

AN UPTICK IN GROWTH AND PRODUCE OF STRAWBERRY: IS NUTRITIONAL INTERMIXTURE A WAY FORWARD? A REVIEW

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Abstract–The current study is named “An Uptick in Growth and Produce of Strawberry: Is Nutritional Intermixture a Way Forward?”. This experiment was carried out on a strawberry plant to ascertain the effects of varying nutrient concentrations. Furthermore, the growth and output of strawberries grown in a hydroponics and pot system were underestimated. The strawberry is a popular fruit due to its nutritional content and supposed health benefits, and its production has increased significantly in recent decades, thanks to pot system farming. This review article highlights the development of innovative strawberry under-pot and hydroponic techniques. Innovative strawberry producing techniques such as without soil culture or hydroponic systems are replacing the old and traditional methods of production which required more attention than field crops. Strawberries and other berries contain healthy chemicals that may help prevent some malignancies. They are most useful in preventing breast and gastrointestinal cancers, while they may also be somewhat helpful in preventing lung, prostate, liver, and pancreatic cancers. The scientists conjectured that the advantage most likely results from a combined action of all the components in strawberries acting together, rather than pinpointing a single ingredient as the cause of this protection. In conclusion, eating strawberries may provide some of defence against lung, oesophagus, breast, and oral cancers, but additional research is also required. In view of the fact of their popularity with consumers and health-enhancing qualities, strawberries play a significant economic role in the fruit sector. One of the key problems raised in the industry sector is the adulteration of other berry juices with strawberry. As a result, evaluating small chemicals, such as anthocyanins to build a profile that may be used for quality control purposes in hydroponic and pot system agriculture, is of special interest. The resultant is an alcohol-free, low-diabetic sweet-and-sour strawberry with plenty of nutrients.

INTRODUCTION

Strawberries are members of the Rosaceae family and are widely consumed due to their desirable sweetness, juicy-texture, and appealing aroma. It is one of the most popular fruit crops due to its distinct flavour and nutritional value. Tânia G. Albuquerque ... Helena (2018). Most commercial cultivars are octoploid and heterozygous in nature, making standard techniques of improvement problematic. Anuradha Upadhyay, (2018). Hydroponic farming stresses the use of several types of media or nutrient solutions to grow crops by keeping the plant's root in the nutrition solution. The most widely used materials are plant bark,

cocopeat, and perlite. Strawberry hydroponics cultivation decreases the illness of crops dispersed by the soil as well as the rotting of strawberry fruits. And hence this approach produces remarkable results in terms of strawberry quality and other growth parameters. Due to the increased demand, innovative strawberry producing techniques such as without soil culture or hydroponic systems are replacing the old and traditional methods of production which required more attention than field crops Vikas and Anjil *et al.* (2017).

In pots cultivation of strawberry it necessitates a unique planting procedure, you do not fill them with dirt and merely plant in the top of the pot; you must also plant in the carefully curated peripheral

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planting craters. This recourse is novel yet handy and hence can burgeon into a full-blown beautiful plant with optimum yield in its due course. This planting recourse is similar to what we see in case of outdoor containers, in the spring season when the frost factor is gone completely. Since strawberry pot soil heats up faster, planting a little earlier is a better option than one would with in-ground garden plants. As a precautionary measure, if spring frosts are likely, one is advised to give it a sufficient cover—and better is to relocate it to a sheltered habitat. MARIE IANNOTTI, (2022).

Before You Begin Enrooting a Strawberry Pot

By practice, peripheral planting craters are relatively difficult to fill as soil can easily topple off the sides, but wheelbarrow mechanism effectively diminishes potting-soil waste and reduces cleanup time. The wheelbarrow also helps rotating the pot easier and reduces the bending. Once choosing the plants for strawberry planter, small plants have always been a best pick due to their better fitting in peripheral planting holes; malleability and flexibility of such plants' root is the mainstay in this case. MARIE IANNOTTI, (2022)

