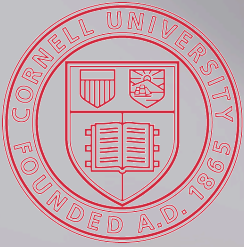


COVER CROPS BETWEEN ROWS OF BLACK PLASTIC MAY REDUCE PHYTOPHTHORA SPLASHING

Edward Miles and Steve Reiners

Horticulture
Cornell University



Cover Crops

"Green Manures"

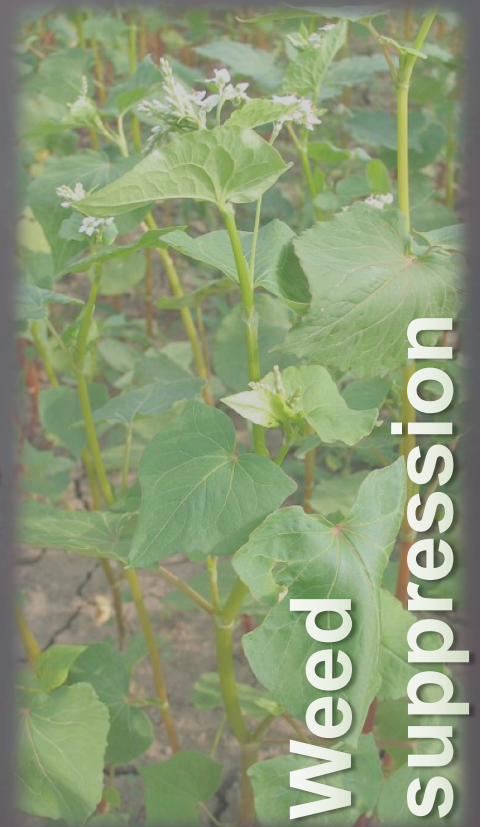
- ❑ Winter or Summer
- ❑ Living or Dead
- ❑ Catch crop or Forage crop
- ❑ Benefits
 - ❑ Maintain & Improve Soil Quality
 - ❑ Reduce Inputs
 - ❑ Increase Productivity

Attracting beneficial insects

Nitrogen fixation



Biofumigants

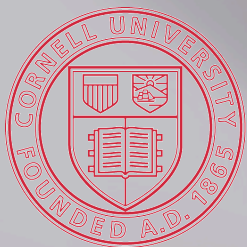


Weed suppression



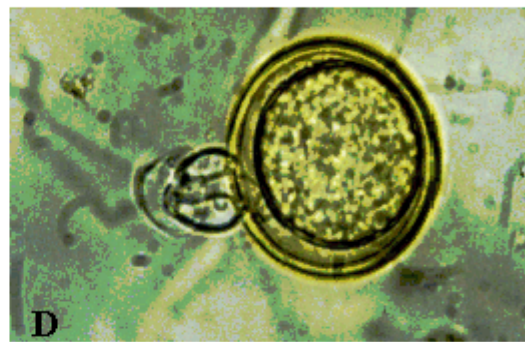
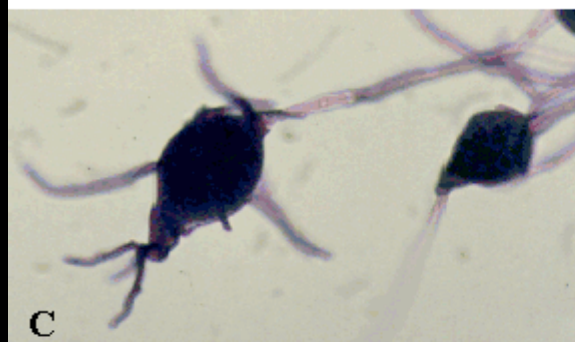
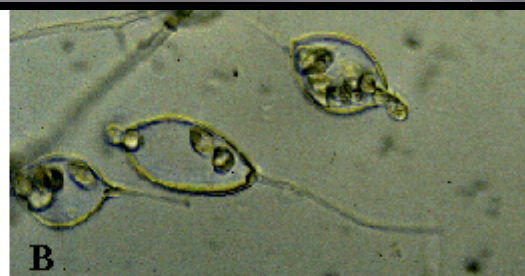
Organic matter

Prevent soil erosion



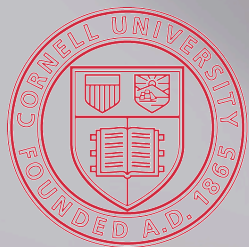
Phytophthora Blight (*Phytophthora capsici*)

- ❑ Soil-borne
- ❑ High RH, excess soil moisture, warm & wet weather
- ❑ Oospores > Zoospores > Infection
- ❑ Damping off, Root & Crown Rot, Foliar Blight



Phytophthora Blight (*Phytophthora capsici*)





Foliar blight & soil splash



Straw



Annual
Ryegrass

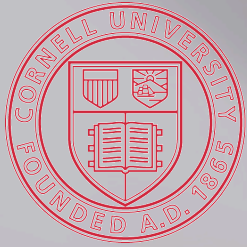


Soil

Hypothesis:

A dead or living organic mulch, from cover crops in the inter row alleys, will reduce the incidence of Phytophthora blight in row crops.





