

### 3. Resilient Substrates: Soil Food Web Composition And Nutrient Levels

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Greenhouse horticulture is confronted with an increased limitation on the use of biocides. This is the result of unwanted emission of chemicals to the environment and an increased public demand for horticultural products without chemical residues. Therefore, growers seek new means of crop protection. An alternative is known as "resilient growing". Means of a biological nature are used by the grower to prevent outbreaks of pathogens and to increase production. These means can be grouped into compost(tea), micro-organisms (bio fertilizers and control agents), organic extracts and bio stimulators. The result of resilient growing is difficult to monitor in practice because of the complexity of the system. Biological changes in the substrate can be monitored using soil food web analyses. The effects on the crop can for instance be monitored by challenging plants with pathogens. Nutritional effects can be monitored by analysing both the growing substrate and the dry matter content of the crops.

In a greenhouse experiment at Wageningen UR Greenhouse Horticulture in Bleiswijk, the Netherlands, 10 different concept of resilient growing were tested on tomato, cucumber and gerbera using different growing substrates for each crop (rock wool, coco peat, perlite). In this paper we describe the effect of these concepts on microbial composition of the growing substrate as analysed using soil food web analysis. The results show that soil food web composition is determined mainly by the substrate type. We have also analysed the nutrient composition of the different compounds and the effects on the dry matter content of the crops. These results are presented and discussed within the concept of resilient growing.