

Questions are answered by Dr Christopher Teh, soil biologist and senior lecturer at Universiti Putra Malaysia.



**Dear Plant Doctor**

Do you have questions about plants and gardens? Go to the website [questions.eatshootsandroots.com](http://questions.eatshootsandroots.com) and fill in the form there to have them answered by Dr Teh.



**Q** WHAT causes my plants to have unhealthy leaves and how I can rectify it? These are photos of my rose (above left) and hibiscus plants; my hydrangea plant looks the same. Also, how can I keep bugs off my plants? — Mary Joan

**A** BOTH your plants need fertilizer. They appear to be deficient in magnesium and possibly also in potassium. Your hydrangea could additionally be lacking phosphorus. If possible, change the soils of the rose and hibiscus plants and add a fertilizer that includes phosphorus, potassium and magnesium. Follow instructions on the fertilizer package and do not over-fertilise. Some people use Epsom salts, which contain magnesium sulfate, as a source of magnesium.

To control pests, you can mix neem oil with water in a 1:100 ratio and spray onto the plants.

**Q** I HAVE a sourpuss fruit tree that is two-and-a-half years old and 3m tall. It's very healthy and leafy and bears beautiful yellow flowers. After the petals drop off, something is left behind — not sure if it's the fruit or seed. After a few days, this seed or fruit dries up, turns brown, and falls off. Why does this happen? What treatment or fertiliser should I apply to get my sourpuss tree to bear fruit? Is my tree a "male" tree that bears only flowers and no fruit? Or is it still too young to fruit, and do I have to wait another four or five years to see any fruit? Another problem plant is a lime tree which I have nursed since it was under a metre tall. Now it's almost two years old and 2.5m tall. It's also very healthy, green and leafy. When I squeeze a leaf, the aroma is like lime. But it has no flowers or fruit. Please let me know why, and what I can do to get it to fruit. — Patrick Leong

**A** YOUR sourpuss and lime tree are just about the right age to produce yields (three to six years old), but you should prune your sourpuss tree to about 1.8m to 2.5m (6 feet to 8 feet) high and encourage more lateral growth and vertical growth to facilitate easier harvesting.

For both lime and sourpuss trees, flower drops on no flowers at all are often indicative of over- or under-watering or applying too much fertilizer.

For the sourpuss tree, you should be applying about 300g of nitrogen, phosphorus, and potassium in a 10-10-10 ratio per tree, every three months. Fruit-bearing lime trees require more nitrogen and potassium, less phosphorus, and more trace elements. The simplest thing to do is get fertilisers formulated specifically for lime trees, and follow the instructions on the package. Do not add more than what is recommended.

For both trees, watering should only be done to keep the top soil moist. Your top soil should not be dry or too wet. If you have over-applied fertilisers already, stop all fertilisation and observe if your tree is able, over time, to bear fruits. You can resume fertilisation after that.



Fazida (in red), Ruslan (back row, second right) and Fuzi (right, in songkok) with their students in the campus kitchen garden. — Photos: SAMUEL ONG/The Star

**A green journey on campus**

Teachers at this institute are using a garden not only to teach their students how to grow plants, but also how to grow as people and future teachers themselves.

**Ready, set, grow!**

By Eats, Shoots & Roots

AS educators of the next generation of pre-school teachers, three lecturers have taken it upon themselves to teach their students about sustainable living practices through gardening, as well as instil in them moral values and a sense of responsibility for nature.

Fazida Hj Osman, Mohd Fuzi Osman, and Ruslan Mohamad work at the Teachers Education Institute-Islamic Education Campus (Institut Pendidikan Guri-Kampus Pendidikan Islam, or IPG-KPI) in Bandar Baru Bangi, Selangor. The institute is one of the Education Ministry's 27 teachers' training campuses nationwide.

In 2012, the World Wide Fund for Nature-Malaysia (WWF-Malaysia) embarked on a joint project with these institutions called the Eco Initiatives Programme, which aims to improve environmental awareness and inculcate a sustainable lifestyle on campuses.

Fazida, 54, Ruslan, 58, and Mohd Fuzi, 56, are in charge of the garden and the syllabus taught around it at IPG-KPI. They worked with Eats, Shoots & Roots on part of the garden last year. The three have been teaching for decades and have backgrounds in different fields like biology and ecology, agricultural and environmental education, and entrepreneurship — but what they all have in common is a love for gardening.

