

Permaculture Cairns Newsletter

EMPOWERING COMMUNITIES WITH SUSTAINABLE SOLUTIONS FOR 10 YEARS



Care for the Earth, Care for people, Fair share the excess
Permaculture Cairns Incorporated Web Site: www.permaculturecairns.org.au

PERMACULTURE CAIRNS JANUARY MEETING and ANNUAL GENERAL MEETING

Tuesday 15TH January 6pm for a 6.30 start
Venue: Endeavour Learning and Lifestyle Building
4 Warner Street (on corner with Monk Street) Manunda

Members free, please bring some nibbles for the cuppa break, non-members \$5

AGENDA

Welcome to new members and visitors
Annual General Meeting

Guest Speaker: Jenny Brown will give a presentation on David Holmgren's book "Retrosuburbia"
If you want to know what Permaculture is all about, then come along to this presentation.

Carol will give a rundown on a Workshop Series for this year
" Grow your own food in the tropics"

Meeting close and now time for a chat, a cuppa and a snack with like-minded people

All finished by 8.30pm.

Come early and check out the Library, Carol will be there at 5.30pm - Bring along your plants and seeds to trade. Carol will bring tropical perennial vegetables/herbs and seedlings for sale.

Memberships are now due for 2019, you must be a member to vote at the AGM, Single \$20, Family \$30

Please pay online into our Cairns Penny Permaculture Cairns Account – BSB 704-966 Account No. 100009440

And don't forget to put your name on it so we know who you are.

Permaculture Cairns Grow your own food in the tropics

Series of Workshops for 2019

1. How to turn dirt into soil,

Saturday 26th January 9am to 12noon

Presenter: Carol Laing



Topics In this workshop

How to tell if you need Soil conditioners, what is your soil like, adding Minerals, how to add Organic Matter and how to increase Microbes in your soil.

Why increasing organic matter and microbes in your soil are important
Using plants to improve your soil and help your plants

Workshops will be held in Cairns.

COST: \$30 for Members of Permaculture Cairns and \$35 for non- members includes morning tea.

Interested? contact me Carol Laing at – info@permaculturecairns.org.au

My experience: Commercial vegetable grower for 6 years, Plant nursery owner/operator for 10 Years. