

March 23, 2001

Strawberry Information**NC Strawberry Plasticulture March 23, 2001 (Friday 1:30 pm)**

Volume 2, Number 14

Main topic: Frost/freeze for Sunday/Monday (March 25-26)

Another Frost/Freeze for Sunday-Monday: As one grower on the Virginia border said to me last week, "You always need to sleep with one eye open at this time of year." **You may not wish to risk any sleep at all for this Sunday (March 25) and Monday morning (March 27)!** A cold front is heading our way that is "very unusual" for this late in the season, according to one of the lead meteorologists at SkyBit. How cold is it going to be early Monday morning? We are still not sure. We will have a much better idea by tomorrow (Saturday). I will be back in touch with the meteorologists to obtain information on minimum temperatures and winds. We do know that the air will be drier. And, it could be cold enough to cause **EXTENSIVE DAMAGE TO THE NC STRAWBERRY CROP.**

How useful are local forecasts (TV, newspapers)? In most of the calls we have had this week from growers, the conversation invariably turns to how much colder temperatures have been at their farm than the area TV news forecast. It is possible that temperatures out in your strawberry patch could be 8 F to 10 F colder than a nearby city like Raleigh and Greensboro. This actually happened last Monday morning a grower in Greensboro went in to check the 6 am TV news last they were indicating that only a low of 32 F was reached when in fact out in the strawberry field the temperature was 21 F.

Local forecast is now 26 F can we trust it? As of this morning they are predicting a low of 26 F for the Raleigh area, but what does this really mean? Could we actually drop into the mid-twenties (or lower)? That is why we'll be talking to the meteorologist Saturday afternoon. If last Sun/Mon is any indication of what's ahead, then we can expect temperatures to go lower, and this time we are worried that this one could be a real doozy (read on).

What gave rise to this cold front? The chilly temperatures that are now being predicted for Sunday night and early Monday morning got their start way up at the Arctic Circle and then NW Canada early this week when I spoke with SkyBit on Monday morning, they said "be aware that temperatures way up in Canada are 35 F below zero, and the jet stream will move this cold air all the way down to North Carolina and South Carolina by the late weekend". This approaching cold front is somewhere between a 1:25 or 1:50 year event (this is not good).

Saturday afternoon the next advisory: I will have the official call at approximately 2 pm tomorrow with the SkyBit meteorologist, and then we'll post the anticipated lows, wind speeds and dewpoints. Below is the AWIS color map for North Carolina (Figure 1), and the Southeast (Figure 2) for Monday March 26. BERRYagent has contracted with AWIS to redistribute these maps, but please do not reproduce these from this advisory (if you don't have access to our web page you are really missing out if you can't see these color maps with minimum temperatures).

A web version of this advisory with color pictures should be available later today <http://intra.ces.ncsu.edu/depts/hort/berrydoc/>

1) instructions: under Advisories click on strawberries, then click on March 23, 2001 advisory

2) please note: you may need to be patient in downloading this advisory as it contains color photos

