

*A Market-Based Approach for Restoring, Preserving  
and Enhancing Groundcover Habitat in the Endangered  
Longleaf Pine – Wiregrass Ecosystem*

How Can Public Agencies, Non-Profits and Consultants Partner With the  
Private Sector to Create Demand and Establish Markets for Groundcover  
Habitat Restoration Plants and Seed







**9-year old restoration site – first growing season burn (07/21/07)**



# Results of 2005 Wiregrass Survey

Conducted by Dr. Jeff Norcini – UF IFAS/Quincy  
(15 Respondents (14 Public Agencies/1 Private Entity))

## **Wiregrass Habitat Needing Restoration**

Dry (Xeric Sandhill) - 14 of 15  
Moist (Wet Prairie) - 9 of 15  
Mesic (Wet Flatwoods) - 14 of 15

\* One did not respond

## **Acres in Need of Wiregrass Restoration**

10 acres - < 500 acres = 2  
500 acres - < 1,000 acres = 0  
1,000 acres - < 5,000 acres = 5  
5,000 acres - < 10,000 acres = 2  
> 10,000 acres = 6

**Note:** Over 85 percent (13 of 15) of respondents had at least 1,000 to 10,000 acres or more needing restoration and 40 percent (6 of 15) of respondents had greater than 10,000 acres needing restoration.

## **“MARKET TRANSLATION”**

**There are at least 100,000 + acres in need of restoration with a potential commercial market value from \$19 Million to over \$1 Billion Dollars in containerized wiregrass**

[1,210 plugs per acre x \$160/M (Private) and 4,840 plugs per acre x \$210/M (DOF)]

# SURVEY QUESTIONS cont.

## ***Acres Desired to Sow Wiregrass Seed for Restoration***

10 acres - <	500 acres =	3
500 acres - <	1,000 acres =	1
1,000 acres - <	5,000 acres =	4
5,000 acres - <	10,000 acres =	2
	> 10,000 acres =	3

**Note:** *Almost 70 percent (9 of 13) of respondents desired to direct seed wiregrass on at least 1,000 to 10,000 acres or more*

*Over 20 percent (3 of 13) of respondents desired to direct seed wiregrass on greater than 10,000 acres or more.*

## ***What Do You Think is a Fair Price to Pay for Wiregrass Seed?***

- Non-Certified Bulk Seed:

<b>Price Range</b>	<b># Respondents</b>
\$ 2.00 to \$5.00 per lb.	3
\$50.00 to \$100 per lb.	3

- Certified Bulk Seed:

<b>Price Range</b>	<b># Respondents</b>
\$ 3.75 to \$ 5.00 per lb.	2
\$ 5.00 to \$ 10.00 per lb.	1
\$20.00 to \$300.00 per lb.	3

# **“Market Translation”**

- Respondents identified potentially 45,000 acres to over 72,000 acres desiring direct seeding!
- There was probably < 2,000 pounds of wiregrass seed collected in the State with most of it used by private/public nurseries for containerized plants
- If seed was available, it would have an estimated market value from \$9 Million to over \$14 Million Dollars

***Estimated Private Market Value (from Survey)***  
***\$9 to \$14.4 Million***

*[180,000 lbs. to 288,000 lbs. of seed (at 4 lbs./acre) x \$50/lb./cert. seed]*

***Estimated Private Market Value (ATS Partners, LLC.)***  
***\$5.4 to \$8.6 Million***

*[180,000 lbs. to 288,000 lbs. of seed (at 4 lbs./acre) x \$30/lb./non-cert. seed]*

- Viable seed mixes may have an estimated market value of three or four times that amount!



# SURVEY QUESTIONS cont.

***If Wiregrass Seed and/or Plugs Were Available, How Many Acres Would You Restore Annually?***

< 1 acre = 1  
1 acre - < 100 acres = 5  
100 acres - < 500 acres = 8  
500 acres - < 1,000 acres = 1

**Note:** *Over 90 percent (14 of 15) of respondents would restore from 1 acre to over 500 acres of wiregrass habitat annually.*

*Over 60 percent (9 of 15) of respondents would restore from 100 acre to over 500 acres of wiregrass habitat annually.*

## ***“Market Translation”***

***1,300 to 5,500 Acres Restored Annually (Plugs Only)***

*(Using \$160/M to \$210/M)*

***\$250,000 to Almost \$1.4 Million***

*[6' x 6' Stocking (1,210/A): 1.6 Million to 6.7 Million Plugs]*

***\$1 Million to almost \$5.6 Million***

*[3' x 3' Stocking (4,840/A): 6.3 Million to 26.6 Million Plugs]*

**Note:** *The Northwest District is planting over 1 million wiregrass plugs (xeric/wet prairie/clay hill) in FY 2007/2008 at a cost of over \$200,000.*

# ***“Market Translation”***

*There is Potentially Over \$5 Million of Unmet  
Need in the Public Sector Alone*

*or*

*The Potential for 50 or more Commercial  
Nurseries to Produce/Sell 500,000 Plugs  
Annually @ \$200/M*

How Can We  
Meet This Need ?



