

Winter Cover Crop Performance in a Drought Year in the Sacramento Valley

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Agriculture and Natural Resources | Cooperative Extension

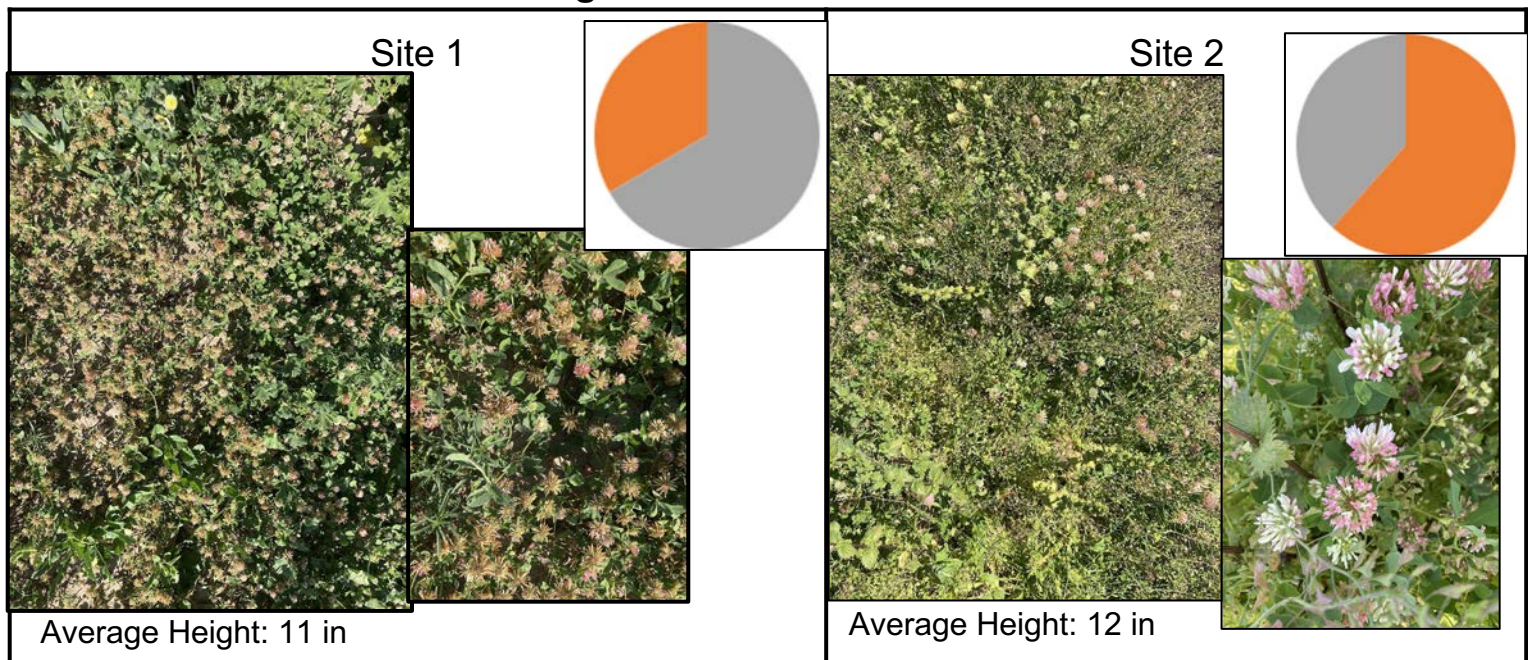
Winter cover crop species were planted using a single row push planter at 3 sites in the Sacramento Valley. Cover crop height was collected at 3 points in each plot. Percent cover (proportion of cover crops, weeds, and bare soil) was collected in three 20x20 cm quadrats. Some species had no stand establishment at Site 3, thus no data or photos are shown.

