CLAIMS

~~We claim:~~

~~1. A soil treatment composition for enhancing plant immunity, health, growth and/or yields, the composition comprising a first microorganism and a second microorganism, and/or a growth by-product of the first and/or second microorganism, wherein the first microorganism and the second microorganism are both non-pathogenic, spore-forming microorganisms: and wherein the first microorganism is a Trichoderma spp. fungus and the second microorganism is a Bacillus spp. bacterium.~~

~~2. The composition of claim 1, wherein the Trichoderma fungus is Trichoderma harzianum.~~

~~3. The composition of claim 1, wherein the Bacillus bacterium is Bacillus amylol iquefaciens.~~

~~4. The composition of claim 3, wherein the Bacillus bacterium is Bacillus amyloliquefaciens subsp. locus.~~

~~5. The composition of claim 1, wherein the composition comprises a cell count ratio of 1 :4, Trichoderma to Bacillus.~~

~~6. The composition of claim 1, further comprising one or more additional microorganisms selected from Myxococcus xanlhus , Azotobacter vinelandii and Frateuria aurantia.~~

~~7. The composition of claim 1, further comprising one or more of glucose, glycerol and glycerin.~~

~~8. The composition of claim 1, further comprising one or more prebiotics selected from kelp extract, fulvic acid, chitin, humate and humic acid.~~

~~9. The composition of claim 1, formulated as a dry powder or dry granules.~~

1~~0~~. A method of enhancing plant immunity, health, growth and/or yield~~s~~, wherein the method comprises applying:

a first microorganism and/or a growth by-product thereof, and

a second microorganism and/or a growth by-product thereof,

to a plant and/or its surrounding environment, wherein the first microorganism is ~~a spore forming~~ *Trichoderma harzianum*~~Trichoderma spp. fungus~~, and the second microorganism is *Bacillus amyloliquefaciens subsp. locus* (NRRL B-67928)~~a spore-forming Bacillus spp. bacterium~~.

~~11. The method of claim 10, further comprising applying nutrients and/or prebiotics for microbial growth.~~

~~12. The method of claim 10, wherein the Trichoderma fungus is Trichoderma harzianum.~~

~~13. The method of claim 12, wherein the Bacillus bacterium is Bacillus amyloliquefaciens.~~

~~14. The method of claim 13, wherein the Bacillus bacterium is Bacillus amyloliquefaciens subsp. locus.~~

~~15. The method of claim 10, wherein a soil treatment composition comprising both the first microorganism and the second microorganism, and/or one or more growth by-products thereof, is applied to the plant and/or its surrounding environment.~~

~~16. The method of claim 10, wherein the first microorganism, second microorganism and/or growth by-products thereof, are contacted directly with the plant's roots.~~

~~17. The method of claim 10, wherein the first microorganism, second microorganism and/or growth by-products thereof, are contacted with soil in which the plant grows.~~

~~18. The method of claim 10, wherein the first microorganism, second microorganism and/or growth by-products thereof, are mixed with water prior to application.~~

2~~19~~. The method of claim 1~~0~~, comprising using an irrigation system to apply ~~wherein~~ the first microorganism, second microorganism and/or growth by-products thereof~~, are applied~~ to the plant and/or its surrounding environment~~ using an irrigation system~~.

3~~20~~. The method of claim 1~~0~~, comprising applying ~~wherein the wherein~~ the first microorganism, second microorganism and/or growth by-products thereof, ~~are applied~~ to the

plant and/or its surrounding environment alongside a source of one or more nutrients selected from nitrogen, phosphorous, and potassium.

~~21. The method of claim 10, wherein the first microorganism, second microorganism and/or growth by-products thereof, are applied to the plant and/or its surrounding environment contemporaneously with prebiotics selected from kelp extract, fulvic acid, chitin, humate and humic acid.~~

~~22. The method of claim 10, wherein the first microorganism, second microorganism and/or growth by-products thereof, are not applied simultaneously with, or within 7 to 10 days before or after, application of benomyl, dodecyl dimethyl ammonium chloride, hydrogen dioxide/peroxyacetic acid, imazilil, propiconazole, tebuconazole, or triflumizole to the plant and/or its surrounding environment.~~

4~~23~~. The method of claim 1~~0~~, wherein the plant has compromised immune health due to an infection from a pathogenic agent or due to an environmental stressor.

~~24 The method of claim 23, used to improve the immune health of the plant.~~

~~2~~5. The method of claim ~~23~~4, wherein the plant is a citrus plant affected by citrus greening disease and/or citrus canker disease.

~~26. The method of claim 10, used to improve one or more qualities of soil.~~

~~27. The method of claim 26, used to improve water retention in dry soil.~~

~~28. The method of claim 26, used to improve water drainage and/or dispersal in waterlogged soil.~~

~~29. The method of claim 26, used to improve nutrient retention in depleted soil.~~

~~30. The method of claim 10, used to enhance nutrient absorption in plant roots.~~

631. The method of claim 10, wherein the plant is a crop plant.

732. The method of claim 316, wherein the crop plant is selected from citrus, tomato, sod, potato, sugarcane, grapes, watermelon, cantaloupe, lettuce, almond, onion, carrot, berries and cotton.

833. The method of claim 10, comprising using a handheld lawn and garden sprayer to apply wherein the first microorganism, second microorganism and/or growth by-products thereof, are sprayed onto the plant and/or its surrounding environment using a handheld lawn and garden sprayer.

34. The method of claim 33, wherein the method is used for home and garden applications.

35. The method of claim 10, wherein the first and/or second microorganisms and/or growth by-products thereof are produced using solid state fermentation.

36. A method of enhancing plant immunity, health, growth and/or yields, comprising: applying a soil treatment composition of claims 1-9, to a plant and/or its surrounding environment, and, optionally, applying nutrients and/or prebiotics for microbial growth.