

MAKHANA CULTIVATION

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Introduction:

Euryale ferox Salisb is an important crop, belonging to family Nymphaeaceae. It is commonly known as Makhana, Gorgon nut or Foxnut and grown in stagnant perennial water bodies like ponds, Oxbow lakes, and swamps.

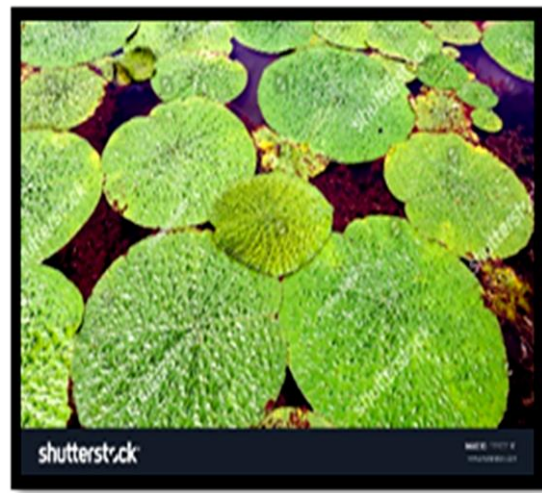
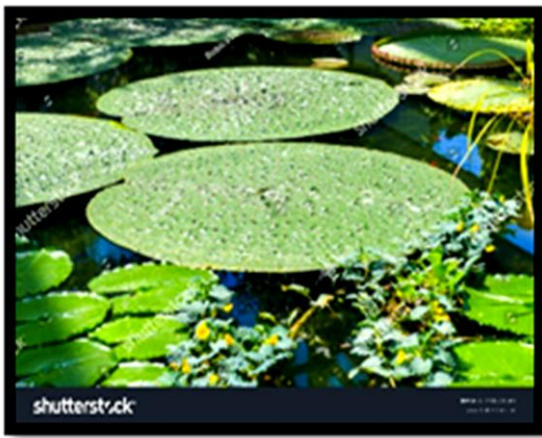
Uses:

Edible part of Makhana contains 12.8% moisture, 9.7% protein, 0.1% fat, 0.5% minerals, 76.9% carbohydrates, and 1.4 mg/100 g of carotene. Calorific analysis gives a value of 362 kcal/100 gm for raw Makhana and 328 kcal/100 gm for popped Makhana. Thus, the calorific value of Makhana compares well with staple food materials such as wheat, rice, etc.

Cultivation:

Makhana is cultivated either in perennial water bodies having water depth of 4-6 ft or in the field system.

Pond System: This is the traditional system of Makhana cultivation. Seed sowing is not required in old Makhana growing ponds since left over seeds of the previous crop serves as a planting material of subsequent crop. However, Makhana cultivation may not be started either through direct seed sowing or transplanting the plantlets in new water bodies. In the traditional system, apart from Makhana, air breathing fishes get enter into the ponds as well as wild fishes along with flood water and harvested by the farmers as an additional crop.



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Field system: This is a new system of Makhana cultivation, which has been standardized by the research institute. In the system, Makhana cultivation is carried out in agriculture fields at a water depth of 1 ft. This system is very easy to operate and provides opportunities of cultivate the same fields in a year for cereals and other field crops. The Makhana seedlings are first raised as a nursery and then transplanted in the main filed at the optimum time. Depending upon the availability of field and nursery, the transplanting can be done in between first week of February to the third week of April. Through this system, the duration of Makhana crop is reduced up to the four months

Constraints in Makhana cultivation: lack of ownership of the pond/land, highly skilled nature of operations, lack of credit facility, lack of scientific knowledge of cultivation, lack of improved variety, short lease period and labour intensive cultivation is identified as constraints for Makhana cultivation. Majority of Makhana growers cultivate Makhana in leased government or private ponds/land and hence the Makhana growers realised it as main constraints that hinders them to make Makhana a profitable venture. As most of the cultivation is done by traditional methods, "Lack of scientific knowledge of cultivation" is also considered as one of the major constraints.



Harvesting refers to the collection of scattered seeds, either from bottom of the pond or shallow water filed. Harvesting of Makhana is done in the month of August-October by divers of "Mallah" community in the morning around 6.00- 11.00 am and it involves drudgery. A diver goes deep into the bottom surface of pond, lies down, hold his breath and drag the mud towards the bamboo pole locally known as "Kaara" with both palms. A heap of mud is formed near the base of bamboo pole which is later sieved with locally made bamboo screen called "Ganjaa". The time required for collection depends upon the amount of seeds lying in the bottom of the pond or the fields. While sweeping the bottom surface of the pond in awkward posture, mud enters into the diver's ears, eyes, nose and mouth. The divers also get affected from skin diseases due to this problem. An improved system was developed to reduce the drudgery of divers. Harvesting of Makhana seeds using the improved system involve less drudgery in

comparison to traditional system with significantly higher work output.

