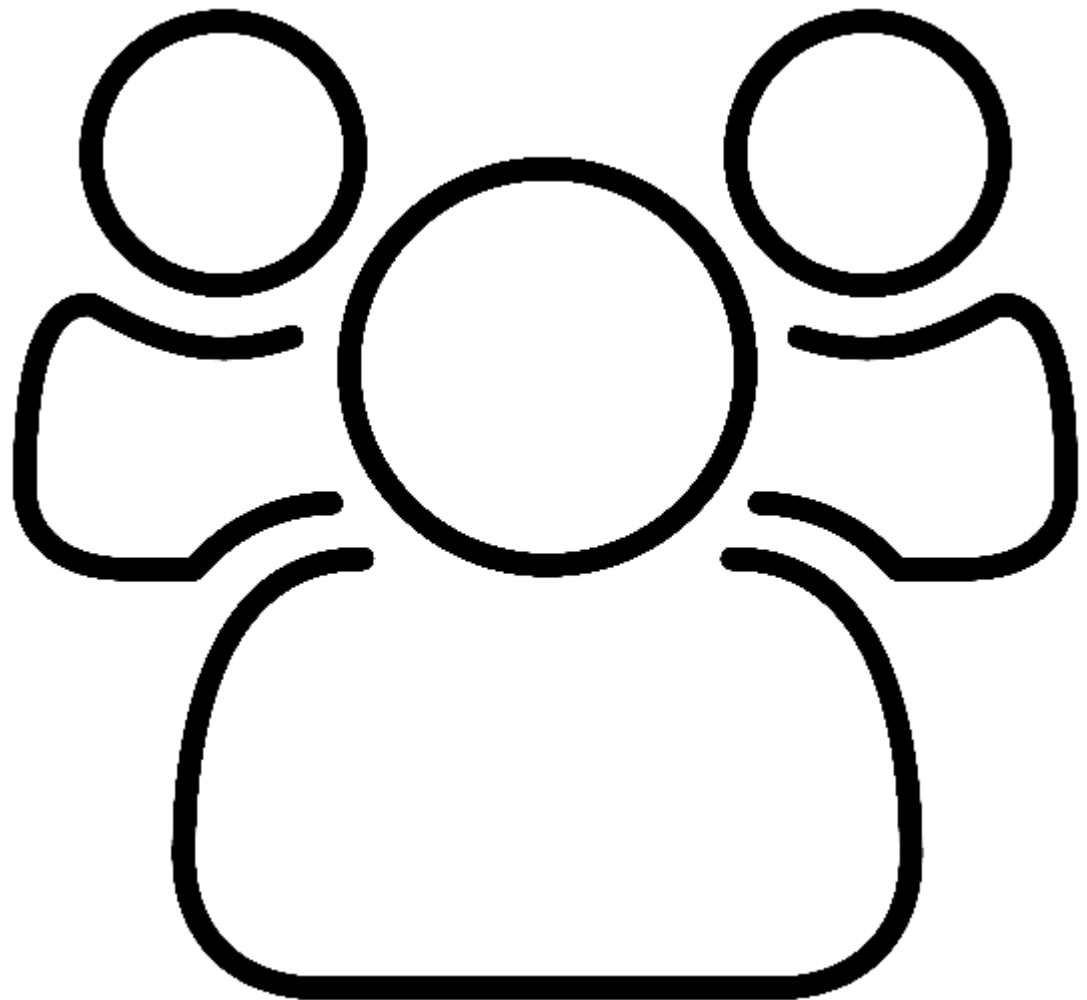
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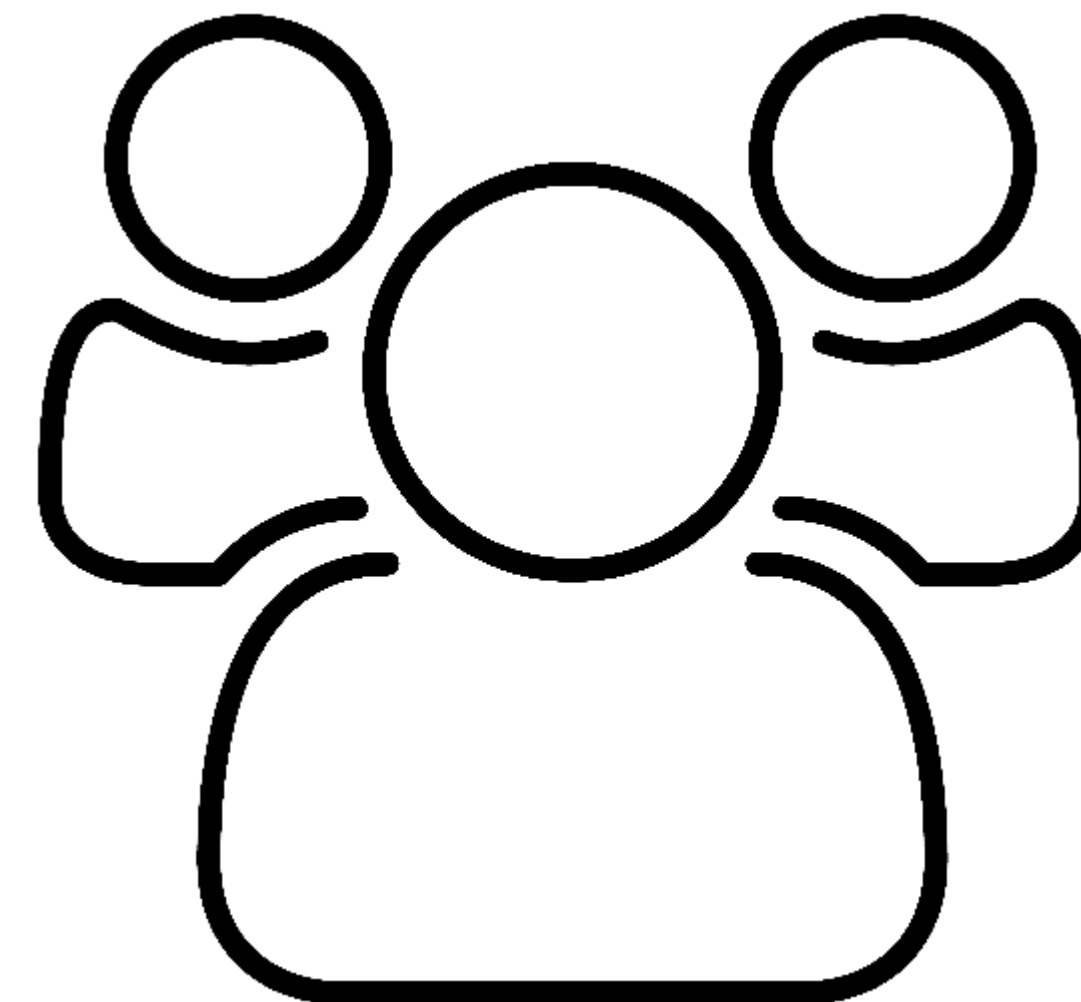
How will you know if you're succeeding?



