Field Notes
March 25, 2013
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My phone started ringing yesterday and has continued this morning with questions concerning the effects of cold temperatures on all of the young rice planted over the last couple of weeks. It is always fascinating to me how different each year is from the previous. I looked up weather data for February and March of this year and 2012 and also checked the 30 year averages for the same two months. First, I looked at heat units for each month. For rice we refer to them as DD50 heat units because the threshold temperature for rice growth is 50°F. Heat units are calculated by adding the high and low temperatures for the day then dividing by two. From that 50 is subtracted and the result is the heat units for that day.

The 30 year average for February is 96 and March is 336 for a total of 432. Last year there were 236 in February alone plus 576 in March for a total of 812. As you may recall a lot of rice was planted in early March and never stopped growing. Dr. Linscombe reminded me that he had rice emerged in 7 days last year when 10 days is typical. So far this year we have 200 heat units in February and 205 as of yesterday in March for a total of 405. While the cold weather seems like a surprise it is really closer to the 30 year average than was last year.

I also looked at the number of days in February of 2012 and 2013 where the maximum daily temperature exceeded 70°F and the minimum was 39°F or below. In February of last year there were 10 days in the 70's and 2 days in the 30's. This year there were 6 days in the 70's and 4 days in the 30's. Comparing March of both years I used a maximum of 80°F on the high side and kept the same threshold on the low side. In March of last year there were 12 days in the 80's and 1 day in the 30's while this year there has only been 1 day in the 80's and 6 days in the 30's. I expect to see more days added to the 30's category than the 80's by month's end.

The bottom line is that it has been cooler this year than last year in spite of the few warm days earlier in the month. Dr. Linscombe told me that he has had a lot of calls regarding the effect of these temperatures on rice as have I. Actually, I am more concerned about the strong dry wind associated with the front than I am about the temperature. On the next page are a couple of photographs showing cold temperature injury symptoms and the combination of cold temperature and wind and their effects on rice seedlings. In most cases drill seeded rice will have greater tolerance to cold temperatures than water seeded or broadcast rice because the growing point is below the soil surface in drill seeded rice.

The number one question has been about whether the field should be flooded or flushed or left alone. I do not think there is one answer. Dr. Linscombe said he has advised growers to flush if it needs flushing or leave it alone if it does not need flushing. I agree with that on drill seeded rice where the seedlings are more protected and where too much water might cause other problems. In water seeded rice it might be wise to put a shallow flood on the field for the next couple of days to prevent desiccation of the seedlings as well as provide some thermal protection.

This is just one more situation that requires a judgment call and the consequences of which we will not know for a few more days.

The photo below was taken a few years ago. It illustrates what I expect to see in a few days as a result of the combination of strong dry wind and cold temperatures. In this case the problem was made worse by the use of gibberellic acid seed treatment that caused the seedlings to emerge quicker, but also to be more spindly than if they had not been treated with it.

The picture at right is of classic cold temperature injury. The conspicuous white band across the blade of the leaf is a result of desiccation of the tissue at that point. As I mentioned in a Field Notes from a few years ago, there are a few theories about why this happens. One theory is that the white band is of tissue that was just barely emerged from the whorl of the previous leaf then the temperatures dropped to damaging levels. The area above the symptom was already hardened enough to tolerate the low temperatures and the area below the band was still in the whorl of the older leaf. New leaves that emerge under favorable conditions will be fine.

At least we have sunny conditions which are much better than if we were experiencing the cold wind under dark clouds.