**Establish & Manage Donor Sites**



**Establish Creative  
Donor Site Partnerships  
(Public/Private)**





Conduct Research – UF IFAS Quincy  
Hobbs Pasture



## Mode of Reproduction

- Based on the wiregrass populations collected at Econfinia, the method of reproduction appears to be sexual.
- Sexual reproduction may explain location differences.

## Germination

Initial collection from donor fields, 2006

- 44% of seed were empty (poor seed fill)
- 33% of those were viable (TZ solution staining).

A photograph of a field of *Aristida stricta* grass. The field is divided into several sections, each representing a different fertilization treatment. The grasses vary in color and density, with some appearing very green and others more yellowish or brown. In the background, there is a line of tall, thin trees, likely pines. The overall scene is a natural, outdoor setting.

## **Aristida stricta Germplasm Collection, Evaluation and Production Strategies**

N

P

None

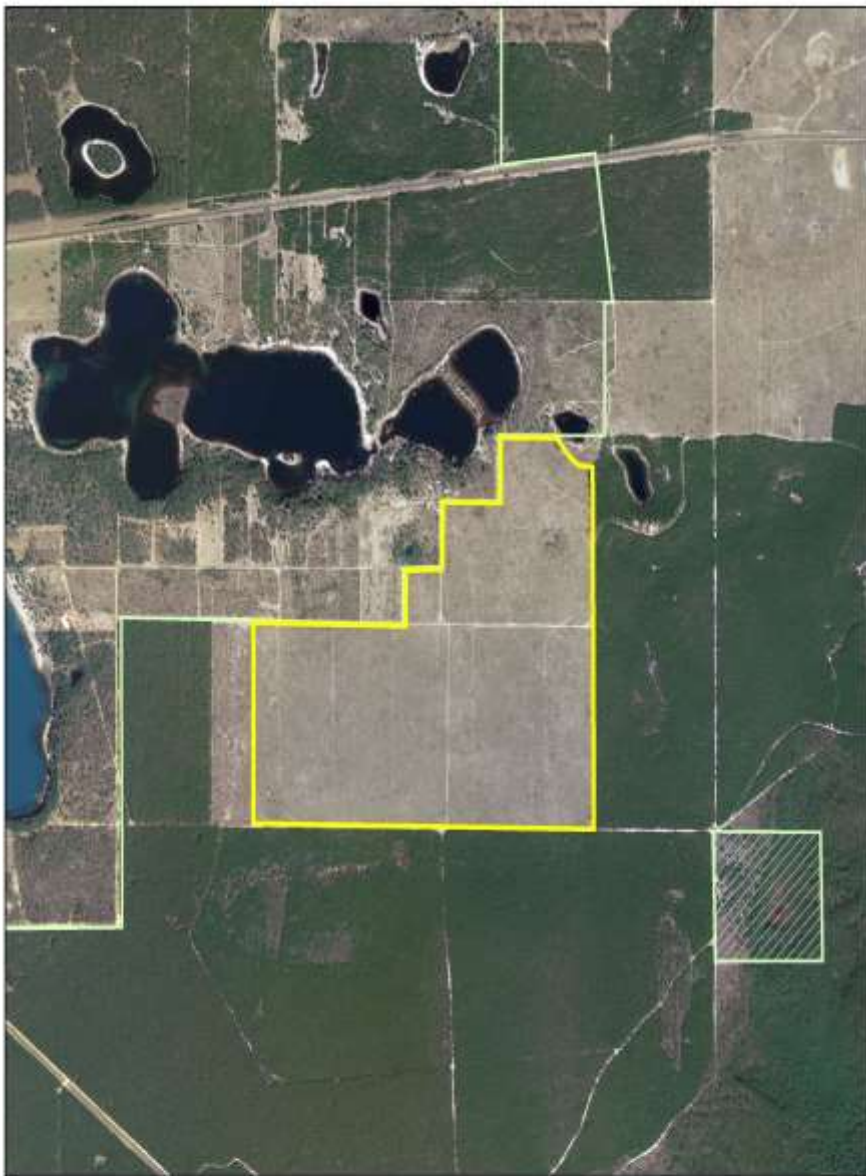
