Legumes: An Interesting, Important, Diverse Family of Plants

The Legume family has many interesting properties and is represented by many species of Hill Country plants.

The scientific or Latin name for this family is Fabaceae, and is also known as the Pea family. In Texas, Legumes are the third largest plant family after the Aster or Sunflower family and the Grass family. Flowering plants are classified and placed in families by scientists according to the, sometimes minute, structures of the flowers so the general appearance of the plants as a whole may have little in common with other members of the family.

The most easily recognized characteristic of the Pea family is that its seeds are enclosed in a “pod” composed of two halves which split apart when dry. Think sweet peas, black-eyed peas, or green beans.

From an agricultural and nutritional standpoint, the most important characteristic of almost all legumes is that they have associated with their roots bacteria called Rhizobia that have the ability to “fix” nitrogen. Elemental nitrogen in the air is not very reactive and is not easily available to most plants to convert into nitrogen-containing proteins or DNA. The Rhizobia can convert atmospheric nitrogen into forms the plants can take up and convert into nitrogen-containing plant material.

This ability of the bacteria associated with the roots to make nitrogen readily available to the plant explains why legumes tend to have a higher protein content than other plants. We, and all other animals, need plant protein to survive, obtained either directly from the plants or indirectly by eating animals which eat plants.

When legumes die, the nitrogen “fixed” by the bacteria in the soil, as well as the nitrogen in the plant’s tissues becomes available for subsequent plant growth in crop rotation. This is how legumes enrich the soil for subsequent crops, saving on the use of synthetic fertilizers. Legumes are sometimes called “green manure” for that reason.

Most anything we would call a bean or a pea or a lentil is a legume, including all of the different peas and beans we find in the grocery store, but also including soybeans (worldwide the species produced in greatest amount). Likewise, the very closely related species of clovers, vetches and alfalfa are legumes.

One, perhaps surprising, member of the legume family is the peanut. The plant blooms above ground, but then forces the growing fruit below ground where it matures to contain, usually, two “seeds” which we call peanuts, inside a “pod” which we call the shell.

Some native wildflowers that are legumes include, but are certainly not limited to the following: Illinois bundleflower, Sensitive briar, Two-leaved senna, Lindheimer's senna, Partridge pea, Texas bluebonnet, Scarlet pea, Scurf-pea, Black dalea, Purple dalea, Milk-Vetch.

Other than the pea-like "pod", the other characteristic of Legumes that is easy to note is that most, but certainly not all, have compound leaves. The leaves of plants are classified as either simple or compound. A simple leaf is a single leaf that is attached to a stem or twig. A pinnately compound leaf has the appearance of many pairs of simple leaves attached to opposite sides of a new stem, usually with a single leaf at the end. In fact, these are leaflets and the whole collection of these pairs of leaflets along the stem is part of a single compound leaf. Think mesquite or pecan.

Other compound leaves can be palmately compound in which five leaflets are attached to the end of the stem in a pattern resembling your spread-out fingers. Think bluebonnets or Virginia creeper. Other compound leaves composed of three leaflets are called trifoliate leaves.

One has to keep in mind that everything in biology or botany doesn't fit in neat little boxes with no exceptions. Not all legumes can fix nitrogen. Not everything that bears a fruit called a pod is a legume. Not every legume has compound leaves, and not everything with compound leaves is a legume. But if I see something that makes what looks like a bean pod, I am certainly going to suspect it is a legume, and if it has compound leaves the odds are even better.

Here is a partial list of shrubs and small trees that are Legumes; Acacias, Anacacho orchid, Eve's necklace, False indigo, Golden-ball lead tree, Kidneywood, Fragrant mimosa, Mesquite, Retama, Texas mountain laurel, Redbud.

Until next time…

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