



The influence of homeopathic treatment on the growth of *Fragaria* plants

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ABSTRACT

The aim of the research was to investigate the way in which Schuessler's 12 tissue salts influence the development of *Fragaria Vesca "Alexandria"* and *Fragaria Viridis*. Applying homeopathic treatment with Schuessler's salts proved to make a difference in the process of the development of *Fragaria sp.* plants. These types of treatment could be an alternative for plant growth without changing the quality of plants and soil.

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INTRODUCTION

Agro-homeopathy can be a win-win solution for the farmers. The homeopathic method was introduced in agriculture as Agro-homeopathy, a system that permits to influence the biological activity of plants, to resolve the problems of nutrition and health of the plants. The homeopathic treatments don't contaminate the soil, agricultural crops or people and can assist in the regeneration of the environment. Agro-homeopathy treatments are useful to reverse the harm that is present in the soil because of the caused by pesticides, fertilizers and salinity. The major benefits of agro-homeopathy are the conservation of the ecosystems and also the economic efficiency(1,2).

The agro-homeopathy treatments can diminish the costs of agrochemicals and it will not harm the surrounding plants the soil, the local farm land area or the water that is used as the solvent in the dynamizations process(1,2).

Fragaria vesca var. semperflorens 'Alexandria' and *Fragaria vesca* commonly called **wild strawberries** are plants from the **Rosaceae** family and are known for the dark red berries that are fragrant and have a high content of antioxidant substances. The culture of *Fragaria sp* needs naturally moist, rich in organic matter and well drained sandy-clay soil. For the proper development of wild strawberries the critical point is the adaptation of the plant to the particular condition of the region(3).

METHODS AND MATERIALS

The design of the experiment was made with randomized blocks with two treatments and three repetitions. And the biological material used in the experiments is represented by species *Fragaria vesca var. semperflorens 'Alexandria'* and *Fragaria vesca* commonly called **wild strawberries**.

The treatments were as follows:

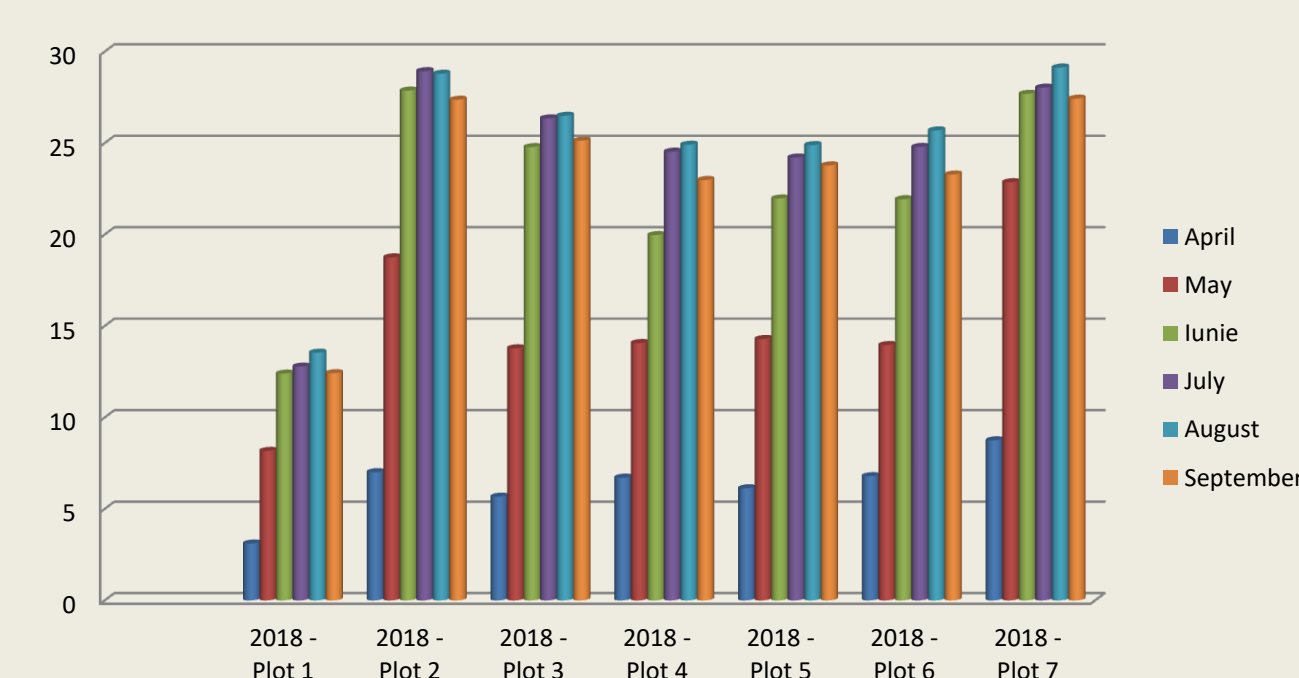
- 1) T1-Water - 2000ml were administrated in the morning and in the evening;
- 2) T2-Homeopathic Dr. Schuessler's D6 from witch 10 drops were dissolved in 100ml water and then dissolved in 2000ml water which was used to treat the wild strawberries plants. Dr. Schuessler's 12 tissue salts, support the functions of cells, water balance (sodium-potassium balance), oxygenation, detoxification, elasticity and nutrition. The 12 basic cell salts include: Calcium Fluoride, Calcium Phos, Calcium Sulphate, Kali Mur, Kali Phosphate, Kali Sulphur, Natrum Phosphate, Natrum Sulphur, Natrum Mur, Ferrum Phosphate, Magnesia Phosphate, Silicea(4). The homeopathic drug was purchase from the manufacturer Plantextract.

