SUPPLEMENTARY MATERIAL

Recovered phosphorus for a more resilient urban agriculture:

assessment of the fertilizer potential of struvite in hydroponics

Verónica Arcas-Pilz^{a,1}, Martí Rufí-Salís^{a,b,1}, Felipe Parada^a, Anna Petit-Boix^c, Gara

Villalbaa,b, Xavier Gabarrella,b,*

^aSostenipra Research Group (SGR 01412), Institute of Environmental Sciences and Technology

(MDM-2015-0552), Z Building, Universitat Autònoma de Barcelona (UAB), Campus UAB, 08193

Bellaterra, Barcelona, Spain

^bDepartment of Chemical, Biological and Environmental Engineering, Universitat Autònoma de

Barcelona (UAB), Campus UAB, 08193 Bellaterra, Barcelona, Spain

^cChair of Societal Transition and Circular Economy, University of Freiburg. Tennenbacher Str. 4,

79106 Freiburg i. Br. (Germany)

¹ These authors contributed equally to this research

Corresponding author: xavier.gabarrell@uab.cat

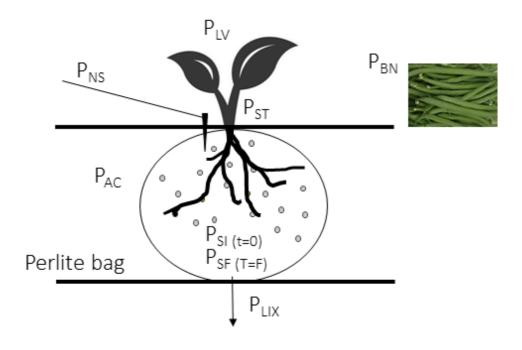


Figure SM1: Diagram of the perforated bag

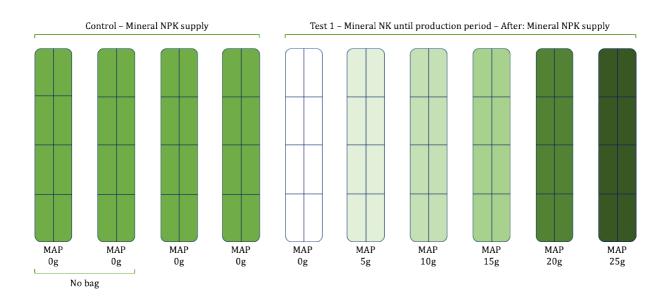


Figure SM2: Distribution of growing lines in the validation test

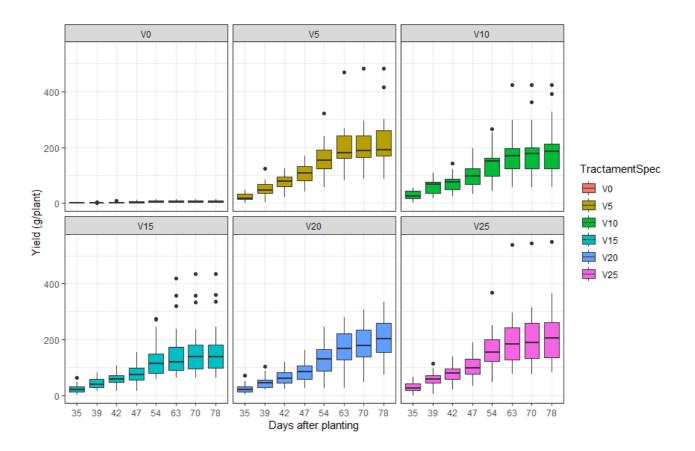


Figure SM3: Production (g/plant) of the struvite treatments in the validation test, with (VCB) and without (VCO) perforated bags for each harvest. Sample size for harvests 1, 2, 3, 4 and 5 (35-54 DAT) corresponds to n=28 plants, for harvests 6, 7 and 8 (63-78 DAT) n=24 plants per treatment.

