

4.2. Growing Season

Why is this important to me? Do this section unless you use the Pacific Islands or Caribbean Islands Supplements.

The growing season is significant to wetland delineation because non-wetlands may inundate or saturate in the winter or early spring. Indicators of inundation and shallow saturation are the easiest and most convincing hydrology indicators to note in the field, but should only be used when wetland biological processes are active, that is, during the growing season. Most other indicators of wetland hydrology may be used any time of the year.

The growing season is considered to be all year long in regions served by the Supplements for Hawaii and the Pacific Islands and The Caribbean Islands, as well as along much of the Gulf Coast.

Read the section on Growing Season in your Supplement, or in one of the Supplements for the continental states or Alaska.

Question	Answer
Which hydrology indicators require knowledge of growing season dates? Why? (Refer to Table 2 on page 61 of this Module.)	Inundation (A1), Shallow water table (A2), Shallow saturation (A3), Inundation visible on aerial photography (B7), Dry-season water table (C2), and Saturation visible on aerial imagery (C9) These indicators are valid only if observed during the growing season.
Discussion	
These indicators are all direct observations of high water levels onsite. Such observations made outside of the growing season are not direct evidence that plants and soil microbes are being stressed by excess water, because temperatures at the time of observation were below the threshold for effective biological activity. 'Winter-saturated non-wetlands' do not provide biologically mediated wetland functions if they dry out before the growing season commences.	

Question	Answer
The three methods for determining the growing season are vegetation activity, soil temperature, and air temperature records. Which are the two preferred methods? Which is the least accurate method?	Vegetation activity and soil temperature are preferred, and air temperature records are the least accurate.
Discussion	
The most significant problem with use of climatological records for defining growing season, such as the WETS tables, is spatial variability of temperature around a county or region served by a particular weather station. In the sparsely populated West weather stations are often far apart. In mountainous regions weather stations and wetland sites	

may be at significantly different elevations. Major weather stations are often located at regional airports, where air temperatures are warmer than in the rural areas they serve.

Question	Answer
How do I know which plants are 'evergreen'?	The Corps Plants website documents whether species are evergreen.
Discussion	
<p>The Corps plants website provides search options for a variety of habitat characteristics and spatial scales.</p> <ul style="list-style-type: none"> ∅ Go to: https://rsgis.crrel.usace.army.mil/apex/f?p=703:1:2768962733000734 <ul style="list-style-type: none"> ○ All Botanical Searches ○ Geographic Query: <i>Click a state or Corps Region on the map</i> ○ Nomenclature Query: Type or use drop-down box for plant name (or genus or family) ○ Click red Accept Query button at upper right of screen ○ Click on name of plant you want ○ In bottom left of page, click on Biological Attributes arrow ○ In Morphology section, find evergreen status under Leaf <p>Evergreen status is a generalization that may vary with habitat and even local and individual genetics. Your team of Agency Experts should discuss the species most likely to show early-season activity and identify specific cautions for your work area.</p>	

Question	Answer
What do terms such as <i>crown</i> , <i>coleoptile</i> , <i>cotyledon</i> , <i>bud burst</i> , etc, mean?	See discussion
Discussion	
This is basic botanical knowledge. Seek assistance from one of the Agency biologists if you need help with these.	

Question	Answer
Why is early plant senescence due to the initiation of the summer dry season seldom a problem for wetland hydrology and growing season?	It is unlikely that you will find Group A wetland hydrology indicators during the summer dry season.
Discussion	
In most parts of the country water tables are highest during the beginning of the growing season. Exceptions may be arid region monsoons in the late autumn or rains in parts of Alaska with dry summers. Discuss local growing season problems with your State Biologist.	

Question	Answer
Why are soil temperatures to be taken at 12 inches (30 cm)?	Diurnal fluctuations in air temperature tend to dampen out at 30 cm and deeper.

Question	Answer
How do you take soil temperature at 12 inches if the water table is at 3 inches?	Excavate a slab of the soil on the blade of a tile spade ('sharp shooter') and insert the soil thermometer at the 12-inch depth within the soil sample.

Question	Answer
Has the growing season started if soil temperatures are colder than biologic zero (5 °C) but you find vegetative activity onsite?	You would conclude that you are in the growing season based on biological activity. <u>Similarly</u> However , if the soil temperature is above 5 °C but no plant growth is evident, you would <u>still</u> conclude that you are <u>withinstill</u> outside the growing season.

Discussion
<p>The soil temperature threshold of 5 °C is chosen because that temperature has classically been considered to be 'biologic zero.' There are several flaws with this method.</p> <ol style="list-style-type: none"> 1. Significant biological activity has been measured in Alaska soils at soil temperatures below freezing (0 °C), so the old concept of biologic zero is a generalization that may not apply with respect to the plants or soil microbial communities at your site or region. 2. The 12-inch depth was chosen so that the data would not be skewed by measurement during an uncommonly warm day close to the ground surface. However, significant biological processes may occur during daylight hours at shallow depths in the soil. These depths are where many biologically mediated ecosystem services are performed. 3. Soil temperatures may vary between poorly drained and well drained soils. In the spring wet soils tend to stay cold longer than drier soils, so it is likely that wetlands will be the last places in the landscape to warm up in the spring. Be careful to make your observations of both plant and soil growing seasons in the wetland, not in upland areas.

Read the last paragraph about growing seasons in your Supplement, and consult the

Growing Season portion of the WETS table for Litchfield MN, below.

GROWING SEASON DATES (for Litchfield MN)

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	4/ 7 to 10/20 196 days	4/20 to 10/ 7 170 days	5/ 3 to 9/29 149 days
70 percent *	4/ 3 to 10/25 204 days	4/14 to 10/12 181 days	4/29 to 10/ 3 158 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

Question	Answer
When does the WC growing season start and end at Litchfield, MN using the chart above for that weather station?	4/20-10/7
Discussion	
The growing season can be estimated from NRCS WETS tables by selecting the column '28 F or higher' and row '50 percent.' These temperature tables were originally developed for frost free dates and were later adopted to estimate wetlands growing seasons. The tables were never intended for that purpose, but they were available in almost every county soil survey report in the nation and were therefore easily and widely accessible. They are a weak surrogate for onsite information and should be used only if onsite investigation is not practicable or helpful.	