The method for the treatment application was sprinkling. The treatment started at 1st of April, thus the applications of the treatments were made daily in the first week. Afterwards, the treatment was applied weekly until 1st of October. The method used for the evaluation of the impact of the treatments on the development of the plants. The form of evaluation is the direct measurement of height and width of the plants

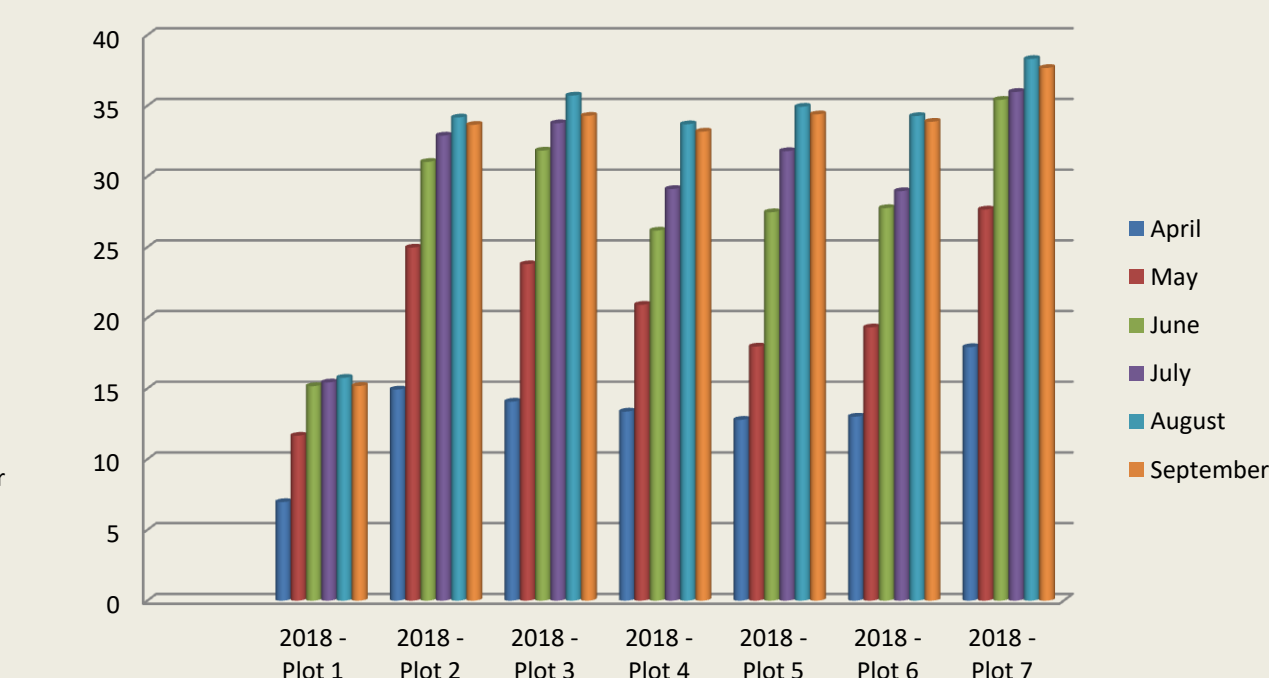
RESULTS AND DISCUSSION

The experiments were carried out in 2018 and 2020 in the area of the Apuseni Mountains. After applying homeopathic treatment with Dr. Schuessler's 12 tissue salts, a positive influence on the growth process and development of *Fragaria sp* in height and width of the plants was observed. As we can see, the homeopathic treatment had an impact between 47% and 65 % higher than the control plot on *Fragaria viridis* (Charts 7,9,11) height and between 41% and 57 % higher than the control plot on *Fragaria vesca Alexandria* height (Charts 1,3,5). The homeopathic treatment had a significant impact between 24% and 54 % higher than the control plot on *Fragaria viridis* width (Charts 8,10,12) and between 47% and 54 % higher than the control plot on *Fragaria vesca Alexandria* width (Charts.2,4,6).

