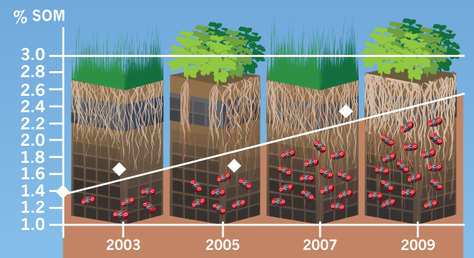
INCREASE YIELD • REDUCE INPUTS
IMPROVE SOIL • CONSERVE WATER

Sod–based rotation is a whole systems approach to agriculture which uses naturally occurring processes to reduce production inputs and increase yield. The sod–based rotation practice is transferable across many regions of the United States. For more information on the sod–based rotation practice, go to: http://nfrec.ifas.ufl.edu/programs/sod_rotation.shtml

SOIL ORGANIC MATTER *and* CARBON SEQUESTRATION



Carbon Dioxide (CO^2) Sequestered

Another benefit of SBR is carbon sequestration. Studies of the system show an increase in SOM (soil organic matter) by .1% per year. At this rate, a 200–acre farm could sequester the carbon released from burning 40,000 gallons of gasoline each year.

This brochure was funded by a grant from the EPA Strategic Agricultural Initiative.

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SOD–BASED ROTATION

The use of crop rotation is a fundamental principle of sound crop production. Sod–based rotation incorporates rotations of a warm season perennial grass into the row cropping system. The benefits of this practice include: reductions in the use of agricultural inputs such as fertilizers, pesticides, fuel, and water; and, increases in soil organic matter, water retention, and soil productivity. The rotation of bahiagrass, which can be used as pasture or cut for hay, is a proven method to increase yields of peanut and cotton crops in the Southeast.

Sod–based rotation was developed by researchers with the University of Florida's Institute of Food and Agricultural Sciences via funding from USDA and commodity grants. Research has been conducted since 2000 at the UF North Florida Research and Education Center in Quincy and Marianna, FL. In 2002, the project was expanded to include Auburn University, the University of Georgia, the USDA ARS National Peanut Research Lab, and the USDA ARS National Soil Dynamics Lab. To date, more than 20 scientists from the tri–state region have been involved with the sod–based rotation practice, and work is underway to expand the application area to other suitable regions in the United States.

x2 = 2x

(2x) years of sod–based rotation can increase peanut and cotton yields by up to 100% (x2).

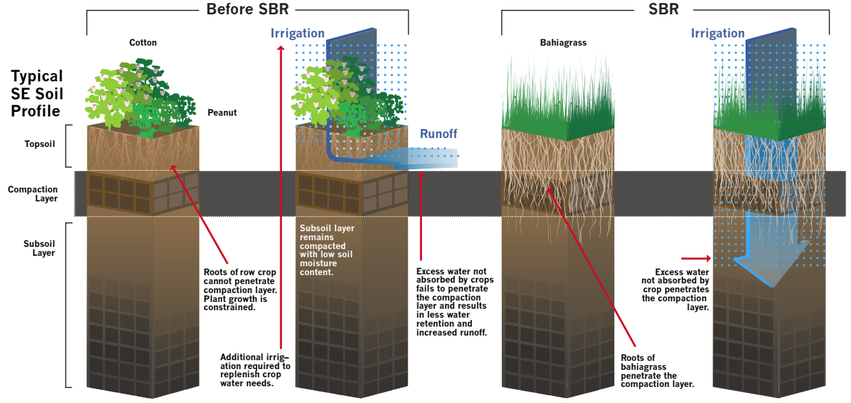
Why is SBR good for row crop yields?

Much of the farmland in the Southeast suffers from a natural compaction layer starting at a 6–9 inch depth and continuing to 16 inches. Even with irrigation, it is difficult to effectively manage water stress because the hard pan prevents deep penetration of the plant roots and water. A sod–based rotation (SBR) breaks through the compaction layer increasing water penetration into the soil profile and water extraction by row crops which ultimately improves yields.

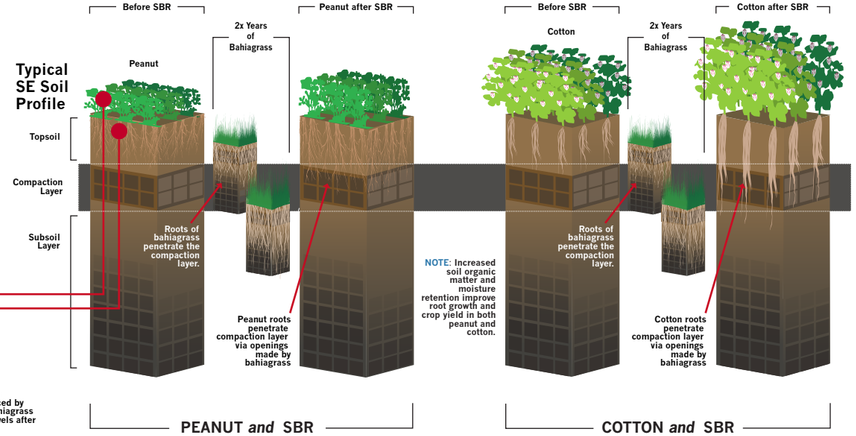
How quickly can I expect benefits if I adopt SBR?

Economic models indicate that a 200–acre farm can increase its net profit from less than $10,000 per year under the present peanut–cotton–cotton rotation to over $40,000 per year with the integration of a 2 year rotation of bahiagrass. The reduction in pesticide use accounts for $6,000 in reduced costs. Other inputs are cut also, yielding an economically viable and sustainable production system.

