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Desiccation of corn for early dry down

Florida growers often have July contracts for corn that will give them an economic advantage over corn harvested in August. However, corn does not dry down any faster when desiccated due to the black layer that forms at the base of the kernel which disconnects it from the cob. Loss of moisture is through the kernels and desiccating the leaves does not decrease grain moisture but may make harvest faster if there are weeds present that slow down the machine moving through the field. Black layer formation occurs around 30% grain moisture and often dries down around 1/2 -3/4% per day in Florida.

Corn may dry down as much as 1% in the Midwest with low humidity. We have seen 15-16% grain moisture corn in the field return to 18% or more after a rain and dry down again to 15%, and have another rain that can raise it back to 18%. It is usually necessary to dry corn in Florida and should not be much above 22% moisture when harvested.

There are a few materials labeled for desiccation of corn but are for killing weedy vegetation to increase harvest speed, not the dry down of the corn. Delaying corn harvest until corn reaches 12-15% moisture may result in significant loss in Florida due to summer rains and high winds that occur with afternoon showers. Not irrigated corn planted in late April or May, may be able to dry down in the field that is typically a dry month in Florida.

Corn that had been at black layer for a week but rain showers have kept it around 18% moisture.

Photo by David Wright
Hay and Spontaneous Combustion

Because of the high moisture conditions of Florida, grass needs to be well dried to avoid baling material that is too wet and may lead to spontaneous combustion.

What is Spontaneous Combustion?

Hay can catch fire because of lighting, or sparks, or because is lit intentionally or accidentally. Other times, hay catches on fire for no apparent reason, in this case it is called spontaneous combustion.

Grass that has been cut for hay should be at 12 to 15% moisture before baling. Hay with 12 to 15% moisture is dry and will not heat. Nevertheless, much grass is baled too wet and close to 20% moisture. Bailing grass with this high moisture content, will likely cause heating and molding leading to spontaneous internal combustion and fire.

Heating increases with bale size and density. The same hay amount baled in squares and showing no heating (with borderline hay moisture for safe conditions) --may be having problems if baled in large round bales.

How does self-combustion of hay occur?

Wet hay may be the product of external excess moisture from rain, dew, or flooding. It can also be the product of plant material that has been baled with high moisture content. It can also be a combination of external moisture in addition to material with high moisture content.

Excessive moisture encourages microbial activity and plant respiration. Either condition produces heat in stored damp day. Heat resistant bacteria grow, and they contribute to raise the temperature some more. The micro-organisms can die with temperatures of 158 °F but external chemical reactions can drive the temperature even higher to dangerous levels.

Table 1. Hay Bale Temperature and Fire Risk.

<table>
<thead>
<tr>
<th>Hay Bale Temperature, °F</th>
<th>Fire Risk</th>
<th>% Nutritive Value Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 120</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>120 - 130</td>
<td>Monitor bale temperature daily</td>
<td>10-30</td>
</tr>
<tr>
<td>140 – 160</td>
<td>Dangerous. Call Fire Dep. and do not open the stack until they arrive</td>
<td>30-80</td>
</tr>
<tr>
<td>160-180</td>
<td>Hay will ignite once is exposed to air</td>
<td>90-100</td>
</tr>
</tbody>
</table>

Grass moisture for bailing hay in Florida should be at 12 to 15%
Soil fertility is an essential part of weed control

There have traditionally been few options for controlling weeds in pastures. In the recent past, 2,4-D was the standard herbicide for broadleaf weeds. Though 2,4-D is a great herbicide, it is weak on woody perennial and completely ineffective on grass weeds. Therefore, our pasture weed management programs consisted of few herbicides, mowing, burning, spot-treatments, managed grazing, hand-rouging and so on. However, a tremendous number of herbicides have entered the pasture market in the past 10-15 years that are highly effective and reliable on numerous species. Additionally, many effective herbicides are no longer under patent, resulting in several low cost products in the marketplace. These factors make it cheaper and easier to use herbicides to control weeds in pastures than ever before.

There are pros and cons in every situation and pasture weed management is no different. As herbicides become more affordable, we use them more often – to the point of relying on them almost exclusively to control weeds. This is a problem since weed management should be a system where herbicides are “a” way, not “the” way to control unwanted plants. As we become reliant on herbicides, we often begin to neglect essential pasture management procedures – one of which is soil fertility.

A healthy, actively growing, stand of grass is THE best form of weed control that can be had. But for this to occur, we must ensure that our soil conditions will support this active and vigorous growth. If soil pH is not at the correct level, grass growth declines. Unfortunately, soil pH often changes slowly and even when it gets outside the proper range, pasture grasses will often continue to persist. So, since there is no over-night dramatic change in grass health due to pH, we can overlook the impact that pH is having. It is essential to keep pH at the proper level. If not, grass growth declines because many soil nutrients are less available for uptake. When grass growth slows, weeds invade.

It is also essential to closely monitor soil nutrient levels. Regularly cutting a hay crop, with time, results in removal of soil nutrients. Considering the sandy soils of Florida don’t hold a lot of nutrients anyway, depletion can occur fairly quickly. Some will say that since hay fields regularly receive fertilizer, this isn’t an issue. But, is the fertility program keeping up with removal? What about micronutrients? Without the proper nutrient balance, again, grass growth will decline and weeds invade.

If you haven’t been regularly soil sampling to monitor nutrient levels, we recommend that you start. Many fields will likely be in great shape and require no action. But if certain elements are getting low, you need to know the situation so a plan can be developed.

Remember this, herbicides are excellent tools to manage weeds. But, you will never spray your way out of a soil fertility problem. If soil conditions are poor and grass growth is declining, no amount of herbicide will fix this problem. Yes you may control the weeds that are present, but if the grass doesn’t fill in and compete quickly, new weeds will show up as fast as you can spray.
Control of vine weeds in sugarcane

Vine weeds are a major problem in Florida sugarcane later in the season following canopy closure. Several species of vine weeds are prevalent in sugarcane and morningglory species (Ipomoea spp.) are particularly the most common in Florida sugarcane. The onset of rains in June/July in addition to high temperatures creates a conducive environment for emergence and growth of morningglory species. These species are relatively shade tolerant and will grow under heavy sugarcane canopy late in the season.

Once established, these vines climb and wrap around sugarcane stalks by twinning ultimately occupying the top plane of sugarcane. This growth habit results in reduction of light on the growing point of sugarcane, thereby reducing the number of millable stalks and sugarcane yield. The climbing and wrapping habit of vines around sugarcane stalks can cause lodging and will also create a physical hindrance to harvesting operations.

Heavy infestation of morningglory species has been shown to cause up to 30% reduction in sugarcane yield if not controlled. Therefore, it is imperative for sugarcane growers to take control measures when vines become prevalent in sugarcane especially around this time of the season. Over-the-top application of 2,4-D at 1.0 to 1.5 quarts per acre after layby is highly effective for control of morningglory species. Always take care to prevent 2,4-D spray drift to sensitive crops, and consult the Florida Organo-Auxin herbicide rule prior to application.

Morningglory on sugarcane

Photo by D. C. Odero
Calendar of Events

To follow the link, press “Ctrl” and put cursor over link, and “click.”

Sep 19 2013 Florida Equine Institute & Trade Show. Ocala, FL

Oct 15-17 Sunbelt Ag Expo. Moultrie GA
http://sunbeltexpo.com/

Nov 3-6 ASA, CSSA, & SSA International Annual Meetings. Tampa, FL.
https://www.acsmeetings.org/