Fragaria vesca "Alexandria" 2018 - Height

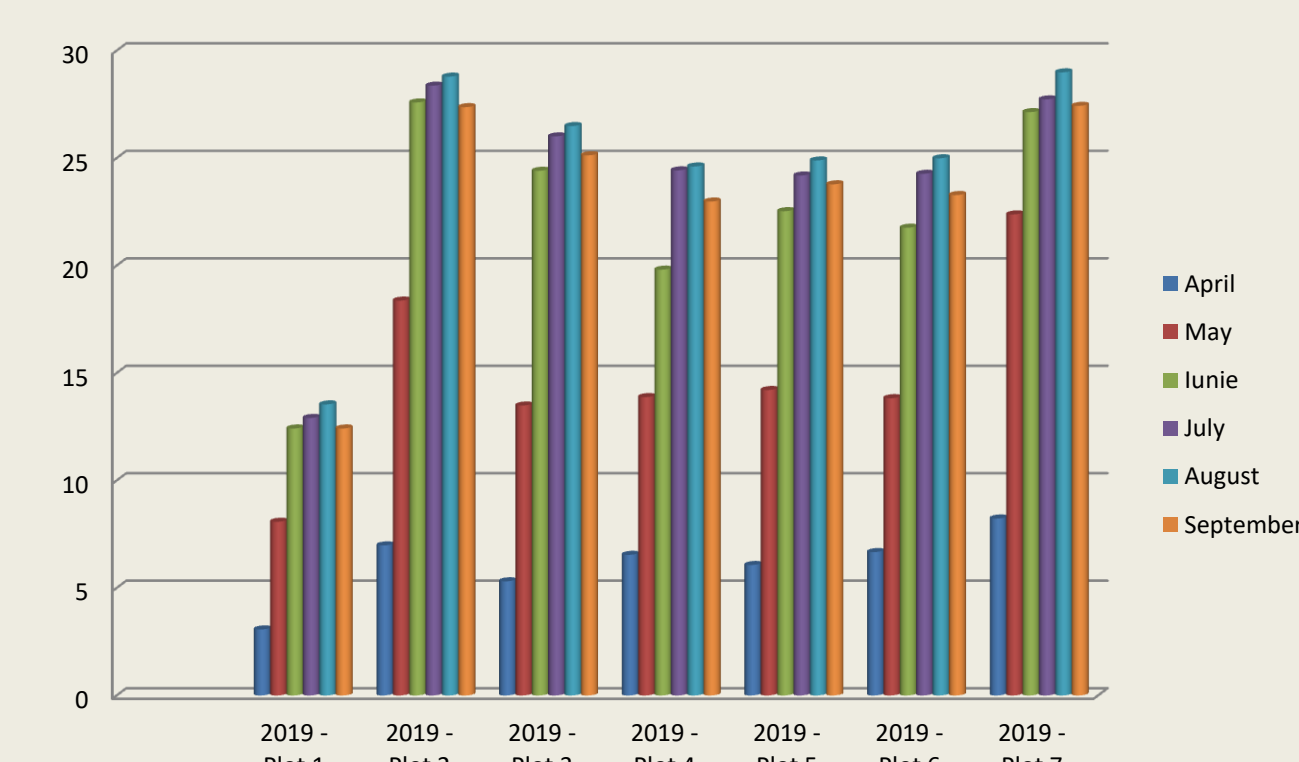


Fragaria vesca "Alexandria" 2018 - Width

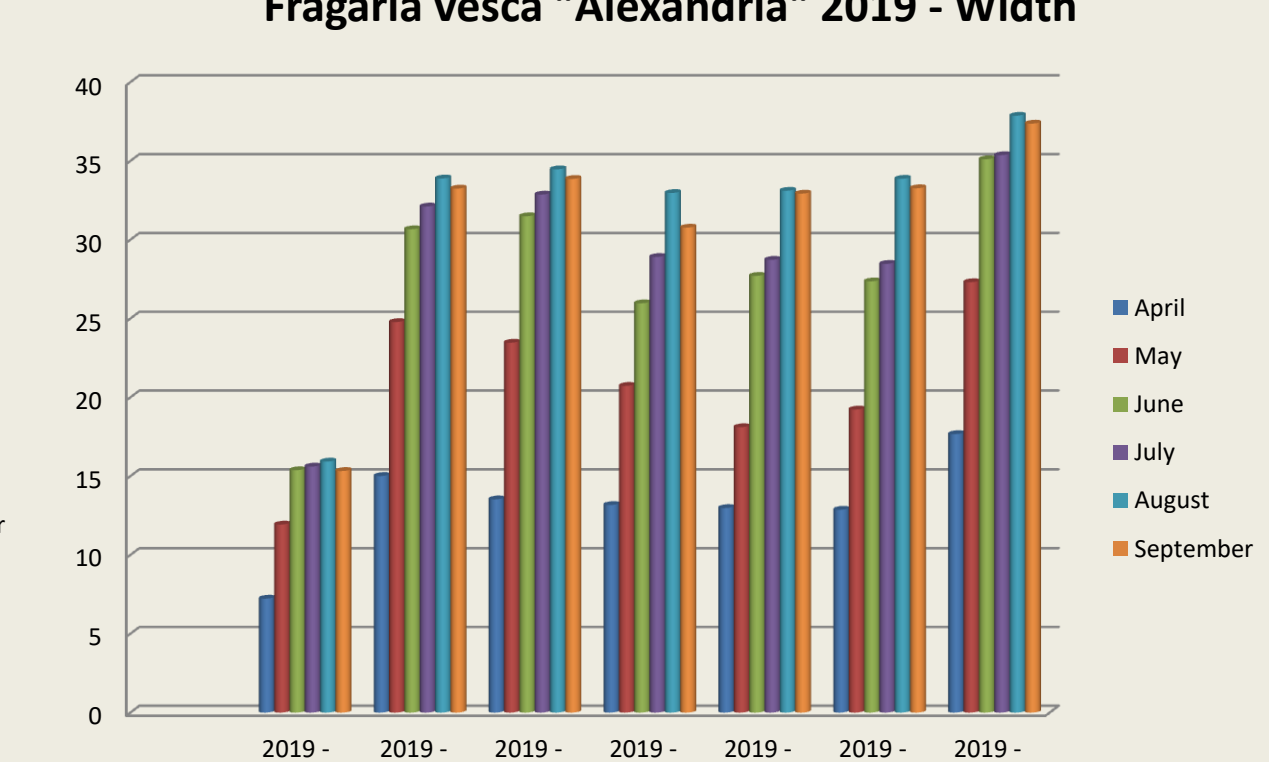


Charts 1 and 2. The height and width of vesca "Alexandria" plants in 2018