Nutrients Concentration of Strawberry in Hydroponics and Pot System

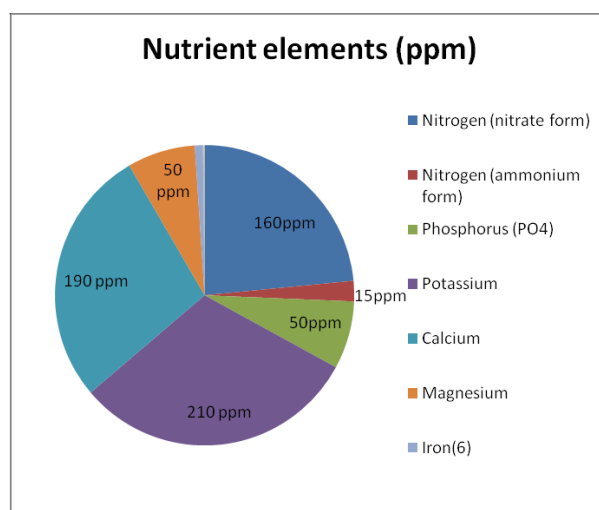
Nutrient solution is a liquid fertiliser solution created in a specific composition to encourage plant growth. Nutrients are the basic materials for hydroponics. The plants' requirements are met by ionic-form nutrients along with adequate oxygen and warmth. The two most significant things to consider for productivity in hydroponics are environmental parameters and nutrient solution. The supply of nutrient elements is determined by the crop's requirements, and the frequency of treatment is determined by the kind and age of the crop, the type of medium employed, and the current environmental conditions. Because there is no perfect nutrient solution to suit the needs of all crops, the type of nutrient solution varies by crop species, development stage, environment, and other aligned aspects. A great deal of study has been done on nutritional treatments for fruit crops. Macronutrient absorption in grapevines was investigated using nutrient culture. Greater vigor of rootstocks was documented as a result of increased nutrient assemblage. In the similar way, Perola is grown in a hydroponics system using micro propagation. In grapevine hydroponics, Long

Ashton nutrient solution was utilized. Some fruit crops, such as peach and pear, do not have nutritional solutions available Pramod Kumar and Simran Saini, (2020).

Composition of nutrition

The mix of various nutrients in the nutrition solution is of great importance since their optimal uptake impacts the functioning of plants and, as a result, their growth. Water must be tested before being used in hydroponics for fertilizer solution to obtain precise information about its qualities Pramod Kumar and Simran Saini, (2020).

A nutrient solution having the following composition can be used in strawberry for a closed form of NFT Pramod Kumar and Simran Saini, (2020).



Molybdenum

Varied nutrition solutions with different amounts of nutrient components are being standardized. For the generation of guava and pineapple seedlings, Hoagland and Arnon nutrient solution was utilized. The nutrient solution developed by Furlani *et al.* was utilized to grow guava seedlings. Yamazaki solution, which contains N(NO₃:5; NH₄:0.5); P:1.5; K:3; Ca:2; Mg:1; S:1; Fe:3; B:0.5; Mn:0.5; Zn:0.05; Cu:0.02; Mo:0.01 in meq/L, can be used for strawberries:

Sustained Growth and produce in Hydroponic Strawberry Pot System

To bear fruit and if other corresponding factors remain favourable enough, Hydroponic strawberry plants might take up on average 90 to 120 days in a congenial hydroponic growing system. Whereas, a

Nutrient elements(mg/l)	Hoagland and Arnon (1938)	Furlani <i>et al.</i> (1999)	Hewitt [3]	Cooper [5]
N	210	202	168	200-236
P	31	31	41	60
K	234	193	156	300
Ca	160	142	160	170-185
Mg	34	39	36	50
S	64	52	48	68
Fe	2.5	0.26	2.8	12
Cu	0.02	0.04	0.064	0.1
Zn	0.05	1.8	0.065	0.1
Mn	0.5	0.37	0.54	2.0
B	0.5	0.06	0.54	0.3
Mo	0.01	0.11	0.04	0.2

growing medium of 100% coconut coir arrests the growth and produce of strawberry plants. Results are bright if we use Rockwool and Perlite consociating their hypothesis of the imperative of oxygen and its availability. If one lives in the low sunligh region the winter each day, hydroponic strawberries call for at least 7–11 hours of direct sunlight, Pamela G. Martin (2021). It is preferable to invest in artificial lighting, such as LED or HID lights. The University of Arizona's greenhouse now employs anintermixture of 50 percent perlite, 25 percent of peat, and 25 percent of coconut coir as a congenial growing medium. The inclusion of peat is for improved pH management due to the high pH of their source water. It's time to pick the fruitafter three-quarters of the fruit's surface transforms from green to red. When lightly squeezed, the berries will feel soft, tender and dulcet. Harvest them by hand or with a pair of little scissiors while being careful not to injure the plant. They can be eaten right away, used in a dish, or stored in the fridge for up to a week Pamela G. Martin (2021). The flourishing and produce of strawberry in hydroponic-system depends on the strawberry variety you choose to grow, whether it's everbearing or seasonal, the age of the plant, and other things. In terms of weight, you should expect between 135 and 450 grams of strawberries per plant. You can grow year-round with hydroponics, which means you can get berries at any time! Over time, older strawberry plants will produce less fruit and will need to be replaced with younger, more vigorous ones Lorin Nielsen (2022). Pot-Growing Strawberry Varieties and Their Yield You may grow any type of strawberry in a pot or basket and expect a harvest, but some produce fruits only once a year, while others develop fruits over months, not weeks. They're popular with home gardeners, and there are numerous types to choose

