

## THE STORY OF POTATO

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**The Importance of Potato.** Potato has been described by a writer as the world's greatest plant. In the western countries it is one of the most widely cultivated crops. It is used for food and for industrial purposes such as the manufacture of starch and industrial alcohol. About one-quarter of the food of people in Europe and European settlers outside Europe is comprised of potato. It is also a valuable food for animals. As a food plant it is only rivalled by wheat and rice, which are the most widely used food crops in the world. Potato leads the other crops in the world's total production of food crops. It is grown in all the continents, although about 90% of the world's crop is grown in the European countries. Germany and Russia are the largest producers being responsible for more than one-half of the world's production. The others in order of importance are Austria, France, the United Kingdom, the Netherlands and Italy. The cultivation of potatoes in the United States and Canada is increasing in importance. Potatoes are grown in Japan, India and Burma in Asia, in South and East Africa and in Australia to an appreciably large extent.

One remarkable feature of potato is that it can be grown in almost any kind of soil. In Ireland, some of the soils on which potato is grown are said to be so sandy that straw and seaweed have to be used to keep the soil from being blown off the sets. Potato, no doubt, thrives best in well-drained friable soils, but, even clay soils and peaty soils can, by proper cultivation, be made to grow potatoes. It is said that there is scarcely an acre of barren waste free from stagnant water which cannot be made to grow potatoes.

Another feature of the potato plant is that it grows very quickly and comes to maturity in a few weeks. After the plant has made its first six inches of growth there is "a rapid rush into full leaf and stature—a process so swift that the gladdened cultivator may well tell himself sometimes that he can see the plants grow".

A further remarkable feature of potato crop is that a much greater weight of crop can be produced per acre than any other food crop. The yield of potatoes per acre is between 5 and 10 tons whereas the average yield of wheat, for example might be only one ton.

Potato, however, is unfortunately very susceptible to disease. It undergoes a process of degeneration and in course of time it loses its productiveness and vigour. This was for a long time considered to be due to natural causes, but in recent years it has been proved to be due to the cumulative effect of infection by virus diseases. The plant is tender and not hardy.

It is also easily affected by climate and rainfall. Mr. Walter P. Wright, the founder of the National Potato Society of Great Britain says :

"With all its weaknesses the Potato remains a vegetable of great value and vast importance to us. If one season, the crop is light, the next is heavy; if last year there were severe losses through disease, this year there are few, so that a useful average is struck. It is in this philosophical spirit that we must pursue our culture, but at the same time, we must take care to study methods of reducing our losses from disease."

**Discovery of Potato:**—A writer says,

"Amidst the numerous remarkable productions ushered into the Old Continent from the New World, there are two which stand pre-eminently conspicuous from their general adoption. Unlike in their nature, both have been received as extensive blessings—the one by its nutritive powers tend to support, the other by its narcotic virtues to soothe and comfort the human frame—the potato and tobacco".

Potato is a native of South America. It was first discovered by the Spaniards in the neighbourhood of Quito in Ecuador, where it was under cultivation early in the sixteenth century. It was also found in Peru and Mexico. The inhabitants of Peru called it "papas". Potatoes were used in these countries as food, usually cooked, but also dried in the sun and made into flour. The potato plant was found growing wild or cultivated in comparatively high altitudes and in a dry climate but never in the neighbourhood of sea-coast.

**Introduction into Europe.** The potato was carried to Spain by the explorers about 1535 at the time of the conquest of Peru. It is said that Hieronymus Cardan, a monk, was the first to introduce it from Peru into Spain. From Spain it passed quickly into the other countries of the Continent but it did not come into general cultivation for a very long time. It began to be cherished as a valuable product only after over a century passed away since its discovery.

Regarding its introduction into England, admirers of Sir John Hawkins claim that he introduced it as early as 1563, while admirers of Sir Francis Drake claim that he introduced it in 1586. It is said that a statue to Drake as the introducer of the Potato was erected at Offenburg, in Baden, in 1853. However, there is no doubt that Sir Walter Raleigh was the first to grow potatoes in England; he planted it on his estate at Hayes, in Devonshire and also in his estates at Youghal, near Cork, in Ireland in 1586.