**How did the garden start?**  
Fazida: We wanted to build a campus in an orchard, not an orchard in a campus. Also, even before the WWF-Malaysia project, we had subjects like Environmental Education with assignments related to gardening.

We were also personally interested in gardening, and we wanted our students to have some understanding of and love for nature and the environment. So we started by instilling a love for greenery by getting them to begin gardening.

**Tell us about your garden.**  
Fazida: We are lucky to have a full landscape — we have big fruit trees, vegetables, plants, herbs. We call the Eats, Shoots & Roots garden the kitchen garden, and the one opposite it, by Jabatan Landskap, we call it kebun mutiara (pearl garden) because it has a lot of herbs — not only for cooking

but also for medicinal purposes. I think the most special is the kitchen garden. It's all organic and we don't use just any fertiliser or repellent. We make our own fruit enzymes and also organic fertilisers.

**What is the garden's main objective?**  
Ruslan: To get students interested in gardening first of all. The interest only comes once they see the result, the actual fruit or vegetable.

Most of our students don't come from gardening or farming backgrounds, or even from villages. They have been brought up in an urban setting, so they were not exposed to growing food. But once they've experienced it, seen their plots come to life, they become more interested, realising how easy it actually is to start your own edible garden. We just want to ignite that interest.

**How do you choose which plants to grow?**  
Ruslan: We have many different areas around the campus: we have the orchard, we have short-term and long-term plants (ie, with long and short growth periods), we have herbs. We use long-term plants to fill out the area, and the short-term ones for practicals (for the students). They can plant, and then see the end product.

For the beginner, we start with short-term plants, going from seed to harvest. Which means the students experience the plant's entire growth process.

**What has it been like taking care of the garden with your students?**  
Ruslan: The three of us take care of the garden, but when the students are around, they maintain it because they have to do their practical for the course.

The students have to be hands-on to learn. For example, to teach them how to be patient, we can't just tell them to be patient and expect them to apply it in their lives. We give them tasks to understand what it means to be patient, because they can't rush the process of growing. Because I come from an agricultural background, I feel personally that gardening is the best practice for the students. Fazida: That's what makes this course different. Environmental Education covers many things, and you have to think of the values, the creativity of the students — when we choose a plant for them to grow, for example, we are also choosing the values that the plant can teach the students. We want to educate them, not just teach.

Ruslan: As teachers, we highlight the difference between "educating" and "teaching". When you teach, you teach the students, say, a word. But when you educate them, you help them understand the meaning behind the word.

You can say the word "patience" over and over again but that doesn't mean they will fully grasp its meaning and apply it in their lives. When they face a problem head on in the garden and are left with no other option but to be patient, it's a good way to truly learn the meaning of the word.

**How is the garden connected to the syllabus?**  
Fazida: The course is 100% assignment based and always related to the garden. For one semester, the students have to take care of their assigned plants and write reports on their progress, which we mark after we check their work in the garden.

Ruslan: We don't mark them based on gardening per se, we mark them on what values they have learnt and how they show responsibility in the process of completing the assignment.

We try to teach them how to instil positive attributes within themselves... and that is the end product of what we entrusted them with in the first place (the seeds or seedlings).  
Fazida: It's about amarah (pride). We give the students the seeds or seedlings, and we trust them to plant and take care of the growing plants. So it becomes their responsibility, and they have to figure out what they have to do to make sure their plants survive and thrive.

**Have you seen changes in students who take this elective?**  
Fazida: The joy that our students feel when they're in the garden is infectious. As we mentioned before, most of them are not from villages or have a farming/gardening background. When they join us and choose this it's an elective, we can see the happiness in them when they start using gardening as therapy.

Ruslan: When I wanted to start the orchard, we needed a way to water it. The students found a water source and would come and water the orchard every day, even on weekends. I didn't need to force them to do it, they took the initiative to do it, and that, I think, really showed their character.

And then I started to see a lot of plants in their dorms — they started planting for themselves.  
Fazida: The students also have to reflect on the process and how it has affected them. Looking at



**Herby harvest:** (From left) mizak kucing (cat's whiskers), mahkota dewa (god's crown fruit), belalai gajah (Sabah snake grass), moringa, and asam gelugur (tamarind).

these reflections, what I find the most interesting is that most of them start sharing their knowledge of how to start gardening with family members!

