



EXPERIENCE • DISCOVER • CREATE

The use of Science & Tech in Home Farming

Key take-away from today session:

- Understanding the 'Science' in home farming
- Using 'Tech' to address some of the challenges in home farming
- Our experience
- Online resources



Green Fingers. Myth or Fact?

- Some people just seems to have all the luck when it comes to farming while others can't seem to get their plants to grow...
- What did they do right?



Green Fingers – Myth or Fact?

- The basic requirements of a healthy plant are suitable light, adequate watering, sufficient aeration, good soil mixture and regular fertilising
- What's the correct recipe?



The RIGHT recipe!

Learning from the knowledgeable others

- Readily available local resources available at the tip of your fingers
- Nparks Gardening Resources
- Social Media – Facebook groups. For example, Urban Farmers, Vermicomposting, etc



Nparks Gardening Resources

Gardening Resources - C x

Secure | <https://www.nparks.gov.sg/gardening/gardening-resources>

Home > Gardening > Gardening Resources

- Community Garden Edibles Competition
- Community Gardens
- Community in Bloom Initiatives
- Allotment Gardens
- Gardening Resources**

→ Flora & Fauna Web

→ Hands-on Gardening Videos

→ What to Grow

→ Caring for plants

→ Tropical Landscaping

Gardening Resources

People often think that gardening is only meant for people with “green fingers” or have a flair for cultivating plants. Contrary to this, gardening is something that anyone can take up, even if you do not have a physical garden to grown plants in. All you need is a pot, some soil, and of course, your plant!

Whether you are a first-time gardener on the lookout for tips and resources for your first gardening project, or whether you are a seasoned gardener looking out for a community of gardeners whom you can hone your gardening skills with, you will be able to find some information here.

Last updated on 11 February 2016

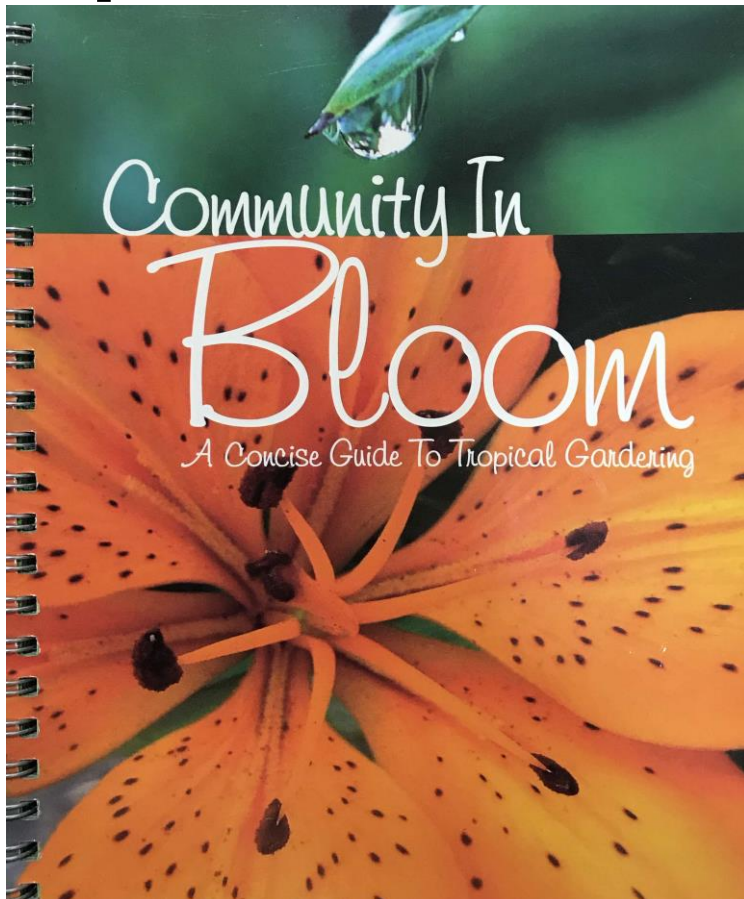
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Nparks Gardening Resources



Vegetables

Vegetables need lots of sunlight, water and fertiliser. Most are non-woody plants. Here are some commonly-grown vegetables:

Leafy Greens

1. Chinese Spinach, Bayam
Amaranthus gangeticus
Marketable height 0.4m
Red and green leaf varieties;
propagated by seeds.



2. Chinese Kale, Kai Lan
Brassica alboglabra
Marketable height 0.4m
Propagated by seeds.



3. Cai Xin
Brassica chinensis var. *parachinensis*
Marketable height 0.4m
Propagated by seeds.



4. Kang Kong
Ipomoea aquatica
Marketable height 0.4m
Flower colour variations -
white or pink;
propagated by seeds;
stems are hollow.



