

Families of plants most useful to man.

In any discussion as to the comparative value to man of the various families of plants, our estimate must be based on the nature of the wants which they supply and on the number and quality of the substitutes which are available in case they did not exist.

Basing, then, our estimation of these things it is evident that those plants are most valuable which supply man with food, since a supply of food is one of the primary conditions for man's existence. Anything else man may do without, if we except air and water, but cut off man's food supply and he is of very little use.

Looking at it in this way I consider that there is no family which has a better claim to the first place than Graminae. It numbers among its representative plants which grow in every country, temperate or tropical and the failure of the crop of a single representative may be sufficient to cause famine throughout an entire country. Wheat, Triticum vulgare, is probably the most universally used of

any single plant food and when we consider the immense number of people with whom it is a staple article of diet, if not the staff of life; the quantity of it which is raised; and the number of people who make their whole, or at least a large part of their living by producing it for other people's use, it might seem that this one species was sufficient to place this family in the front rank at least, if not at the very head. But in point of fact this is by no means the only important plant belonging to this family. Rice, Oryza sativa, comes in a good second it being the chief article of diet in many of the eastern and southern countries of Asia. What the failure of the rice crop might mean to China and a few neighboring countries it is difficult to imagine, since the extreme cheapness with which it can be raised places it among the few articles of diet which the inhabitants of these countries can afford.

Another plant, belonging to this family, which has been an important factor in the progress of the United States, is Indian Corn, Zea Mays. The production of this plant alone is sufficient to place the United States in the front rank of grazing countries. There is probably no other plant which

can be so cheaply grown for the same amount of food or which all things considered is so good a food for fattening purposes. Repeated experiments in various parts of the country have shown conclusively that while combinations of other feeds may give better results in many cases yet the gain is so small in proportion to the cost, as not to make it profitable in those parts of the country where corn is a staple article of production. Its use as human food, though of secondary importance is by no means insignificant and if our minister to Germany succeeds in his attempt to have it adopted as an article of food in the German army its importance in this respect is likely to be greatly increased.

Other plants which may be mentioned as belonging to this family and which are of importance not so much for human as for animal food, are Oats, Avena sativa; Barley, Hordeum vulgare; Rye, Secale cereale; Sorghum vulgare, which includes our common sorghum, millet, downy, broom-corn, &c. Saccharum officinarum or true sugar cane and Dactylis glomerata, Orchard grass. If anyone will consider for a moment the vast dependence which the animal kingdom places upon even the representatives I have mentioned I think he will certainly agree with me in placing Graminae first in importance.

A second very important family is Leguminosae. In the variety of uses to which it is put it is far ahead of Graminae. Indeed anyone who has never studied the matter would be surprised to see what a large number of very dissimilar plants belong to this family. Many of them are very useful, some in fact being almost indispensable. Others are very ornamental and by contributing to man's enjoyment earn a place for themselves as useful plants. A complete enumeration is, of course, out of the question, yet a few of the more valuable and more familiar may be given. The common Bean, Phaseolus, is among the most useful of the plants belonging to this family. There are three principal divisions, Phaseolus vulgaris, or Bush Beans, Phaseolus lunatus, Lima Beans and Phaseolus multiflorus, or runners. All are cultivated to a large extent but the first much more than either of the other two. One hundred and fifty varieties of Beans are planted this year in the Experiment Station and this is by no means all the varieties there are. In some parts of the world Beans are ranked as almost one of the necessities of life and they form an important article of commerce in nearly all parts. Intimately connected with the Bean, though of less importance, is the Pea Pisum sativum, cultivated more particularly for use in a green state but

still used to a considerable extent as an article of commerce.

The various kinds of clover, Trifolium repens, white clover; Trifolium pratense, red clover; Medicago alba, Bokhara clover; and Medicago sativa or Alfalfa all belong to this family and are of the utmost importance to man. Not only are they very important as forage plants especially Alfalfa and Red clover but they are particularly useful in renovating worn out land and in keeping up the fertility of any land. Just how they do this is perhaps not thoroughly understood but the fact that they do has long been recognized. It was well known as far back as Roman times and they always form an important factor in all systems of rotation where it is possible to grow them.

Passing from plants which are used as food either for man or the lower animals we may mention as belonging to this family Robinia viscosa, clammy locust; Robinia pseudacacia, common locust; Gleditsia triacanthos, common honey locust; Gleditsia sinensis, Chinese honey locust and Gymnocladus canadensis, Kentucky coffee-tree, among forest trees. And among ornamental plants Wistaria sinensis a very beautiful vine; Caragana arborescens or Siberian pea-tree, and Colutea arborescens an

ornamental shrub. There are of course many other plants belonging to this family which are more or less useful but these are among the more important and will serve to give an idea of the great variety of Leguminous plants.

The family to which I shall award the third place is Rosaceae. Possibly there may be those who will disagree with me in this yet I think it is fairly entitled to the place. Perhaps it does not furnish so many of the necessities of life, its products being more in the nature of luxuries, yet many of them are so generally used as to be almost necessities. Let us consider

a few of the more important plants belonging to this family. The apple, Pyrus malus, if one may judge from the extent to which it is used, is fast becoming a necessity in this country and the pear, Pyrus communis, to a less extent. Peaches, Prunus persica; Apricots, Prunus Armeniaca; strawberries Fragaria; Rubus which includes both blackberries and raspberries; roses, Rosa, and Prunus cerasus, Prunus serotina, Prunus Avium and other varieties of cherries all belong to this family and while we cannot claim that they are necessities of life, still they many of them form very important articles of commerce and their absence would

be solely felt.

In this discussion it has been my object to call attention to the many different plants belonging to a single family and also to the comparatively few families which contain all the most valuable plants. If man were left with only the representations of the three families mentioned life would be anything but unendurable and by the addition of only a few more almost all his wants could be supplied.

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