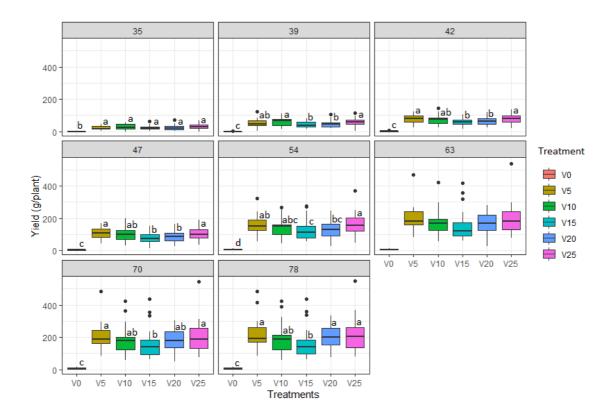


Figure SM4: Production (g/plant) of the struvite treatments in the validation test, with (VCB) and without (VC0) perforated bags for each harvest. Same letters (a,b, c) indicate no significant difference (p>0.05) between treatment for each harvest time. Sample size for harvests 1, 2, 3, 4 and 5 (35-54 DAT) corresponds to n=28 plants, for harvests 6, 7 and 8 (63-78 DAT) n=24 plants per treatment.

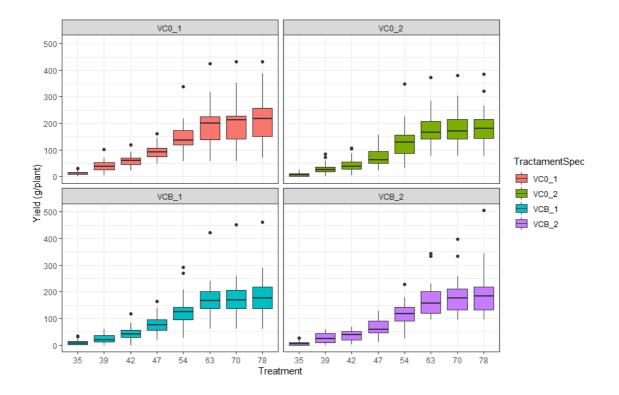


Figure SM5: Production (g/plant) of the control treatments in the validation test, with (VCB) and without (VC0) perforated bags for each harvest. Sample size for harvests 1, 2, 3, 4 and 5 (35-54 DAP) corresponds to n=28 plants, for harvests 6, 7 and 8 (63-78 DAP) n=24 plants per treatment.

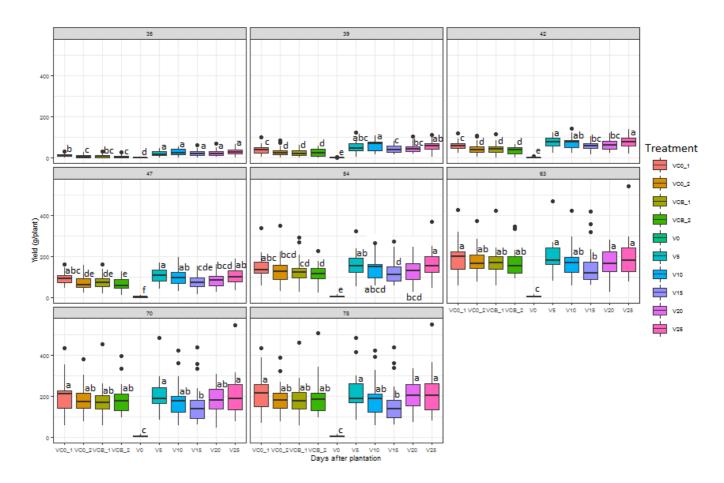


Figure SM6: Same letters (a, b, c, d, e, f) indicate no significant difference (p>0.05) between treatment for each harvest time. Sample size for harvests 1, 2, 3, 4 and 5 (35-54 DAT) corresponds to n=28 plants, for harvests 6, 7 and 8 (63-78 DAT) n=24 plants per treatment.

