Minor use fertilizers and biostimulants are increasingly finding their way into mainstream agricultural programs. Extracts from *Ascophyllum nodosum* are now being fortified with micronutrients in addition to one or more other organic compounds, to provoke specific or general beneficial responses within the plant. A prototype product currently in development by Acadian Seaplants examined a blend of *Ascophyllum* extract, boron, organic acids and quaternary ammonium compounds (QACs) on tomato and pepper production. Trials indicate that when used in foliar applications, overall effects on tomatoes ranged from significant increases in fruit number (60.3%) and sizing (general increase in 7 categories), to slight improvements in fruit firmness (23.0%). For peppers, similar increases in fruit number (77%) and size distribution were observed. Similar results were found in a second experiment on fresh market “salad” tomatoes. Economic return to the grower indicated a significant benefit to using the fortified *Ascophyllum* extract product on these crops.