

Experiment with liquid fertiliser from the biogas system, July 2012

Using the liquid fertiliser resulting from Tamera's solar kitchen 3 cubic meter biogas system.

The question is how best to use the liquid fertiliser: how do plants react to it? What qualities does it have?

A first rough experiment was prepared: on day 0 we took four containers of damp sand, each sown with approximately equal quantities of wheat and buckwheat seeds. On the following days, the four containers were watered, each with different concentrations of liquid fertiliser from the biogas system as follows:

Container 1: undiluted liquid fertiliser

Container 2: Liquid fertiliser diluted 1:1 with water

Container 3: Liquid fertiliser diluted 1:10 with water (1 part fertiliser, 10 parts water)

Container 4: water

The experiment ended on day 15 with photographs of typical root structures from each container.

NB. Wheat is known as a plant that likes a rich soil, while buckwheat does not need high quality soil.

Observations

Container 1 (Fertiliser) A couple of wheat grains grew – relatively few. The root structure of the wheat gives an impression of being rather weaker than the other containers. The buckwheat began to germinate but then did not grow further, giving a burnt impression.

Container 2 (1:1) The wheat grew well. Many plants, and strong growth. Buckwheat grew rather little. Root structure of the wheat rather weak.

Container 3 (1:10) The wheat grew well, though not as strong growth as in container 2. Buckwheat grew well. Root structure of both wheat and buckwheat better than in container 2.

Container 4 (Water) The wheat grew well, though not as strong growth as in container 2 or 3.

Buckwheat grew almost as well as in container 3. Root structure of both wheat and buckwheat are more complex than in all other containers. A progression was felt from fertiliser to water where the sand adhered increasingly to the roots as water was approached.

Conclusions: The liquid fertiliser supported the leaf growth of the plants (as could be expected from prior knowledge), and should not be used undiluted or too often. We noted especially how the water is balanced, offering a good solution for the growth needs of both plants.

Tomatoes would surely be good candidates for the liquid fertiliser.

How would it be for lettuce, cabbage and other plants whose leaves we harvest?

How could a bioponics system look, in which the the fertiliser is used as nutrient solution?

Barbara Kovats, Tamera, July 2012

Photographs



Day 6, July 13th.