SBR *and* WATER RESOURCES



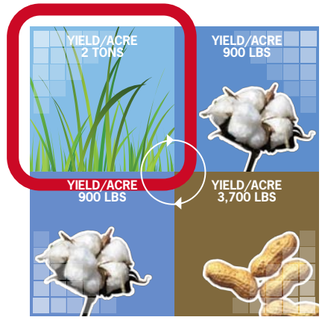
SBR *and* ROOT GROWTH



PEANUT LEAF SPOT is a fungal disease that requires multiple fungicide applications. Rates can be reduced by 33% following a 2 year rotation of bahiagrass.

ROOT–KNOT nematode populations were reduced by 40% after 1 year of bahiagrass and to undetectable levels after the 2 year rotation.

YEAR 1
Bahiagrass



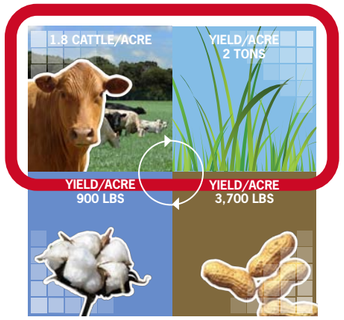
EXPENSES/ACRE:
- Seed
- Fertilizer
- Herbicide
- Planting
- Land Rent
- Hired Labor
- Loan Interest
- Harvest

FIXED COSTS:
- Truck
- Equipment
- Tractors (135/55)

COST *of* BAHIAGRASS ESTABLISHMENT

FIELD/ACRES	1/50	2/50	3/50	4/50	ALL/200
CROP	BAHIA	COTTON	PEANUT	COTTON	
YIELD/ACRE	2 TONS	900 LBS	3,700 LBS	900 LBS	
COST(S)	$15,008	$25,244	$27,817	$25,244	$93,314
REVENUE	$12,000	$28,350	$34,688	$28,350	$103,388
PROFIT/LOSS	$-3,008	$3,106	$6,870	$3,106	$10,074*

YEAR 2
Cattle



EXPENSES/COW:
- Animal Health
- Hay
- Winter Supplement
- Salt & Minerals

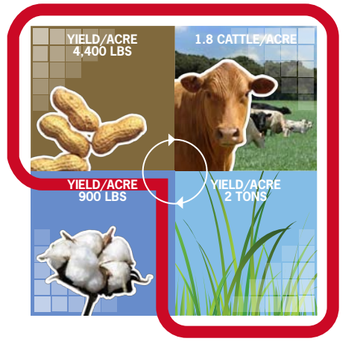
EXPENSES/ACRE:
- Fencing
- Land Rent
- Hired Labor
- Loan Interest
- Stocking Rate

FIXED COSTS:
- Truck
- Equipment
- Tractors (135/55)

COST *of* CATTLE INTEGRATION

FIELD/ACRES	1/50	2/50	3/50	4/50	ALL/200
CROP	CATTLE	BAHIA	COTTON	PEANUT	
YIELD/ACRE	82 CALVES	2 TONS	900 LBS	3,700 LBS	
COST(S)	$36,464	$15,008	$25,244	$27,817	$104,534
REVENUE	$56,250	$12,000	$28,350	$34,688	$131,288
PROFIT/LOSS	$19,786	$-3,008	$3,106	$6,870	$26,754*

YEAR 3
Peanut



EXPENSES/ACRE:
- Seed
- Fertilizer
- Herbicide
- Fungicide
- Nematicide
- Land Rent
- Hired Labor
- Loan Interest
- Harvest
- Drying and Cleaning
- Peanut Assessment

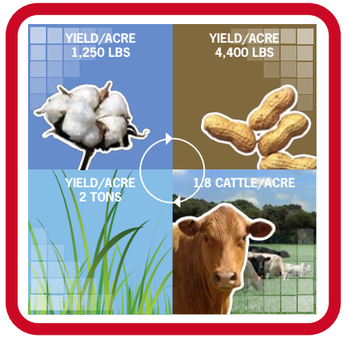
FIXED COSTS:
- Truck
- Equipment
- Tractors (135/55)

COST *of* PEANUT PRODUCTION

FIELD/ACRES	1/50	2/50	3/50	4/50	ALL/200
CROP	PEANUT	CATTLE	BAHIA	COTTON	
YIELD/ACRE	4,400 LBS	82 CALVES	2 TONS	900 LBS	
COST(S)	$28,571	$36,464	$15,008	$25,244	$105,287
REVENUE	$41,250	$56,250	$12,000	$28,350	$137,850
PROFIT/LOSS	$12,679	$19,786	$-3,008	$3,106	$32,563*

LEGEND: Increased Cost | No Change | Lowered Cost

YEAR 4
Cotton



EXPENSES/ACRE:
- Seed
- Fertilizer
- Herbicide
- Insecticide
- Defoliant
- Scouting Fee
- Technology Fee
- Land Rent
- Hired Labor
- Loan Interest
- Harvest
- Ginning

FIXED COSTS:
- Truck
- Equipment
- Tractors (135/55)

COST *of* COTTON PRODUCTION

FIELD/ACRES	1/50	2/50	3/50	4/50	ALL/200
CROP	COTTON	PEANUT	CATTLE	BAHIA	
YIELD/ACRE	1,250 LBS	4,400 LBS	82 CALVES	2 TONS	
COST(S)	$27,082	$28,571	$36,464	$15,008	$107,125
REVENUE	$39,375	$41,250	$56,250	$12,000	$148,875
PROFIT/LOSS	$12,294	$12,679	$19,786	$-3,008	$41,751*

*For a complete description and interactive spreadsheet of the bahiagrass – cattle – peanut – cotton economic model, go to: http://nfrec.ifas.ufl.edu/programs/sod_rotation.shtml