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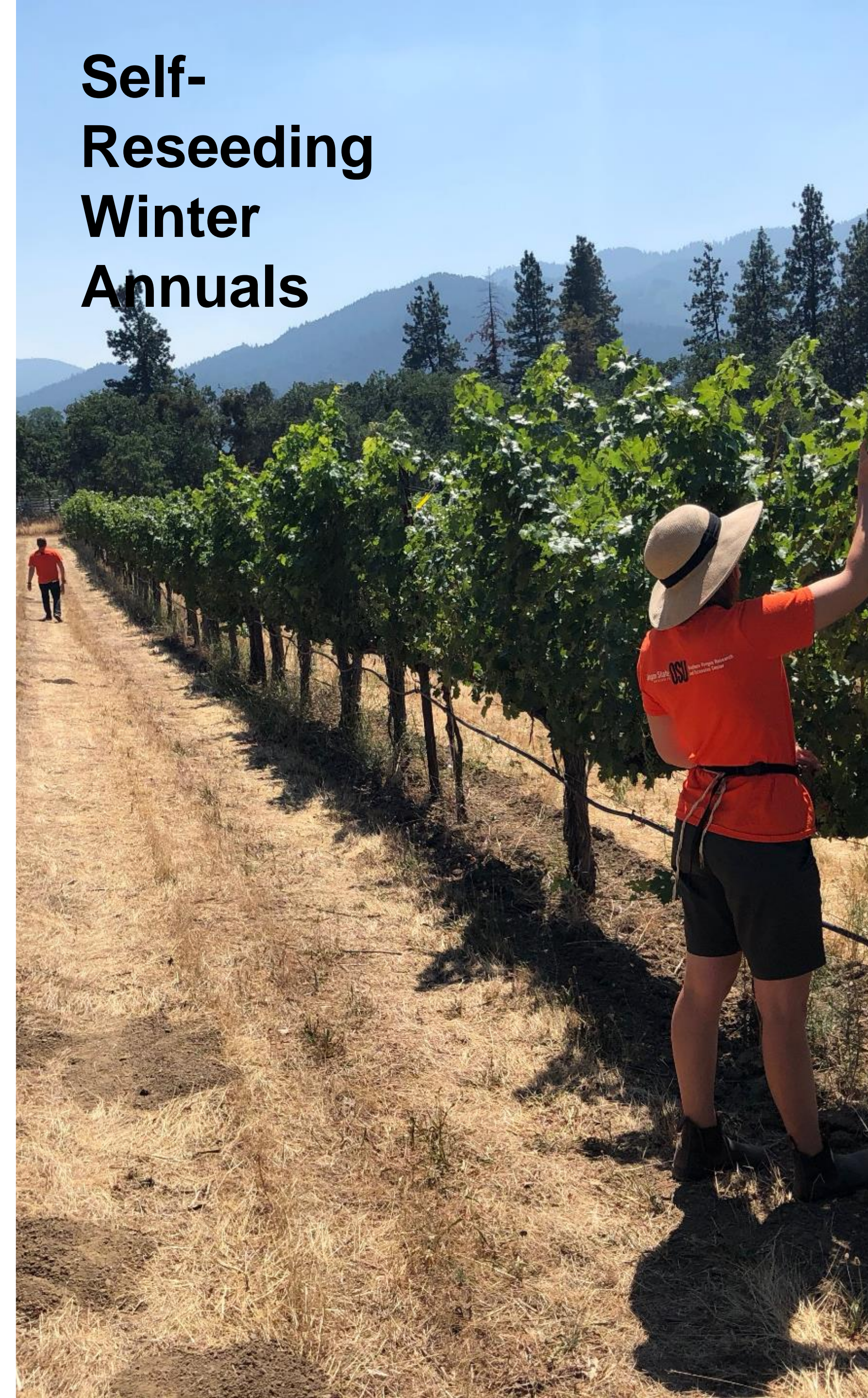
Perennials



Winter Annuals



Self-Reseeding Winter Annuals



Perennials

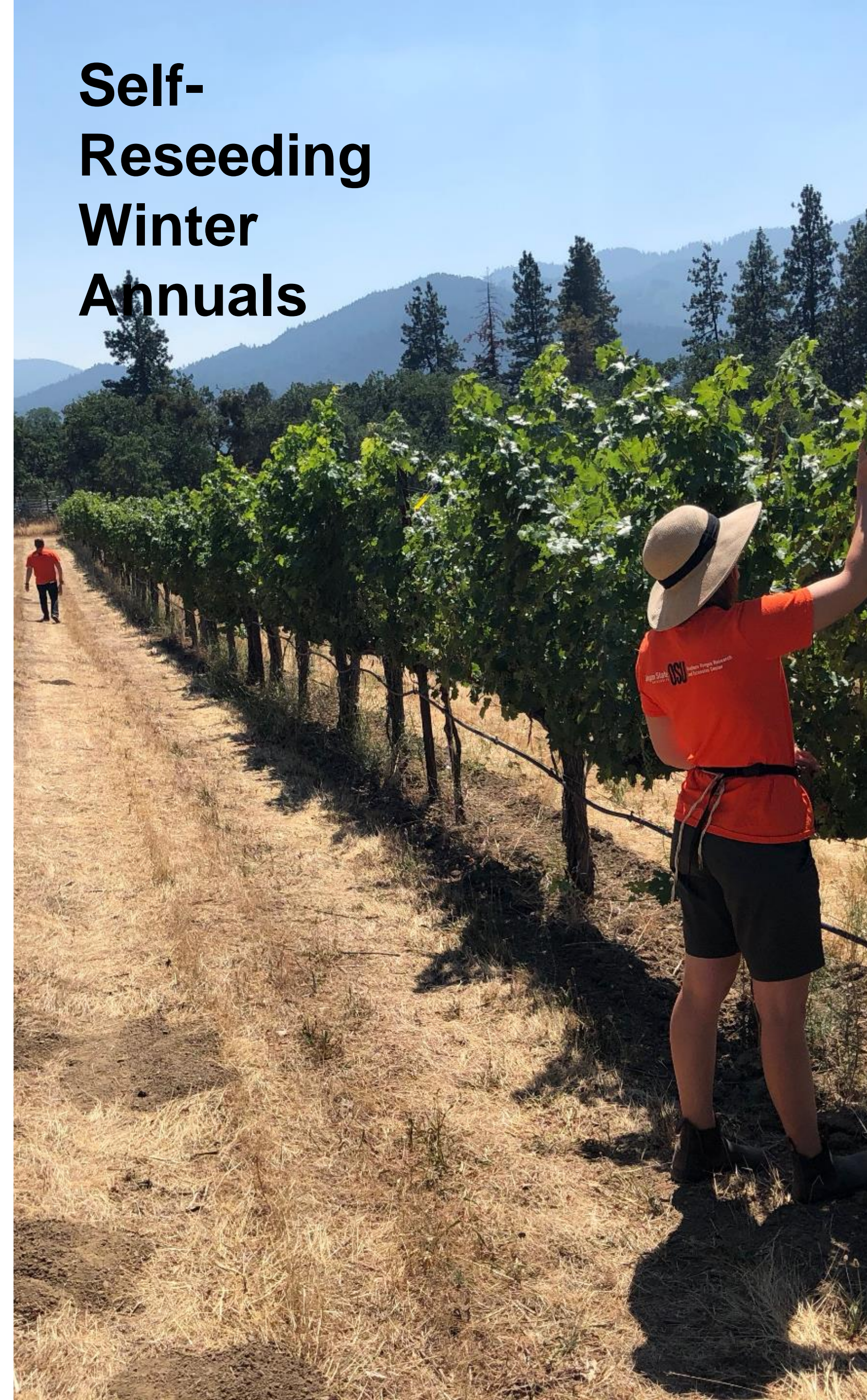
- Limited soil disturbance
- Range of vigor/competition
- Persistence?



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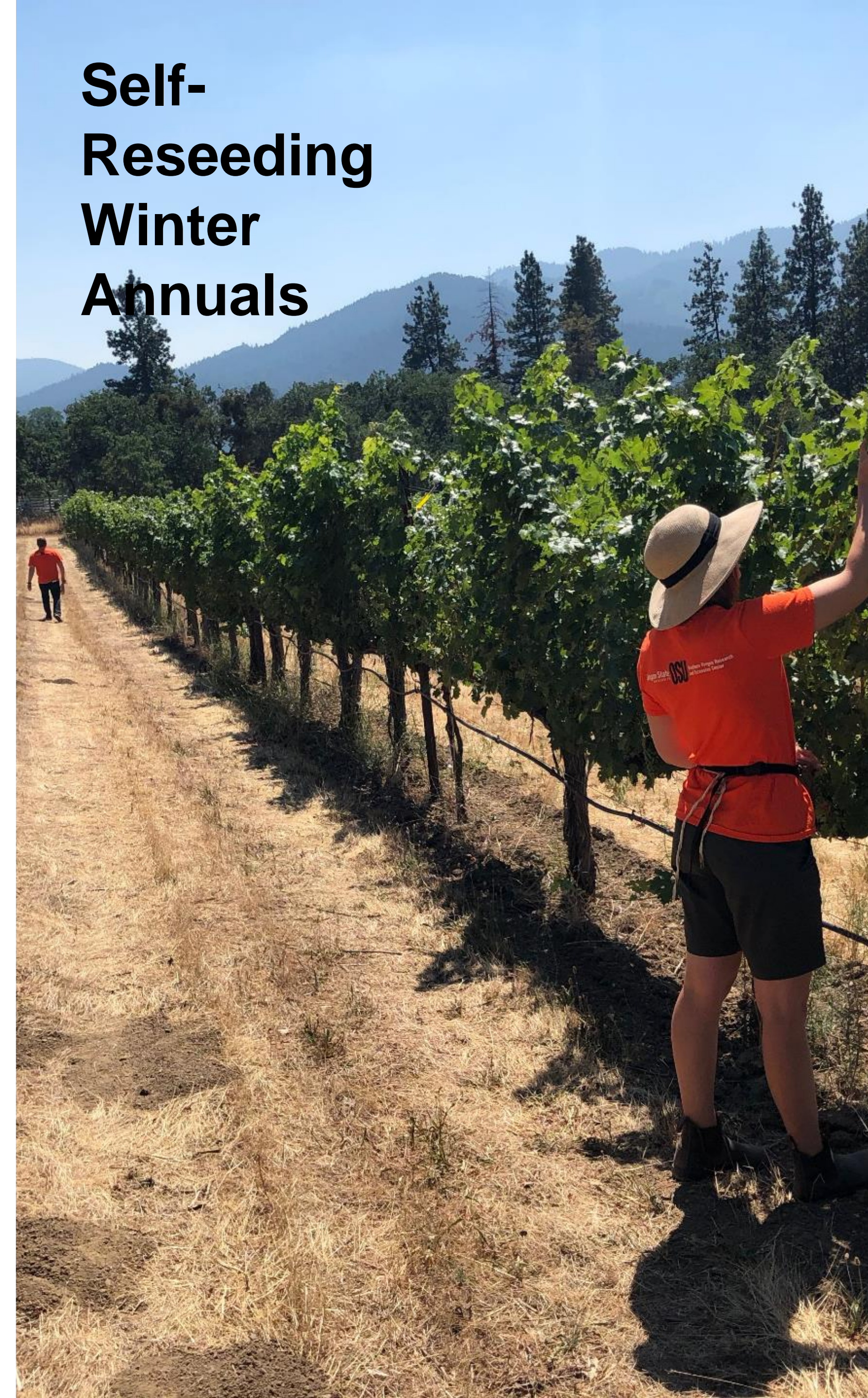