Soil



Straw



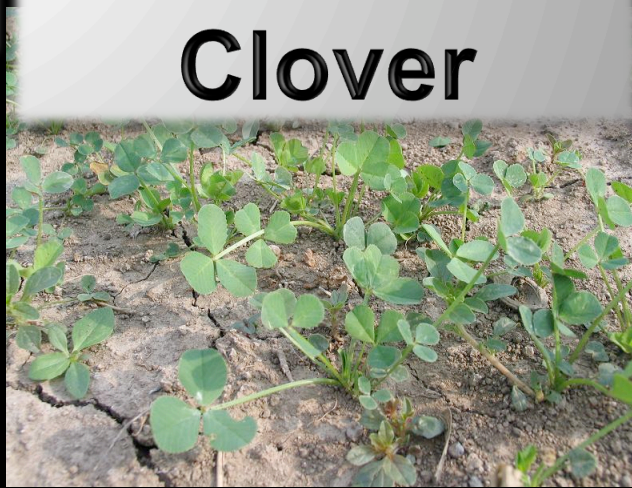
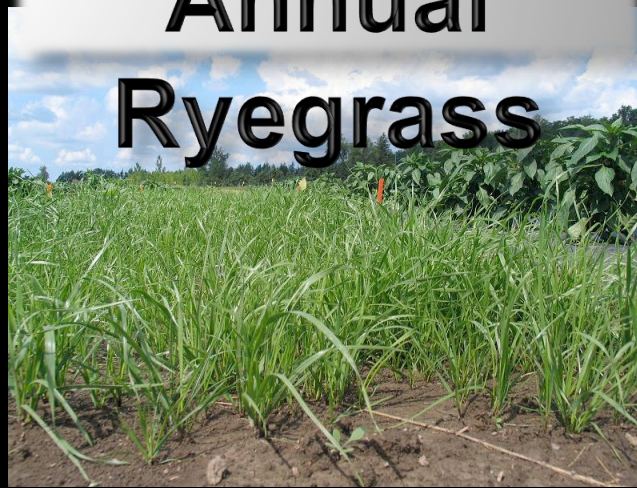
**Annual
Ryegrass**

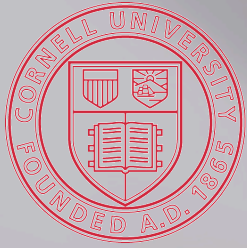


**Dutch White
Clover**



**Creeping
Red Fescue**



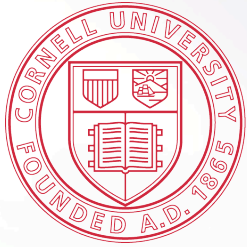


Banded Field Inoculation Technique

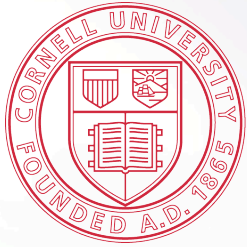








Alleyway Treatment	Unmown / Mown	Biomass				Groundcover	
		Mean DW (kg/ha) ($P < .0001$)	P -value for difference between Unmown & Mown	Mean % Cover Crop of Total DW ($P = 0.07$)	P -value for difference between Unmown & Mown	Mean % Ground cover ($P = 0.04$)	P -value for difference between Unmown & Mown
Annual Ryegrass	Unmown	4,442 a	0.91	99.16 a	0.50	96.96 a	0.35
	Mown	4,538 a		97.50 a		92.78 a	
Creeping Red Fescue	Unmown	937 b	0.74	74.66 a	0.93	60.60 a	0.90
	Mown	1,023 b		75.73 a		62.80 a	
Dutch White Clover	Unmown	1,484 b	0.63	74.95 a	0.52	70.60 a	0.94
	Mown	1,720 b		83.76 a		71.80 a	



Alleyway Treatment	Unmown / Mown	Pepper Fruit Yield		<i>P. capsici</i> damage		
		Mean Total # of Fruit (<i>P</i> = 0.90)	<i>P</i> -value for difference between Unmown & Mown	Mean Total Weight (kg) (<i>P</i> = 0.89)	Mean # of Fruits (<i>P</i> = 0.48)	<i>P</i> -value for difference between Unmown & Mown
Annual Ryegrass	Unmown Mown	32.8 a 23.8 a	0.27	5.10 a 3.54 a	1.8 a 0.0 a	0.04
Creeping Red Fescue	Unmown Mown	21.6 a 25.4 a	0.73	3.13 a 3.58 a	1.2 a 1.2 a	1.00
Dutch White Clover	Unmown Mown	28.0 a 28.4 a	0.97	4.29 a 4.32 a	1.2 a 0.6 a	0.42
Soil	N/A	32.8 a	N/A	5.11 a	1.4 a	N/A
Straw	N/A	29.0 a	N/A	3.99 a	1.8 a	N/A