N+P

Fertilization



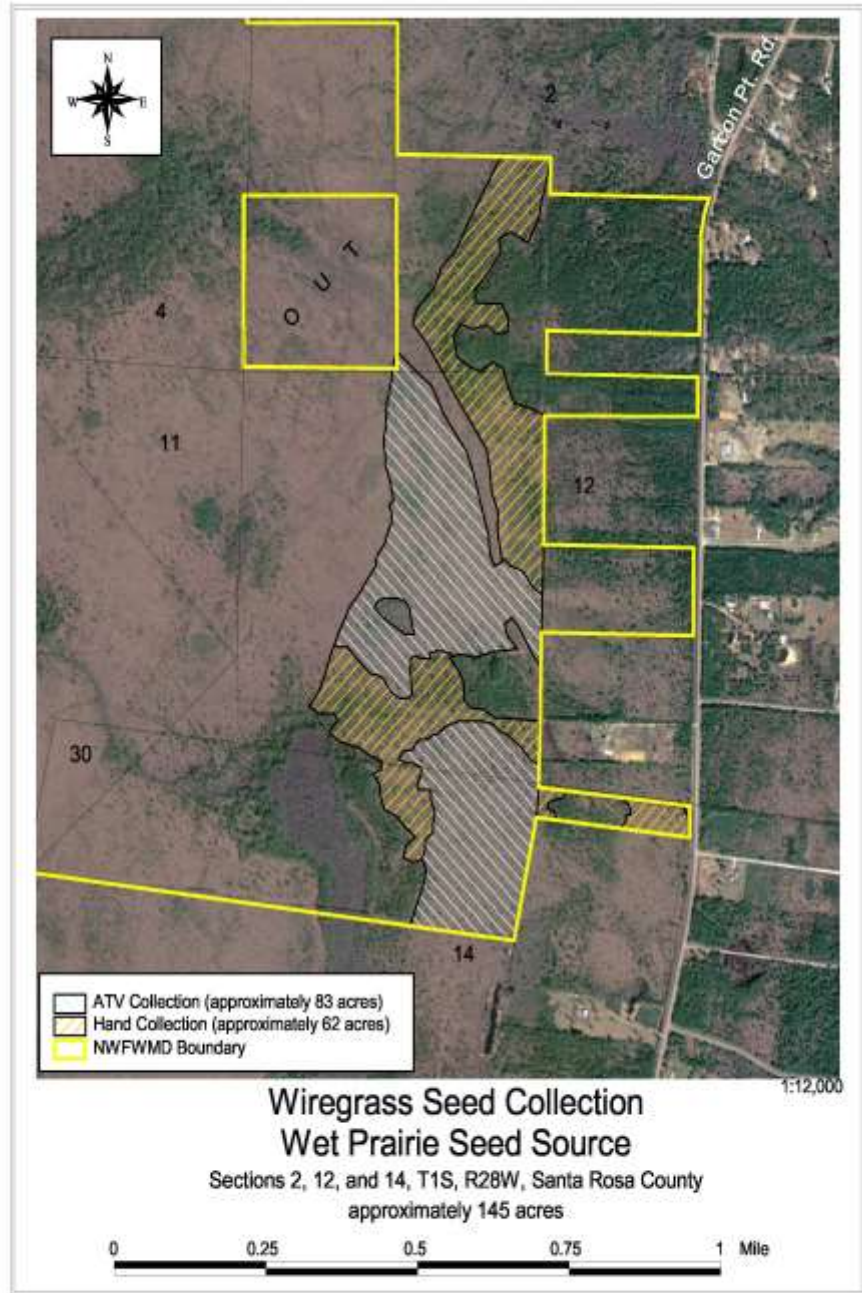


**Contract Seed Collection**



Wiregrass Seed Collection  
 Xeric Sandhill Seed Source  
 (Hand Collection)  
 265 Acres

- Wiregrass Collection Site
- District Ownership



- ATV Collection (approximately 83 acres)
- Hand Collection (approximately 62 acres)
- NFWFMD Boundary


Wiregrass Seed Collection  
 Wet Prairie Seed Source  
 Sections 2, 12, and 14, T1S, R28W, Santa Rosa County  
 approximately 145 acres



1:12,000

A person wearing a white t-shirt, blue jeans, and a safety harness is standing in a field of tall, dry grass. They are holding a blue net that is attached to a silver metal frame. The net is currently open and contains some plant material. The person is also holding a red and black power tool, possibly a chainsaw or a brush cutter, in their left hand. The background shows a field of tall grass and some trees. The text "Collect for Contract Growing" is overlaid on the image in a bold, black font.

