



# SOUTHWEST NEW YORK FIELD CROP CHRONICLE

Compiled by Josh Putman - Field Crops Specialist, SWNY Dairy, Livestock, Field Crops Program

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21 September 2020

## Local Frost Advisories - What it Could Mean for Corn Producers in Southwest New York

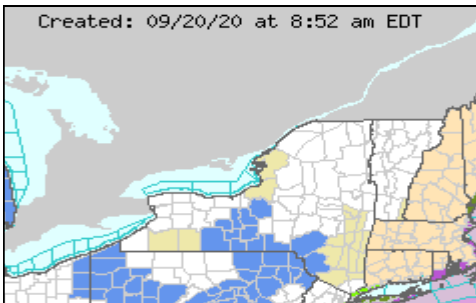
Frost can mean yield loss for crop producers, although the severity of damage varies based on crop maturity, topographical features and local climate conditions. A corn-killing freeze occurs when temperatures fall to 32 F for several hours or 28 F for a few minutes.

Damage occurs from freezing temperatures because living plant tissues contain water. As ice crystals form, they expand and puncture cell walls. As the temperatures rise during the morning, the ice crystals melt back to a liquid. The punctured cells lose water and nutrients and die. Frost damaged plant tissue often has a water-soaked appearance. This appearance later turns into brown, dead plant tissue. Damage will start to show up 1 to 2 days after a frost has occurred.

Late-season frost damage can affect grain quality and yield and is directly proportional to the stage of maturity and leaf tissue killed. Severe impacts on grain quality can occur at mid-dough, while moderate impacts are seen at the dent stage. By the time the kernel has reached half milk line, only minor impacts will occur to grain quality. Yield losses are negligible if frost occurs when grain moisture is below 35 percent. Differences among hybrids, overall plant vigor at the time of frost, and subsequent temperatures will all affect final grain quality and yield.

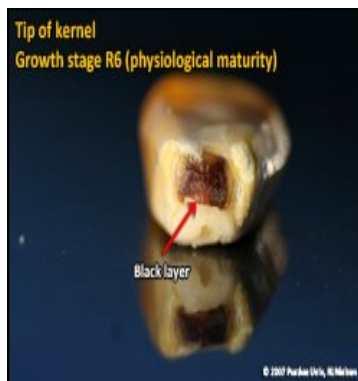
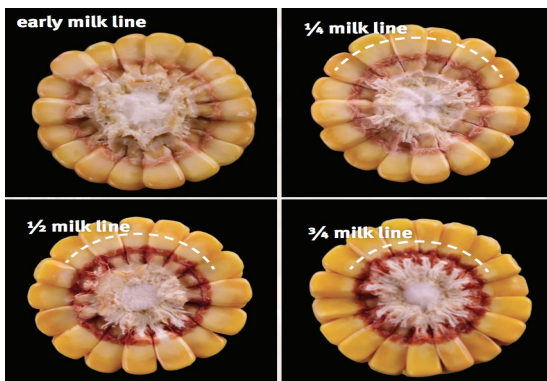
Severe plant tissue damage can lead to defoliation. If you suspect your corn has been damaged by frost, you should consider consulting the [National Corn Handbook NCH-1 "Assessing Hail Damage to Corn"](#) (Vorst, 1990). This publication has charts used by the National Crop Insurance Association for assessing yield loss due to defoliation. **Knowing how to recognize frost damage and assess probable loss is important for decision making.** An abbreviated version of the loss chart is shown in Table 7 below. For example, corn that was defoliated 20% at the milk stage would have 3% yield loss.

Frost damage can be difficult to identify late in the season as it is easily confused with common fungal leaf diseases such as northern corn leaf blight. If you have questions regarding the condition of your corn crop or if you don't have access to an electronic version of the "Assessing Hail Damage to Corn" guide, contact Josh Putman. For more information on corn maturity and frost, visit <https://www.agry.purdue.edu/ext/corn/news/timeless/GrainFill.html>



Frost advisories in SWNY

Frost crystals (left), frost damage (middle), Northern corn leaf blight (right)



Corn milk lines VS. full physiological maturity (black layer)

Table 7. Estimated percent corn yield loss due to defoliation occurring at various stages of growth.

Stage of growth	Percent leaf area destroyed				
	20	40	60	80	100
	<b>Yield loss (%)</b>				
Tassel	7	21	42	68	100
Silked	7	20	39	65	97
Blister	5	16	30	50	73
<b>Milk</b>	<b>3</b>	12	24	41	59
Dough	2	8	17	29	41
Dent	0	4	10	17	23
Black layer	0	0	0	0	0

**HELPING YOU PUT KNOWLEDGE TO WORK**

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## 2020 Northeast Region Agribusiness and Certified Crop Adviser Virtual Conference December 1<sup>st</sup> - 3<sup>rd</sup>, 2020

**\*7 DEC Pesticide Applicator Credits Pending, 24 CCA CEU's approved\***

### Registration Information

Online - <https://www.nysaba.com/educational-meetings>

**\$200** - 3 days training (earn up to 24 CCA CEU) + access to archived sessions for three years.

• *Early registration before November 9<sup>th</sup> is - \$170*

**\$75** - 1 day training (earn up to 8 CCA CEU)

• *Early registration before November 9<sup>th</sup> is - \$70*

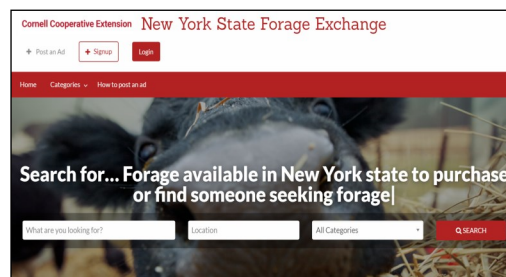
-NYSABA Discount – NYSABA members receive an additional \$5 per member registration. (Code needed.)

Conference created in collaboration with:



## Short on forage this year? Check out the New York State Forage Exchange

This year, several regions throughout the state have experienced drought conditions reducing the quality and quantity of forages produced for dairy and livestock. To help agricultural producers locate forage to purchase, or for producers that have forage to sell, Cornell Cooperative Extension announces the NYS Forage Exchange website, found at <http://nysforageexchange.com>. The NYS Forage Exchange provides a free system to match potential sellers and buyers of forage within New York State. A video on how to use the NYS Forage Exchange can be found at <https://youtu.be/GNPjSIPLrxM>. The video is also available on the Forage Exchange website.



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