



NATURAL TECHNOLOGIES

INSULATE ■ FILTER ■ GROW

RE-USING PERLITE GROWING MEDIUM IN HYDROPONICS CULTURE

One of the costly components of hydroponics culture is the need of using effective growing medium. Growing medium, without going into comparison of effectiveness, differences in characteristics and affect on crop yield are all in a way a workable solution. Assuming therefore that all may function more or less the same (hypothetically or not), one aspect is not negotiable when it comes to grower decision about which one to use: The growing medium cost.

When analyzing "COST" one cannot ignore the question "for how long that cost can serve as effective growing medium." The justification of the growing medium cost is evaluated over usage time and overall yield while other aspects which are costly are ignored for the purpose of the above statement. The ultimate solution is obviously a medium that can last and be effective for as many growing cycles as possible. In an experiment conducted at Randfontein until recently, English cucumbers were grown in previously used Perlite grades (Coarse, fine and medium grade) and results were compared with brand-new Perlite material of the same grades.

Materials used: 28L horizontal Growing bags (INFIGRO growing bags) and 15L black bags. Total of 972 plants were grown in 6 beds with a density of 3.24 plants per /sqm.

Each growing bed was structured from one line of used grade Perlite vs one line of brand new Perlite material. There were 23 horizontal growing bags (INFIGRO growing bags) in each line. The same ratio was used with 15l bags – 35L bags in each line 70 per bed. The USED coarse Perlite was previously used in five consecutive cycles; Fine grade and medium grade were used for the third consecutive growing cycles. Plants were sown directly in the Perlite on December 22nd, 2011. First harvest commenced on

March 7th, 2012 (46 days) and fruit was continuously harvested twice a week until March 29th, 2012. (Total 51 days).

RESULTS

A total of 9750 cucumbers were harvested with average of 10.03 per plant and 1392 / week. (Marketable fruits only). A comparison of yield results, showed a higher yield (12%) in USED Perlite vs brand new Perlite across the three grades. Used coarse Perlite yield in comparison to any of the other three brand new Perlite grades was significantly higher (19%). There was a 11% higher yield per plant in INFIGO bags (4 plants per bag) in comparison to 15L bags (2 plants per bag) with no significant differences amongst the Perlite grades in the 15L bags.

CONCLUSIONS

English cucumber develops and produces good results in Perlite in various particles grades (Fine, Medium and Coarse). Used Perlite (Coarse) grades show yield improvement overtime which may be associated with better particle flexibility in terms of water / nutrients holding capacity. Horizontal long shaped growing bags (28L each, 4 plants such as the INFIGRO bags) provide better space for roots development with constant moist and nutrients available at the root zone.

The overall cycle was 44 days (planting to harvest) and 51 days

of harvesting (95 days cycle) which is significantly shorter in comparison with midsummer cycles, yielding same figures. The peak fruit production occurred from day 54 to 70 (50%) with gradual decline towards the end of cycle.

In comparing yield results to other tunnels which were used more or less at the same time it is clear that high plant density do not increase yield figures and the average of max 800 plants per tunnel can be considered effective.

Being a long lasting growing medium Perlite can have an economical effect on input cost and investment in growing medium. Other saving due to its characteristics reduces preparation time requirements between growing cycles and its associated labour cost.

The experiment was carried out during midsummer – early autumn. Results may vary in different conditions. The cucumber variety information is not revealed for ethical reasons. It is important to note that from comparison done with other varieties grown at the same time, there is a significant difference in production per plant of marketable fruit.



Perlite's many uses and beneficial properties include:

- Inorganic, sterile and inert
- Does not decompose
- Neutral pH
- Stimulates root initiation and vigorous growth
- Balances air and water with the medium
- Prevents compaction
- Improves aeration and drainage
- Insulates and minimises temperature fluctuations
- Free from disease, weeds and insects
- No toxicity or fire hazard

For more information please contact:
Ben Safronovitz on 074 134 3023
ben.safronovitz@infigro.co.za
www.infigro.co.za