5. Lettuce
Lactuca sativa
Marketable height 0.25m
Leaf colour variations - light green,
dark green and some red;
propagated by seeds.



5



Nparks Gardening Resources

Symbol



Amount of light

2-4 hours of moderate intensity light each day usually higher humidity.

4-5 hours of high intensity sunlight everyday.

At least 6 hours of high intensity sunlight everyday.

Water requirements

The symbols represent different water requirements:

Symbol



Amount of water

Needs a lot of water.

Needs moderate amount of water.

Needs little water.

Needs spraying - to make the area around the plant damp.



THEGREENEXPLORERS

Limitations of home farming - Light

- As our earth orbit and spin around the sun, the sun direction in Singapore changes throughout the year.

For example...

- From March To September, the afternoon sun is in the north-west direction.
- From September to March, the afternoon sun is in the south-west direction.



Limitations of home farming - Light

- So, for east facing unit, you get no afternoon sun throughout the whole year.
- For west facing unit, you get afternoon sun throughout the whole year.
- For north facing unit, you get afternoon sun from March to September.
- For south facing unit, you get afternoon sun from September to March.



Using Grow Lights as Sunlight supplement



LED technology has been improving tremendously in the past few years. Plants benefit mostly from the blue and red parts of the spectrum but making the best light is not as simple as using random blue and red LED chips.



Using Grow Lights as Sunlight supplement

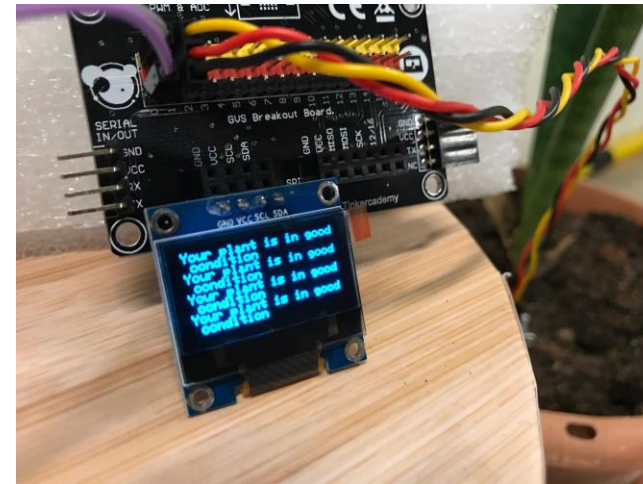


Different ratios of red and blue light will affect different types of chlorophyll. Not only that, plants need different wavelengths during different phases of growth. For example, plants benefit from the red spectrum during the flowering phase.

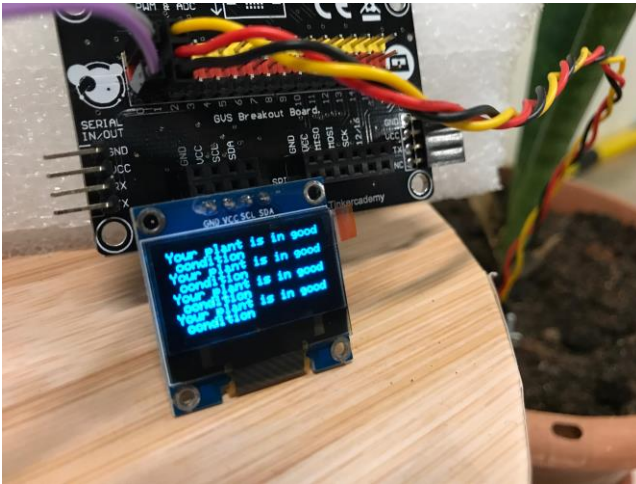


Limitations of home farming - Water

- Watering is one of the main challenges facing Urban Farmers who works irregular hours or travel on a regular basis.
- Edibles require lots of water on a constant basis.



DIY watering solutions



- MicroBits with a breakout board
- Step-by-step guides online to create a plant monitoring system (take a look at how this is done at the Fruit Room!)
- Incorporate a water pump and you are good to go!

What did our experiences tell us?



What did our experiences tell us?



What did our experiences tell us?



Online Resources

<https://www.nparks.gov.sg/gardening/gardening-resources>

<https://tinkercademy.com/tutorials/plant-monitoring/>

<https://florafauweb.nparks.gov.sg/>

<https://www.facebook.com/groups/sgurbanfarmers>



Big Thanks to the Urban Farmers who put in countless hours daily and documenting their learning on Social Media! You are the unsung heroes in our Community!

