



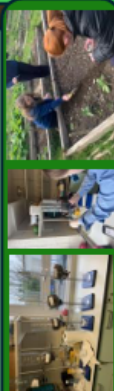
AN INVESTIGATING INTO THE USE OF NATURAL COMPOST VS SLURRY AND SYNTHETIC FERTILISERS IN A COMMUNITY GARDEN



INTRODUCTION

For our project we are investigating the use of natural fertilisers and their role in soil.

We were approached by our local biodiversity officer about the potassium levels and lack of worms in the local community garden. He didn't want to use synthetic fertilisers or slurry's. So we began to plan our project and worked on it over the last 10 months.



ABSTRACT

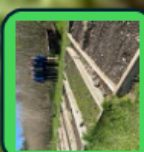
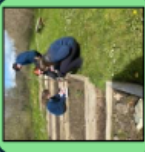
Ireland has a large agricultural community. Overuse of cattle slurry and synthetic fertilisers is causing a significant pressure on our water systems, impacting over 1000 of our water bodies. This is caused by runoff from the land (EPA.ie). Last March, the Biodiversity Officer in our local Community Garden approached us with a problem. The soil tests showed potassium was greatly depleted, also the vegetable garden area had no worms. He did not want to use slurry or synthetic fertilisers. So we used four different natural fertilisers and set up our experiment.

We wanted to discover which natural compost a) gives the best growth of vegetables, b) increases Potassium most efficiently c) is best at encouraging worms and d) how they affect soil pH

METHODOLOGY

We set up four test beds - horse manure, seaweed compost, biological compost, and a mixture of all three. A control bed was left untreated. We divided the bed into four areas and planted beans, potatoes, carrots, and onions. We monitored growth over the next 16 weeks and recorded soil temperature and pH.

We also set up an apparatus to test the runoff from the soil that was used with our fertilisers vs slurry. Soil runoff can carry very fine soil particles, nutrients, pesticides or manures to water-based habitats. To test the run-off in the beds we compared all of our natural composts used, they are horse manure, seaweed compost, biological compost, a control and to compare we also test slurry.



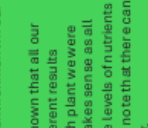
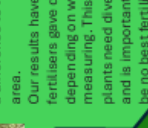
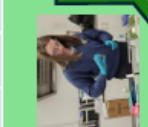
VEGETABLES GROWTH



Potatoes	Height after 3 months
Horse	45
Seaweed	Blight
Biological	24
Control	Blight
Mixture	Blight

Run-off results

Seaweed	Biological	Slurry	Horse manure	Control
Nitrate (mg/l)	>1	26.7	82.8	70.7
Phosphate	2.04	2.34	8.4	3.6
Ecolite (Cfu/100ml)	406	1300	75	0

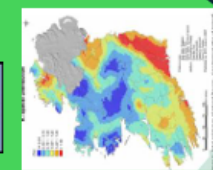
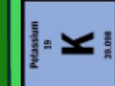


HEALTHY SOIL HEALTHY LIFE

Potassium

Potassium is essential in all processes needed to sustain plant growth and reproduction. Plants deficient in potassium are less resistant to drought, excess water, and high and low temperatures. They are also less resistant to pests and diseases.

- Potassium is important in plants to carry out the following:
 - Protein synthesis
 - Translocation of carbohydrates
 - Regulation of plant stomata and water use
 - Promotions of disease resistance
 - Activation of plant enzymes.



Discussion

The results of our soil fertiliser tests have shown an increase in the levels of potassium in all soils and earthworm activity was increased. These were our main aims when beginning our research and we are delighted that we have had this result. As we have previously discussed the success in farming in Pairic an Tobair is crucial in our community of Rossachaire. The natural fertilisers used have proved to be useful which will undoubtedly make a difference to the environment in our area.

Our results have shown that all our fertilisers gave different results depending on which plant we were measuring. This makes sense as all plants need diverse levels of nutrients and is important to note that there can be no best fertiliser.



FUTURE PROJECT DEVELOPMENT

- To expand further on our project we might include tests on the nutritional value of the vegetables produced.
- Carry out our run-off experiment again and get the samples re-tested.
- Test more natural fertilisers.
- Use a wider range of vegetables for more varied results.