Fragaria vesca "Alexandria" 2019 - Height

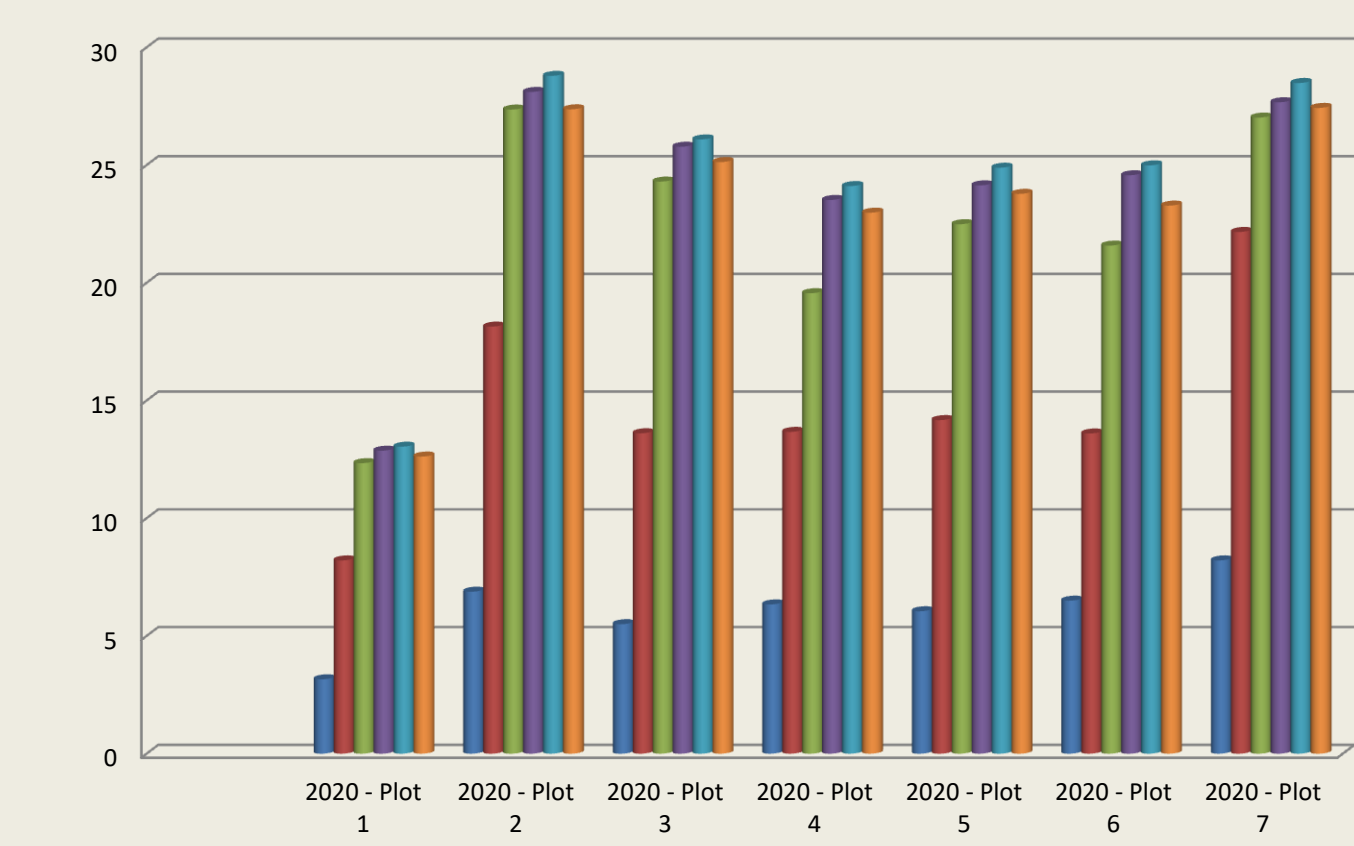


Fragaria vesca "Alexandria" 2019 - Width

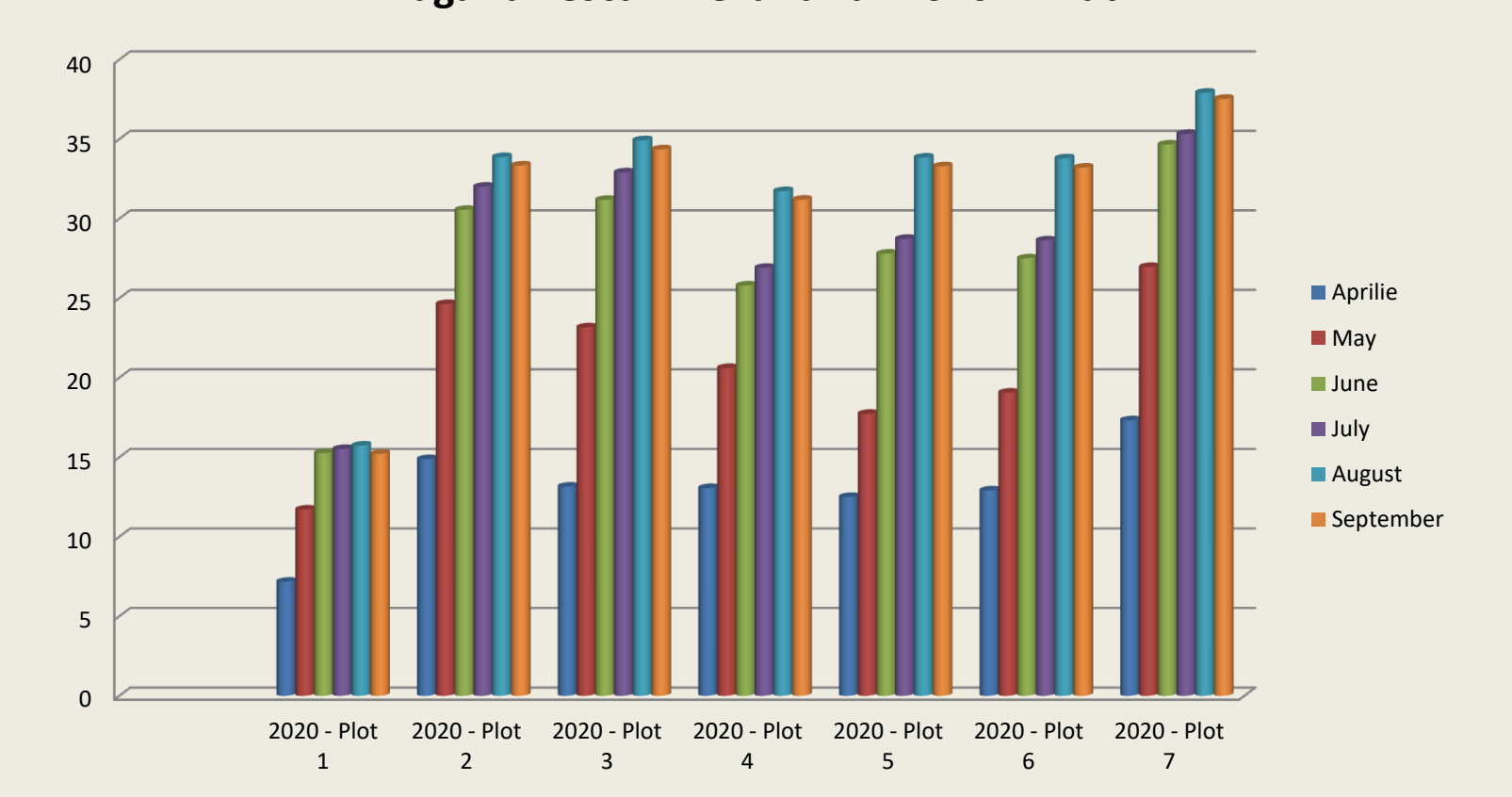


Charts 3 and 4. The height and width of vesca "Alexandria" plants in 2019

