**TOXIC PLANTS ARE A MAJOR CONCERN FOR ALL PRODUCERS**

Goats can eat anything. Many have heard the phrase yet it couldn’t be further from the truth. Being browsers, goats will often seek out items they find desirable even if they aren’t the most convenient. This can unfortunately result in the intentional or accidental consumption of toxic plants. While the majority of animals have a natural inclination to avoid toxic plants, consumption will still occasionally occur. Some plants are only toxic in certain stages of life, while others are toxic at all times, yet all should be considered a major concern if found in our pastures. It is important to note though that some plants are more toxic than others. The size of the dose and the poison present will ultimately determine if the animal lives or dies. According to Cornell, toxic plants can be categorized into six catagories: Alkaloids, Cyanogenic, Photosensitizing, Saponins, Tannins, and all others.

**Alkaloid Containing Plants:** these toxic plants are highly unpalatable for most livestock and are rarely eaten unless livestock are starving for feed or consumed by accident in the spring when plants are small.

Cause of Death: Severe digestive disturbance, pain, and nervous symptoms. Final symptom is usually convulsions.

Poisonous alkaloid containing plants include:

Wild Parsnip, Staggerweed, Varebells, Stagger Grass, Spider Lily, Senecio, Poisen Hemlock, Poison Rye Grass, Nightshade, Lupines, Moonseed, Lobelia, Indian Hemp, Indian Poke, Hellebore, Dicentra, Fume Wort, Death Camas, Celandine, Black Snake Root, Bloodroot, Common Poppy, Allspice, Boxwood, Crow Poisen, False Jessamine, Aconite, Blue Cohosh, Crotalaria, False Hellebore, Hemp, Jimson Weed, Marijuana, Pink Death Camas, Horse Nettle, Larkspur, Monkshood, Poison Darnel, Rock Poppy, Rattleweed, Spotted Cowbane, Thorn Apple, Spotted Water Hemlock, Yellow Jessamine, Wolfs-Bane, Sweet Shrub.

**Cyanogenic Containing Plants:** these toxic plants are generally poisonous when consumed in a damaged or frozen state.

Cause of Death: enzymatic action releases HCN (Hydrogen cyanide) when the sugar and a cyanide containing aglycone contained within the plant are hydrolyzed. The very potent toxin HCN inhibits the terminal respiratory enzyme cytochrome oxidase.

Poisonous cyanogenic containing plants include:

Black Locust, Choke Cherry, Elderberry, Ivy, Leucothoe, Milkweed, Rhododendron, Sorghum, White Snakeroot, Blue Cohosh, Cherry, Hemp, Johnson Grass, Lily of the Valley, Milo, Seven Bark, Stagger Brush, Wild Black Cherry, Arrow Grass, Buckeye, Dogbane, Indian Hemp, Laurel, Marijuana, Oleander, Sneezewood, Velvet Grass, Broomcarn, Corn Cockle, Horse Nettle, Kafir, Maleberry, Nightshade, Silver, Sudan Grass, Wild Hydrangea.

**Photosensitizing Plants:** cause an abnormal sensitivity to sunlight increasing the likelihood of sunburn or heat stroke.

Cause of Death: Inability of cells to repair themselves when exposed to UV light resulting in production of metabolities throughout the body.

Photosensitizing Plants include:

Buckwheat, Goat Weed, Klamath Weed, Lantana, Rape, St. John’s Wort

**Saponin Containing Plants:** According to Cornell, “saponins are naturally occurring glycosides whose active portions are soluble in water and produce foam (reducing the surface tension of water). The name comes from Saponaria, soapwort, the root of which has been used as a soap (Latin sapo, soap). The chemical composition of some saponins is very similar to that of hormones, their aglycones being choline steroids. Some saponins contain a triterpenoid aglycone. Their structure is very similar to that of cardiac glycosides. Bitter taste (triterpenoid aglycones contain glucuronic acid in place of sugar and are detectable by sweet taste: liquorice). Saponins cause growth depression in poultry and swine; bloat in ruminants. Aglycones increasing the permeability of membranes can cause haemolysis by destroying the membranes of red blood-cells, thus releasing hemoglobin. This hemolytic activity of saponins varies considerably from plant to plant. Protoplasts are also affected. Cholesterin inactivates saponosides in humans, only our mucus membranes are badly affected. Used in sneezing powder and as an emetic -> irritate the membranes of respiratory and digestive tracts, this local irritant effect is helpful in pectoral syrups and tisanes to facilitate expectoration. Many plants containing saponosides are diuretic. In humans, the effect disappears within a week following the neutralizing action of cholesterin. Some saponins (e.g. those in oats and spinach) increase and accelerate the body's ability to absorb some active compounds e.g. calcium and silicon assisting in digestion.”

Saponin Containing Plants include:

Bagpod, Coffee Weed, Purple Sesban, Rattlebox, and Soapwort

**Tannins:** tannin containing plants bind up proteins, resulting in reduced feed intake or weight gain. High consumption of tannin producing sources can result in death.

Tannin producing plants include:

Oaks (Leaves, or acorns) Goats have a high tolerance for oak toxicity but consumption should still be limited.

**All Other Toxic Plants:** These plants are each toxic in their own way yet may not kill a goat. They can however cause mechanical injury or even problems with resins. New research for instance suggests resin-containing plants can have delayed effects and even cause miscarriage in pregnant goats.

These plants can include:

Clover, Cocklebur, Downy Broome Grass, Sand Bur, Squirrel Tail Grass, Inkberry, Poke Weed, Pine Trees, Ponderosa Pine Needles, Baneberry, Buttercups, Crowfoot, Ground Ivy, Lobelia, Snakeberry, Spurge, and White Cohosh.

As a nutritionist, I often write about rate of return. If a producer invests a nickel, can they ultimately make a dime? When it comes to pasture and plant management, the rate of return is huge. While lists of plants to avoid may seem a bit overwhelming, it is important to take the time to identify what is growing in the pastures as toxicity can rarely be reversed. Even our farm runs into poisonous plants from time to time in spite of regular pasture checks. Walking pastures and promptly removing poisonous plants may just save a valuable animal or pregnancy though. Saving even one goat makes it worth the time and effort.