Figure 3. Baltimore Compost Collective and Ridge to Reefs staff building the base for the composting bioreactor system.

Figure 4. Installing hardware cloth in the interior lining of the containers.

Figure 5. Perforated PVC in a bin filled with layered animal manure, woodchips, and leaves producing aerobic, nutrient-rich, fungal dominated BEAM compost.

Figure 6. Marvin Hayes, the Director of the Baltimore Compost Collective, making watering connections in the top layer and installing PVC to keep excess rainfall from entering the system

Figure 7. Completed system covered to avoid ponding

Figure 8. Connecting a solar panel and battery to build off-grid resilience into the production process.

Figure 9. Wiring the motor to the solar power battery.

Figure 10. Baltimore Compost Collective director Marvin Hayes and lead Youth Composter Kenneth Moss standing next to the composting system (left). “Black Gold,” the high quality soil BCC produces through composting (right).

Figure 11. Top view of the prepared bin.

Figure 12. University agricultural group on a composting educational visit to the BCC composting and farm site.

Figure 13. Soil bins inside the community garden greenhouse.

Figure 14. Growth & stem diameter caliper measurement procedure, shown here with Black Beauty Eggplant trial over growing season.

Figure 15. Growth Trials: Top Row Photos, left to right: Bhut Jolokia (Ghost Peppers) growing in Control, Bokashi-only, Bokashi*BEAM trial beds.
Bottom Row Photos: Weighing pepper yields (left), peppers growing (right).

Figure 16. Growth trials: Comparison of tomato (Black Kirin) growth and production across trial groups.

Figure 17. Growth trials: Comparison of cabbage growth and production across trial groups.