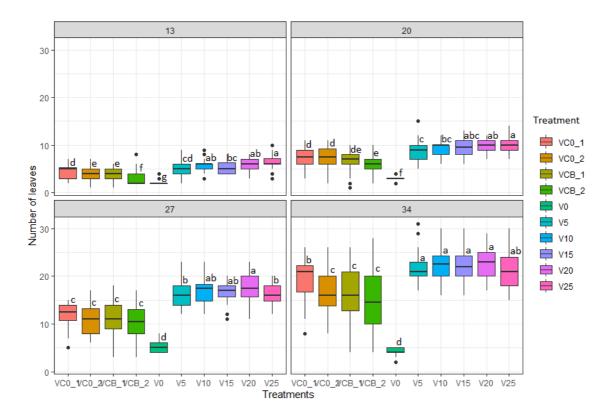


Figure SM7: Number of leaves per plant per treatment and Days after Transplanting (DAP) in the validation test (13, 20, 27, 34 DAP). Same letters (a, b, c, d, e, f, g) indicate no significant difference (p > 0.05) between treatment for each counting time. Sample size n = 32 for each treatment.

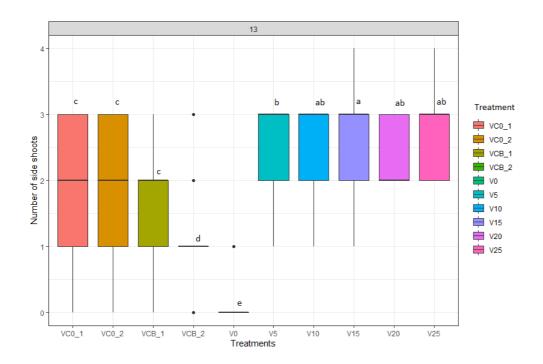


Figure SM8: Number of side shoots per plant per treatment and Days after Transplanting (DAP) in the validation test (13 DAP). Same letters (a, b, c, d, e) indicate no significant difference (p > 0.05) between treatment for each counting time. Sample size n = 32 for each treatment.

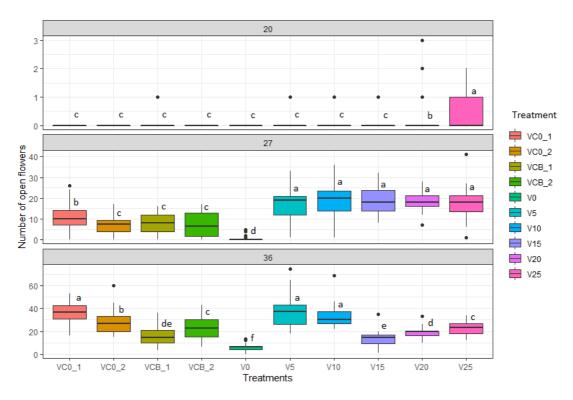


Figure SM9: Number of open flowers per plant per treatment and Days after Transplanting (DAP) in the validation test (20, 27, 36 DAP). Same letters (a, b, c, d, e, f) indicate no significant difference (p > 0.05) between treatment for each counting time. Sample size n = 32 for each treatment.

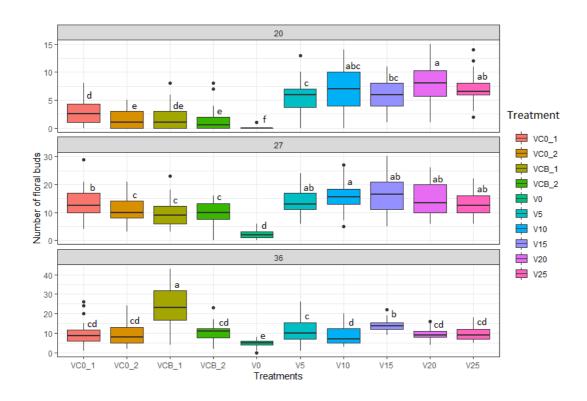


Figure SM10: Number of floral buttons per plant per treatment and Days after Transplanting (DAP) in the validation test (20, 27, 36 DAP). Same letters (a, b, c, d, e, f) indicate no significant difference (p>0.05) between treatment for each counting time. Sample size n=32 for each treatment.