Winter Annuals

- Require replanting each year
- Many species/variety options
- Options on timing/strategy for termination



Self-Reseeding Winter Annuals



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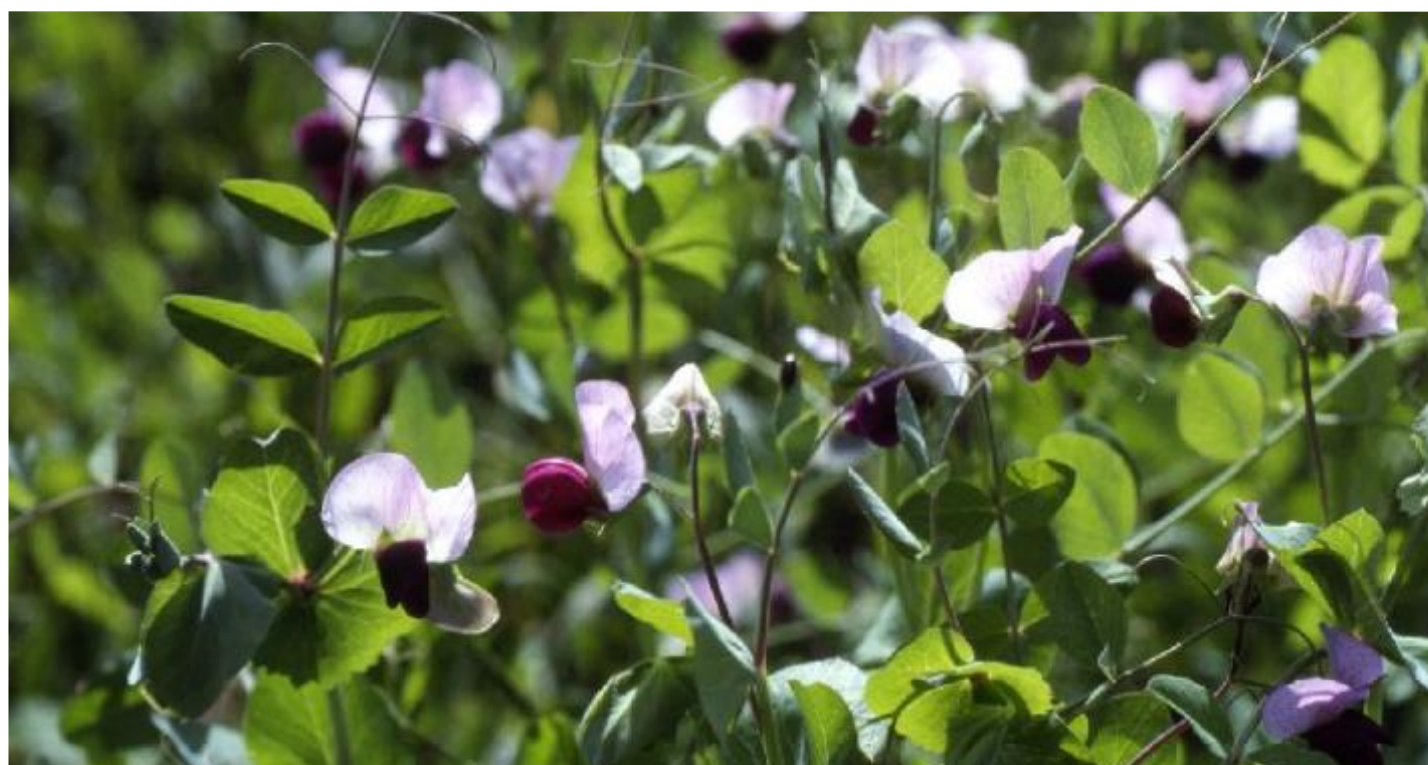
Self-Reseeding Winter Annuals

- Limited competition with vine
- Only occasionally require reseeding
- Can be outcompeted in moist regions

