

MULCH CORNER

TOXIC MULCH SYNDROME PART 1

By John Ferguson

In the last issue Brenda shared her experience using **CHEAP** mulch after hurricane Ike a few years ago when many of her plants then died. There are several possibilities why this may have happened:

1) During the cleanup following Ike I visited several of the FEMA sites where debris was being ground up into mulch by the contractors. In Texas an authorized recycling company for mulch is not allowed to accept any form of treated wood or painted wood. However, at the FEMA sites I witnessed contractors grinding up old rail road ties (creosote treated wood that is carcinogenic), fence posts and rails that were CCA treated wood (copper, chromium and arsenic) along with painted wood from old houses (lead) along with the brush and tree material into mulch.

2) During a tropical storm like hurricane Ike, weak or damaged trees are the first to be blown down. Some common diseases of these weakened trees are *Verticillium wilt* which is caused by a soil-borne fungus resulting in the decline or death of many shrubs and trees. *Rhizoctonia solani* is another plant pathogen that is actually stimulated by fresh mulches as it feeds off the cellulose in the wood. If diseased trees are ground up and used for mulch, it is possible that these diseases can spread to mulched plants.

3) A very common problem that often occurs in cheap mulch is called the "**Toxic Mulch Syndrome**" or "**Sour Mulch.**" This most often occurs with bark mulches (pine, hardwood, etc.) and mulch from storm clean-up but can happen with almost any organic mulch. It occurs when a fine grained (small particle size) mulch is stacked over 6 feet high and remains wet for long periods of time without aeration. The material compresses and starts fermenting (anaerobic decay

instead of beneficial aerobic decay) and produces chemicals (methanol, acetic acid, ammonia, hydrogen sulfide and others) that can kill annuals and damage many woody perennials. Note: It only takes 1 ppm (part per million) of alcohol (like methanol) to kill a plant root!



After the hurricane these FEMA produced mulches were stacked 40-50 feet high in huge piles and several TV news stories talked about the stench they caused due to the anaerobic conditions as they sat there for weeks until they were sold off to unsuspecting consumers.

These chemicals have a strong sour acid odor versus a pleasant musky smell of fresh cut wood or compost. Good mulch will smell like freshly cut wood or have a rich earthy smell if it has been composted.

In the next issue we will discuss how to recognize these bad toxic mulches and some tips to avoid them.