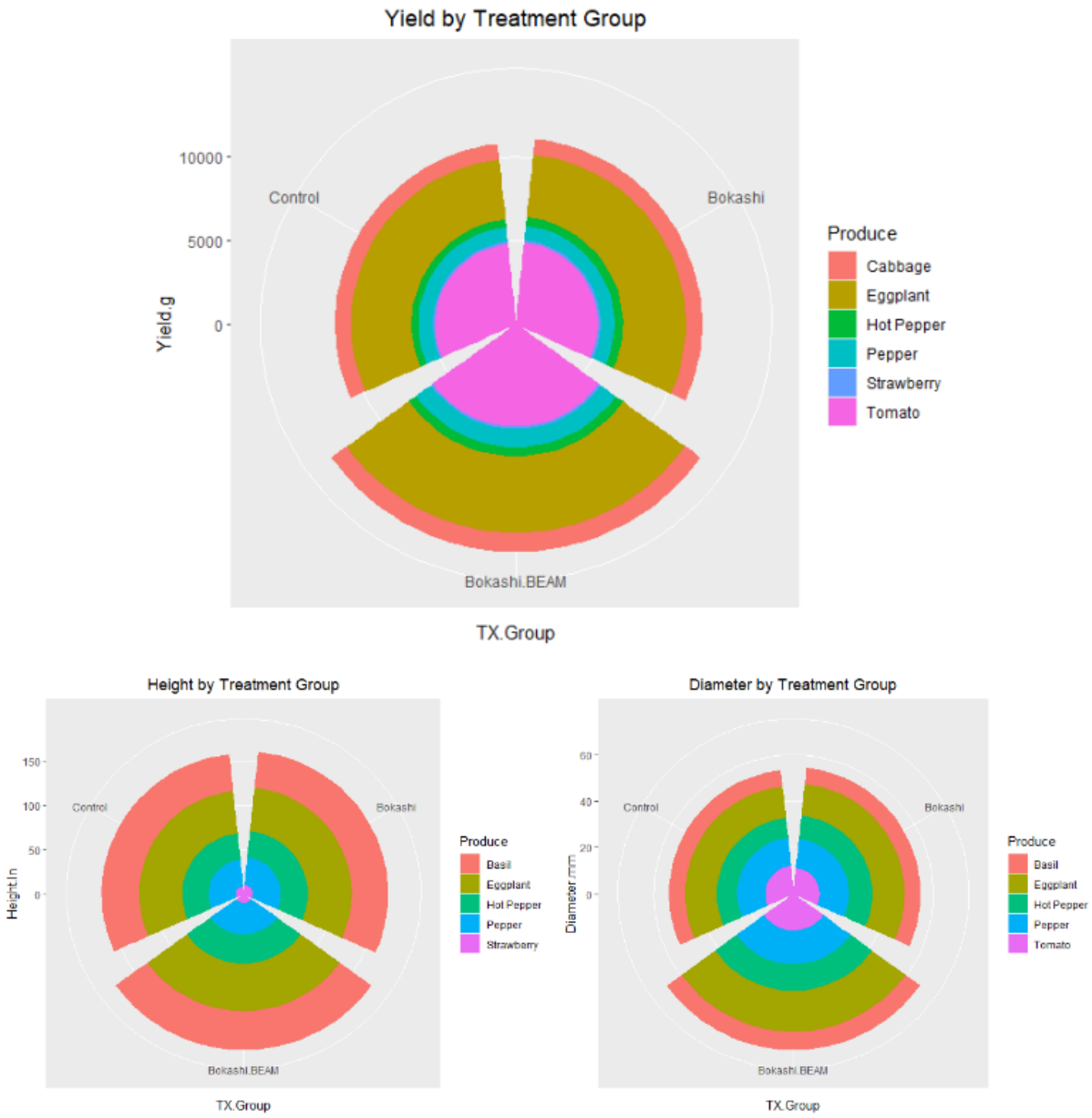

Figure 18. Growth trials data: key production variables measured by treatment group.

Figure 19. Growth trials: Comparison of Eggplant growth and production across trial groups.

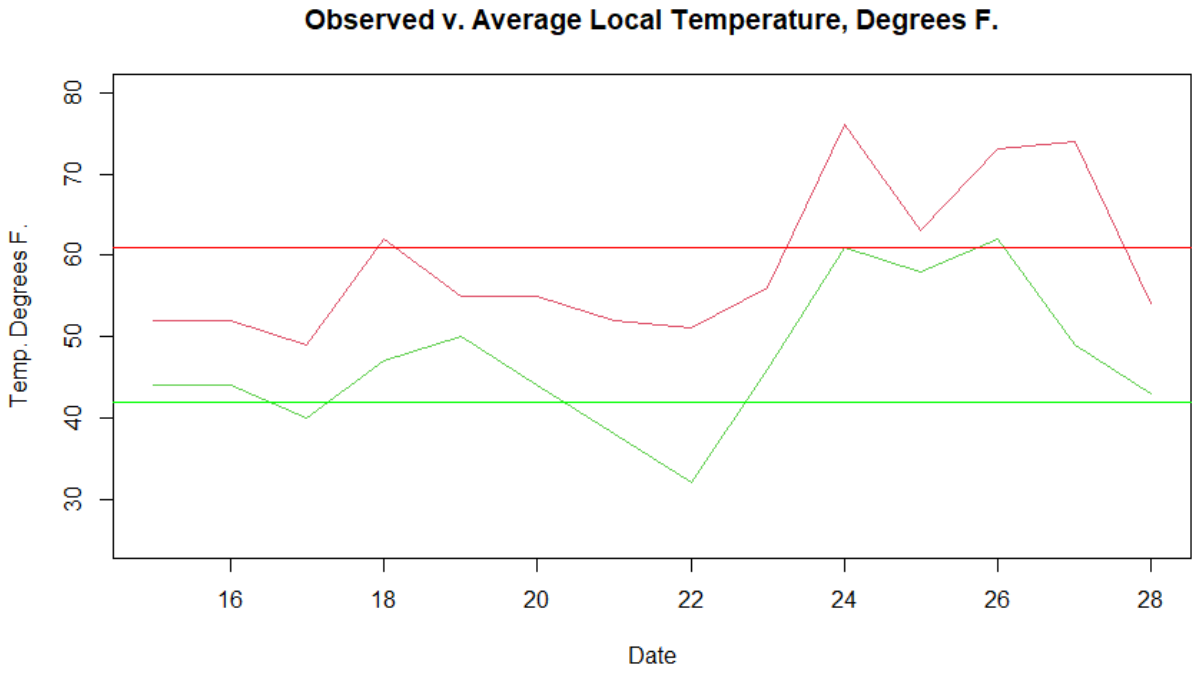

Figure 20. Growth trials: End of growing period weather conditions.

