Climate Smart Farming Decision Tools

http://climatesmartfarming.org/tools/

One-page usage guides to the CSF Decision Tools

(1) CSF Growing Degree Day Calculator
Track heat accumulation throughout the year to monitor plant and insect development.

(2) CSF Water Deficit Calculator
Monitor soil water deficit to allow efficient water management and smart scheduling of irrigation.

(3) CSF Winter Cover Crop Planting Scheduler
Find out how winter cover crops at your location are affected by planting date selection.

(4) CSF Apple Stage/Freeze Damage Tool
Monitor temperatures and apple hardiness thresholds to assess potential risk for freeze damage.

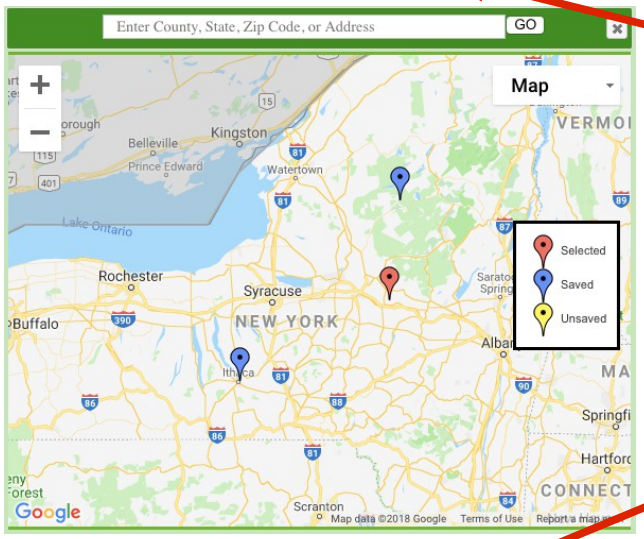
(5) CSF Grape Hardiness & Freeze Risk Tool
Monitor temperatures and grape hardiness thresholds to assess freeze damage potential.

(6) CSF New York State/Northeast Drought Atlas
View regional maps and time series of the Palmer Drought Severity Index.

(7) CSF Climate Change In Your County
Find out how the climate has changed in your county since 1950, and what is projected over the next century.

CSF Growing Degree Day Calculator

1) Select Locations



1

4

2

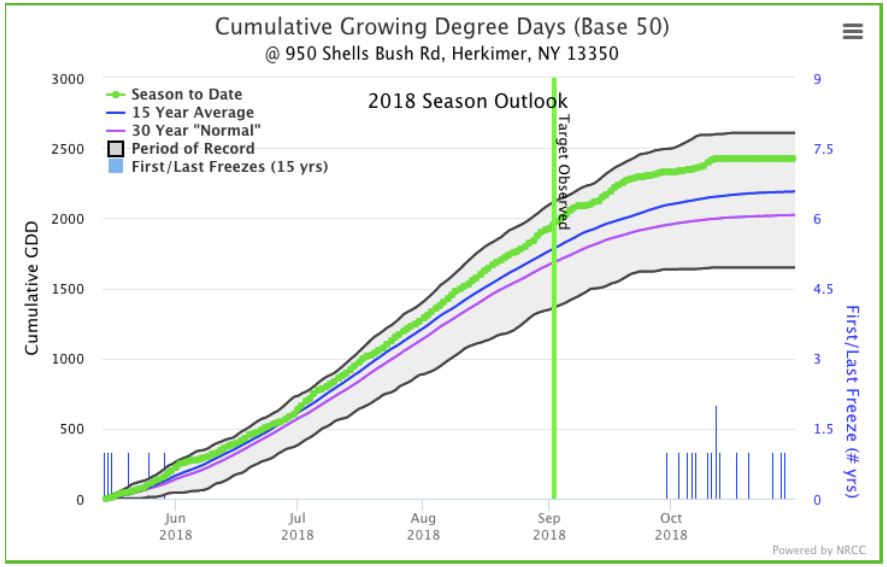
3

2) Select Parameters

- Planting Date
- GDD Base
- GDD Target

(*target not required)

