

## Why use Cover Crops

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## Southeast Farm Press

"3 Things you need to know" Bob Kemerait, Nov 27, 2017

- 1) La Nina (Warm Dry) "Rather than a reset button, warmer and drier winters may be bridges for important pests from one season to the next. "
- 2) "Many fungicides and agrichemicals are produced in China. Recently there have been reports that all may not be well with production efforts in China. ....some fungicides, especially chlorothalonil, that have been readily available in the past will be more limited in supply..... products that have been amazingly inexpensive are likely to be more expensive in 2018. Such is predicted for tebuconazole...."

Cont'd.

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## What can you control???

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3) "Planting resistant varieties (seed) can be very effective for management of diseases and nematodes. However, seed for resistant varieties may be in limited supply."

Cotton varieties will be available with increased resistance to root-knot nematodes and to bacterial blight, though unfortunately not in the same variety.

Farmers adopting these systems are saving ~ \$40-\$80 per acre while maintaining yields.

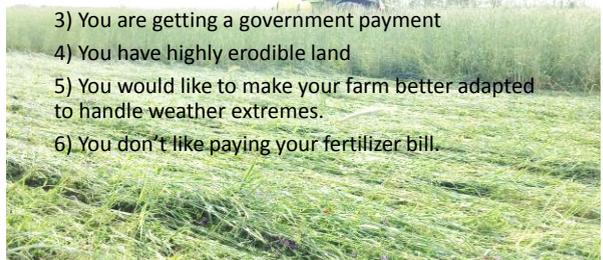


## Don't try cover crops IF:

- 1) You do not know "WHY" you or anyone else would do them.
- 2) You are comfortable with the profit margins you currently have.
- 3) You don't *think* they will work for your operation.
- 4) Your way is the *ONLY* way.
- 5) You don't have time.
- 6) You don't like change.
- 7) You care about what your neighbor says.

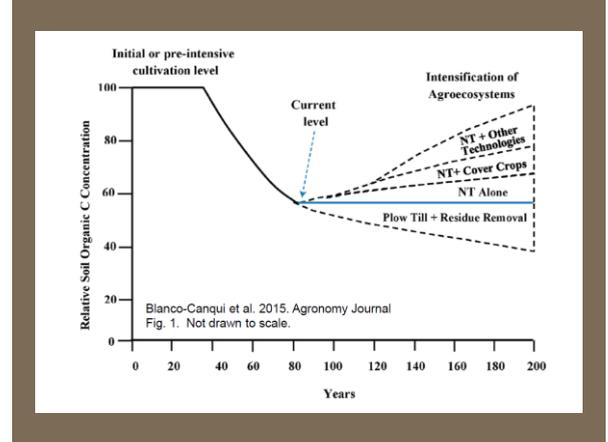
## Covers may be for you IF:

- 1) You would like more weed suppression
- 2) You would like to improve your bottom line
- 3) You are getting a government payment
- 4) You have highly erodible land
- 5) You would like to make your farm better adapted to handle weather extremes.
- 6) You don't like paying your fertilizer bill.



## Terminology

- Conservation Tillage / Strip Till
- Carbon & Organic Matter
- Biomass
- Winter Weeds, ankle-high, knee-high, head-high





### Rainfall Simulations

| Soil   | Tillage | Time in tillage regime (years) | Infiltration |            | Runoff |            | ET assigned (mm/d) | PAWest (days) |
|--------|---------|--------------------------------|--------------|------------|--------|------------|--------------------|---------------|
|        |         |                                | mm/h         | % rainfall | mm/h   | % rainfall |                    |               |
| Tifton | CT      | 6                              | 26.0         | 51         | 25.0   | 49         | 7                  | 3.7           |
|        | ST      | 6                              | 44.0         | 80         | 11.0   | 20         | 7                  | 6.3           |



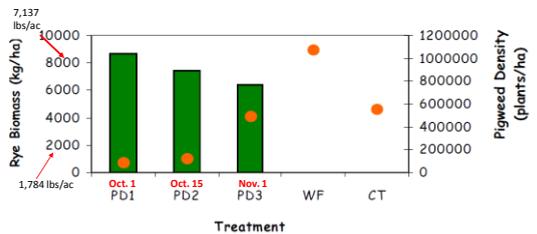
### Pigweed Case Study, 2007

- TN Valley REC, Bella Mina AL
- E.V. Smith REC , Shorter AL

Andrew J. Price  
 Kipling S. Balkcom  
 Francisco J. Arriaga  
 Jason S. Bergtold  
 Randy L. Raper  
 Ted S. Kornecki  
 USDA-ARS Auburn, AL