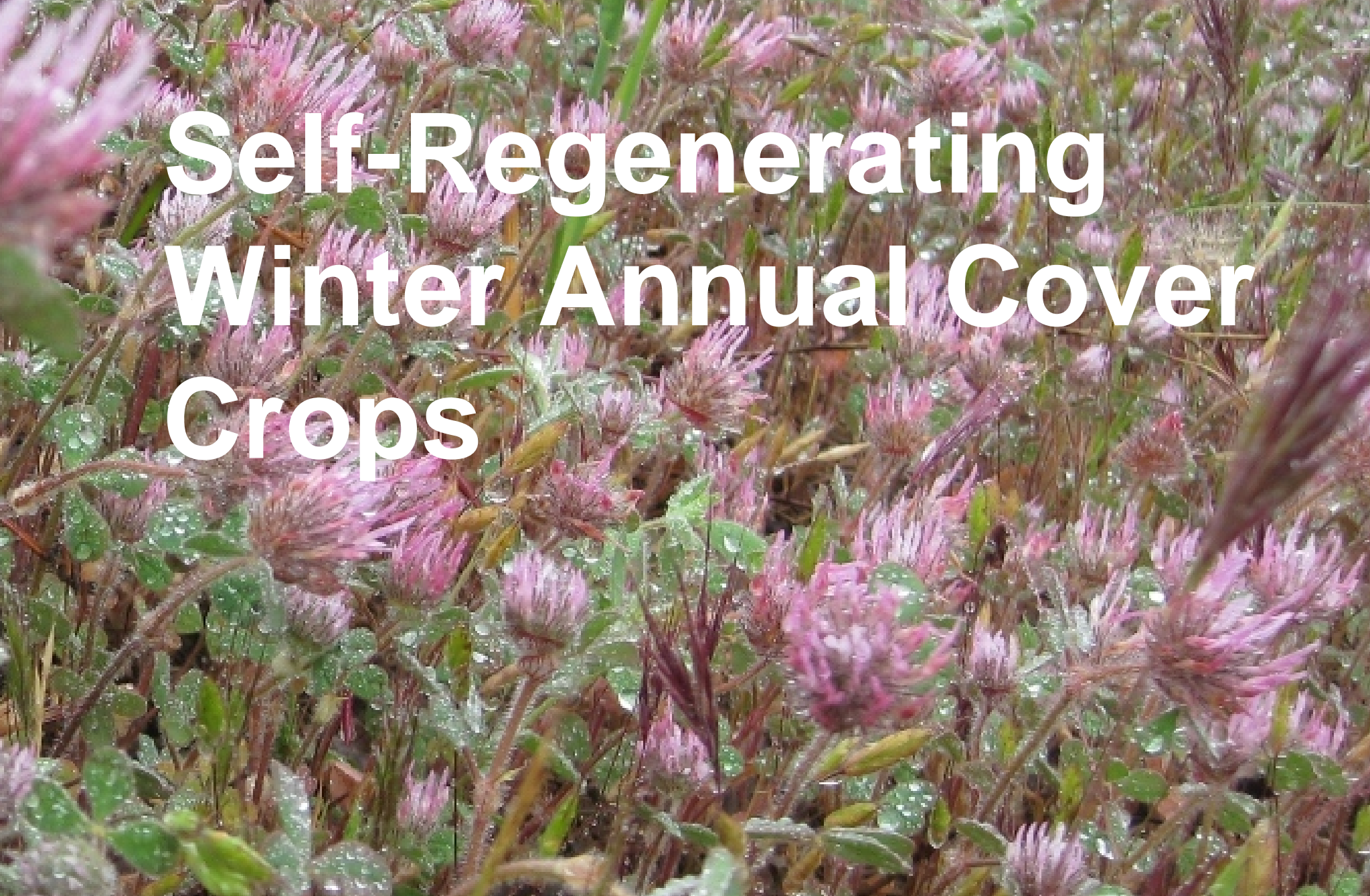
Perennial Cover Crops



Winter Annual Cover Crops



Self-Regenerating Winter Annual Cover Crops



Establishing Cover Crops

Till vs No-till

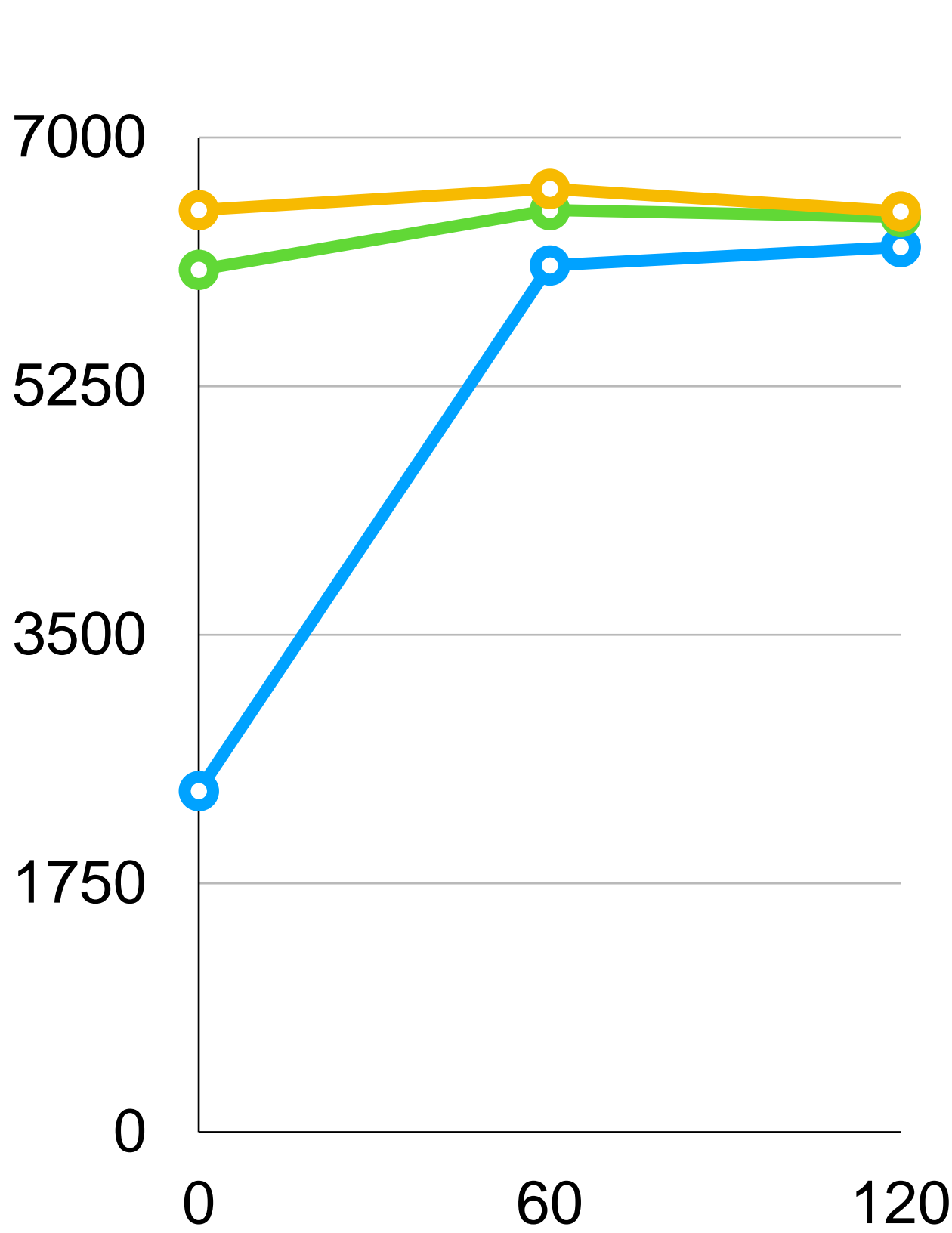
Fall vs Spring

**Overseeding vs
complete renovation**

