

## Rain Makes Us Happy

Today is the day after we had a good, almost one inch, rain. I remember the first thought I had when I woke up this morning—It rained last night! Here we are at the end of July and this is the first rain we have had, at our house anyway, this month. And it almost equaled the total amount we received in two light showers in June. So before yesterday, we had experienced two almost rain-free hot summer months.

Rain, or the lack of it, really does affect our moods. Dry times and drought, makes us depressed, and rain, especially after a long dry spell, makes us happy. I know I am not the only person who feels that way, and I suspect the mood of most people is similarly affected.

I grew up in the high plains of Texas in an area that normally receives about half the rain we do in the Hill Country. I know that people's moods there were even more strongly affected by the weather than those of us in the Hill Country.

Before yesterday's rain we had many forbs and small shrubs wilting and most of the grass was beginning to, or had already, turned straw-colored and was crispy to walk on. Today the grass has clearly already responded to last evening's rain and was beginning to turn green again. And the wilting forbs were back to their normal turgid condition.

Wilting is most noticeable in forbs and some woody plants. The normal turgid (rigid, stiff) condition is maintained by internal water pressure in the conducting vessels within the leaves and stems. This internal water pressure is maintained by capillary and osmotic pressure within the plant. But if the amount of water in the soil decreases to a certain point, the roots can no longer supply enough water to the stems and leaves to maintain the normal turgid condition, then the leaves may droop and become flaccid. This is called the wilt point.

It is not just that the stiffness of the leaves and stems is lost when soil moisture decreases beyond the wilt point. If the roots cannot provide enough water to maintain the leaves in a turgid condition, there will also not be enough water within the plant leaves to carry out photosynthesis and carbohydrate production. Thus production of new leaves, roots, fruit and blooms will cease also.

Most of the time, once the level of soil moisture is restored above the wilt point, the plant can recover and normal plant processes can resume. The particular species of plant and the type of soil in question determines what level of soil moisture is required to be above the wilt point for that plant in that soil.

Some plants will drop their leaves entirely if the soil moisture does not improve, and may then regrow new leavers when conditions improve. Kidneywood and retama are two such plants.

Other plants will begin dropping leaves from some part of the plant but maintain some others as long as possible. We have a number of common sunflowers around in our

yard that have lost most of their bottom leaves, but still maintain a few upper leaves and continue to bloom. Plants such as these evolved to make as many seeds as possible even under adverse conditions, thus continuing the species.

An obvious question is: How much rain does it take to make the soil moisture be above the wilt point for most plant species. Put another way, how much rain or watering is required to keep our plants from wilting. Unfortunately, that depends on the plant and the soil. But here is what we can say:

The first small amount of rain (maybe  $\frac{1}{4}$  inch) just wets the vegetation and most of it may not reach the soil. A larger fraction of a  $\frac{1}{2}$  inch rain will make it to the ground in most cases. A significant amount of a 1-inch rain will make it to the soil and soak in, if it doesn't run off. In heavy rains, the percentage that runs off may become significant.

So the almost 1 inch we got last night probably did a lot of good for most of our plants as evidenced by their return to green and normal appearance.

Last night's rain will not be enough to satisfy our plants all through this coming August without more rain, but it certainly improved my mood.

Until next time...

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