Figure 21. Growth trials: Comparison of Thai basil growth and production across trial groups.

Table 1. Growth metrics and observations recorded

Vegetable	Type	Treatment	Mature Height	Main Stem Caliper Diameter	Branching	Yield	Observations
Eggplant	Black Beauty	Control	49"	13.96 mm	~ 3.5 to 4 ft. wide,	~3680 g	10 fruits, well-sized and consistent in size harvested over the season
Eggplant	Black Beauty	Bokashi	50"	14.17 mm	~ 4ft wide,	~3830 g	9 fruits, fairly large, consistent in size harvested over the season
Eggplant	Black Beauty	Bokashi + BEAM	55"	18.00 mm	~4ft wide plant,	~4640g	12 fruits fairly consistent in weight harvested over the season
Tomato	Black Kirin	Control	N/A-Topped	12.30 mm	N/A-Single Leader	~4870 g	Great yield overall, many large fruit nearly 1 lb each. 7ft trellis posts in bed, each plant topped in height.
Tomato	Black Kirin	Bokashi	N/A-Topped	11.36 mm	N/A-Single Leader	~4940 g	Great yield overall, many large fruit nearly 1 lb each. 7ft trellis posts in bed, each plant topped in height.
Tomato	Black Kirin	Bokashi + BEAM	N/A-Topped	15.89 mm	N/A-Single Leader	~6160 g	Had noticeably larger fruit, with some fruit exceeding 500 grams. 7ft trellis posts in bed, each plant topped in height.
Cabbage	Golden Acre	Control	N/A	N/A	N/A	887g	Control and Bokashi plants were nearly identical in size and weight. Height, branching, and stem diameter not relevant metrics.
Cabbage	Golden Acre	Bokashi	N/A	N/A	N/A	902g	Control and Bokashi plants were nearly identical in size and weight. Height, branching, and stem diameter not relevant metrics.
Cabbage	Golden Acre	Bokashi + BEAM	N/A	N/A	N/A	1091g	Had noticeably larger fruit. Height, branching, and stem diameter not relevant metrics.
Pepper	Green Bell	Control	31"	12.08 mm		949 g	8 peppers harvested, well sized, and consistent yield. Control yield slightly higher due to 1 additional pepper, within normal variance.
Pepper	Green Bell	Bokashi	32"	12.55 mm		917 g	7 peppers harvested, well sized, with consistent yield
Pepper	Green Bell	Bokashi + BEAM	36"	14.46 mm		1161 g	10 peppers harvested, plant bent with weight of fruit
Pepper (Hot)	Bhut Jolokia (Ghost)	Control	28.5"	8.34 mm		344.8 g	~50 chillies in between 6-8 grams each.
Pepper (Hot)	Bhut Jolokia (Ghost)	Bokashi	29"	9.75 mm		441.7 g	~63 chillies in between 6-8 grams each
Pepper (Hot)	Bhut Jolokia (Ghost)	Bokashi + BEAM	32"	11.18 mm		479.1 g	~59 chillies in between 6-10 grams each
Basil	Thai	Control	41"	6.63 mm	8 main	N/A-	Good production throughout the growing season.