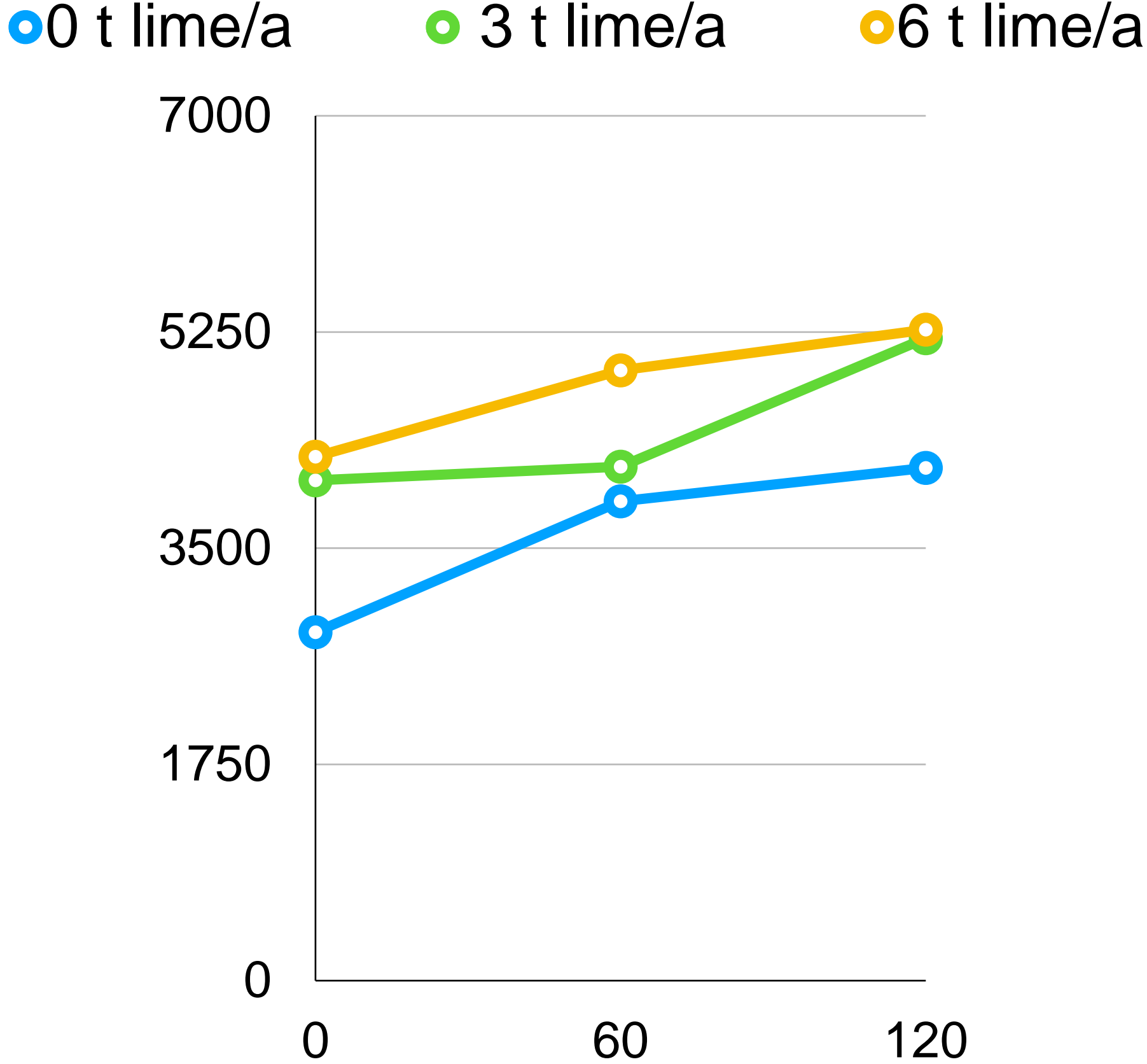


Cover crops can have different nutrient requirements than grapevines

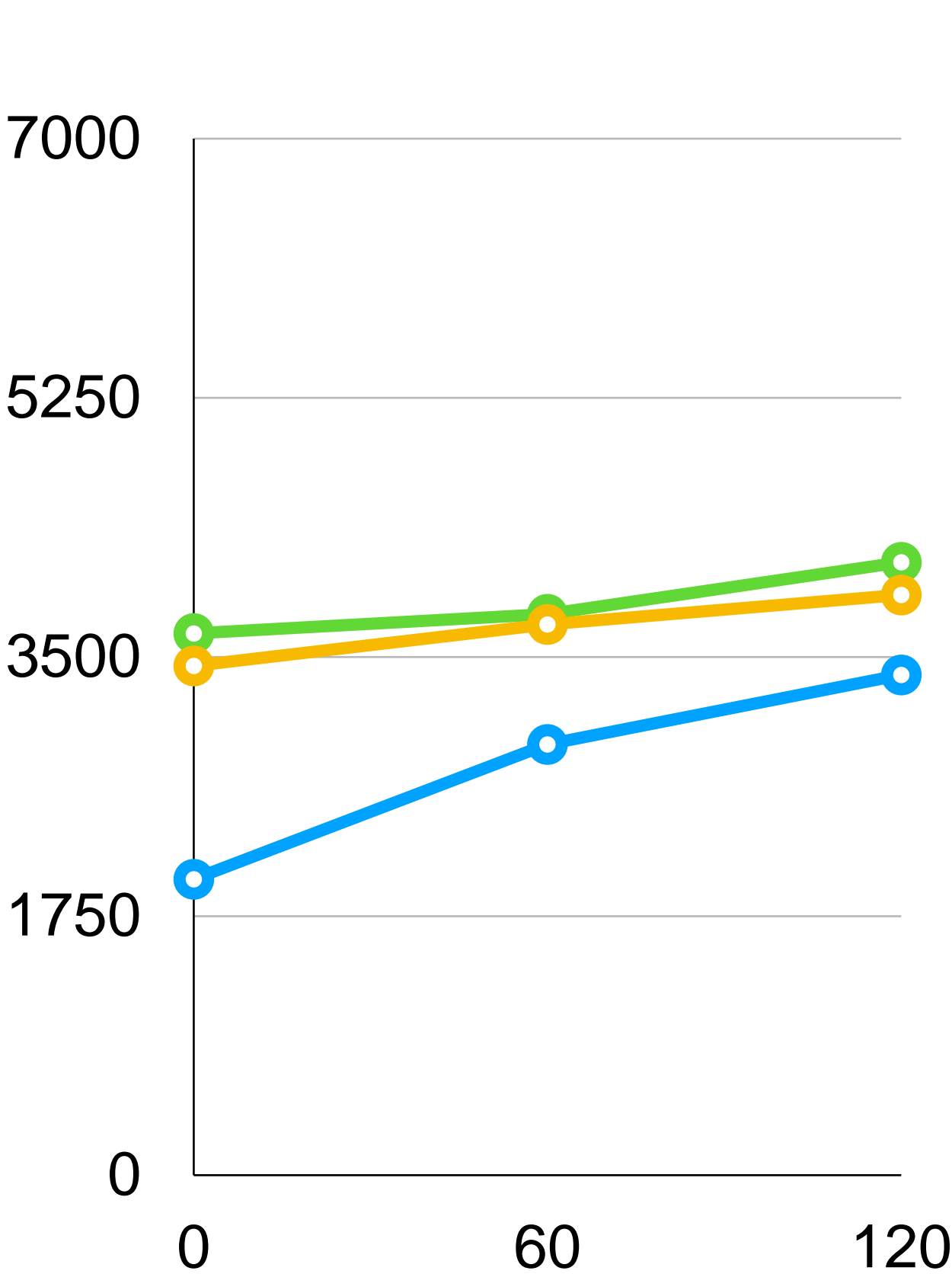
Subterranean Clover



Crimson Clover



White Clover



Initial pH: 5.5 ● Olsen P: 8 ppm

Jackson *et al.* 1964

How diverse a cover
crop mixture?