3) View Chart



4) View Location Summary Table

Address	Planting Date	Base (°F)	GDD (Obs Date)	Target (Fcst Date)
Cornell University, Ithaca, NY	05/01/2018	50	2639 (10/31)	2075 (09/01)
950 Shells Bush Rd, Herkimer, NY …	05/15/2018	50	2425 (10/31)	1950 (09/02)
Inlet, NY	01/01/2018	50	1906 (10/31)	1125 (08/06)

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GDD Target Status Color: > 2 weeks until target | < 2 weeks until target | Target is observed

CSF Water Deficit Calculator

1) Select Location

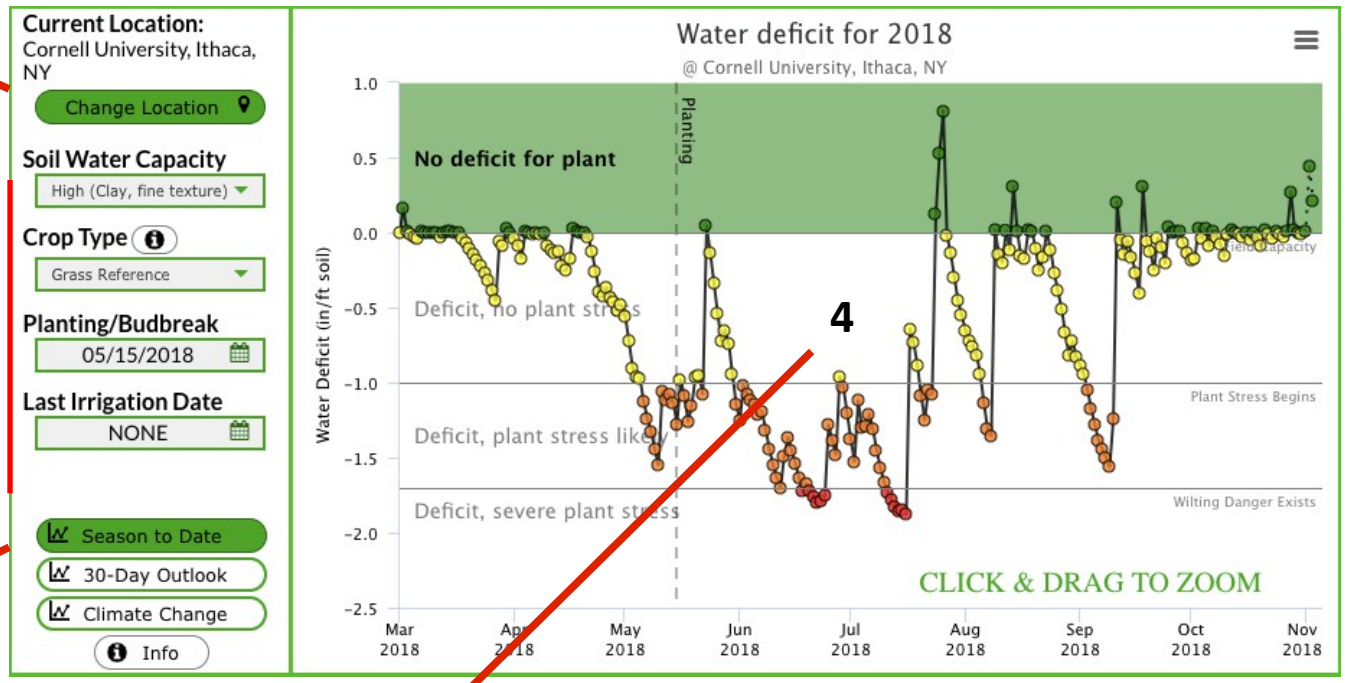
2) Choose parameters

Soil Water Capacity
- Low, medium, high

Crop Type
- Categorized by group

Planting Date

Last Irrigation Date



3) View Chart

