

HOW DO ROSES 'GO BLIND'??

By Jolene Adams

Well - first of all, roses can't 'see' so they can't 'go blind' ... or even require glasses. But they CAN have what we call 'blind shoots'.

How Rose Stems Grow

Did you pay attention in high school when they showed you how the tips of the roots of an onion divided (mitosis) to make the roots grow longer? Same idea in all plants. The very tip of a shoot (or root) is covered with a thin layer of **meristem** cells. These cells are undifferentiated and carry the DNA code for the entire plant - they can become anything! These cells are responsible for dividing and adding more cells to the tip. As this process goes along, the newly made cells also keep dividing, adding more cells - and the little rootlet or the shoot grows longer. This can only happen with meristem tissue. The plant has meristem tissue at the tips of the new shoots, and also along the very tippy-top sides. This tissue has an almost unlimited potential for growth. But that growth is controlled by the plant itself. In roses, the tip cells can 'shut down' side growth (**apical dominance**) so the lateral (side) meristem cells can't divide. If the meristem stops dividing - no more growth.

Meanwhile, the cells left behind after the dividing frenzy **differentiate** to form other types of tissues like buds, leaves, more stems, etc. No rest, no rest - it is all divide and grow and divide some more. These cells are forming parts of the plant.

All this is going on while the plant is trying to make food to keep on keeping on, and the wind and sun and rain are all changing the temperature inside the little roots and stems. The chemical factory inside the plant keeps chugging along, making the ingredients needed for plant growth.

Blind Shoots

When you are looking down at the tip of a stem, you see the little pointed tip area, and also the sides of the stem starting to develop into different tissues, like leaves and stems and buds. You can usually see a very small incipient bud at the tip - but you won't know if it will form a flower until it actually begins to make the right shape. If it has been stalled in it's growth, it may just sit there for awhile and then start again. This will actually leave a 'ring' around the little stem, a sign of a 'stem-on-stem' incident while the plant was growing.

If the meristem on that tip stops growing entirely, the side cells will begin to develop into the leaves and other tissues. The tip won't grow anymore, will not make a flower bud, but the little tip will be surrounded by leaves. And that's all. Just leaves, no flower bud.

Why?

Well gee, if I had the irrefutable proof for this question, I would probably win a prize and make a lot of money. Alas - no one answer is available. The problem is that anything at all can happen and the tip growth will slow down, or stop and then restart, or stop entirely and make blind shoots. The most often heard theory is that a sudden and big change in temperature while the cells are rapidly dividing dramatically affects the chemistry inside the cells and the dividing stops. A sharp drop in temperature on a Spring night can result in blind growth. A sudden sharp

rise in temperature on a Fall day can also result in blind growth.

What To Do

Deadhead these stems, just as if they had already formed flowers and bloomed. They aren't hurting your rose, in fact those leaves are making food while they are sitting around admiring the view. But why not cut back the stem and let the rose try again to make a long stem with a lovely bloom on top?