Pasture for Pollinators
by Grassland Oregon

Red clover - 15%

White clover - 15%

Crimson clover - 20%

Balansa clover - 10%

Berseem clover - 10%

Persian clover - 10%

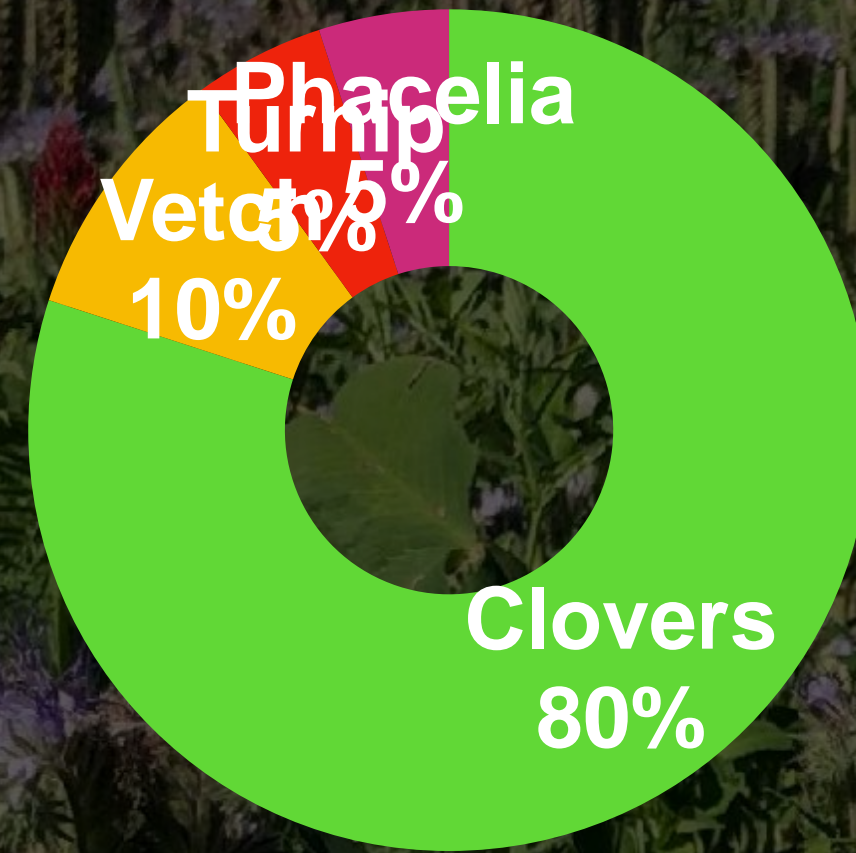
Hairy vetch - 10%

Phacelia - 5%

Turnip - 5%

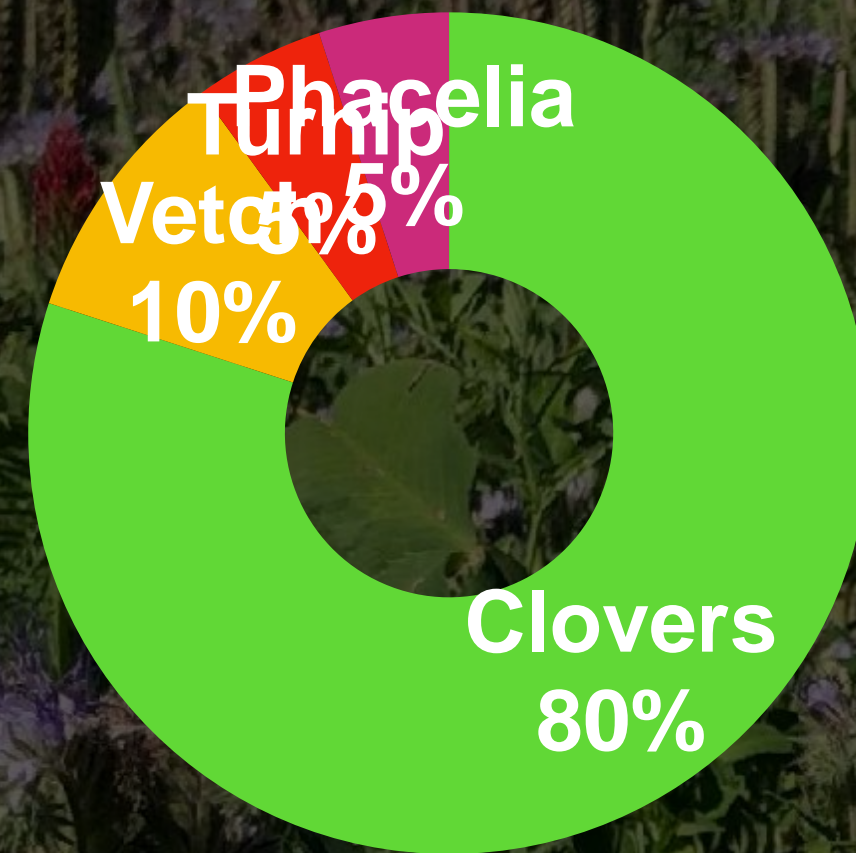
What was planted vs what grew

Proportion of Seed Mix by Weight
Planted early April

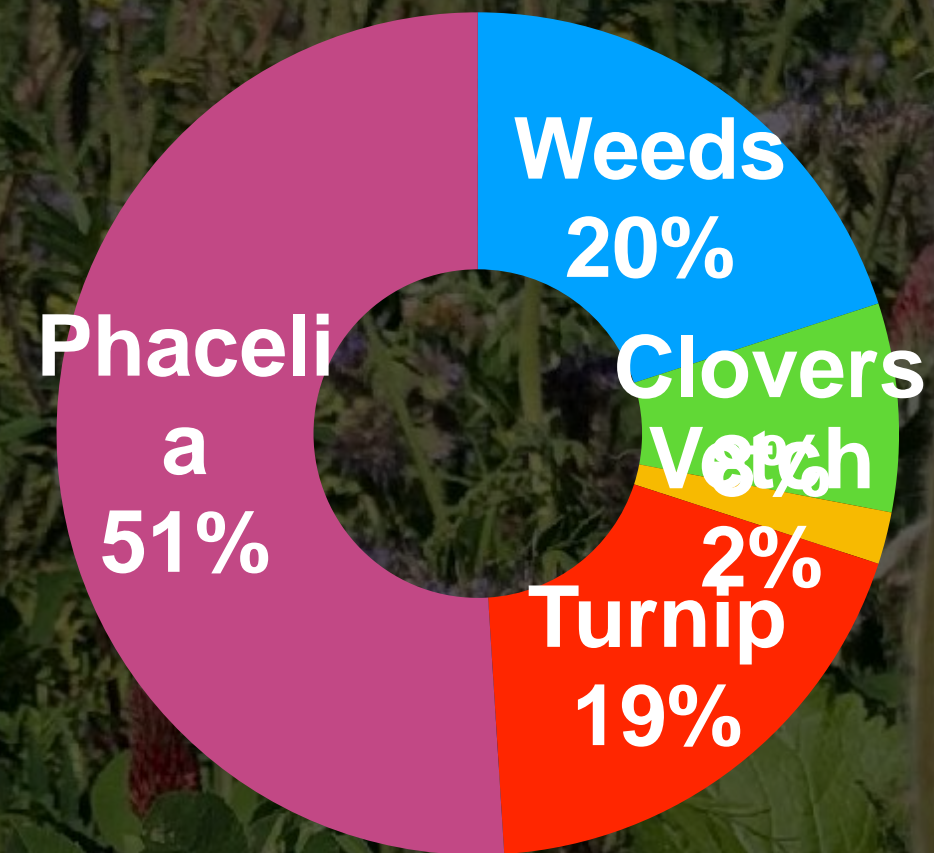


What was planted vs what grew

Proportion of Seed Mix by Weight
Planted early April



Proportion of Biomass by Weight
Harvested late June



A vibrant field of diverse cover crop plants. The foreground is filled with various species, including purple flowers, yellow flowers, and red flowers. The background shows a dense line of evergreen trees under a clear blue sky. A bee is visible flying in the upper left portion of the sky.

Highly diverse cover crop seed mixtures often do not yield highly diverse biomass - particularly over time in perennial systems.



Termination of winter annuals after seed-set can produce a nice mulch but can cause weed issues.

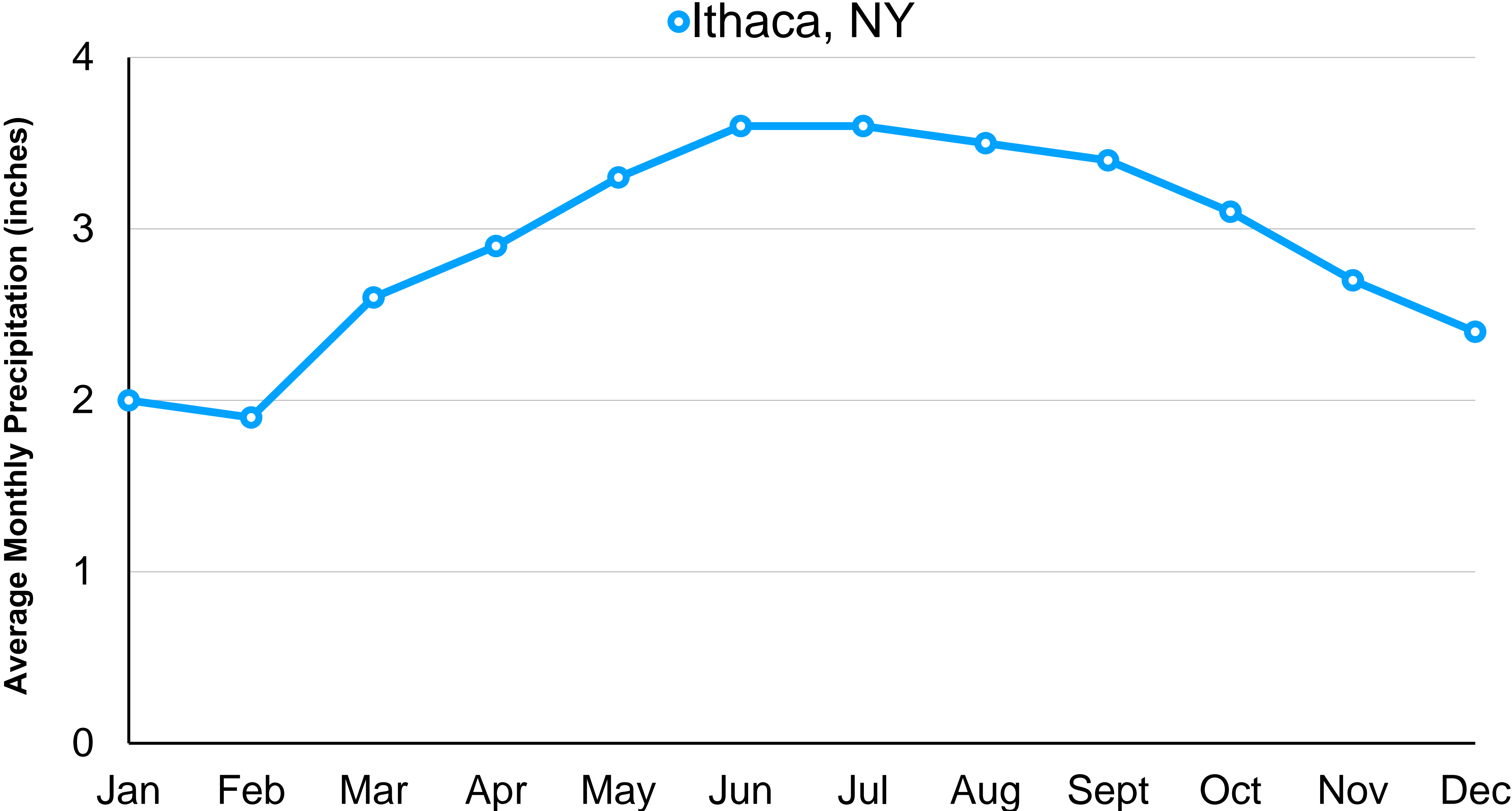
What about an under-vine cover crop?