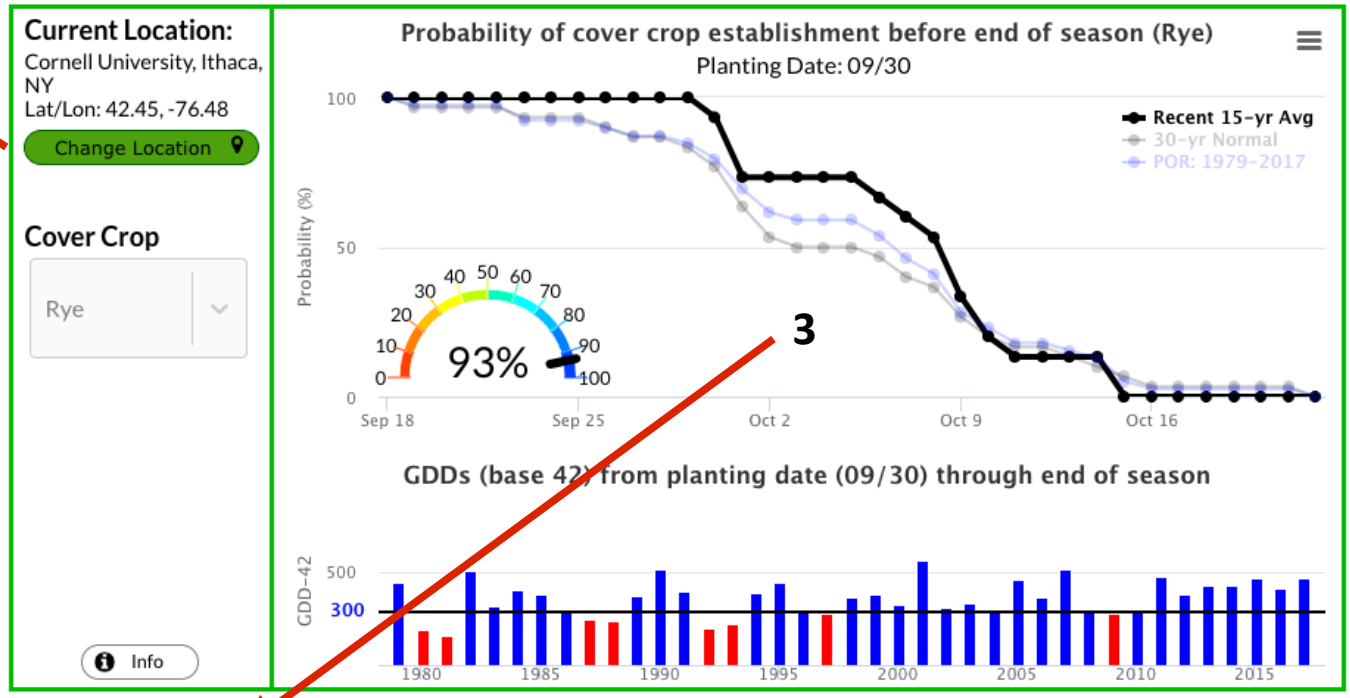
View water deficit as
- Season-to-date time series
- 30-day outlook

4) Chart details

- Deficit level category is color-coded
- Planting date and last irrigation are referenced
- Drag to zoom in on time period
- Explore current and previous years to determine the benefits from applying an irrigation schedule

CSF Winter Cover Crop Planting Scheduler

1) Select Locations



2) Select Cover Crop

There are currently three choices:

- Buckwheat
- Mustard
- Rye

3) View Chart

- Move cursor over line chart to determine probability of cover crop establishment by end of season. (top)
- Bar chart shows specific years that met (blue) or did not meet (red) the required GDD threshold. (bottom)

