Neches white clover: a new cultivar for the US southern region

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Neches White Clover

Origin of the name “Neches”
- The Neches river flows through east Texas, 416 miles from Van Zandt county to the mouth of Sabine Lake on the Gulf Coast
- Named by the Spanish explorers for the Neches Indians
White Clover – US Southern Region
General Information

- Forage production is late, relative to other winter annual forages – peak in late April to mid May
- Shallow rooted, low drought tolerance, tolerates flooding and wet conditions
- Best adapted to bottomland sites with clay to clay loam soils
- Often does not survive as a perennial but can be managed as a reseeding annual
Neches white clover (*Trifolium repens* L.) is a synthetic variety of intermediate white clover with 147 parent plants selected for early and profuse flowering in combination with increased leaf size, and high potential forage production. Parent populations are diverse.
Neches White Clover

- Parent plants originated from five breeding populations that had been previously selected for early flowering through one or two cycles of recurrent selection. Breeder seed was produced under field isolation near Overton, TX in 2005.
Neches White Clover

- Parentage of Neches traces to the following germplasm sources:
  - VRPop (36%)
  - PI 298485 (34%)
  - PI 404930 (17%)
  - local ecotypes collected from Smith and Anderson counties, TX (10%)
  - VRG2 (3%)
Neches White Clover

- **PI 404930**
  - Collected in Uruguay by Burson and Langford in 1975
  - Evaluated in Louisiana by Alison in 2000
    - 39% survival after one year
    - Third best in trial for survival

- **PI 298485**
  - Donation to NPGS from Israel in 1964
  - Evaluated in Louisiana by Alison in 2000
    - 43% survival
    - Second best in trial for survival
Neches White Clover

- local ecotypes collected from Smith and Anderson counties, TX (10%)
  - Collected from heavily grazed pastures that had no recent white clover planting history
  - Profuse flowering types with moderate leaf size
Neches White Clover

Two populations from Gary A. Pederson, USDA – ARS

VRPop – selected for 2 yr survival, spread, flowering and no virus infection at Mississippi State (in tall fescue sod). Origin from 9 populations below.

- Drought tolerant synthetic
- PSV hypersensitive
- VRG - 3 yr survivors from SRVR
- AMV resistant – 3 cycles of selection
- MSNR4 – nematode resistant
- NC7 – population from Dr. Cope’s program
- SRVR x Osceola – improve flowering in SRVR
- Brown Loam #6
- WCMV resistant
Neches White Clover

- Two populations from Gary A. Pederson, USDA – ARS
  - **VRG2** -- selected for 2 yr survival, spread, flowering and no virus infection at Mississippi State (in tall fescue sod). Origin below.
    - Third cycle of selection for persistence and flowering out of SRVR. First two cycles grown three years in field and last cycle grown two years.
Neches White Clover

5 populations

Each population subjected to recurrent selection for early and profuse flowering (1 or 2 cycles; 1999 - 2004)

All 5 modified populations space planted into parental block (2004-05). 147 parents chosen based on early and profuse flowering and forage potential. Seed from all parent plants bulked. Breeder seed was increased in Oregon in 2006 and 2007.
White Clover Forage Yield
Overton, TX 2007

Fisher’s Protected LSD (0.05)

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<th>17-May</th>
<th>6-Jun</th>
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Codes:
- abc
- cd
White Clover Forage Yield
Overton, TX 2008

Fisher’s Protected LSD (0.05)

KG DM/HA

Durana  Patriot  La S-1  Regal G  Neches

23-Apr

AgriLIFE RESEARCH Texas A&M System
White Clover Forage Yield
Winnsboro, LA 2008

Fisher’s Protected LSD (0.05)

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<th>20-May</th>
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White Clover Flowering

Flowering, April 30, 07

Flowers/sq m

Overton, Texas

AgriLIFE RESEARCH
Texas A&M System
Flowering Data, Overton, TX, 2007

- Neches Exp.
- La S-1
- Durana

- 3-22 % bloom
- 4-16 % full bloom
White Clover Flowering
Overton, TX 2007

- **FLOWERS PER SQ M**
  - **Fisher’s Protected LSD (0.05)**
  - **Durana**
  - **Patriot**
  - **La S-1**
  - **Will**
  - **Barblanc**
  - **Neches**

- **20-Jun**
White Clover Flowering
Overton, TX 2008

FLOWERS PER SQ M

Fisher’s Protected LSD (0.05)

23-Apr

Durana
Patriot
La S-1
RegalGraze
Neches

Green

23-Apr

a

b

b

c

c

0
50
100
150
200
250
300
350
Neches White Clover

- Neches flowers early compared to La S-1 and slightly earlier than Durana. Neches is in full bloom by mid-April at Overton, TX. Leaf size of this new cultivar is 20% larger than Durana. Forage yield is generally equal to La S-1 and RegalGraze.

- Cultivar release of Neches white clover was approved by Texas AgriLife Research and the Texas A&M University System in Jan. 2010.