Classroom experiments showing the effect of urine on plant growth

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This slide show describes how to perform simple experiments in the classroom which show how effective urine can be as a source of nitrogen for a variety of plants. Nitrogen makes plants grow faster.

In this case alloy cans have been used as containers to grow the plants. The top of the can has been removed with a can opener and holes are punched into the base of the cans to allow for drainage.

Types of plant tested.

Some plants are very good at showing the effect of urine on growth.

These include maize and spinach and various green vegetables

Maize and spinach growing in alloy containers

Growing from seed or seedlings

The plants to be tested can be grown from seeds or from seedlings. Maize seed can be planted directly in the soil in the can and watered, or can be grown in seed trays first and transferred to the cans

Growing maize direct from seed in the alloy can

Growing maize from seedlings placed in the can

Growing maize in seed trays

The seeds take about a week to germinate and another week to grow before they are transferred to the alloy can.

The seedlings should now be watered and allowed to stabilise for a week before urine application begins.

Source of urine and dilution and application
Dilution 3:1 with water
dispenser volume 20mls

In this case urine was collected in a plastic bottle and diluted with 3 times the volume of water. Diluted urine was applied with a small dispenser of 20mls volume

Urine preparation

Pour out urine from plastic bottle into a small tin can and add to plastic container. Then add three times the volume of water

Urine application

For the plants which are treated with urine take a dispenser full of diluted urine and add to the soil around the plant. In this experiment diluted urine was added three times a week – Monday, Wednesday and Friday. The urine is added late afternoon to allow reduced stress due to the sun.

Results with maize

Urine treated (U) and water treated (W) on 26th August 2010 - a few days after 1st urine treatment

Results with maize

Urine treated (U) and water treated (W) on 26th September just over one month after urine treatment began. At last the effect of urine is being noticed.

Results with maize

The effect of urine treatment after 6 weeks

Results with spinach

Urine treated (U) and water treated (W) on spinach. First diluted (3:1) urine treatment on 26th Sept.2010. this photo on 7th Oct. after about 12 days. The effect is starting

Results with spinach

Urine treated (U) and water treated (W) on spinach. First diluted (3:1) urine treatment on 26th Sept.2010. this photo taken on 20th Oct. after about 25 days.

Results with spinach

Urine treated (U) and water treated (W) on spinach. First diluted (3:1) urine treatment on 26th Sept.2010. These photos taken on 31st Oct.

Results with lettuce

Urine treated (U) and water treated (W) on lettuce First diluted (3:1) urine treatment on 26th Sept.2010. this photo on 7th Oct. after about 12 days. The effect is starting

Results with lettuce

Urine treated (U) and water treated (W) on lettuce First diluted (3:1) urine treatment on 26th Sept.2010. this photo on 20th Oct. after about 25 days.

Results with lettuce

Urine treated (U) and water treated (W) on lettuce First diluted (3:1) urine treatment on 26th Sept.2010. these photos taken on 31st October.

The results are similar in the garden for maize.

In buckets and in the school garden

Spinach

The application of diluted urine on spinach (2litre in 10 litres of water - twice a week) enhanced the growth far more than commercial fertilisers in this school experiment

Diluted urine significantly increases the growth of maize, green vegetables and many trees

Diluted urine can work in alloy cans, bowls, buckets and garden beds.