It's great to see that, because it shows that it's not just an academic application to them, but also something they take back home.

**What plans do you have for the garden?**  
Fazida: We want to have a kind of Master Chef project: We'll give the students an hour or so, and in that time, they have to use as many ingredients as they can from the garden to make a dish. So we're planting to add more plants and vegetables to the garden so that we have more variety to choose from and use.

**What's your advice for beginning gardeners?**  
Fazida: My advice to teachers who want to plant edible gardens is to just start. It's a great way to overcome the daily stress at work.

**Green events**

**PLANT YOUR OWN MINI HERB GARDEN @ ILHAM GALLERY**  
THIS workshop is for anyone who wants to grow herbs on their balcony (or any other small space). Before you start planting, first you need to understand the basics of healthy soil and how to create a happy space for herbs to grow in a container.  
The workshop will cover choosing the right container, preparing your own potting mix, planting seeds/seedlings, and learning how to keep your herbs happy!  
Date: Saturday, Oct 28  
Times: Session A: 10am to 11am; Session B: 11.30am to 12.30pm  
Location: Ilham Gallery, Menara Ilham, No. 8, Persiaran KLCC, KL  
Price (inclusive of booklet and planter kit worth RM50): RM105 (RM85 if you mention Star2)  
To register (required, as places are limited): Go to the website [workshops.eatshootsandroots.com](http://workshops.eatshootsandroots.com), for inquiries, e-mail [clarice@eatshootsandroots.com](mailto:clarice@eatshootsandroots.com)

Gardening is a kind of therapy. It's fun to visit the garden every day, see how it's doing, care for it. It doesn't matter what kind of plants you grow, just the more practice of taking care of your garden and being in the garden helps substantially.

Ruslan: My advice is to go for the no-dig method. The more traditional way of digging up the ground to plant is tiring. But with no-dig gardening, it's not as exhausting, and you can build your garden wherever you want, even on a balcony!

Also, starting big might frustrate you unless you're a very patient person. If you start small, or start with no-dig gardening, it builds your spirit and increases your interest in gardening.

Eats, Shoots & Roots is a social enterprise that champions urban edible gardening. For more information, go to [eatshootsandroots.com](http://eatshootsandroots.com) or facebook.com/eatshootsandroots or e-mail [hello@eatshootsandroots.com](mailto:hello@eatshootsandroots.com).

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TROPICAL fruits are susceptible to many insect pests, fruit flies being one of the commonest. Female fruit flies lay eggs in healthy, ripening fruit, releasing maggots that cause the fruit to rot and fall to the ground. This anti-pest method uses pheromones to attract and trap male flies to minimise the chances of reproduction and regeneration.

**INGREDIENTS**  
● Plastic bottle ● Cutter ● Cotton wool ● Pliers  
● Blinding wire ● Lighter ● String or rope  
● Pheromone: methyl eugenol (a chemical compound found naturally in many herbs and spice plants, available from nurseries or hardware stores)

**METHOD**

1. Cut the top off the plastic bottle about a quarter of the distance down from the bottle neck with a knife or blade. The cut-off neck will serve as an entry funnel into the rest of the bottle.
2. Cut a piece of wire measuring 5cm-7.5cm (2 inches to 3 inches) and heat one end of it with the lighter or a match.
3. Stick the heated end of the wire into the side of the bottle, 5cm from the bottom.
4. Knot one end of the wire so it doesn't fall completely into the bottle. Bend the other end to create a hook for the cotton wool.
5. Roll a bit of cotton wool into a ball. Using gloves, soak the piece of cotton wool in the pheromones and place it onto the hook. Wash your hands carefully after.
6. Insert the cut-off bottle top upside down so the neck forms a funnel leading into the bottle. Tape it tight.
7. Using string, hang the bottle horizontally in a shaded area near your fruiting plants. The pheromone will last two to three weeks, and will attract male fruit flies from up to 20m away. Clear the trap when it is full.

**TIP:** Look out for little holes in your fruits. If there is a small hole that looks infected, chances are there are maggots inside it.