Site 1: planted 12/1/20; data collected 4/6/21; 12 inches water applied 2/25/21 (furrow irrigation)

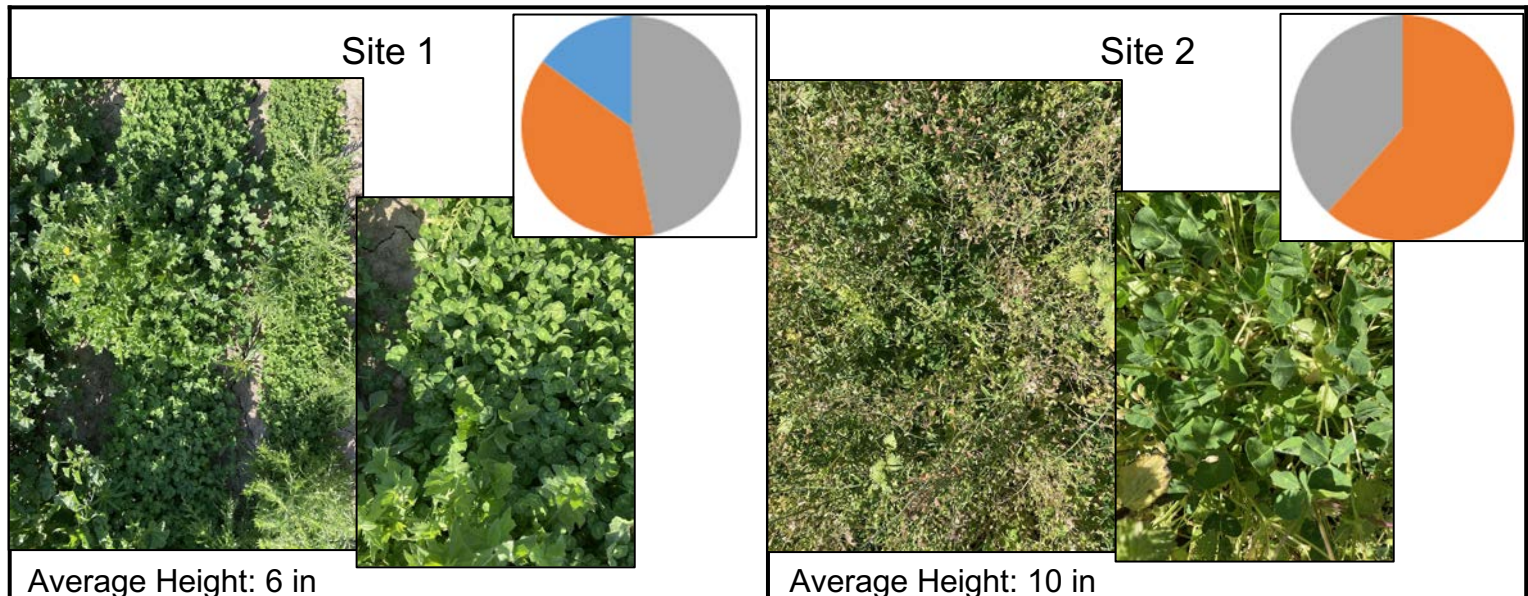
Site 2: planted 11/24/20; data collected 4/6/21; long-term soil health management practices and high starting soil organic matter; 8 inches of water applied 3/27/21 (furrow irrigation)

Site 3: planted 12/2/20; data collected 4/6/21; no irrigation

Legumes: Balansa Clover



Legumes: Subclover Campeda



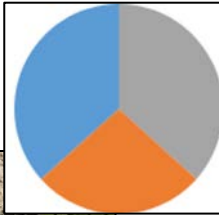
Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Legumes: Rose Clover

Site 1



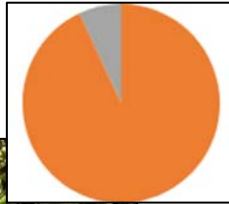
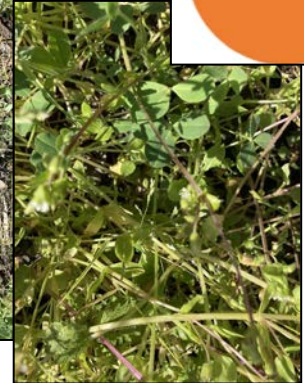
Average Height: 2 in



Site 2



Average Height: 7 in



Legumes: Crimson Clover

Site 1



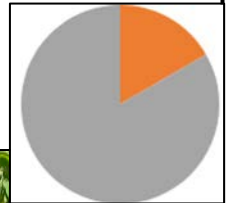
Average Height: 7 in



Site 2



Average Height: 14 in

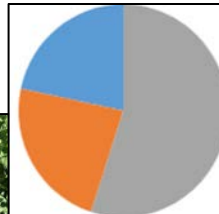


Legumes: Berseem Clover

Site 1



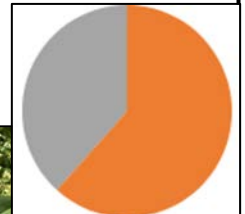
Average Height: 21 in



Site 2



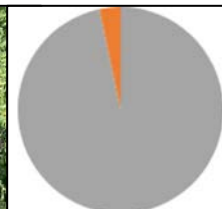
Average Height: 17 in



Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Legumes: Lana Woolypod Vetch