CSF Apple Stage/Freeze Damage

1) Select Location

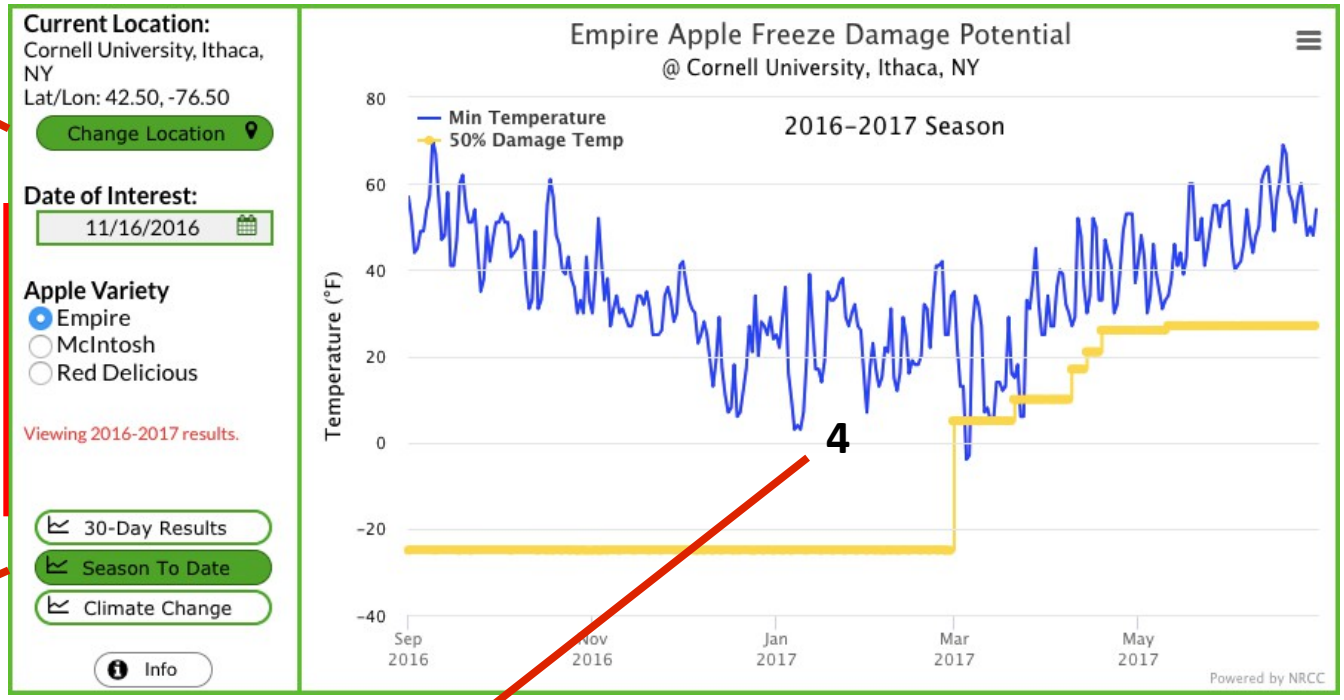
2) Choose parameters

Date of interest

- Defaults to today

Variety

- Three varieties



3) View Chart

View data as

- Season-to-date time series
- 30-day window
- Variables charted include:
  - Daily minimum temp
  - 50% Damage Temp

4) Chart details

- Risk of freeze damage is present when daily min temperatures (blue line) approaches the damage threshold temperatures.
- More damage thresholds are available when moving cursor over chart (90%, 50%, 10% damage).