**Recently, some
research on under-vine
cover crops has been
conducted.**





Site Vigor?



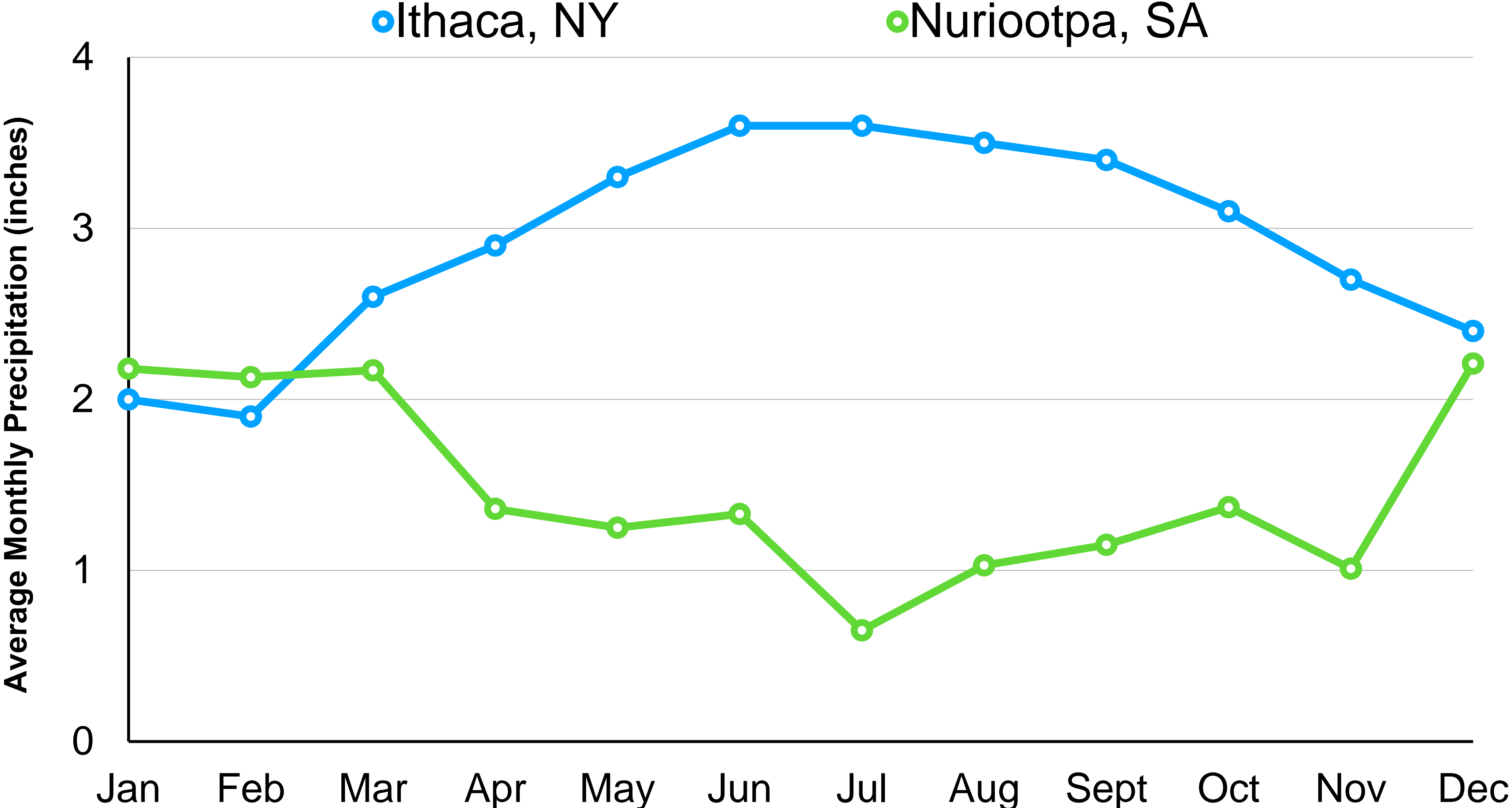
Under-vine Cover Crop Impact on Yield and Pruning Weight - Ithaca, NY

Little to No Impact	Moderate Impact	Significant Impact
Buckwheat (A)	Tillage Radish (A)	Chicory (P)
Turnip (A)	Alfalfa (P)	Annual Ryegrass (A)
	Fescue (P)	
	Native Vegetation	

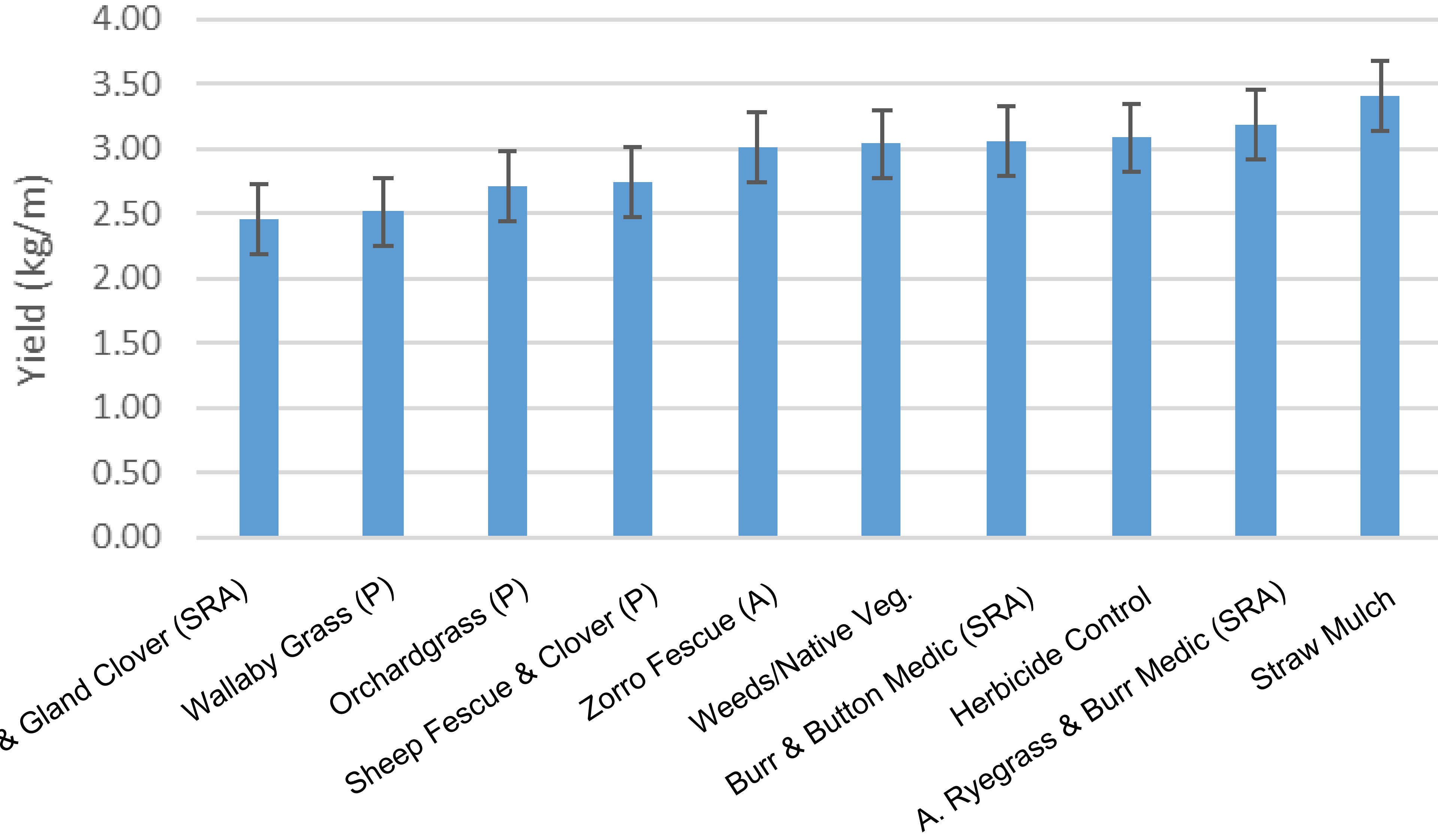
A: Annual/Biennial; P: Perennial



Site Vigor?