**Collect for Contract Growing**




\$30.33/lb.



**Conduct Germination Tests**



A landscape photograph showing a grassy hill. In the foreground, a corrugated metal fence runs across the frame, supported by wooden posts. The hill is covered in tall, golden-brown grasses that are blowing in the wind. In the background, there is a line of green trees under a blue sky with scattered white clouds. The text "Clay Hill" is centered in the middle of the image.

Clay Hill



**Cleaned**  
**(Weeded)**



**Wet Prairie  
(\$210/M)**





**Clay Hill**



**Wet Prairie**



**More Efficient/Effective Seed Collectors Needed  
(\$2,000 to transport/clean 2,000 lbs. bulk = < 200 lbs. seed)**



**Vacuum Seed Harvester**  
(Ernst Conservation Seeds & Ernst Southern Native Seeds)







Establish Cooperative Seed Collection Partnerships  
(Public/Private)

# Enhance Private Sector Marketing & Establish Technical Partnerships



ATS Partners, LLC.



500,000 Xeric Sandhill Wiregrass  
(\$160/M)







ATS Partners  
1,000 Acre Donor Site  
(Site has been burned every year for five years)



**ATS collects the entire month of December**



**ATS would consider selling bulk wiregrass seed @ \$30/lb**



What's Next?

### Important Sandhill Groundcover Species found in the Panhandle

<u>Scientific Name</u>	<u>Common Name</u>	<u>Shrub</u>	<u>Herb</u>
<i>Agalinis setacea</i>	Threadleaf false foxgloves		X
<i>Andropogon glomeratus</i>	Busy blue stem		X
<i>Aristida stricta</i> var. <i>beyrichiana</i>	Wiregrass		X
<i>Aster wateri</i>	Walter's aster		X
<i>Baptisia lanceolata</i>	Gopher weed		X
<i>Baulduina angustifolia</i>	Coastal plain honeycombhead		X
<i>Berlandiera pumila</i>	Green eyes		X
<i>Bulbostylis ciliatifolia</i>	Capillary hair sedge		X
<i>Carphephorus odoratissimus</i>	Vanilla leaf		X
<i>Carphephorus paniculatus</i>	Hairy chaffhead		X
<i>Croton argyranthemus</i>	Silver croton		X
<i>Chrysoma pauciflosculosa</i>	Woody Goldenrod		X
<i>Cnidocolus stimulosus</i>	Tread softly		X
<i>Dalea pinnata</i>	Summer farewell		X
<i>Eriogonum tomentosum</i>	Wild Buckwheat		X
<i>Eupatorium capillifolium</i>	Dog fennel		X
<i>Eupatorium mohrii</i>	Eupatorium		X
<i>Galactia volubilis</i>	Milkpea		X
<i>Gaylussacia dumosa</i>	Dwarf huckleberry	X	
<i>Haplopappus divaricatus</i>	Scratch daisy		X
<i>Hieracium gronovii</i>	Hawkweed		X
<i>Hypericum crux-andreae</i>	St. Peter's wort		X
<i>Liatris gracilis</i>	Slender gayfeather		X
<i>Liatris pauciflora</i>	Few flowered gayfeather		X
<i>Licania michauxii</i>	Gopher apple		X
<i>Lupinus diffusus</i>	Sky-blue lupine		X
<i>Opuntia humifusa</i>	Pricklypear cactus		X
<i>Pityopsis graminifolia</i>	Golden Aster		X
<i>Polygonella gracilis</i>	Wireweed		X
<i>Pteridium aquilinum</i>	Bracken fern		X
<i>Quercus pumila</i>	Running oak	X	
<i>Seymeria cassioides</i>	Senna seymaria		X
<i>Serenoa repens</i>	Saw Palmetto	X	
<i>Sorghastrum secundum</i>	Lopsided Indian grass		X
<i>Sporobolus junceus</i>	Piney woods dropseed		X
<i>Stillingia</i>	Stillingia		X
<i>Vaccinium arboreum</i>	Sparkle berry	X	
<i>Vaccinium myrsinites</i>	Shiny blue berry	X	
<i>Yucca filamentosa</i>	Adam's needle		X