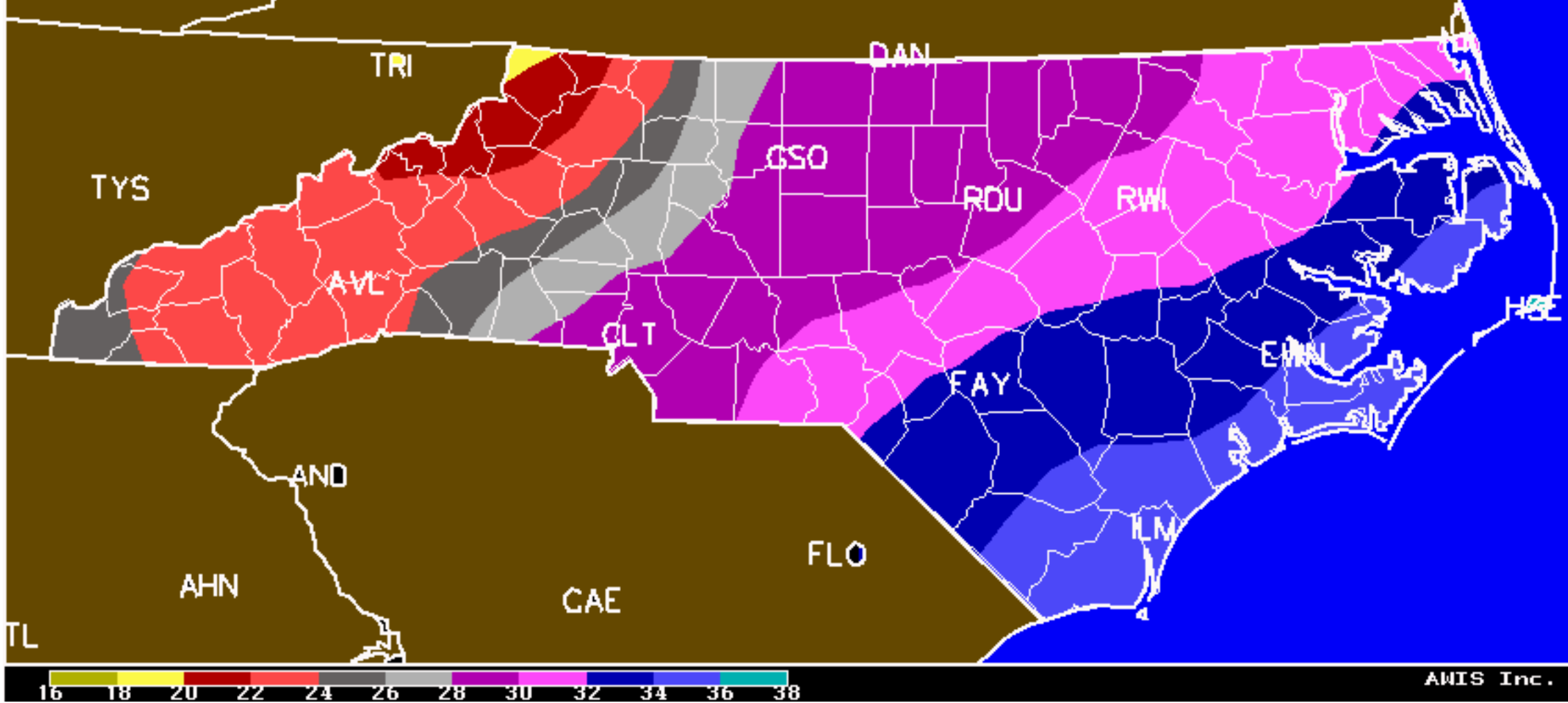
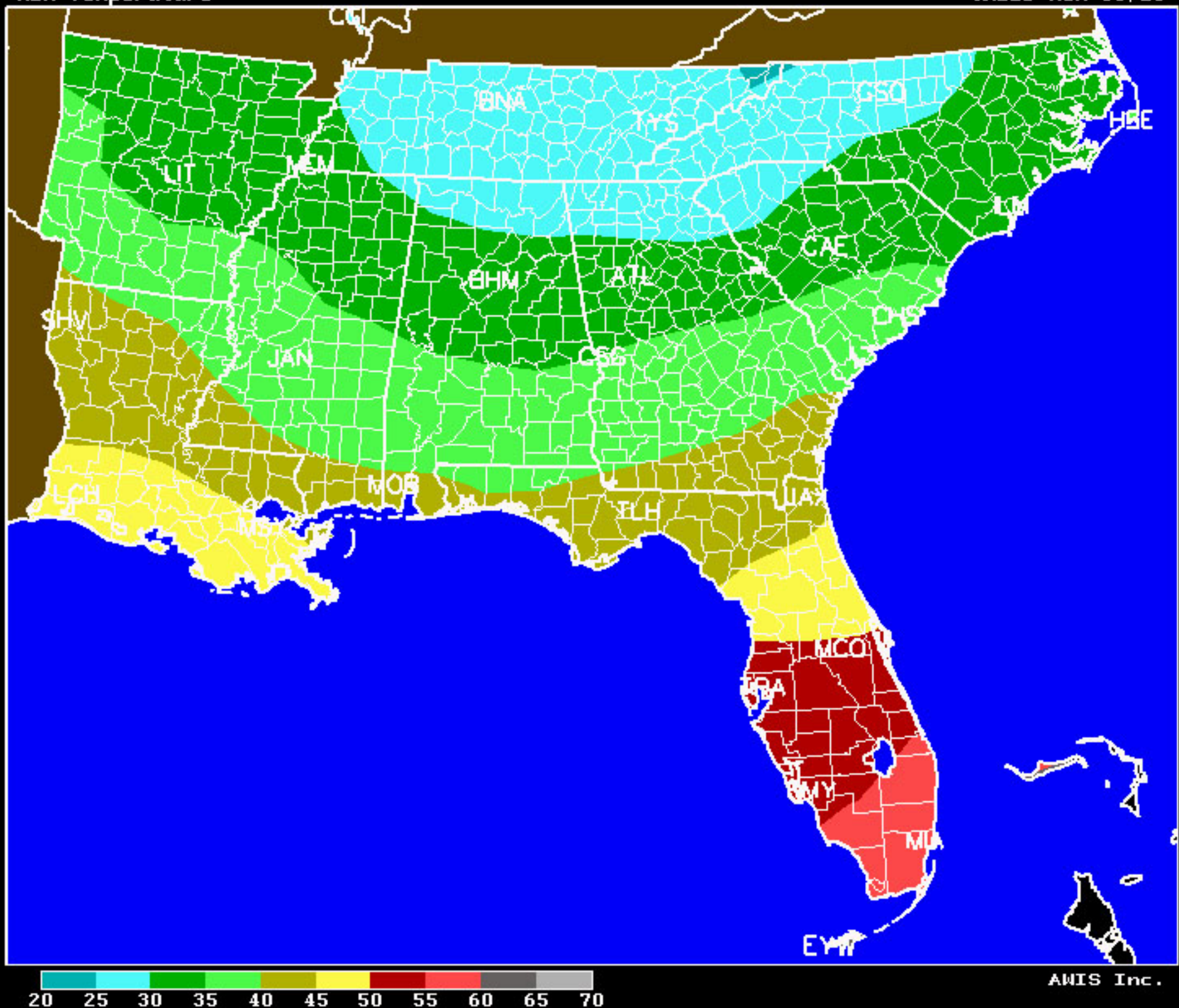


