The Seeds of Kokopelli

A manual for the production of seeds in the family garden

A directory of Heritage Seeds

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" For the Liberation of Seed and Soil "

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Alliaceae Family

LEEK

Botanical classification

Leeks, *Allium porum* or *Allium ampeloprasum*, is a part of the Liliaceae family and the Allieae tribe. The genus Allium comprises about 700 known species.

This species comprises three cultivated forms:

- The leek well known in our gardens and cultivated for its long white stem.

- The Kurrat known also as "Kurrat-nabati", which does not produce a stem but the leaves are harvested and finely cut up and eaten raw in salad or cooked. The plant remains in the ground for two years and the leaves are harvested at regular intervals.

- Levant Garlic. In the USA it is called "Elephant Garlic". The bulb is rounded and produces numerous side bulbs. You can use it in the same way as ordinary garlic. Its flavour is, however, milder. The plant is perennial. Sometimes it forms large inflorescence but it produces very little seed because the flowers are generally sterile.

History

Archaeologists have found the remains of leeks in Egyptian tombs dating back to 1550 BC. Their appearance was, however, very different. The leaves were very long and fine. The Romans also grew leeks in abundance and their appearance also was very different to those of today. The stems were slender and ended in quite a pronounced bulb. The Romans also ate a hardy leek called perpetual and which can still be found in certain parts of France.

Pollination

Leeks have perfect flowers (male and female) but are nevertheless incapable of self-fertilisation. In effect the stamen release their pollen before the style and stigmata are receptive.

Pollination

The individual flowers of the bulbous umbel blossom progressively over a period of four weeks with the maximum activity in the second week. Thus during this period of time, there are always stamen releasing their pollen and styles and stigmata receptive to the pollen.

Leeks are therefore pollinated by insects whose presence is essential to the production of beautiful seed bearing plants. In order to preserve varietal purity you must leave between 400-1000 metres between varieties depending upon the environment and the topography.

Leeks cannot cross with onions, chives or other species of Allium. They can, however, cross with Kurrat, which is a wild leek to be found in Egypt and in the countries surrounding the Mediterranean. It can also cross-pollinate with Elephant Garlic which is found in southern Europe, the Near East and northern Africa.

You will need to grow twenty plants of the same variety in order to maintain a good genetic diversity.

Seed production

The leek is a biennial which will produce its seed towards the end of summer in the second year of cultivation. You should select the most beautiful plants or those most closely identified with your particular requirements, for the production of seed. From the beginning of spring the flowering stem slowly appears: the process of flowering and fruiting takes much longer than the onion.

In the northern areas with a harsh climate it will be necessary to lift the leeks and to keep them in a protected place over winter. They will for example keep for several months in a damp, frost-free cellar. They are then replanted at the end of winter or early spring once the ground is workable

Seed production

This process is particularly necessary for varieties said to be summer leeks.

Sometimes it is necessary to support the flower stems, which can reach a height of 1m50. The seeds are ripe once the stem begins to turn brown. The seeds are black and will begin to shed. Once they are ripe cut the head leaving a little stem, place a paper bag over the head and hang it upside down in a dry well ventilated place. When the drying process is completed you can sieve the seed to separate it from the vegetable debris.

The seeds are viable for two years though they can remain viable for up to 6 years. One gramme contains about 400 seeds.

Seeds of Kokopelli

Each packet contains about one gramme

Autumn Giant

It is a cold resistant variety for fall and winter growing. The leaves are dark green and the shafts are large, uniform and long.
This old variety is also known as "Hannibal" and "Autumn Mammoth".

Blue Green Solaize

The blue-green leaves turn violet in cold weather. The very large sweet medium-long shafts are extremely cold resistant and hardy. They holds well over the winter in the ground.
This very old 19 th century heirloom variety is originally from France and known as "Bleu de Solaize".

Giant Carentan

The short and thick white shafts are 15 cm long by 5-8 cm in diameter. They are extremely tender. The leaves are dark blue-green. It is a perfect hardy variety for autumn and winter crop.
This very old heirloom 19 th century variety is originally from France and known as "Monstrueux de Carentan". Vilmorin had this selected from "Large Rouen Leek".

Hilari

This early variety is more adapted for summer and fall harvest. The shafts are long and firm and the leaves are medium to dark green.

Large Yellow Poitou

A summer variety. The long shafts are yellowish.
This very old 19 th century heirloom variety is originally from France and known as "Jaune du Poitou". Vilmorin thought it was a local variety of the "Broad Southern Leek".

Liège

The leaves are dark green. The long shafts get very thick. The variety is very cold resistant.

Saint Victor

The deep blue green foliage turns to violet in cold weather. The flavor and quality are excellent. The variety is very cold resistant and vigorous.
This old variety is a selection of "Blue Green Solaize".

Scotch Flag

The large, thick and white shafts are 25 cm long and 5-7 cm in diameter. The leaves are medium green and fan shaped . This variety has a mild flavor. It is vigorous and hardy.
This old heirloom variety was developed by J. Hardcastle in the Musselburgh district of Scotland in 1834. It is also known as "Hardcastle's Musselburgh" and "Giant Musselburgh".

Winter Giant

The long and thick shafts are white and the leaves are dark-green. It is an excellent keeper.
This old variety was introduced around 1905.

ONION

Botanical classification

The onion, *Allium cepa,* is part of the Liliaceae family and the Allieae tribe. The genus Allium comprises approximately 700 species.

Allium cepa is divided into several sub species:

- *Allium cepa cepa.* This is the common onion.

- *Allium cepa aggregatum.* This sub-species comprises the potato-onion and the shallots.

The potato-onion is also called "multiplier onion". It forms 10 to 12 small bulbs, more or less rounded with a copper-yellow colour. It does not flower .

