



Edible LEGUMES

BY JOHN MASON AND STAFF OF ACS DISTANCE EDUCATION

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CHAPTER 1 THE LEGUMES

Legumes are all members of the Fabaceae plant family which range from tall trees to vegetables and fodder plants. They include both human and animal foods, ornamental plants, cut flowers, and soil improvers when grown as green manure or in crop rotation systems. Some are considered to be weeds when they grow in lawns and garden beds or escape into native vegetation.

Classification Taxonomy of legumes

The Fabaceae family, or legume family (formerly known as the Leguminosae family), is a large family of plants which is commonly divided into three

subfamilies, namely Caesalpinioideae, Mimosoideae, and Papilionoideae. Regardless of the subfamily, all members of Fabaceae produce fruits in the form of pods, and it is perhaps this characteristic which makes them most recognisable.



Chickpeas

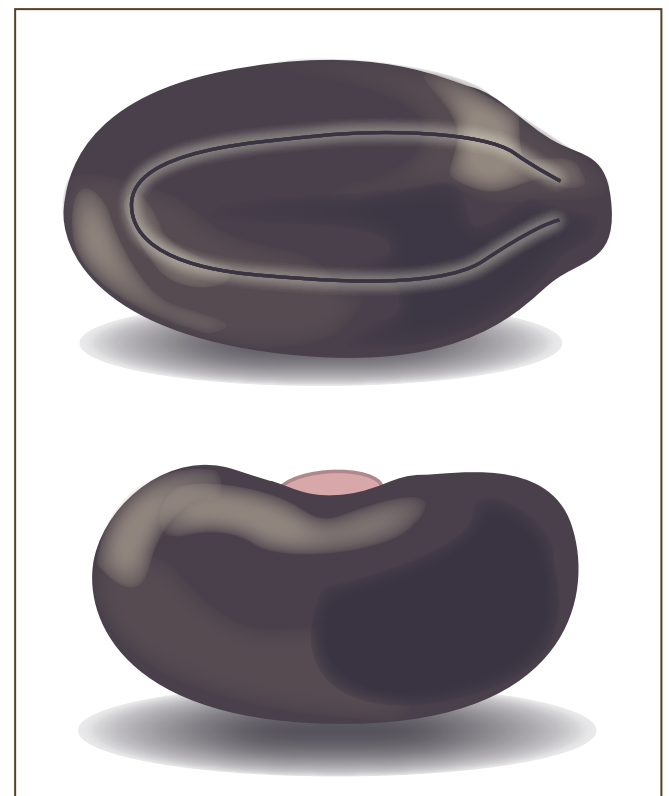
The Caesalpinioideae subfamily consists of mostly subtropical and tropical trees, though it does include the temperate climate Honeylocust tree (*Gleditsia triacanthos*). The subfamily Mimosoideae includes *Acacia* spp. (wattles), *Albizia* (silk tree), and *Mimosa* (sensitive plant), amongst others. However, it is the largest of the three subfamilies, the Papilionoideae subfamily which is of most interest to us here. The plants in this subfamily have pea-like flowers. This subfamily includes ornamental shrubs and vines like *Cytisus*, *Genista* and *Wisteria*, Australian natives like *Chorizema*, *Swainsonia*, *Hardenbergia*, *Kennedya* and *Hovea*, and ornamental trees such as *Erythrina* (coral tree), *Laburnum*, *Sophora*, *Robinia* and *Castanospermum*. It also includes important agricultural plants like chickpea, soybean, lupins, alfalfa, beans, peas, peanuts, liquorice, and clovers. It is these plants which are the focus of this book.

The leaves of Papilionoideae are variable but most often compound (i.e. divided into leaflets). They are never bipinnate like those in the other subfamilies can be. They always have stipules at the leaf base. Leaf margins are mostly entire or smooth edged but can sometimes be serrate. Leaf shapes can be simple or unifoliate (undivided) consisting of a single leaf rather than several leaflets. Papilionoideae plants may sometimes develop tendrils which are thread-like structures (as seen in peas) which grip onto anything nearby and help the plants climb.

Flowers often have five sepals and five petals. Flowers are commonly arranged into an inflorescence which is usually a compound raceme. A typical pea flower

has three different types of petals. The upper petal is enlarged and called the standard. The wings are two petals at the bottom. The keel is made from two other petals often fused together in the middle. Sepals are usually fused to create a tube at the base of the flower. The fruits are typically pods which contain hard-coated seeds that are dropped when the pod dries and splits open.

Papilionoideae legumes have no pleurogram on the seed, but other legume subfamilies do. A pleurogram is seen as a fine line on part of the seed surface and is a valve-like structure which appears to play a role in regulation of seed dormancy. You can compare an *Acacia* seed which has a pleurogram to a pea or bean seed and see that it clearly does not possess one.



A pleurogram is a line or crack, often horseshoe-shaped, on the surface of some legume seeds, but absent on others.