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# Crop Management Newsletter

News about Crop Management for producers in Dawson, Lynn and surrounding Counties.

Thanks to the sponsors and the gins who support the Dawson/Lynn IPM Program  
(found on page 2)

## Current Conditions

All is quiet. There is talk of thrips, but I am not seeing any thrips. Some leaf damage which looks like thrips damage is actually weather related damage - primarily wind and sand.

With the sun shining cotton has started to really show growth. However, there are fields that seem to be "stuck." These are primarily those fields that took the brunt of the weather - the wind and blowing sand and the heavy rains.

## Seedlings Work Hard

Despite the appearance of no-growth in these fields, the plant is really working hard. The plant extends a lot of energy fighting seedling disease, producing physical and chemical defenses, and developing new growth.

Cotton does not have true leaves pre-formed in the seed like other crops. Cotton must make its' true leaves from scratch. This long process of cell division and differentiation must all take place prior to leaf unfurling. Even though the seed starts this process one-day after planting it still takes a long time before we see the first leaf.

Since the plant starts working on the next leaf long before the first leaf unfurls, succeeding leaves appear much faster than the first one. By the time the first leaf unfurls the plant will be working on the next 7 leaves, all in various stages.

As these true leaves are damaged, their function is reduced, limiting their energy contribution.

## Leaf Physiology

Leaves should be thought of as the building blocks of cotton production. The structure of leaves allows them to perform their most critical task, photosynthesis, the capture and storage of light energy, in the form of carbohydrate molecules, which are used to build the leaf or transport out to growth elsewhere. This process of energy capture and storage allows the plant to fill bolls on bright sunny days and keeps the plant growing at night.

Cotton leaves have a limited productive life. For the first 16 days after a leaf begins to unfurl, carbohydrate produced is directed towards growth of the new leaf. As soon as that leaf is near full size (80% expanded), the 16-18 day old leaf hits its prime carbohydrate exporting capability. By the time a leaf is 25 days old, it starts a downhill slide until age 60-65 when it no longer exports carbohydrates.

Crops only capture a small percentage of the light energy they receive. Cotton captures 1.3% of the

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light energy. The most efficient crops, which include corn and milo, can trap 3.5% of the light energy.

Prior to squaring, the only leaves on the plant are cotyledons and main-stem leaves which feed the developing shoot tip and root system. Loss of both cotyledons within the first week after emergence severely delays maturity, because the storage organs have not had time to transfer out their stored nutrients. These young cotyledons have minimal photosynthetic capability. Prior to squaring, healthy leaves generally produce more carbohydrates than the plant needs, therefore, damage to these early main-stem leaves is less detrimental but can cause a delay in maturity. Therefore, in short season production systems, the tolerance to early leaf damage is less, because a slight delay in maturity can translate to yield loss.

Special THANKS to those who support  
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