Bauhin, in 1596, was the first to describe the plant and to give it the Latin name, *Solanum tuberosum esculentum*. In 1601 Clusius had described the plant with figures in his *Rariorum Plantarum Historia*. In 1597, John Gerard, who had obtained some tubers of the potato from Virginia and planted them in his garden, gave a description of the plant in his publication *Herbal* and he called it *Batatas Virginiana*.

**Naming of the Potato.** The naming of the potato was a result of a confusion with another plant of a totally different character, *Batatas edulis* (*Ipomoea batatas*) the sweet potato. Sweet potatoes were also discovered

by the Spaniards in Brazil and was introduced into Spain in 1519. It was called by the natives of Brazil, *Batatas*. This was corrupted to 'Potato'. The cultivation of sweet potatoes was carried on in Spain and Portugal and in the time of Queen Elizabeth, sweet potatoes were imported into England from Spain and Portugal. The potatoes mentioned by Shakespeare and other writers of the period were really sweet potatoes. Thus, in the "Merry Wives of Windsor" it is not the real potato but the sweet potato that is referred to in Falstaff's exhortation :

" Let the sky rain potatoes and kissing comfits "

The real potatoes were called later on as potatoes of Virginia. In course of time, *Solanum tuberosum* was called Potato and *Batatas edulis* as sweet potatoes.

**Cultivation of Potatoes in Europe.** The cultivation of potatoes in England made little progress for many years. During the reign of James I they were rare and cost two shillings a pound. Potato was then an article of luxury. By 1663 its usefulness as an article of food was so generally known that the Royal Society took measures to encourage its cultivation and its introduction into Ireland, especially as a safeguard against famine.

Potato was very slow to come into general use. In the seventeenth century it was believed that it might become useful for feeding swine and cattle. There was also a belief that it caused leprosy. During the seventeenth century it was merely a botanical curiosity cultivated by collectors of new plants. It was only in the eighteenth century that it became a cultivated crop. By 1760 it became established as a field crop in England and some 25 years later as a field crop in Scotland.

By 1772 the cultivation of potatoes had become common in Germany but the quality of the crop was poor and it was generally used for feeding domestic animals. It was used as human food only in times of failure of grain crops. Frederick the Great encouraged its cultivation in Prussia and by about 1785 it began to be grown extensively in Saxony. By the end of the eighteenth century it was firmly established throughout Germany and it became a great staple crop of the country.

France adopted the potato more slowly. In 1769 the grain crops of France were a failure, threatening a national famine. Auguste Parmentier, an apothecary in the French army, recommended the use of potatoes as food to take the place of grain. He had been a member of the medical staff of the French army in 1758, during the war in Hanover and had been taken prisoner. During his five years in prison his principal food consisted of potatoes. He wrote a book called a *Treatise on Certain Vegetables that in Times of Necessity can be substituted for Ordinary Food*. This book was received with ridicule even though it received a certain amount of support from the Paris Agricultural Society. By persistent efforts, he was able to interest Louis XVI in the crop sufficiently to induce the king to grant him 50 acres of land on which to experiment with potatoes. It is said that the



King ordered the plot to be guarded by a cordon of troops which excited the curiosity of the people. On the King's fete day, Parmentier presented the king with a basket of tubers and a bouquet of the blossoms. These were worn by the king and queen who also ate the cooked tubers. They were found to be very palatable and soon the French people took an interest in potato.

By the latter half of the eighteenth century, potato was extensively cultivated and recognized as one of the regular crops throughout the temperate regions of Europe and America, so that Henry Phillips (1822) who published a detailed account of the potato and its culture, was able to cite a single grower who planted 300 acres annually.

In Ireland, potatoes were used very extensively as human food. By 1840, potatoes had largely replaced the cereals because the yield of potatoes exceeded by 20 to 30 times the yield of wheat, barley or oats on an equal area of land. Dependence on a single crop for food led to disaster when the potato blight devastated the Irish crops in 1846 and caused a widespread famine. It is said that 600,000 died during the two years, 1846 and 1847, for want of food or from diseases caused by a meagre diet of unhealthy and unnutritious food. By 1848 the plague had subsided.

