

Grain Legumes

FAO, (2016) applies the term pulses to those seeds of legumes, which are dry, edible, and with low fat content. "Legume" refers to the plants whose fruit is enclosed in a pod. Pulses are second only to the cereals as human food. FAO does not consider legume fruits or seeds used as green (e.g., green peas, green beans, cowpea), those seeds used for oil extraction (e.g., soybean, groundnut) and for green fodder (e.g., clover, alfalfa) as pulses. They are superfoods that are incredibly healthy, affordable and tasty. Storable for long pulses are they are most important sources of vegetable proteins, also rich in fibre, iron, potassium, folate (folic acid- one of the B vitamins) etc. in addition to antioxidants; they are free of cholesterol and gluten. From time immemorial pulses occupy a unique place in the nutritional security, which despite being the second most populous in the world.

Economic Importance:

Food legumes are still relatively minor crops despite their role as a source of protein in the diet of predominantly vegetarian populace and their importance as components of animal feed and a major source of biological nitrogen fixation in a cropping system. In addition, legume crops improves soil chemical and physical properties. Furthermore, it increases crop yield of the crops followed

in crop rotation, and used as a green fertilizer. Most of these crops do not need large quantities of water because of they have deep roots and make them tolerant to drought.

Important problem related to pulses:

1- Sensitivity toward broad bean:

It refers to the presence the anemia for people sensitive analytical after their eating of green seeds of broad bean. The low proportion of the enzyme (Glucose- 6- phosphate dehydrogenase) (G6PD) in blood cells that lead to this phenomena.

2- Flatulence Factors:

The absence of α -galactosidase enzyme in the human intestine, which analyzes the Ruffinoz and Stakyuz sugars to simple and easily absorbed sugars, so the polysaccharides is in the lower part of the bowel analyses by microorganisms, leading to the production of carbon dioxide gas, hydrogen and methane.

3- Undesirable flavor in pulses food products:

It appears carotene oxidase (Lipoxygenase) enzyme, Such as undesired flavor of flour, milk and oil of soybean.

Nitrogen Fixation

Atmosphere is about 80% nitrogen (N) yet N is a limiting factor for plant growth in almost all ecosystems

Resolution – atmospheric nitrogen is in a form (N₂) that is not available for chemical reactions in biological organisms.

How does nitrogen become available to living organisms?

- Reaction is called “fixation”
- can occur with input of energy (lightning strike)
- Some microorganisms can carry out this reaction
- Mutualism between bacteria (Rhizobium etc.) and members of Fabaceae family.

Many members of the Fabaceae form an association with microorganisms that have the ability to fix nitrogen. We call the plants “**nitrogen-fixers**” but it is really the microorganism that is conducting the chemical reaction. The high level of nitrogen associated with plant parts of Fabaceae is one key to their economic importance.