Cover Biomass vs. Early Season Pigweed Density - Tennessee Valley 2007





### The ROI...return on investment

| Costs                 | Benefit                 |
|-----------------------|-------------------------|
| • <b>TIME</b>         | • Nutrient cycling \$   |
| • Planter adjustments | • Weed Suppression \$   |
| • Seed                | • Water \$ <u>or</u> \$ |

**WHAT DO COVER CROPS COST?**

| SEED COSTS                               | Cost/Acre | Acres        | Seed Cost                       |
|------------------------------------------|-----------|--------------|---------------------------------|
| Oats (20#) + Radish (2.5#)               | \$16.38   | 240          | \$3,931.20                      |
| Oats (24#) + Radish (2.5#) + Clover (6#) | \$18.40   | 1005         | \$18,482.00                     |
| Annual Rye Grass (18#)                   | \$14.04   | 200          | \$2,808.00                      |
| Cornell Rye Grass - Plant (35#)          | \$12.05   | 607          | \$7,314.35                      |
| Cornell Rye Grass - Aerial (40#)         | \$12.05   | 1,475        | \$17,773.75                     |
| <b>Total</b>                             |           | <b>3,527</b> | <b>Seed Cost = \$50,319.30</b>  |
|                                          |           |              | <b>Seed Cost/Acre = \$14.27</b> |

Assume avg cost for cover seed: \$17/acre  
 +  
 Planting cost \$13  
**TOTAL: \$30.00/Acre**

| Planting Costs for Season      | Quantity             | Rate                             | Total Cost         |
|--------------------------------|----------------------|----------------------------------|--------------------|
| Aerial Seeding Cost            | 1,475                | \$13.93                          | \$20,546.75        |
| Tractor Hours                  | 140                  | \$55.00                          | \$7,700.00         |
| Labor                          | 210                  | \$15.00                          | \$3,150.00         |
| Fuel                           | 720                  | \$3.50                           | \$2,520.00         |
| Planter Repairs/Year           | 2,052                | \$5.00                           | \$10,260.00        |
| <b>Total Other Costs</b>       | <b>Acres = 3,527</b> |                                  | <b>\$41,376.75</b> |
|                                |                      | <b>Planting Cost/Acre =</b>      | <b>\$11.73</b>     |
| <b>Total Cover Crop Cost =</b> |                      |                                  | <b>\$91,696.05</b> |
|                                |                      | <b>Total Cost/Acre Planted =</b> | <b>\$26.00</b>     |

RULON ENTERPRISES - IOWA COVER CROPS CONFERENCE 2/17/2015

Planted: 10/17/2014  
 Clipped: 3/11/2015 ~150 days growth

A) Winter Weeds: Henbit/Chickweed (most flowering and full Maturity)  
 1037 lbs/acre Dry matter  
 N: 21lbs.  
 K: 21 lbs **VALUE: \$ 15**

B) Mixed species Cover: rape, rye, vetch, Crimson clover, Radish\* "Ankle-high"  
 1642 lbs./ac  
 N: 41  
 K: 41 **VALUE: \$30**

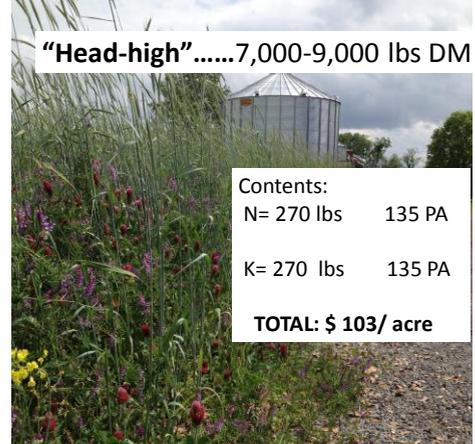
Can we assume more?