**Potatoes in India** Potatoes seem to have been introduced into India early in the seventeenth century. It is mentioned in Terry's account of the banquet given by Asaf Khan to Sir Thomas Roe in 1615. By 1675 its cultivation had assumed some importance as Fryer has described the gardens of Surat and Karnatak as containing among other vegetables, potatoes. Potatoes are now grown in many provinces. In Bengal, the chief potato growing districts are Hugli, Burdwan, Rangapur, Jaipalguri and Darjeeling. Potatoes are extensively grown in the hilly tracts of Assam such as Khasia, Jaintia, Garo and Lushai Hills. In the United Provinces it flourishes well at Naini tal, Almora, Mussoorie etc. In the Bombay Presidency it is grown on a large scale in Poona district and to a smaller extent in other districts particularly, Surat. It is also grown in the Punjab in the hilly tracts round Simla. Potato is cultivated in the Bangalore district of Mysore State. In the Madras Presidency the most important potato growing area is the Nilgiris district. The story of its development on the Nilgiris is interesting.

**Potato Growing on the Nilgiris.** Potato growing on the Nilgiris is over a century old. The first introduction of potatoes to the Nilgiris must have been by Mr. Sullivan. In 1822 he had procured a professional gardener "with a view to making experiments in horticulture and agriculture under his superintendence". It was also his idea that "the experiment may eventually prove useful to the public, and the expense of making them will be my own". Mr. Sullivan applied to the Government for permission to enclose about 1900 acres of waste land for this purpose. This was granted. It was the valley to the south of Stonehouse hill. The gardener was Johnstone and he had an assistant, an African, named Jones. In 1824 it is

recorded that a potato weighing 5 lbs. was grown that year in Mr. Sullivan's garden.

In April 1830, the then Governor, Mr. S. R. Lushington, established an experimental farm at Koity, "taking up Badaga lands for the purpose in a high-handed manner, which, after his departure, was the subject of a severe censure from the Court of Directors, who ordered the lands to be restored and ample compensation to be given to the landholders for loss of profits whilst their lands were improperly appropriated". Major Crève was in charge of the experiments. The land "was broken up in the English style of farming with ploughs of the English shape and by means of cattle trained for the purpose". Some of the fields were planted with potatoes while others with wheat, barley, oats etc. The farm showed the possibility of potato culture as an occupation whereby one could earn one's livelihood. But in a few years the farm was abandoned owing to the above attitude of the Court of Directors.

In his book on the "Nilgheries", first edition of which was published in 1834, Dr. Baikie mentions, speaking of Jakathala (Wellington), that three and even four crops of potatoes might be raised in twelve months and that all other European vegetables were luxuriant and were produced all the year round. He says "Fruits and an immense variety of vegetables have been introduced by the European visitants. And almost every description of esculent vegetable, to be found in Europe, is now cultivated on the Hills in abundance. The list extends to potatoes in great quantity and first rate quality; cabbage, cauliflower, Savoys, French beans, spinach, peas, lettuces, beet-root, radishes, celery, turnips, carrots, sea-kale, asparagus and tomatoes".

In 1847, Major Ouchterlony mentions in a report that Ceylon offered a very favourable market for the Nilgiri potatoes. In that year there were 186 acres under potatoes, the total output being estimated at 29,400 maunds or 6,562 cwt. The average selling price was 6 as. per maund or Rs. 1-11-0 per cwt. An acre of potatoes produced up to 600 mds. and the ratio of return of crop to seed was 15:1. This is an extraordinarily good yield considering the present-day figures.

In 1848 the Government Botanical Garden was established and for some years cultivation of potatoes was one of its chief features. New varieties were tried. The ryots were shown how to cultivate potatoes and other vegetables.

The cultivation of potatoes was increasing in extent and in 1876 there were 754 acres under potatoes. Potato was grown on a small scale by the European settlers and on an increasing scale by the ryots. Major-General Morgan says "There is no doubt that the Badaga country is especially suitable for the growth of potatoes, which delight in a dry soil, of a reddish brown colour and warm sun and moderate rainfall. With much rain they lose their starch and become watery. Kalhatti, Bellikal, Ketti, Coonoor and Ko 're' 'i' are well suited for the growth of the potato. The Kalhatti

valley has for years produced the best potatoes on the hills; the soil is reddish brown loam, the climate moderately moist, and frosts occur only in January." The yield per acre, in 1847, was 600 mds. as mentioned above but that in 1876 was given as 40 cwts. That is to say, the yield per acre had declined from over 6 tons to about 2 tons in the course of three decades. There was a serious falling off in the size and quality of potatoes. This was due to the following reasons, according to Mr. Jamieson, the Superintendent of the Botanical Gardens, who in 1877 wrote an article on potatoes. The principal causes of degeneration were (1) planting on swampy undrained land, (2) the continued use of the same seed, (3) over manuring and (4) the planting of the same land year after year with potatoes.