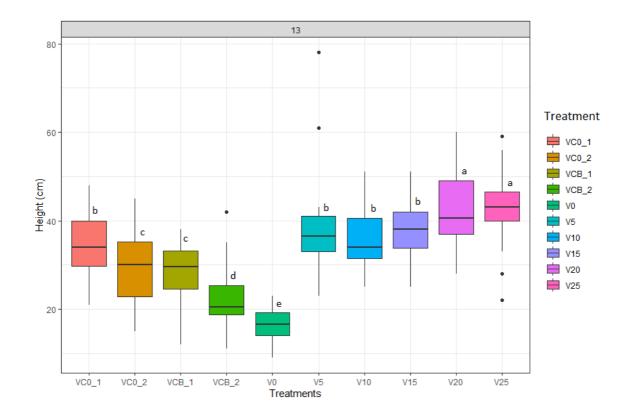


Figure SM11: Height (cm) plant per treatment and Days after Transplanting (DAP) in the validation test (13 DAP). Same letters (a, b, c, d, e) indicate no significant difference (p>0.05) between treatment for each counting time. Sample size n=32 for each treatment.

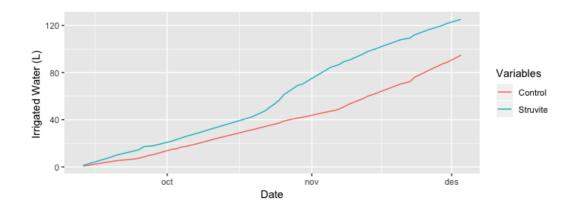


Figure SM12: Water irrigated (L) per plant in the validation test.

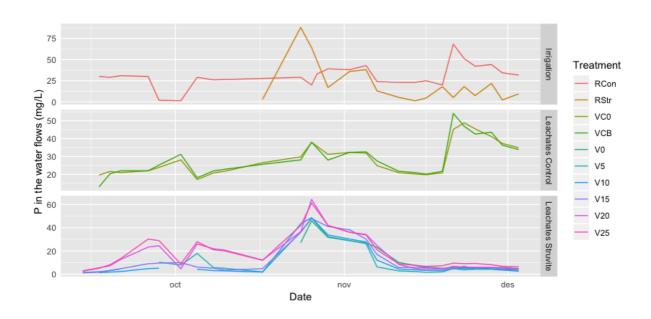


Figure SM13: Phosphorus concentrations in the multiple water streams in the validation test

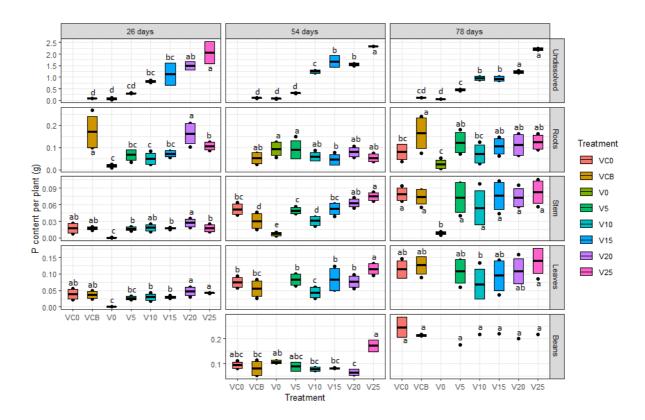


Figure SM14: P content per plant (g) of the struvite treatment in the validation test. Same letters (a, b, c, d, e) indicate no significant difference (p>0.05) between treatment for each harvest time. Sample size for all organs n=4. Undissolved P content n=2.

