2025 Field Study

Plant Type: “Lucid Gem” Indeterminate Tomatoes

Summary: On 6 May 2025, we planted 4 Lucid Gem tomatoes in 5 gallon pots. The base soil was fresh potting soil; all got an initial dose of tomato fertilizer, and the same amount of water. We used 4 different ratios: control, 12:1, 20:1, and by area (which works out to ~ 60:1). For example, 20:1 means 20 parts of the potting soil, and 1 part of the SAI blend of biochar+plant compost+animal compost+beneficial bacteria+beneficial fungi+a water retention ingredient. All materials are certified by the Ca EPA and by the CDFA, and all are certified organic except for one (the water retention ingredient).

27 May 2025 Update: The 20:1 plant is growing the tallest, the widest, with the most blossoms, the largest leaves and the thickest stem. (The full data is available upon request.)

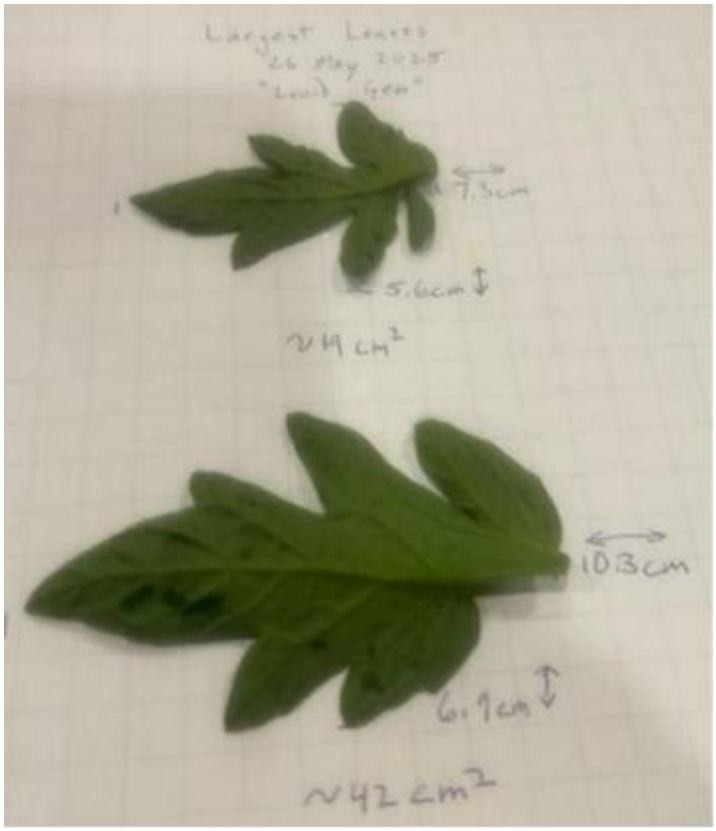
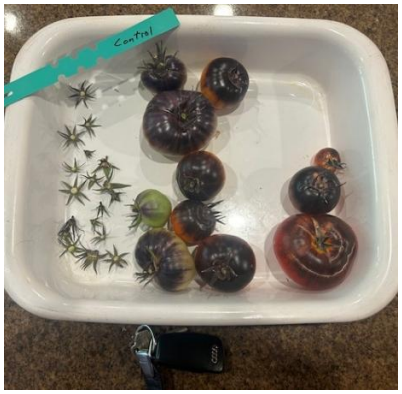


Photo 1: the largest leaf of the control plant (top), and the largest leaf of the 20:1 plant (bottom). The 20:1 leaf is 2.2x larger in surface area than the largest leaf of the control plant.

In addition, the stalks of the SAI treated plants are thicker, with 1.9x more cross sectional area than the control plant.

11 August 2025 Final Report: We decided to harvest, count and weigh the tomatoes on 11 August 2025. While the field trials in 2024 showed that the 8:1 or 12:1 ratio was optimal in native soil (depending on the fertility), the 20:1 ratio was shown to be optimal for plants in fresh potting soil. Our 2025 blend has changed compared to the 2024 blend, as we added mycorrhizal fungi and a starter food for the beneficial fungi. As we intend to "bag" this soil amendment, starting sales this fall, we want to "dial in" one more ratio- that of the proportion of the biochar. So we terminated this experiment, and start tomorrow on our last field trial in 2025 before bagging our soil amendment, for sale in 2026.

	Control	12:1	20:1	By area (~60:1)
# Tomatoes	34	n/m	76	n/m
# Ripe tomatoes	3	6	14	9
Weight of ripe fruit(gr)	226	n/m	1,280.5	n/m
# Under ripe	7	6	6	n/m
# Green tomatoes	1	17	7	5
# Puny tomatoes	23	n/m	49	n/m



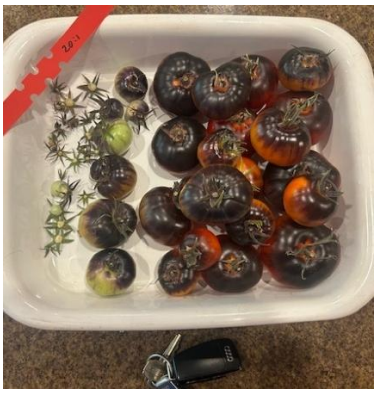


Photo 1 (left): the harvest of the control plant, cutting off all of the tomatoes on 11 August 2025.
Photo 2 (right): the final harvest of the 20:1 SAI treated plant, on 11 August 2025.

The 20:1 SAI treated plant has produced ~2.2x more tomatoes to date, and ~5.7x more weight of tomatoes per plant, compared to the control plant.

The SAI treated 20:1 plant outperformed both the 12:1 and the 60:1 plants by a large margin, so we didn't bother to count. Both outperformed control, but nowhere near as good as the 20:1 plant.

We're pretty confident in the recommendation of 20 parts potting soil to 1 part SAI soil amendment, when planting a plant in a pot, where the 20 parts are potting soil.