In the seventies, great interest was taken by the Government and individuals in improving the quality of the potatoes grown on the Nilgiri hills. Good varieties were imported from England and Australia and tried. Good seed was supplied to the public. In spite of these the ryots were taking very little care either in the selection of seed or in its preservation. They were doing nothing to combat potato diseases. The potato crop became one of more risk. Prices varied. At one time it was as low as Rs. 20 per ton and at times went up to Rs. 100. Sometimes disease might smite the crop and the return would hardly pay for the seed. Seasons also varied exceedingly. Late April rains meant a short potato crop; early frost was death to the second crop.

In the first decade of this century Nilgiri potatoes were being exported to Ceylon, Burma and Straits Settlements and potato had become a paying crop. Mr. W. Francis, a Collector of the District, evinced very keen interest in improving the quality of the potatoes produced on the Nilgiris and in 1909 he was able to get a grant from the Government to import two tons of good seed from Australia. This was taken by Mr. George Oakes, an enthusiastic potato grower for the growing of seed. In an address on Potatoes delivered by Mr. Oakes under the auspices of the Nilgiri Agri-Horticultural Society on the 30th September 1910 he refers to this. From the seed he obtained he planted a crop in May 1910 for which he used

6 cwts. Brownell's Beauty	and lifted	80 cwts.
1½ cwts. Satisfaction	"	5½ cwts.
1¼ cwts. Cambridge Kidney	"	9 cwts.

Mr. George Oakes applied ½ ton of Parry's Potato Fertiliser for the above crop.

New varieties were tried in the Government Botanical Gardens. In 1910 there were 1½ acres and in 1914 about 2½ acres under potato. Seed produced here was supplied to the public and it is said that the average annual supply of seed to the public during the period was over 350 mds. In 1915 and 1916 the question of expansion of seed production was under discussion and in 1917 the Government decided on establishing an experimental station at Nanjanad where new varieties were tried and manurial experiments were also undertaken.

Since 1910 the area under potatoes has been increasing owing to demands from Colombo, Bombay, Calcutta etc. The use of fertilisers has also been increasing. From the beginning of the Great War in 1914 there was a marked increase in area. The area under potatoes in 1914 was about 4000 acres and it increased to about 8000 by 1920. Since then and up to 1931 the increase was not so marked. In 1931 it was only about 9000. Since then owing to increasing unemployment due to depression and to the increasing activities of fertiliser firms the area under potatoes has been increasing and at the present time it is not less than 12,000 acres.

The pre-war price of potatoes was between Rs. 6 and 9 per bag of 190 lbs. During the war prices went up to even Rs. 23 per bag. From 1930 the prices have been declining and in 1932 it went down to as low as Rs. 3 per bag. During the past five years prices have been ranging from Rs. 3 to 9 per bag. The low prices are due to increased production on the Nilgiris and in the potato growing areas in other parts of India and to the increased imports from Italy, Cyprus, East and South Africa, Australia, Japan and Burma.

The consumption of potatoes has also been increasing throughout the country and so long as the price of potatoes to the consumer is reasonably low the consumption will increase.

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**Palm Oil as a Motor Fuel.** It is reported that research in the Belgian Congo has shown that motors designed for the use of gas oil fuel can also be driven satisfactorily with locally obtained palm oil as fuel, the combustion of the palm oil in the motor cylinder being as good as that of gas oil. The exhaust gases are colourless and contain no carbon monoxide. At the normal temperatures of the Congo, the palm oil is sufficiently fluid as to require no pre-heating before being injected into the motor cylinder, and the starting up of the motor with this fuel is satisfactory. The acid content of the oil is not sufficient to attack the motor parts with which it is brought in contact. The heating value of the fuel is 9,200—9,600 calories per litre and the average water content 0.4 per cent. Experiments with the palm oil fuel in power works showed the consumption per kilowatt hour, with a 400 kw. unit, to be 0.292 kg. which compares favourably with the consumption of gas oil fuel in the same unit. (*Industrial India*, November 1937, Page 264).

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