Only 5 of 39 Species Available

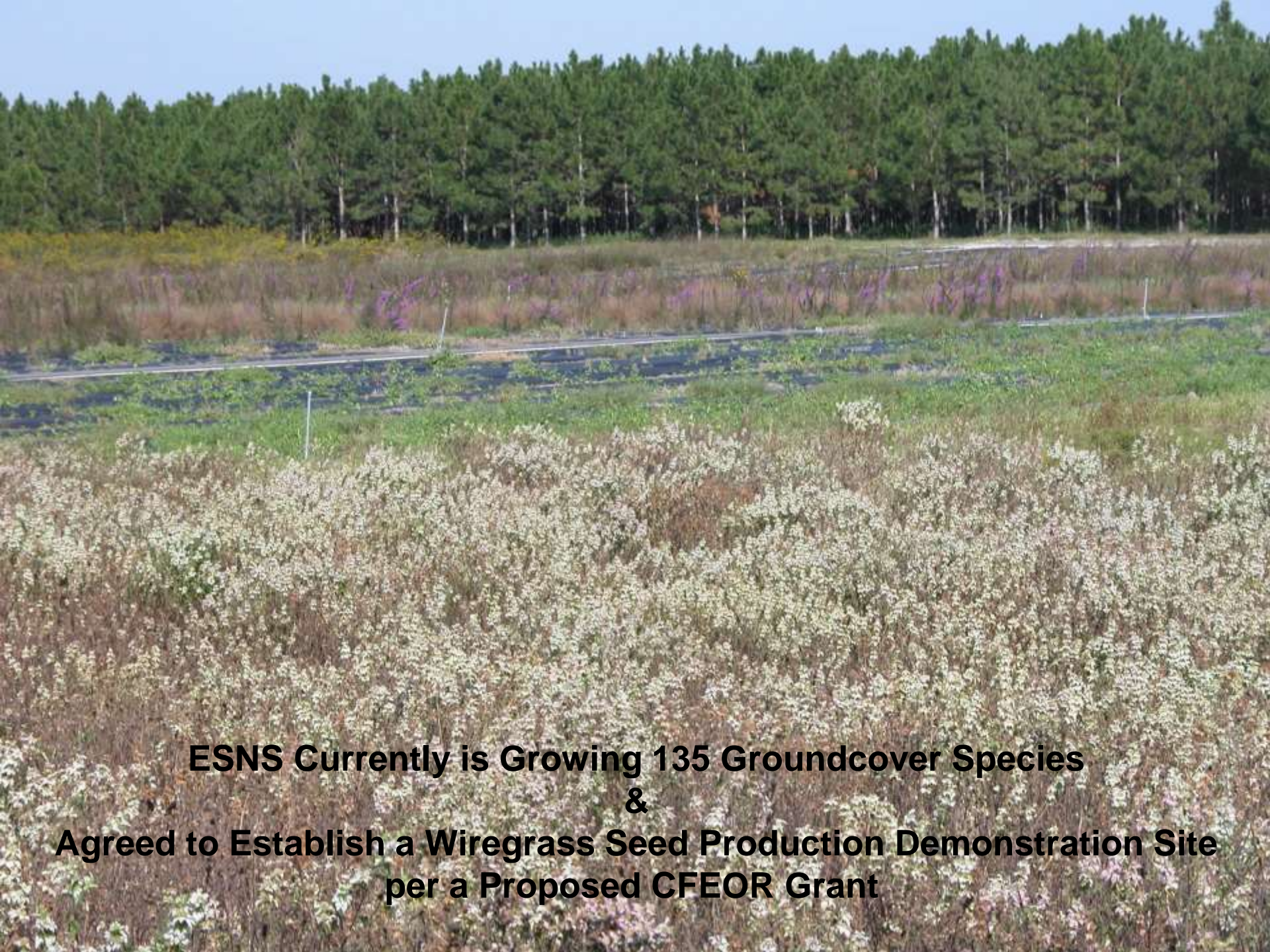


## Large-scale Production of Individual Seed & Seed Mixes



**Ernst Southern Native Seed  
(ESNS)**





**ESNS Currently is Growing 135 Groundcover Species  
&  
Agreed to Establish a Wiregrass Seed Production Demonstration Site  
per a Proposed CFEOR Grant**



**Large Volume Producer**







**Seed Cost Per Pound Ranges From**



**\$16 to \$400 Per Pound**