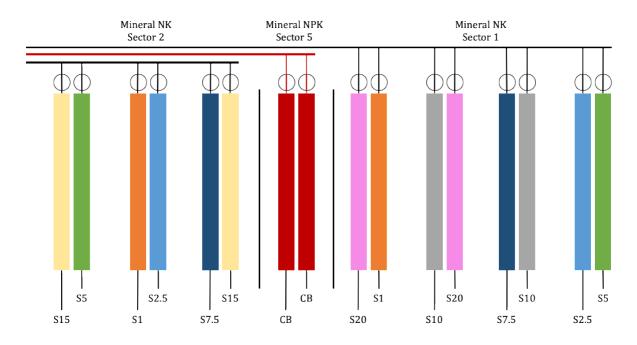


Figure SM15: Distribution of growing lines in the validation test

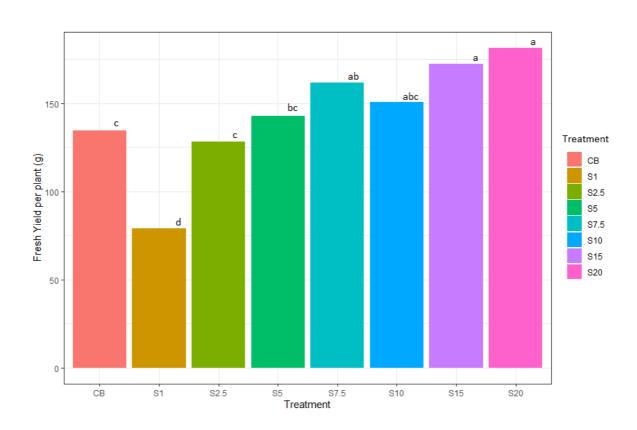


Figure SM16: Mean aggregated production per plant per treatment in the determination test

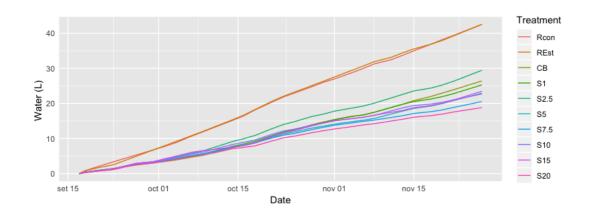


Figure SM17: Water irrigated and drained per plant in the different treatments in the determination test

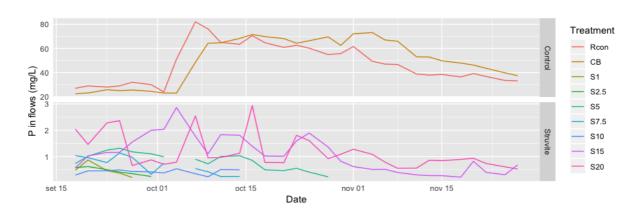


Figure SM18: Phosphorus concentrations in the multiple water streams in the determination test

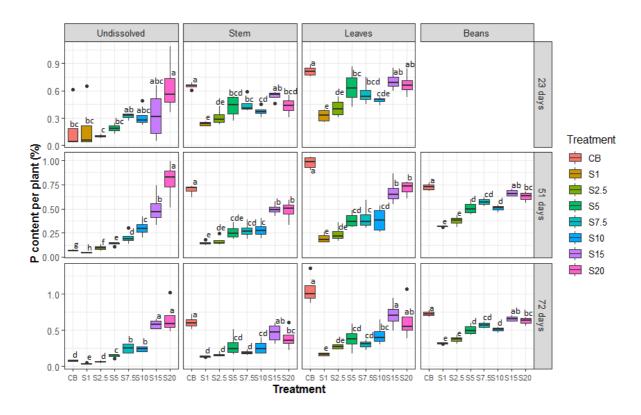


Figure SM19: Phosphorus concentrations in the different treatments, separated by plant organ and days after planting (DAP). Same letters (a, b, c, d, e, f, g, h) indicate no significant difference (p>0.05) between treatment for each harvest time. Sample size for all organs n=4. Undissolved P content n=2.