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LOUISIANA RICE NOTES

Dr. Dustin Harrell

April 5, 2018 **No. 2018-02**

Planing around 80% complete in south northeast wet in many areas

Rice planting in southwest Louisiana has moved along this year very quickly so far and without a hitch. I would estimate that at this time we are probably near 80% or more complete in the south. Generally, the last 20% of the rice acres that will be planted in the south will be dragged out over the next several weeks. Rice planted after crawfish will drag rice planting progress on even further.

In northeast Louisiana, several acres of rice have been planted on the higher elevations and lighter soil texture fields. However, a big portion of the rice acreage in the northeast part of the state is on low-lying, clay fields that tend to stay saturated. Following the past rain events, we currently have a lot of that acreage that is flooded or at the very least, way too wet plant.

Mer Rouge, LA 10 Day Weather
9:08 am CDT Print

DAY	DESCRIPTION	HIGH / LOW	PRECIP	WIND
TODAY APR 5	Partly Cloudy	71°/56°	0%	SE 5 mph
FRI APR 6	Thunderstorms	74°/41°	90%	S 14 mph
SAT APR 7	AM Showers	54°/37°	60%	NNE 14 mph
SUN APR 8	AM Clouds/PM Sun	67°/54°	0%	SE 8 mph
MON APR 9	Partly Cloudy	73°/46°	20%	NNE 5 mph
TUE APR 10	Sunny	71°/45°	0%	NNE 8 mph
WED APR 11	Mostly Sunny	75°/54°	0%	SE 10 mph

Figure 1. Cold damage symptoms in rice often cause the formation of white bands across the leaf.

For the most part, things have been going very well this season and my phone has not been ringing. However, the cold weather in the forecast for the next several days has brought up several questions regarding cold weather and its potential effect on rice germination, rice seedling survival, potential damage, and possible management options to minimize cold weather effects. You will notice that on Saturday in Mer Rouge, Louisiana, temperatures will not exceed 54ºF and will dip into the upper 30's at night. Couple this with winds of 14 miles per hour and there is some reason to worry. More on that below.

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Cold weather effects on rice germination and seedling survival

Rice seed germination will typically not occur when temperatures fall below 50°F. At temperatures between 50°F and 59°F germination can occur, but it is typically very minimal. Germination is generally good at temperatures at or exceeding 60°F. Seedlings are susceptible to cold damage when air temperatures fall below 50°F. Remember, rice growth and development generally stops when temperatures fall below 50°F. This is the temperature basis of the rice DD50 (heat unit) programs which we can use to estimate rice growth and development throughout the growing season. Growing degree heat units do not accumulate when temperatures fall below 50°F.

Figure 2. Cold weather damage in rice.

Cold damage can be exacerbated by high winds that generally coincide with cold fronts. Rice seedlings leaves have a thick waxy cuticle that protects the seedlings and helps them retain moisture. High winds can violently whip the seedlings back and forth which can cause cracking of this protective layer. Seedlings are then more susceptible to cold damage and desiccation of leaf moisture. Severe leaf desiccation can lead to seedling death.

Typically, cold damage causes a white band on the rice leaf (pictures 1 & 2). The white band is caused by the cold temperatures and desiccation of the leaf tissue at that point. Severe cold and wind damage can kill seedlings due to severe desiccation of the whole seedling as shown in picture 3. Cold damage can easily be confused with Command bleaching (picture 4). However, you will notice that Command bleaching almost blankets the entire leaf whereas cold damage often can be found in a given area with green leaf tissue on both sides of the

Figure 3. Severe cold weather and wind can cause desiccation and eventual death of rice seedlings.

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Figure 4. Command bleaching of rice seedlings.

whiting. Herbicide stress, or any other plant stress for that matter, can cause the seedlings to be more susceptible to cold and wind damage. Rice will die when freezing temperatures occur at the growing point. The crown node is the growing point for seedling rice. The crown is at, or below, the soil surface for drill-seeded rice which will provide more cold protection as compared to water-seeded rice where the crown is often above the soil line and is more exposed.

Can flushing or increasing the water depth provide protection from cold damage to seedling rice? This is a great question. The answer is yes, but in some instances it can also cause other problems too. For water-seeded rice, the general consensus is that you can increase water depth slightly to provide a blanket of protection for the rice. For drill-seeded rice, certainly you would want to flush the rice if moisture was limiting. If moisture is not limiting and the seedlings are very short, you may want to consider leaving it alone. One reason for this is that water can stack up on field edges during windy weather. Water covering small seedling rice for an extended period of time can cause stand issues on its own. Especially, when temperatures are low and the rice cannot stretch or grow its way above the water line.

Cold temperatures and limited heat units for growth can cause nutrient problems in seedling rice too. Phosphorus and zinc are generally the main culprits. Rice seeds typically supply nutrients for about 10-days after emergence. After that, limited root growth and activity can cause cold-induced zinc or phosphorus deficiencies. Rice zinc nutrient issues caused by cool early season temperatures are generally exhibited by chlorosis (yellowing) of the very young seedling leaves. Bronzing associated with zinc deficiency typically does not occur until around the late 3- to 4-leaf stage of development. Application of granular fertilizer nutrients will have little effect until temperatures increase and plant growth resumes.

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Cold induced zinc deficiency are common in Louisiana. We often treat cold induced zinc deficiencies with a foliar liquid zinc fertilizer application of 1 pound of zinc per acre. Again, significant improvements will not occur until the temperatures rise and normal plant development resumes.

One thing that we must always remember is that rice is a very resilient plant. Cold weather exacerbated with high winds can really bang it up and it can look severely damaged. However, it will typically survive and green up rapidly when weather conditions improve.

Upcomming

June 13	Acadia Parish/South Farm Field Day, Crowley, LA
June 27	LSU AgCenter's H. Rouse Caffey Rice Research Station Field Day, Crowley, LA

Additional Information

Louisiana Rice Notes is published periodically to provide timely information and recommendations for rice production in Louisiana. If you would like to be added to this email list, please send your request to dharrell@agcenter.lsu.edu.

This information will also be posted to the LSU AgCenter website where additional rice information can be found. Please visit www.LSUAgCenter.com.

Louisiana Rice
@LouisianaRice

LSU AgCenter H. Rouse Caffey Rice Research Station

Louisiana Crops Website @ www.louisianacrops.com

LSU AgCenter Official Website @ www.lsuagcenter.com

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