Fragaria vesca "Alexandria" 2020 - Height

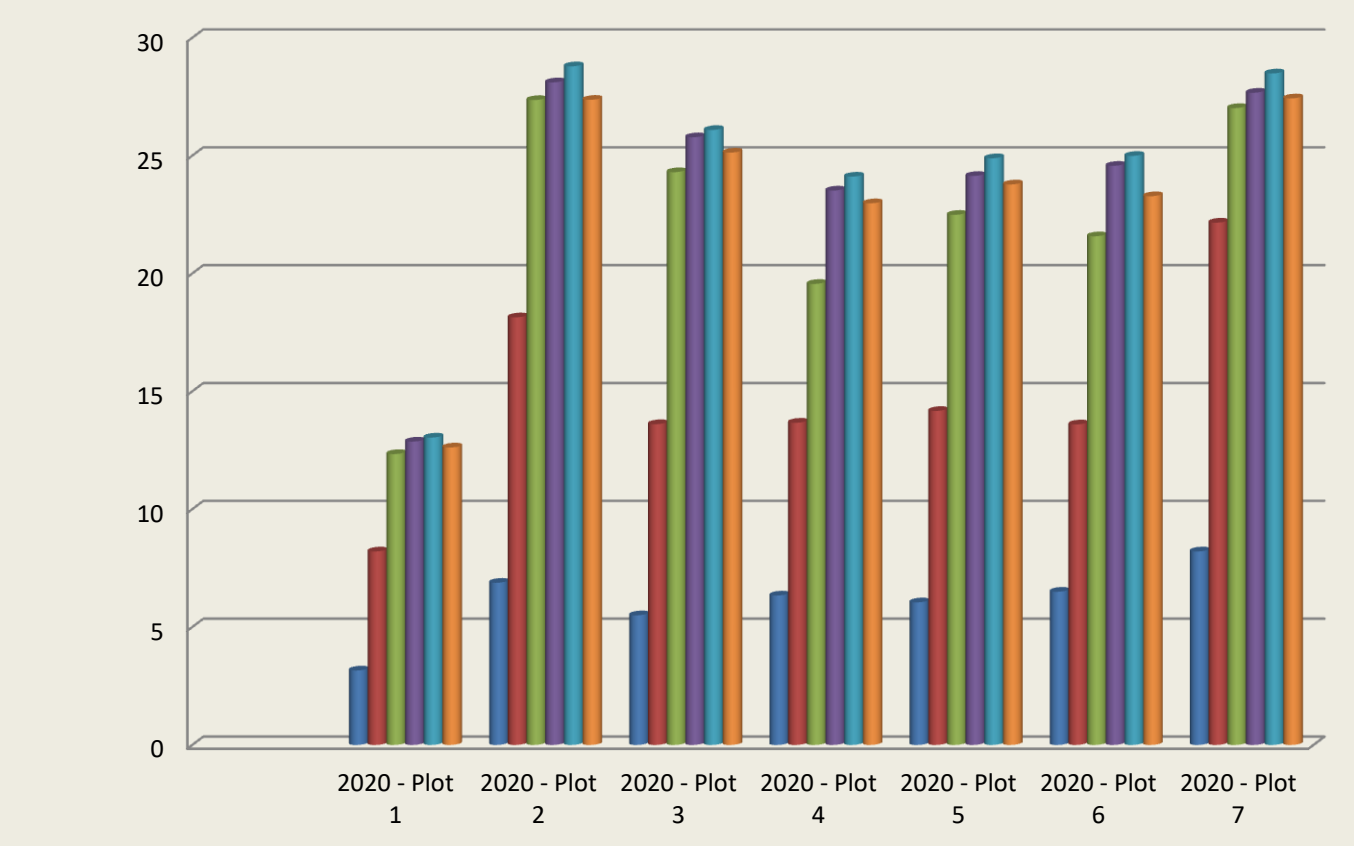


Fragaria vesca "Alexandria" 2020 - Width

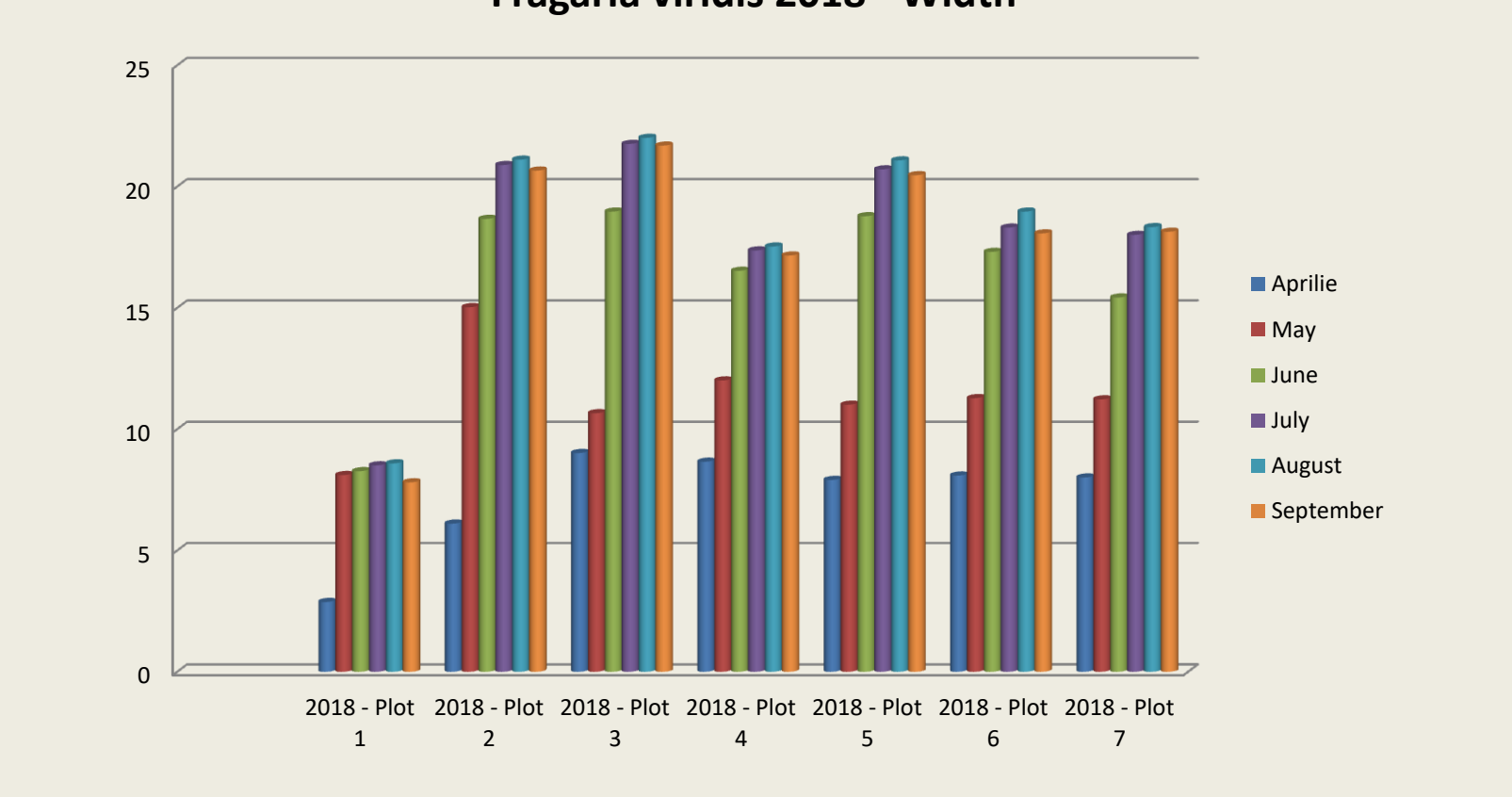


Charts 5 and 6. The height and width of Fragaria vesca "Alexandria" plants in 2020