Shallots comprise two types: the grey or ordinary shallot and the Jersey shallot. The former reproduces exclusively by means of side bulbs whilst the latter will flower and sometimes will produce fertile seed. In the case of the Jersey shallot, reproduction by side bulbs is more common.

- *Allium cepa proliferum.* This sub-species is also called "Topset onions". It comprises the "Catawissa onion" and the "Egyptian onion".

The Catawissa onion is characterised by hollow stalks, which terminate in from one to three levels of aerial bulbils. The bulbils are violet in colour and there are half a dozen at each level. They are eaten raw or cooked. The plants are perennial.

The Egyptian onion has stems which terminate in one or two levels of copper-red bulbils. The plant is perennial but much less early and hardy than the former. It occasionally flowers producing seed that is no doubt sterile.

History

The onion without doubt originated in Afghanistan, Pakistan and Iran. It was apparently an important part of the diet in Egypt 2800 to 2300 BC.

Seeds have even been discovered in a tomb in Egypt dating from 3200 BC. It is an extremely important plant, which is now grown over the whole planet.

Pollination

Onions have perfect flowers, both male and female, but they are nevertheless incapable of self-fertilisation. The flowers are hermaphrodite and protrandrous. The stamen releases their pollen before the style and stigmata are receptive.

The individual flowers of the globulous umbel open progressively over a period of four weeks with the majority opening during the second week. Thus during this period, there are always stamen releasing pollen and styles and stigmata that are receptive.

Thus there are a majority of cross-pollinations and the onion is fertilised by insects, the presence of which is indispensable for the production of beautiful seed bearing plants.

In order to preserve varietal purity, you should, depending upon the environment, leave from 400-1000 metres between varieties.

The onion can cross with the "Topset onions" and occasionally with varieties of the species *Allium fistulosum* and so it is essential to isolate from these also.

In order to preserve a good genetic diversity you should grow some twenty plants of each variety for seed.

Seed production

There are several discernible stages of growth in the onion.
-The vegetative stage where the optimum temperature for growth is between 20°C and 25°C.
-The phase of bulbification which is induced by a combination of higher temperatures (between 25°C and 35°C) and longer days (with a photoperiod ranging from 11h30 to 17 hours depending upon the variety).
-The phase ending dormancy which occurs between 12°C and 15°C and which is crowned by the emergence of the seed-bearing stem.
-The flowering phase, which is induced by, cool temperatures (with nightime temperatures below 15°C) this being especially true of varieties originating in temperate zones or the Mediterranean.

The seeds of the onion can be produced in two ways:
-From seed to seed.
-From bulb to seed.

Seed production

If you want to produce quality seed then you should use the second method. You harvest the bulbs once they are mature; select those for seed according to the qualities you seek, over winter them and then in spring plant them out once the danger of frost is past. Depending upon temperature and humidity certain varieties will keep for up to 12 months. Recent research has shown that onions conserve best at fairly high temperatures or low, near to 0°C. It is in fact the temperature of your home, which is the most suitable for the conservation of onions.

The onion is thus a biennial which will produce its seed at the end of the summer in the second year.

It is necessary to support the grain bearing stems, which can reach a height of two metres. The seeds are ripe when the stems begin to turn brown. The seeds are black and they begin to shed. At this stage cut the head with a bit of stalk and place in a paper bag and hang it upside down in a dry well ventilated place to complete the drying process. When this is complete you can sieve the contents of the bag in order to separate the seeds from the debris.

It is of some interest to mention an African technique that we have seen practiced in Burkina Faso and which is apparently used in other African countries. The peasants cut off the top part of the bulb, which they eat. It is only the lower part of the bulb, which is replanted or covered with vegetation. Each bulb containing several "buds", new shoots emerge around the outside and are replanted in order for each to produce a seed bearing stem.

The seeds have an average viability of 2 years. They can, however, remain viable for up to seven years. A gramme contains approximately 250 seeds.

Seeds of Kokopelli

Each packet contains about one gramme

Doré de Parmes

The bulbs are conical and large. The flesh is white and mild. It is a gook keeper more adapted to southern regions. This variety is a long day type one and is early.
This variety is originally from Italy.

Gelbe Laer

The bulbs are round and yellow. The variety is early.
This variety is originally from Austria.

Gialla di Stocarda

The bulbs are round, slightly flattened and yellow. The flesh is firm and white.
This variety is originally from Italy.

Jaune Paille des Vertu

The bulbs are yellow-copper with a thick skin. The variety is productive and early. It is a gook keeper.
This heirloom is originally from France. It is mentioned in "Les plantes Potagères" of Vilmorin-Andrieux in 1885.

Rayolle des Cévennes

The bulbs ar large and extremely sweet and mild. The skin is yellow.
This heirloom is originally from France.

Rouge Pale de Niort

The bulbs are large and flat, 8-10 cm in diameter. The skin is copper-pink. This variety is an excellent keeper.
This heirloom is originally from France. This heirloom is originally from France. It is mentioned in "Les plantes Potagères" of Vilmorin-Andrieux in 1885.

Sturon

The big bulbs are round and flat with a very thick skin, yellowish-brown in colour. The flesh is firm, pungent and juicy. This variety is a long day type.
This variety is originally from Germany. It is a selection from Stuttgarter.

Stuttgart

The bulbs are flat and globe-shaped. The glossy skin is light brown-yellow. The flesh is white and mildly pungent. It is generally used for the production of sets.
This heirloom variety is originally from Germany.

Walla Walla

The bulbs are large, flattened and globe-shaped. The skin is light brown and the flesh is white and very mild. It is a not a good keeper.
This heirloom variety is said to be originally from Corsica,the French island. It was brought to Washington State at the beginning of the 19 th century by Peter Pieri, a French soldier.