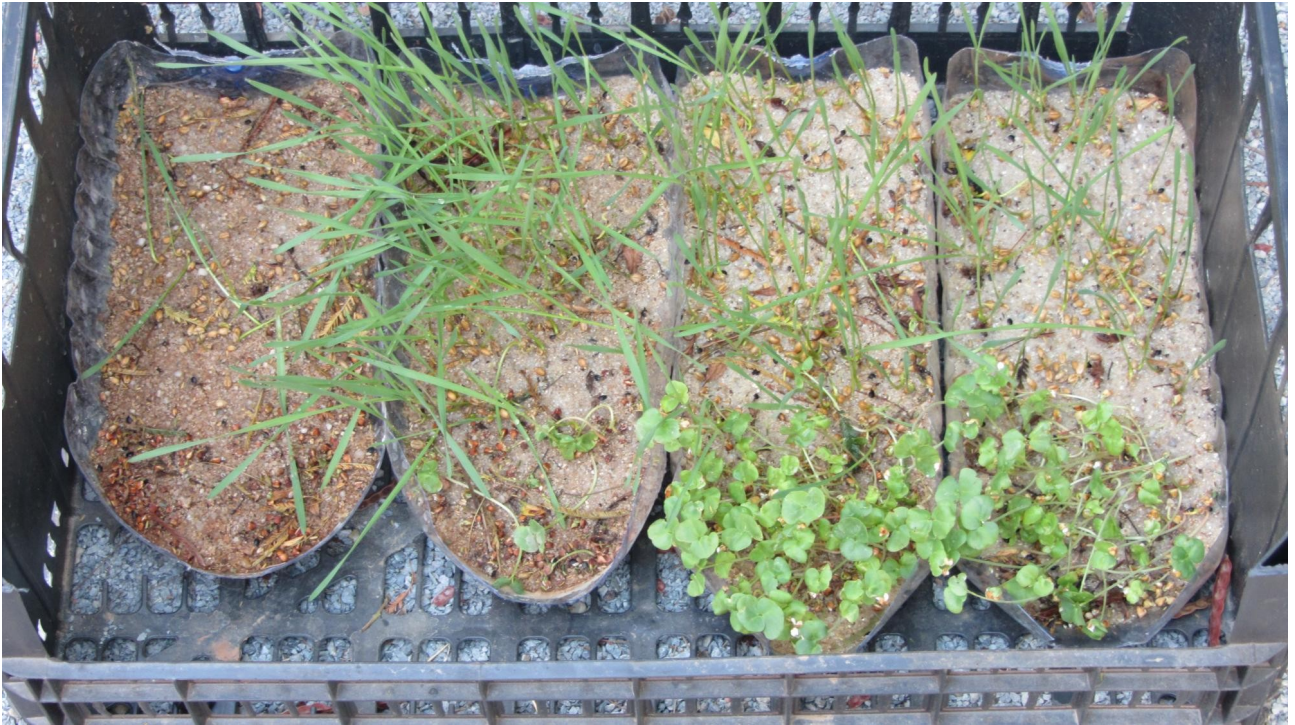
Day 7



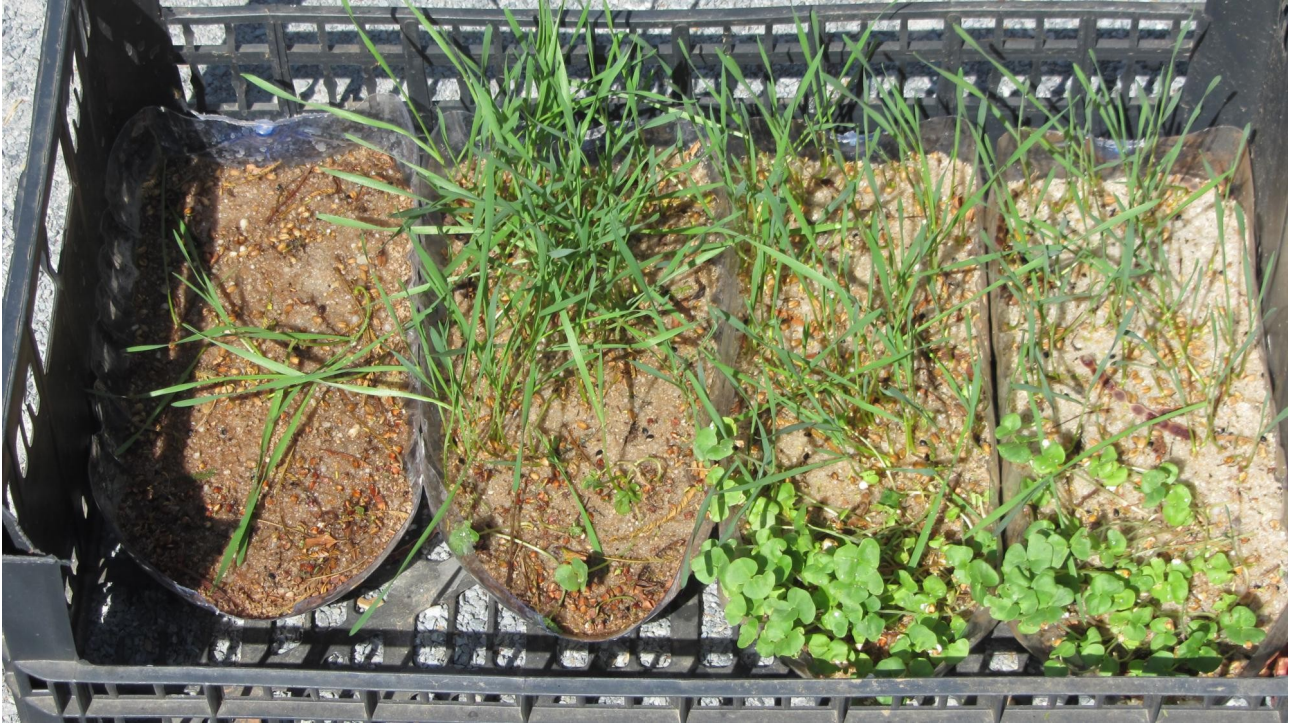
Day 8



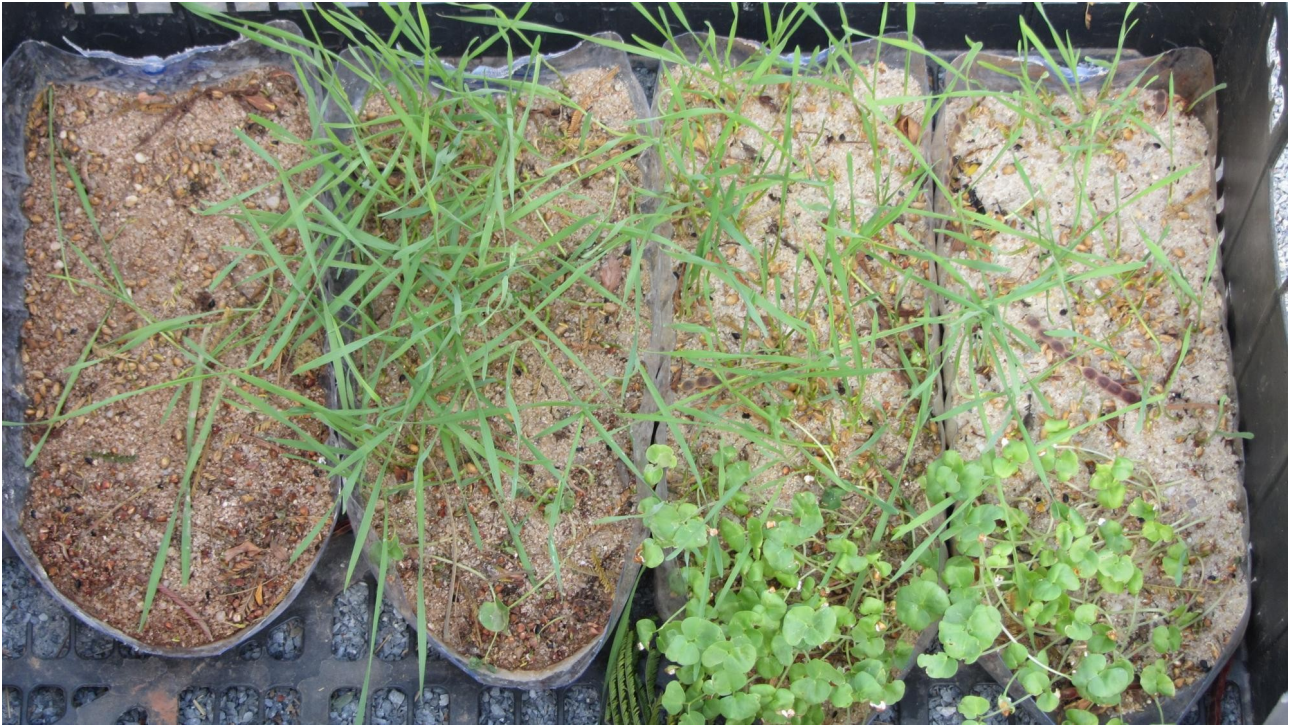
Day 9



Day 11



Day 12



Day 13



Day 14



Roots: Undiluted liquid fertiliser



Roots: 1 to 1 fertiliser with water



Roots: 1 to 10 water to fertiliser



Roots: water