Fragaria viridis 2018 - Height

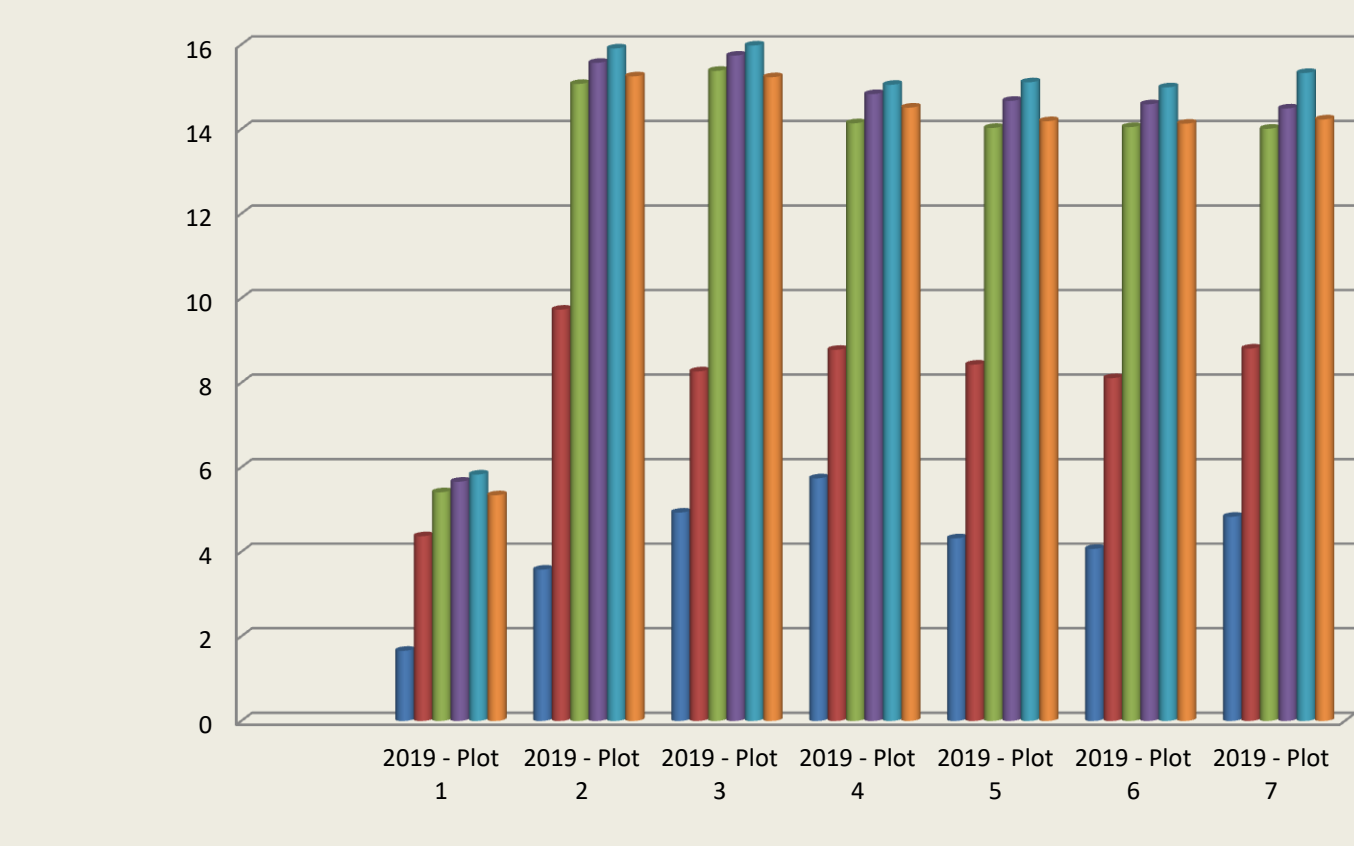


Fragaria viridis 2018 - Width

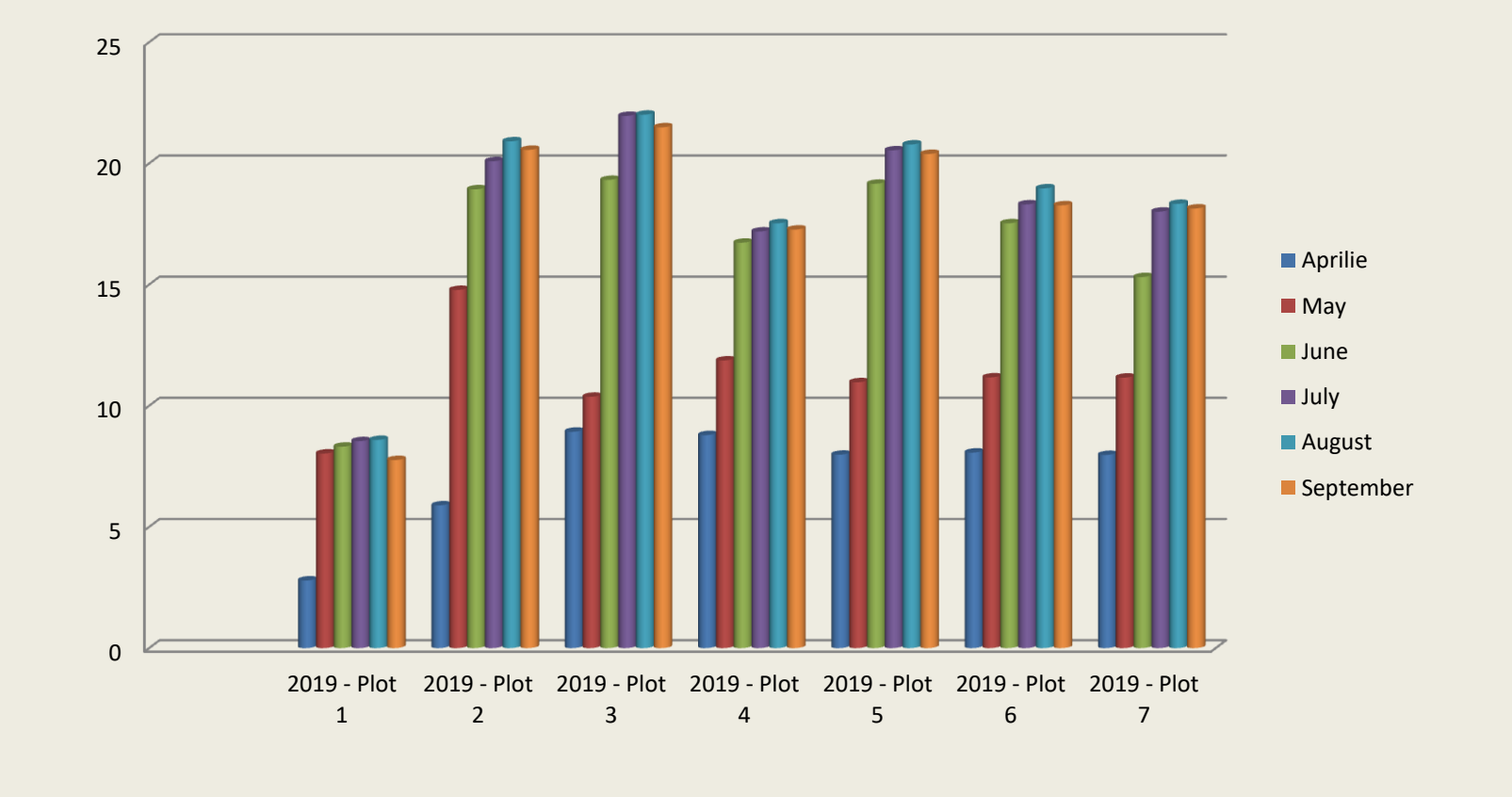


Charts 7 and 8. The height and width of Fragaria viridis plants in 2018

Fragaria viridis 2019 - Height

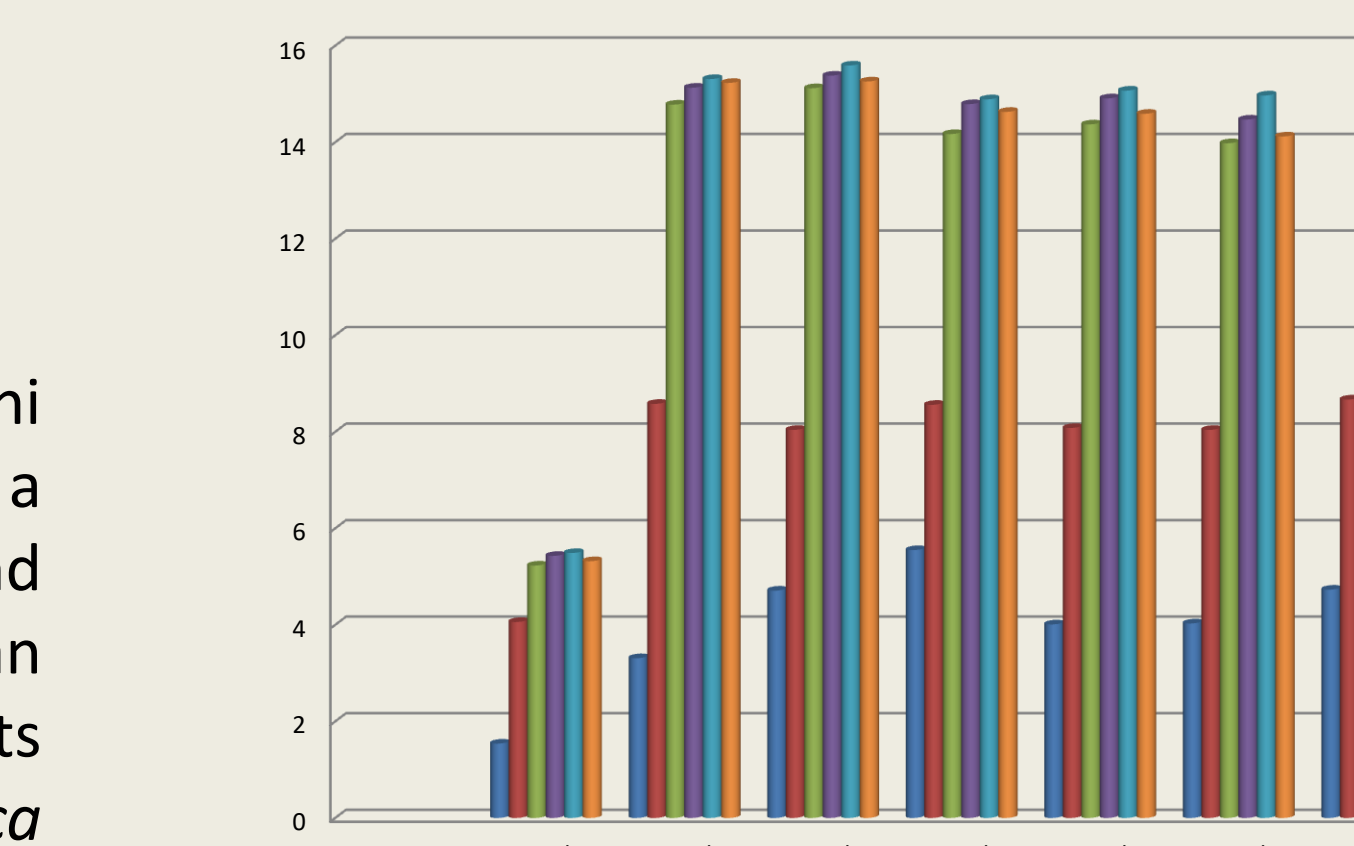


Fragaria viridis 2019 - Width

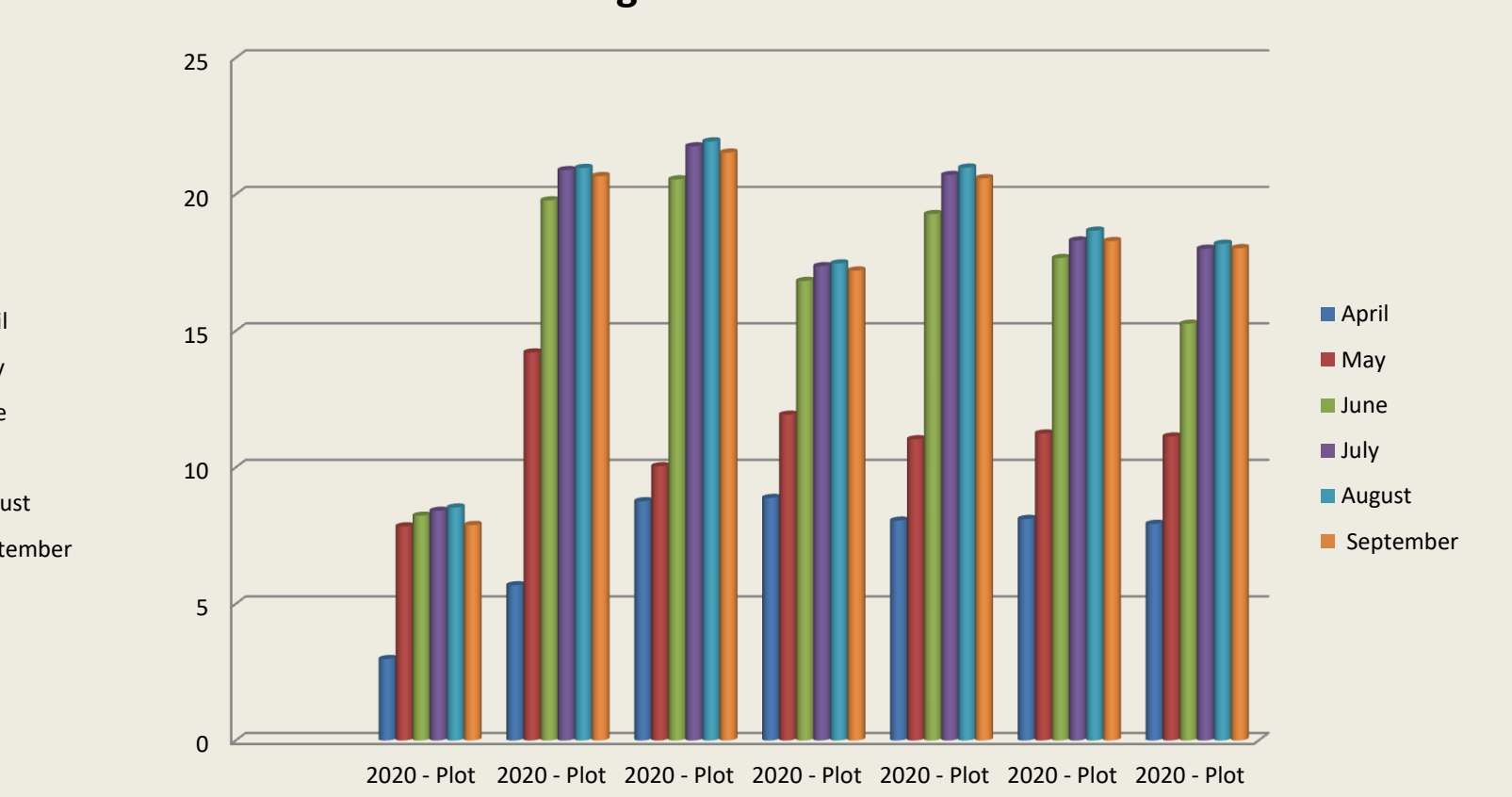


Charts 9 and 10. The height and width of Fragaria viridis plants in 2019

Fragaria viridis 2020 - Height



Fragaria viridis 2020 - Width



Charts 11 and 12. The height and width of Fragaria viridis plants in 2020

CONCLUSIONS

It is concluded that Dr. Schuessler's 12 tissue salts promoted growth of *Fragaria sp* plants in natural conditions. Agro-homeopathic treatment of the 12 tissue salts proved to be beneficial, with notable differences for growth and development of *Fragaria vesca "Alexandria"* and *Fragaria viridis* plants.

However, further studies are required for better understanding of the way agro-homeopathic treatments could be used in different type of plant culture to increase crop efficiency. Therefore, it is recommended to conduct more experiments in natural conditions as well as pilot studies where more factors are taken in consideration to understand the unknown particulars of this subject.

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