**"Knee-High"**  
 4,500 lbs. Dry Matter / ac

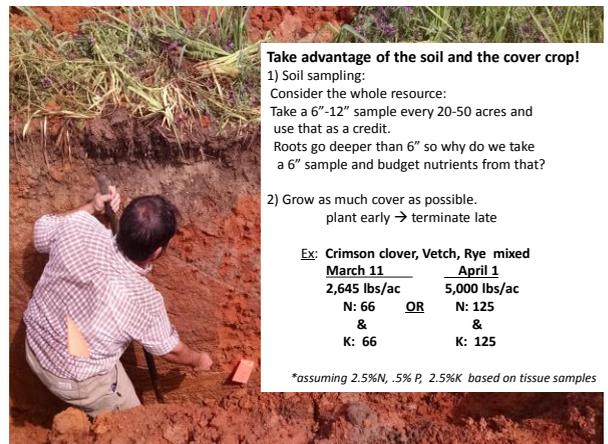
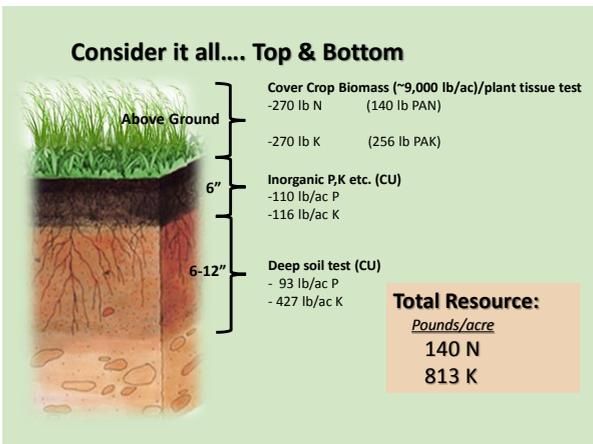
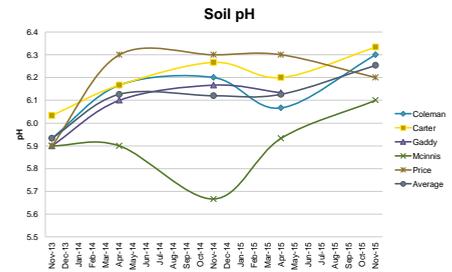
Contents:  
 N= 135 lbs 75 PA  
 K= 135 lbs 75 PA  
**TOTAL: \$ 57/ acre**

03/24/2015



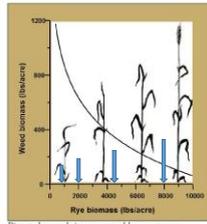


Oh and by the way...



Baby steps

- “enhanced” Strip-till 6 (ankle high)
- “Knee-high”
- “Belt to chest high”
- “Head high” or larger



Figweed growth is suppressed by cover crop residue, the more the better. [Source: Price et al., 2016]

Managing Thrips in Cotton: Research in the

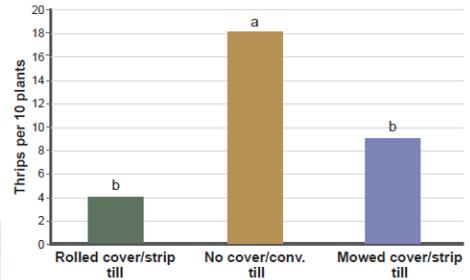


Figure 4. Numbers of thrips (adults and larvae) in strip- or conventionally tilled cotton planted with or without cover crop (rye) residue (rolled or mowed) in South Carolina, 2014.



Termination

- Wait as long as possible
- Spray during day when plants are actively growing
- Liquid N or AMS may help
- Use plenty of water ~ 20 gal with paraquat
- Tank mixes of paraquat & atrazine or Paraquat and Valor (reflex) or P + cotoran
- Terminate @ planting for corn, 3wks ahead for cotton and later planted crops
- Plant green or crispy

Termination Tips cont'd.

- Use more water as cover crop height increases\*
- Consider your mix: size and species (broadleaf vs grasses)
- Clover is hardest to kill
- **Termination will be easier once plant begins to flower**
- Rates used for winter weeds may not be sufficient
- Cold temps may affect herbicide effectiveness

*Is the cover really dead?*



Questions??

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