CSF Grape Hardiness & Freeze Risk

1) Select Location

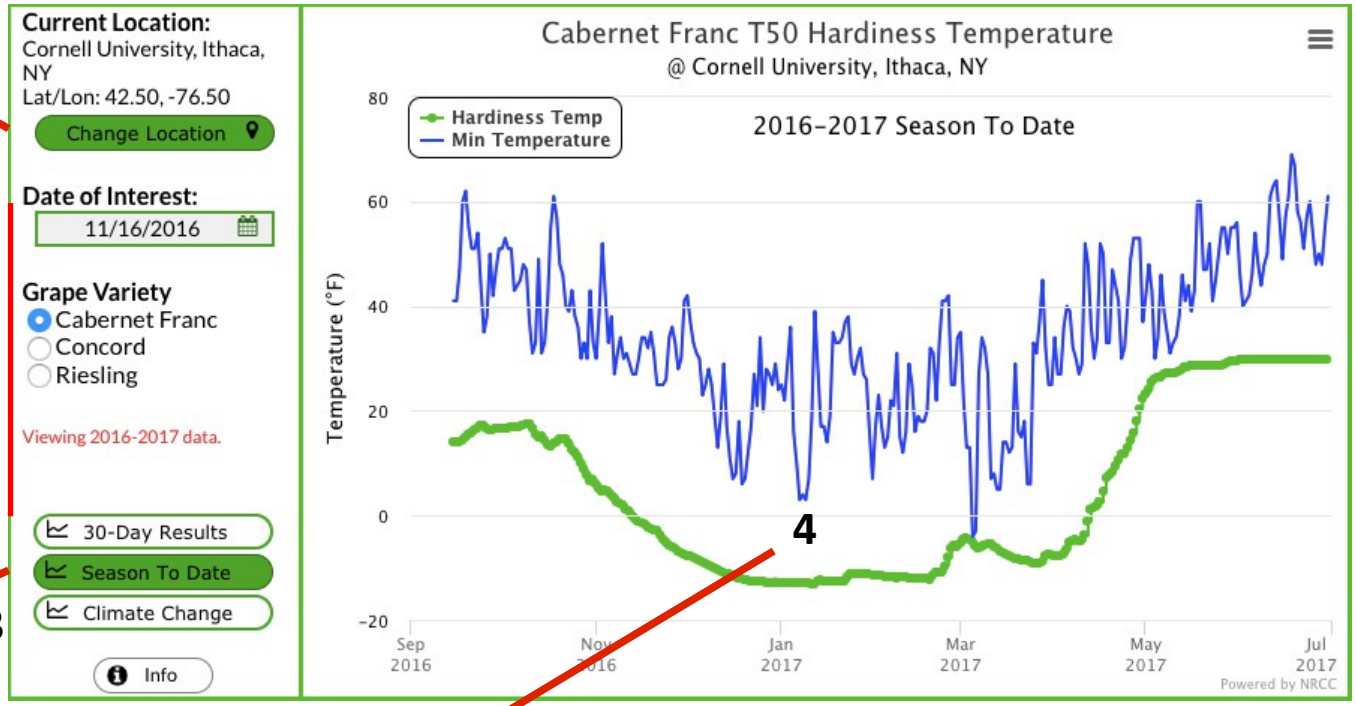
2) Choose parameters

Date of interest

- Defaults to today

Variety

- Three varieties



3) View Chart

View data as

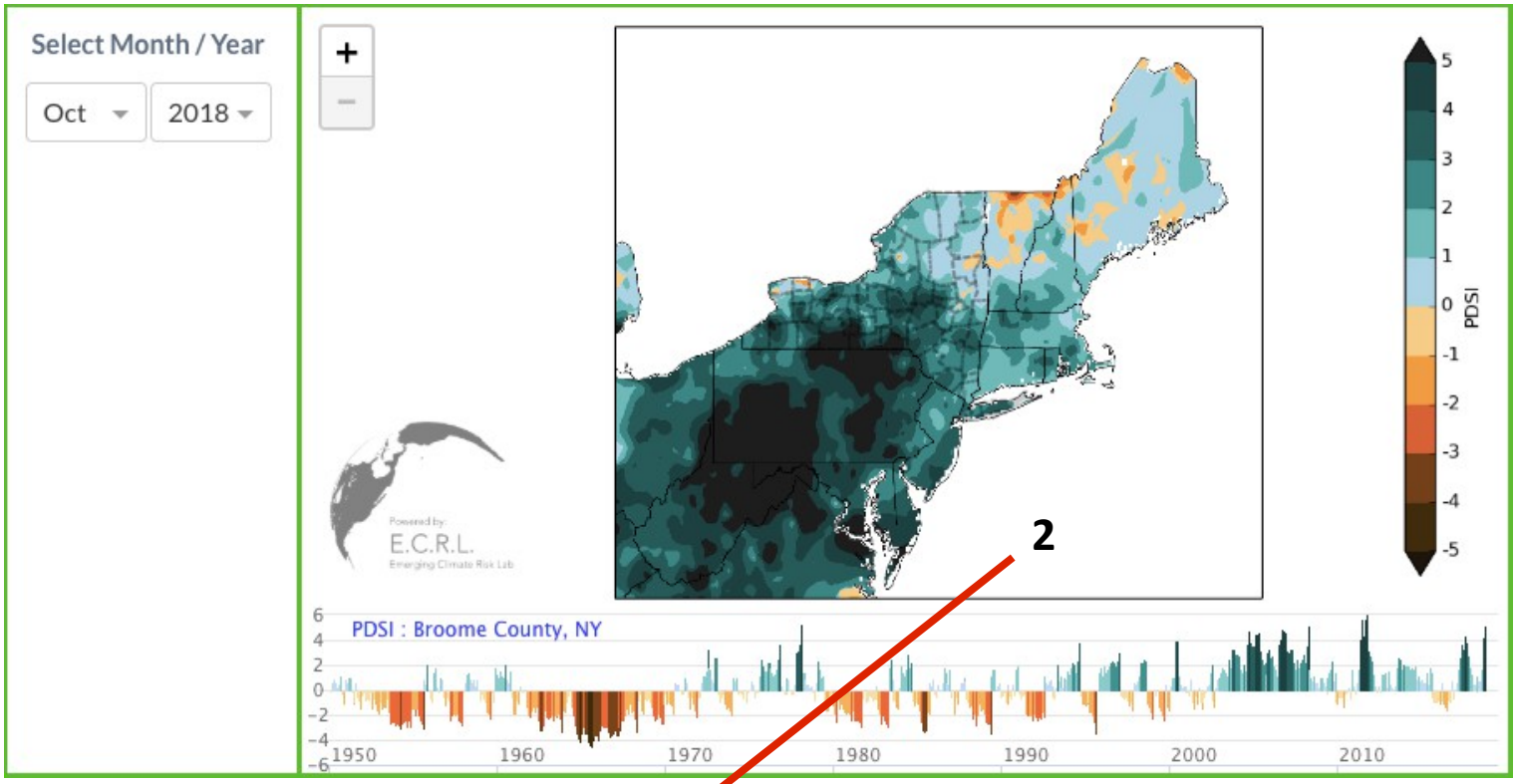
- Season-to-date time series
- 30-day window
- Variables charted include:
  - Daily minimum temp
  - 50% Damage Temp

4) Chart details

- Risk of freeze damage is present when daily min temperatures (blue line) approaches the hardiness temperature (green line).
- Move cursor over chart to get actual temperature values for individual days.

CSF New York State/Northeast Drought Atlas

1) Select Month/Year for regional map (available from 1950 – present)



2) Map and time series chart details

- Displays values of the Palmer Drought Severity Index (PDSI)
- Move cursor over NY State for county time series
- Additional counties and forecasts are forthcoming

CSF Climate Change in Your County

(1) View how the climate has changed over the Northeast U.S. for different variables

- Click on available variables on left to update the map
- Select period of interest (1950-2013 or 1980-2013)
- Move your cursor over the map for magnitudes of change per decade over the given period

(2) Click on the county map to view a time series of observed data for a county

- Annual totals/averages for the county are displayed
- Trend lines highlight changes that are observed

(3) Click on an emission scenario to view climate model projections through 2100.

- “High Emissions” : greenhouse gas emissions increase through the end of the century
- “Low Emissions” : greenhouse gas emissions peak at 2040, then level off.