

FOOD-PRODUCERS EXPERIMENT

Purpose. To determine if there is an increase in the mass of plants when they produce food.

Experimental design

- Five-hundred grams of bean seeds were planted in each of six planting containers filled with clean, dry sand. One gram of dry fertilizer was added to the sand in each planter.
- The six planters were placed in six identical environment chambers where water, light, and air—oxygen (O_2), carbon dioxide (CO_2), and nitrogen (N_2)—could be controlled.
- After 3 weeks the seeds or plants were collected, dried, and weighed. The conditions and results of the experiment are recorded in the chart below.

	Conditions					Data		
	Water	Light	O_2	CO_2	N_2	Starting mass	Ending mass	Mass change
Environment A	Yes	Yes	Yes	Yes	Yes	500 g	551 g	
Environment B	Yes	Yes	Yes	Yes	No	500 g	552 g	
Environment C	Yes	Yes	Yes	No	Yes	500 g	500 g	
Environment D	Yes	Yes	No	Yes	Yes	500 g	549 g	
Environment E	Yes	No	Yes	Yes	Yes	500 g	500 g	
Environment F	No	Yes	Yes	Yes	Yes	500 g	500 g	

Results. Describe the role of the five environmental factors (water, light, etc.) on plant growth.

Conclusions. What did you learn from the experiment about what plants need to produce food?