					branches	continually picked	
Basil	Thai	Bokashi	40"	6.59 mm	9 main branches	N/A-continually picked	Very large plant size for Thai Basil, Performed well even with cold temperatures, minimal temp damage.
Basil	Thai	Bokashi + BEAM	43"	7.55 mm	9 main branches	N/A-continually picked	Very large plant size for Thai Basil, Performed well even with cold temperatures, minimal temp damage.
Strawberry (1st Year)	Jewel	Control	~ 7"- 10"	N/A	N/A	64 g (~ 8 plants per row)	~5-8 ripe strawberries per plant, noticeably smaller than treated rows, especially during establishment
Strawberry (1st Year)	Jewel	Bokashi	~ 8"- 12"	N/A	N/A	76 g (~ 8 plants per row)	~5-8 ripe strawberries per plant, strong response in size, noticeably larger than control
Strawberry (1st Year)	Jewel	Bokashi + BEAM	~ 8"- 12"	N/A	N/A	83 g (~ 8 plants per row)	~5-8 ripe strawberries per plant, strong response in size, noticeably larger than control

Figure 22. Growth trials: Comparison of strawberry growth and production across trial groups.

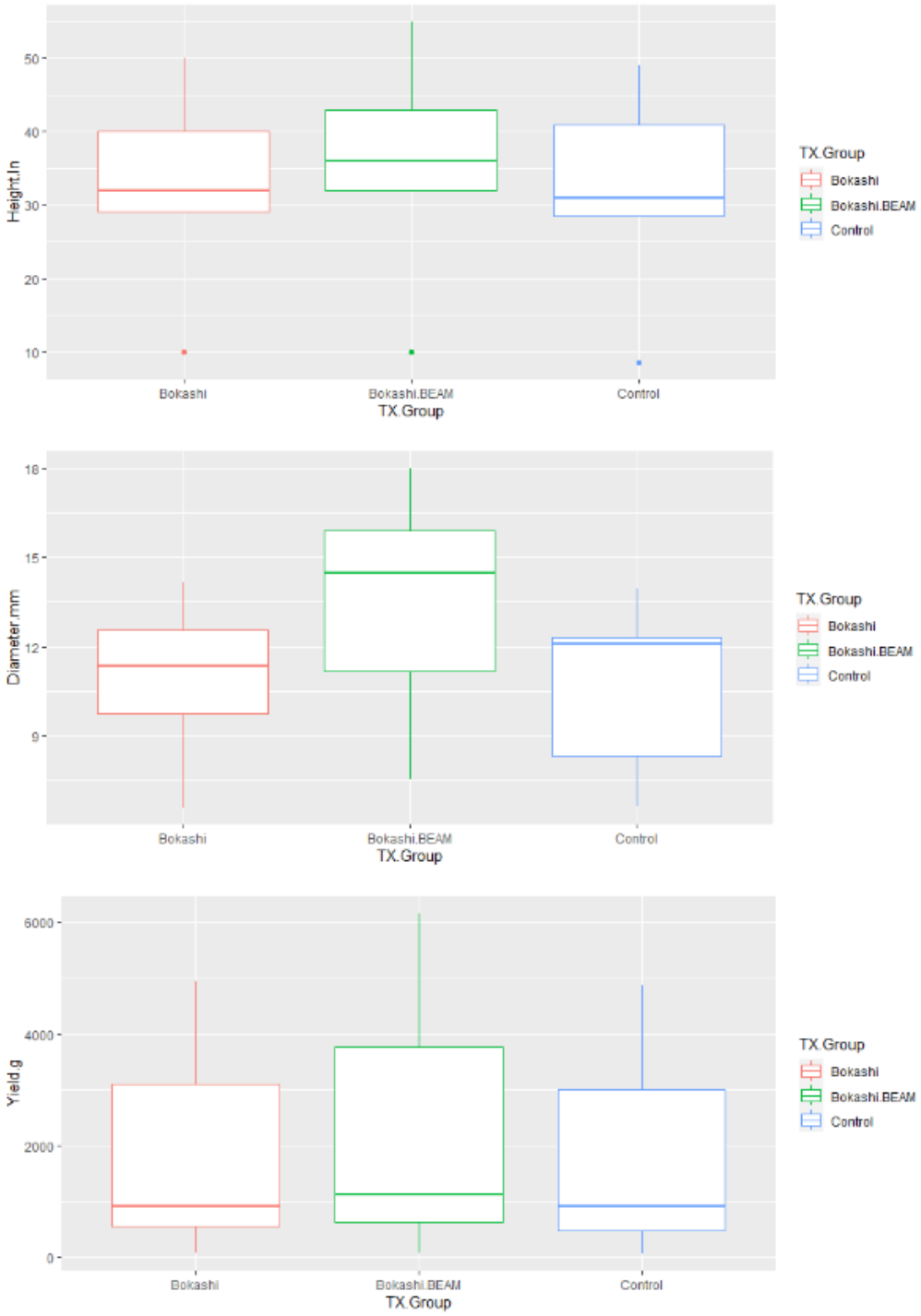

Figure 23. Growth trials data: Key production variables plotted by treatment group.

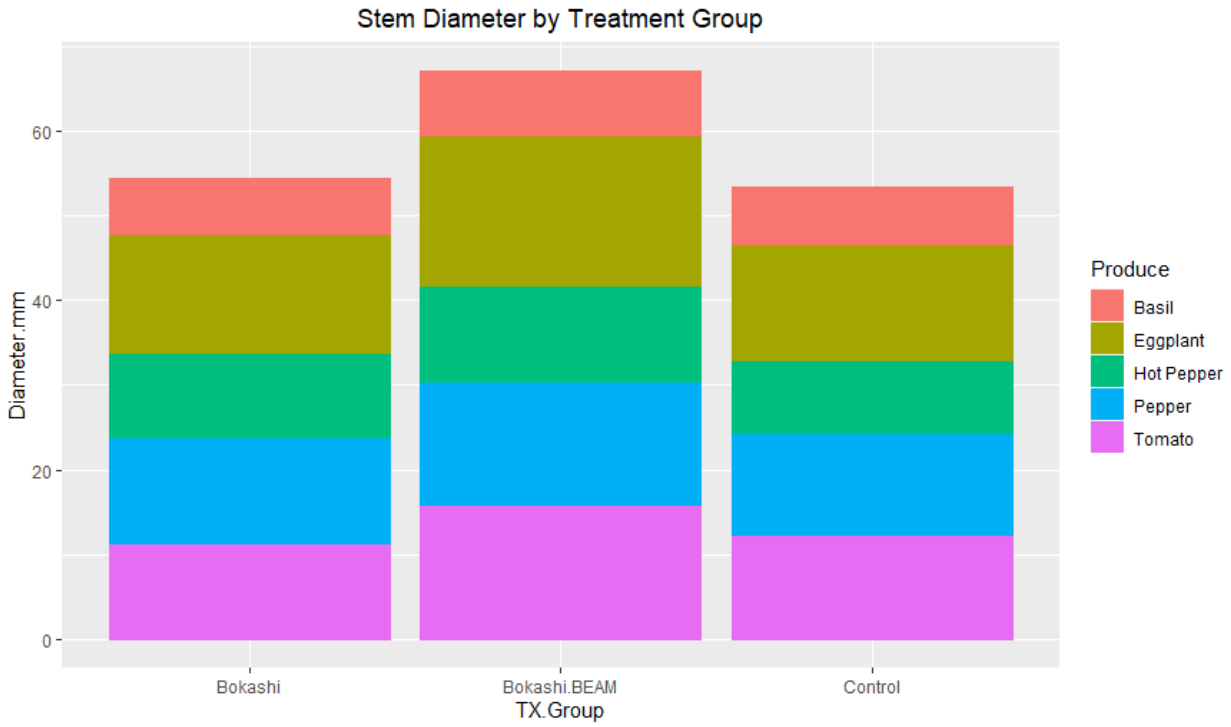

Figure 24. Growth trials data: stem diameter production variable plotted by treatment group.

Figure 25. Growth trials: Comparison of Green Bell Pepper growth and production across trial groups.