

Potatoes after Cover Crops Report

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Cover crops can provide a wide range of benefits, from providing resources for beneficial insects to improving water infiltration. For this trial, I wanted to see if different cover crop mixes would lead to different potato yields.



5 different cover crop mixes were terminated in Shafter on March 18, 2021 using a disc harrow.



To encourage further decomposition, the cover crops were disked multiple times and irrigated once in March and April.



Potatoes were harvested on August 3, 2021.



These yellow potatoes were planted at 1' spacing in 30" beds on April 22, 2021. The beds were 60' long.

The potatoes received adequate moisture from solid set sprinklers.

We applied nitrogen fertilizer once, at the beginning of the growing period.

Here are the different cover crop mixes planted at Shafter:

	Soil Builder	Soil Health	Brassica Mix	Merced rye & peas	Barley & vetch
GRASSES					
Triticale	X				
Barley				X	
Rye		X			X
LEGUMES					
Peas	X				X
Vetch	X	X		X	
Berseem Clover		X			
BRASSICAS					
Yellow mustard	X		X		
Radish	X	X	X		
Nemfix mustard			X		
“Bracco” white mustard		X	X		
Canola			X		

Challenges

Southern blight and other soilborne pathogens



By June 9, all of the rows had some potato plants, but it was very patchy.



Here's the reason for the patchiness: potatoes would sprout and then die.



The plants were dying because they were infected with southern blight and other pathogens.



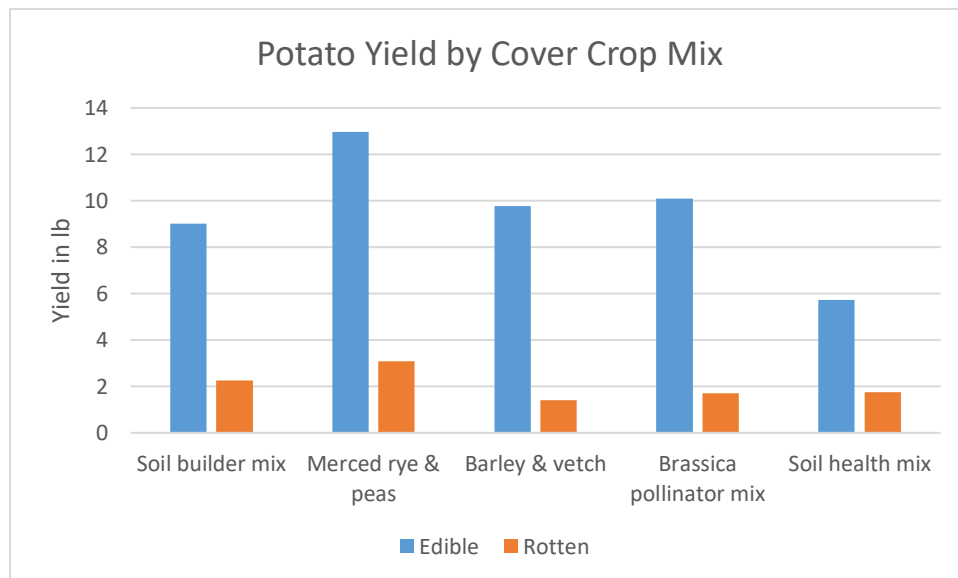
Weeds

The pre-emergent herbicide in April and one cultivation in early July did not keep the weeds at bay.

Results

There was too much variability and not enough replication to see meaningful differences in the yields associated with the different cover crop mixes.

Further research is needed to identify the best cover crop species for each cash crop in Kern County.



Key takeaways

Southern blight thrives under the conditions of the trial field in Shafter. It has historically only been a major problem in Kern County, but other areas of California are now reporting cases.

It grows best under these conditions:

- Warm temperatures
- Acidic soil – the soil pH in the top 6 inches of soil was between 5.8 and 6.3
- Decaying organic matter – in this case, the decomposing cover crops
- High soil moisture – we used sprinkler irrigation

Unfortunately, southern blight doesn't just attack potatoes. It has a wide range of hosts and can decimate other vegetable crops like tomatoes, cucumbers, and chard.

Should I not plant cover crops because of southern blight?

The potato trial in the neighboring field was also decimated by southern blight. That field was fallow before the potatoes were planted, with no cover crops.

If you plan to grow a crop that is susceptible to southern blight and you are in Kern County, you should focus on the cultural practices and chemical products that will reduce your risk of crop loss.

If you plant cover crops, make sure that the crop residue has completely decomposed before planting your cash crop. This might require terminating your cover crops early, so that there is enough time for complete decomposition.

In this trial, there was an incredible amount of biomass left over from the cover crops. They were irrigated and planted at 1.8X the recommended seeding rate. There was also plenty of nitrogen and warm weather to fuel their growth. If your cover crops do not produce as much biomass, especially ligneous biomass, then they should not take as long to break down as the ones in this study did.

More information about southern blight

- <https://content.ces.ncsu.edu/southern-blight-of-vegetable-crops>
- <http://ccvegcrops.ucanr.edu/newsletters/ Tomato Info Newsletters72607.pdf>

For more information about the trial, contact Shulamit Shroder at sashroder@ucanr.edu or 661-903-9442.

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