Figure 1. Minimum temperature map for Monday (03/26)



AWIS Inc.

Figure 2. Minimum temperature map for Monday (03/26). What is interesting about this map is that on Monday morning, areas in green (30-35) could be substantially lower!! Keep both eyes open this weekend.

We're past those questions of "Do I have enough crop to justify frost protection": Perhaps last week, an argument could be made to not protect based on losses to an earlier advective freeze in March (6-7). But, with as many as 10 to 25 excellent quality blossoms and popcorns "out there", the decision is easy - you protect. Losses to a mid-20s or low 20s frost/freeze could be massive.

How much water is needed? Today (Friday afternoon) I would think long and hard about your frost/freeze protection "limits". You need to examine Table 1 closely and think about some different scenarios and how you will act. These are the precipitation rates for frost protection in inches/hr.

Min. temp. °F	Wind speed (mph)			
	0-1	2-4	5-8	10-14
27	0.10	0.10	0.10	0.10
26	0.10	0.10	0.14	0.20
24	0.10	0.16	0.30	0.40
22	0.12	0.24	0.50	0.60
20	0.16	0.30	0.60	0.80

Why did I change to red text in the table? This is the limit (0.3) for most overhead strawberry irrigation systems when you have to start pumping as much as 0.3 inches per hour we are talking more than 8000 gallons/hr/acre. After 10 hours, this would be 80,000 gallons/acre, or nearly 3 acre inches of water (one-acre inch equals 27,190 gallons). My guess is that we may need to consider working at the upper limit of your system on Monday morning. If the winds stay down, we should be in good shape. For example, most systems are designed to handle up to 0.24 inches/hr (this would carry us down to 22 F with a 2-4 mph wind). Have you ever tested your system to see how much you are really applying? If you want to play it real safe - you could apply row covers on Sunday afternoon, and then take readings off of your digital thermometer to determine when you may need to start irrigating (if at all). We usually observe that crops that are covered do not require start up times nearly so early in the evening (e.g. grower w/o covers may start at 9 am, but at the research station we may not need to begin watering until 11 pm when the covers are in place). The covers provide nearly perfect protection in combination with the watering. The "trick" will be whether the minimum on Monday morning is going to be in the low 20s with wind. Then you may wish you had a row cover to irrigate on top of.

When do I start irrigation? We feel that on nights of low dewpoints that it is important to start watering at 34-35 F (dewpoints in low 20s, teens). If the air is moist, you can wait to start until the temperature of the blossom registers 32-33 F. I am assuming the use of a digital thermometer!! If you still haven't got one you won't have one by Sunday. So, we recommend that you use a well calibrated thermometer that is placed just at the surface level of the strawberry bed facing the sky. Thermometers will often read 2 F warmer than the actual blossom temperature we get with a digital thermometer. You may wish to keep this in mind if your thermometer is reading 33, it could already be as low as 31 (blossom temperature). So, if we are saying to start watering at 32-33 (on more humid night), then we really mean 34-35 if you are using a thermometer. I am sure this comment will generate some phone calls that's ok. I can be reached for the rest of today and then again on Saturday on a mobile: 919.418.9687

Good luck!

Barclay Poling

Contributed by:

E. Barclay Poling, Director
SRSFC
Campus Box 7533, 1017 Main Campus Dr., Suite 1100
Raleigh, North Carolina 27695-7553
919.515.5365

-
barclay_poling@ncsu.edu

[The Southern Region Small Fruit Consortium](#)

Campus Box 7533
1017 Main Campus Drive / Suite 1100
NCSU Centennial Campus
Raleigh, North Carolina 27695-7553

919.515.5365