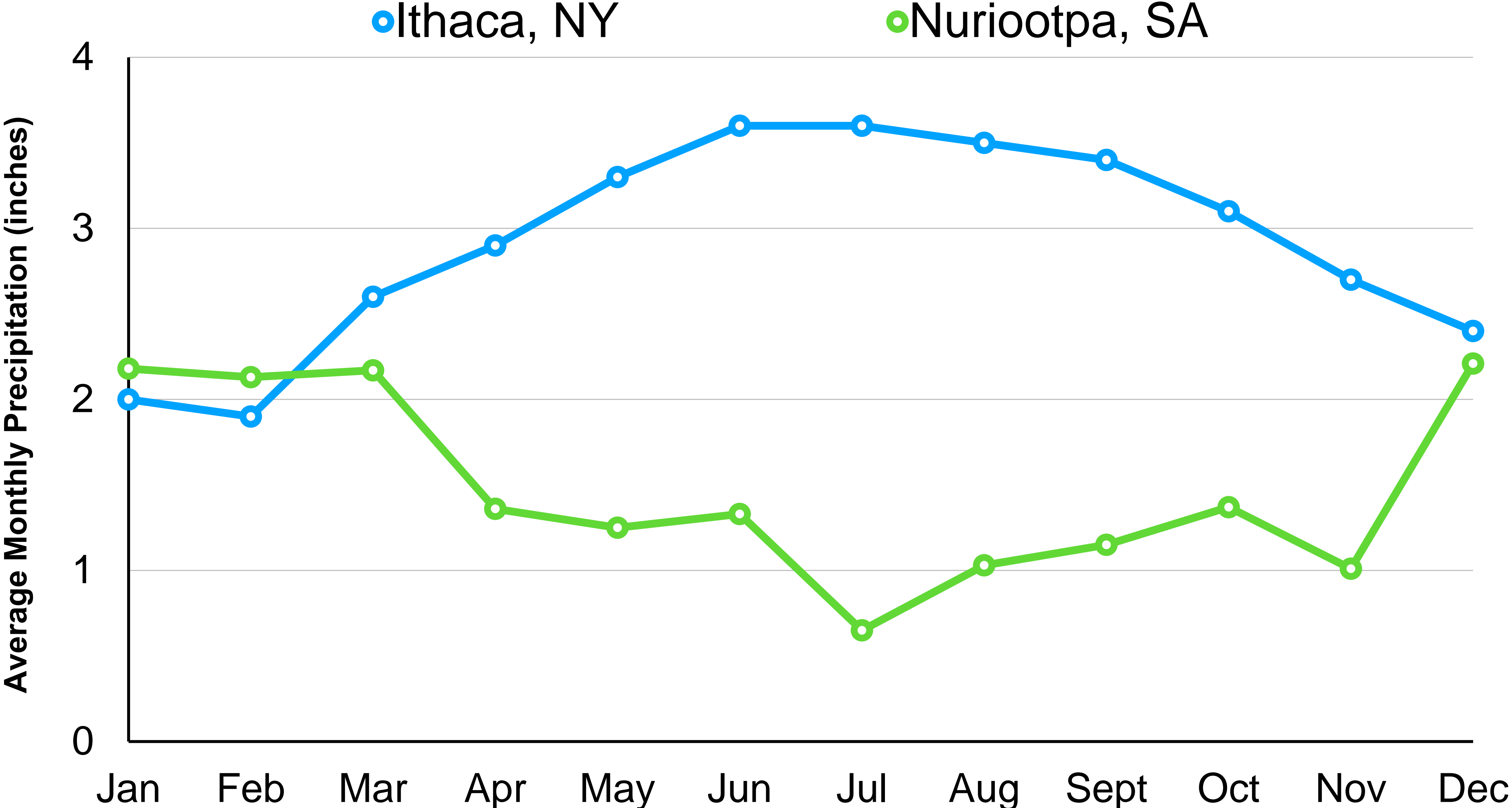
Harvest Yield with Various Under-vine Treatments in South Australia



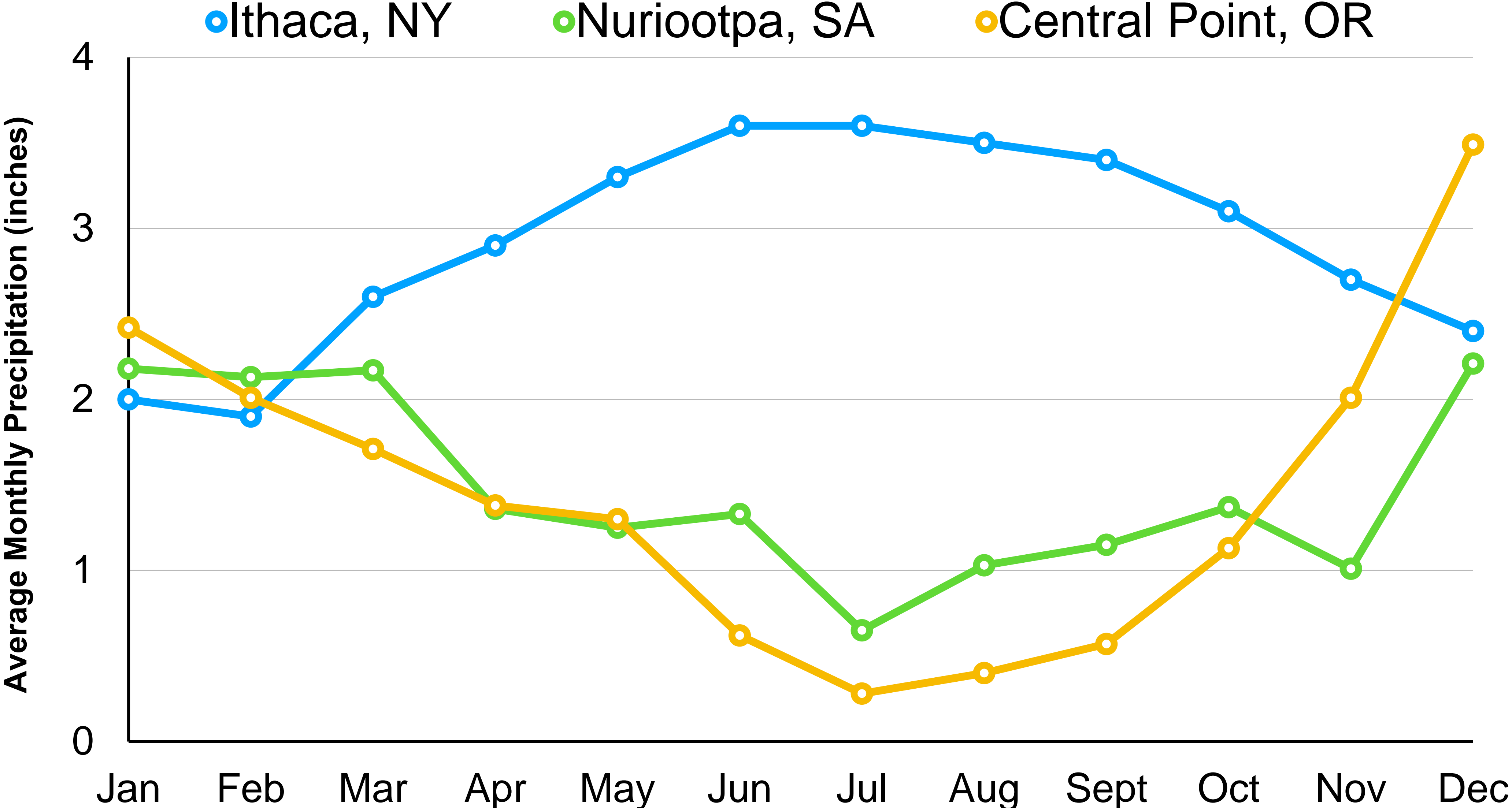
A: Annual; P: Perennial; SRA: Self-Regenerating Annual



Site Vigor?



Site Vigor?



What about southern Oregon? Can we identify winter annual grass/legumes which are good candidates for an under-vine vineyard cover crop?

Planted at SOREC - Oct. 2020

Grasses

- Annual Ryegrass (Fria)
- Rattail Fescue (Zorro)
- Soft Chess (Blando)

Legumes

- Sub. Clover (Woogenellup)
- Rose Clover (Hykon)
- Barrel Medic (Paraggio)
- Bur Medic (Cavalier)
- Snail Medic (Sava)

Monocultures, Grass/Legume
Bicultures, 8-way mix

Desired Characteristics:

- Suppress weeds
- Limited growth/water use from May to October
- Relatively short
- Effective reseeding/persistence

Thank you



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