from like plant-early, mid-season, and late-season June-bearing strawberry cultivars to extend the season. Day neutral strawberries: These kinds produce a small crop of berries from late spring to autumn, and they even produce well the first year. The fruits, on the other hand, are smaller than June-bearing and ever-bearing strawberry kinds. Everbearing strawberries: While the name implies that overbearing strawberries yield fruit continuously, the truth is that they produce numerous medium harvests during the season. The plants are also less winter resilient than June-bearing or day-neutral cultivars, in my experience. Mulch the plants with straw or shredded leaves in the winter. Alpine strawberries:-These pint-sized strawberries are modest in stature but enormous in flavour! The berries are roughly an inch long and taste like pineapple and strawberries. This is a fantastic hedge plant for food and flower gardens since the plants create compact clumps that don't take over the garden. Alpine strawberries are also grown in pots and planters, where they can last for years. The best soil for strawberries in pots requires well-drained soil. Filling the pots with a 50-50 mix of high-quality potting mix and compost with our simple recipes, you may even make your own potting mix. Planting is also the best time to fertilize your container with a slow-release organic fruit and berry fertilizer. You'll be feeding your plants a little every time you water in prerequisite manner. It's time to plant your strawberry plants in containers with potting mix-compost, and slow-release fertilizer after you've put everything together. Strawberry plants are available bareroot or potted in 4 inch pots at several nurseries in the spring. Normally use pre-potted strawberry plants in containers and baskets because it just needs a few and they are usually already growing well and have

a good start on bareroot plants. Two to three plants can be accommodated in a conventional 12 to 14 inch diameter hanging pot or basket. Plant the plants so that their roots are covered but their crowns are barely above the earth. The crown is the short, thick stem at the top of which the foliage emerges and the roots are found. Water thoroughly and place your pot or basket where it will receive full sun light for at least six to eight hours each day Niki Jabbour (2019). Yield of Strawberry in pot, a single strawberry plant, will produce between 35 to 80 berries across the season depending upon the variety selected. This equates to a weight of between 0.9 to 2.0 kg of fruit Plany Our Patch, (2017).

CONCLUSION

Strawberry hydroponics cultivation reduces soil-borne disease(s) further as strawberry fruit rotting. However, in terms of strawberry quality and other growth factors, this strategy yields positive outcomes. Due to soaring demand, new strawberry production techniques like soil-less culture and hydroponic systems are displacing more traditional and clunky methods. The progress has been quick, and results are quite remarkable - demonstrated that this system is extremely practical and has distinct advantages over traditional crop production methods. Therefore, it can be statistically maintained that soilless farming markedly leads to improved crop yields. Folks that board busy city streets with no gardens can grow fresh vegetables, and Soilless cultures are considered a novel developed strategy for agricultural development, although it's not an easy technique. Water must be evaluated before being utilized in hydroponics as a fertilizer solution. In hydroponics strawberry their supply water features a high pH, then peat was added to help control it. Hydro-Ponic strawberries need a minimum of 7–11 hours of direct sunlight daily. Hydroponics strawberries yield in terms of weight, you want to expect between 130 and 450 g of strawberries per plant. And hence, you will be ready to grow year-round with hydroponics, which suggests you will get berries at any time. Over time, older strawberry plants will produce less fruit and may get replaced with younger, more vigorous ones. In pot strawberry the crown is that the short, thick stem at the very best of which the foliage emerges and so the roots are found. Water thoroughly and place your pot or basket where it'll receive full sun for a minimum of six to eight hours day without interruption. If you're growing strawberries in a very hanging basket, keep it out of direct sunlight

and much from strong winds. Yield of Strawberry-in-pot will produce between 35 to 80 berries across the season depending upon the variability selected. This equates to a weight of between 0.9 to 2.0 kg of the fruit.

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