Site 1



Average Height: 23 in

Site 2



Average Height: 20 in

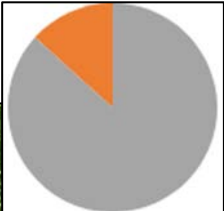
Site 3



Average Height: 15 in

Legumes: Common Vetch

Site 1



Average Height: 22 in

Site 2



Average Height: 19 in

Legumes: Hairy Vetch

Site 1






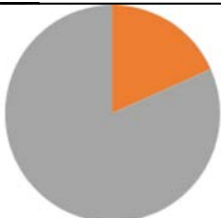






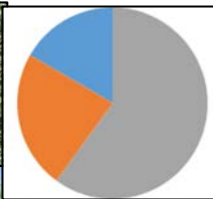



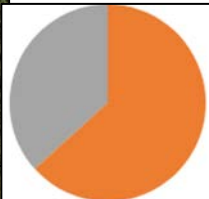




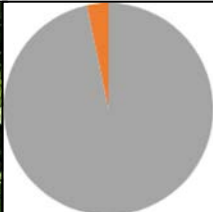







Average Height: 19 in

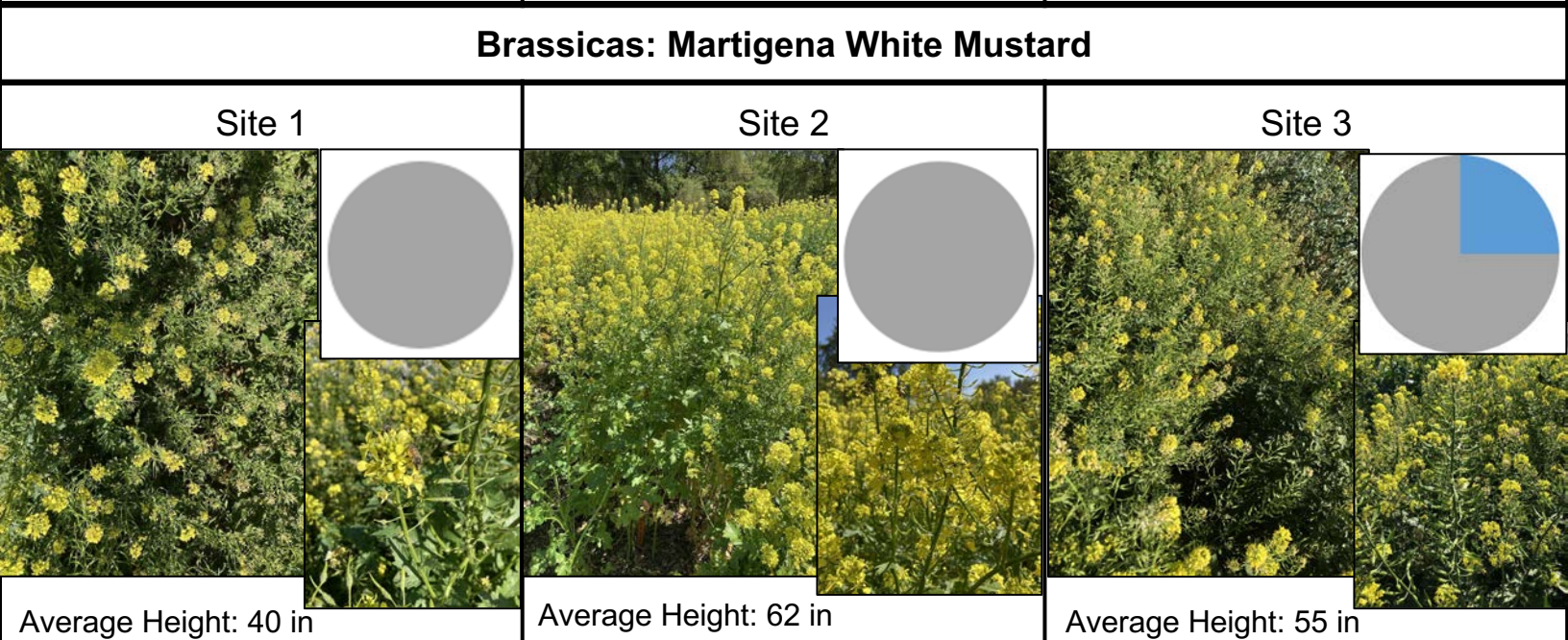
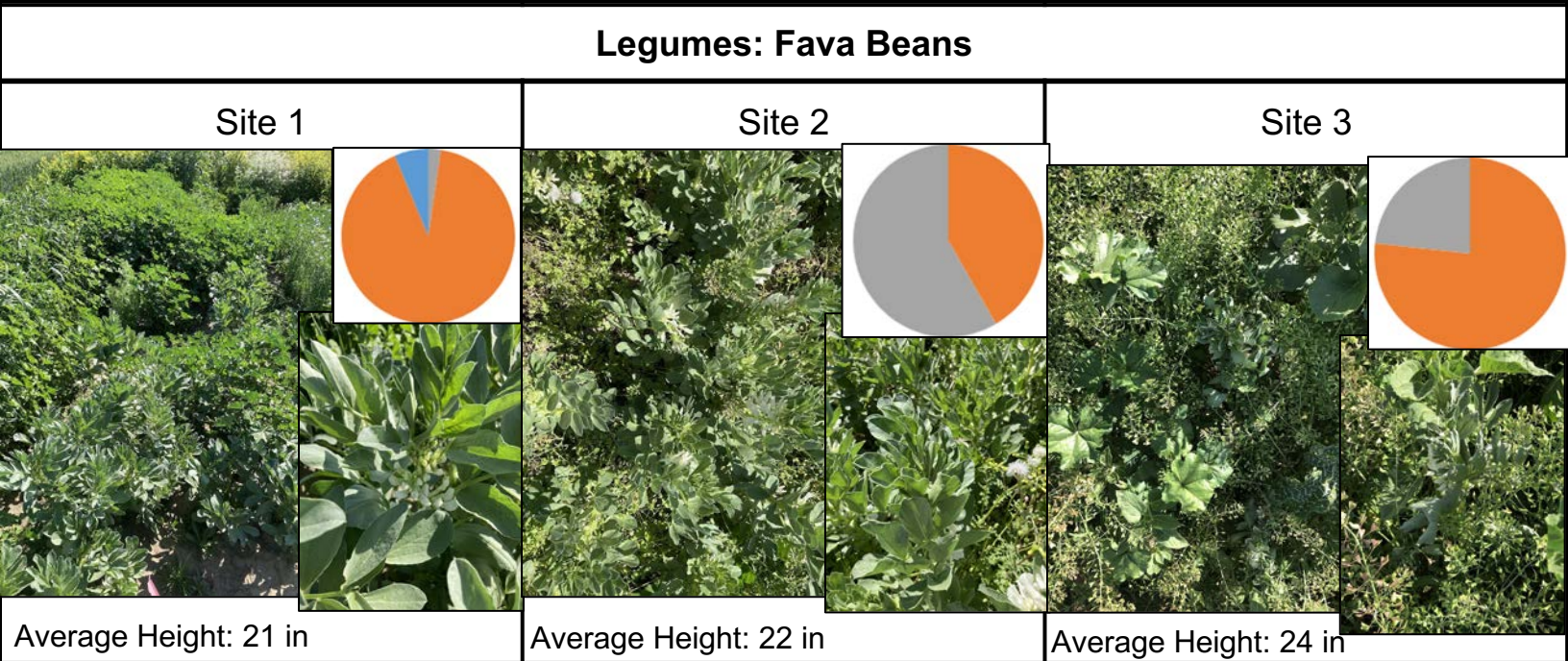
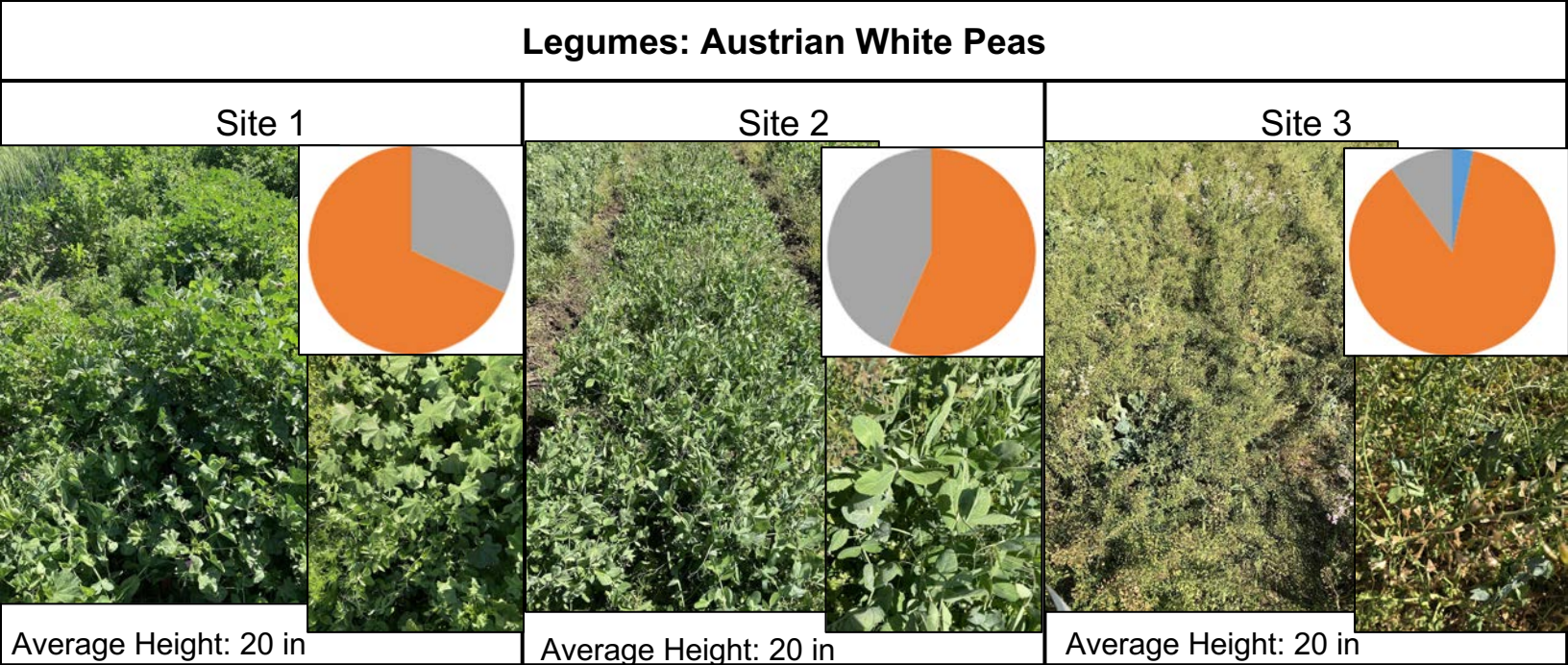
Site 2








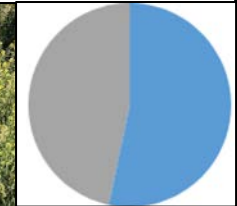




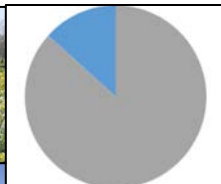

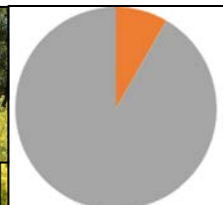






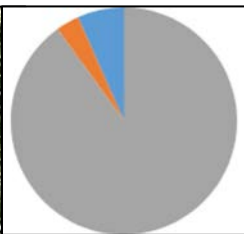



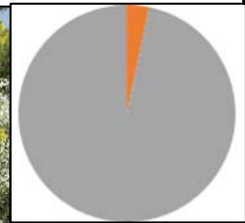



Average Height: 27 in

Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Legumes: Biomaster Peas					
Site 1		Site 2		Site 3	
					
					
Average Height: 26 in		Average Height: 28 in		Average Height: 32 in	
Legumes: Yellow Peas					
Site 1		Site 2		Site 3	
					
					
Average Height: 24 in		Average Height: 34 in		Average Height: 17 in	
Legumes: Dundale Peas					
Site 1		Site 2		Site 3	
					
					
Average Height: 28 in		Average Height: 31 in		Average Height: 18 in	
Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil					



Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Brassicas: Yellow Mustard					
Site 1		Site 2		Site 3	
					
					
Average Height: 49 in		Average Height: 65 in		Average Height: 15 in	
Brassicas: Nemafix Mustard					
Site 1		Site 2		Site 3	
					
					
Average Height: 58 in		Average Height: 79 in		Average Height: 44 in	
Brassicas: Daikon Radish					
Site 1		Site 2		Site 3	
					
					
Average Height: 45 in		Average Height: 38 in		Average Height: 57 in	
Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil					

Brassicas: Purple Top Turnip

Site 1



Average Height: 15 in

Site 2



Average Height: 17 in

Site 3



Average Height: 14 in

Linum: (Common) Flax

Site 1



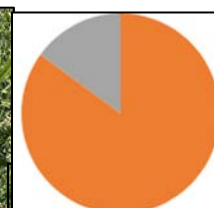
Average Height: 25 in

Site 2



Average Height: 30 in

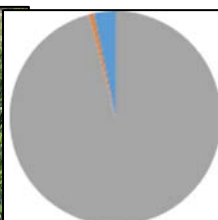
Site 3



Average Height: 31 in

Grasses: Triticale

Site 1



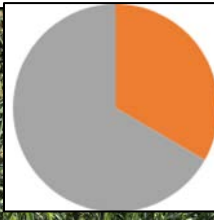
Average Height: 37 in

Site 2



Average Height: 35 in


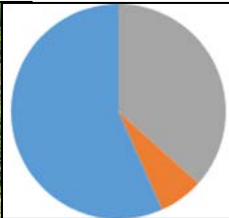

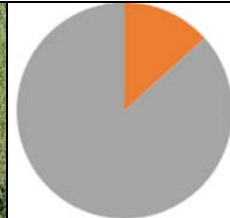

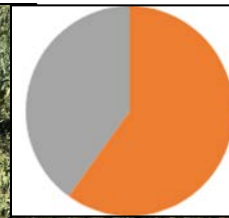



Site 3






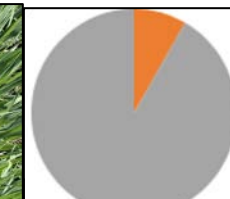





Average Height: 33 in

Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil


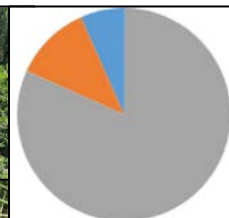

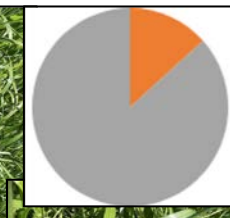

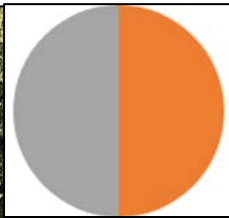



Grasses: Montezuma Oats

Site 1		Site 2		Site 3	
					
					
Average Height: 28 in		Average Height: 36 in		Average Height: 30 in	

Grasses: Cayuse White Oats










Site 1		Site 2		Site 3	
					
					
Average Height: 34 in		Average Height: 29 in		Average Height: 22 in	

Grasses: Annual Ryegrass

Site 1		Site 2		Site 3	
					
					
Average Height: 19 in		Average Height: 27 in		Average Height: 17 in	

Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Grasses: Cereal Rye Grain

Site 1	Site 2	Site 3
  	  	  
Average Height: 28 in	Average Height: 25 in	Average Height: 24 in

Percent Cover Key (average of three quadrants): Gray=Cover Crop. Orange=Weeds. Blue=Bare Soil

Observations:

Brassicas were the most effective at outcompeting weeds, followed by grasses. Legumes were much less competitive against weeds. Legumes are less competitive in a drought year without irrigation.

The field with long-term soil health management practices and high soil organic matter (Site 2) had good stand establishment for many cover crop species even though the only irrigation was at the end of March.

For more field observations, a video tour of Site 1 can be found on the Soil Health Connection Youtube Channel, hosted by Agronomy Advisor Sarah Light and the Executive Director of the Colusa RCD, Liz Harper.

****All seed was donated by Kamprath Seed. Thank you to Tom Johnson and Kamprath Seed for supporting this work.****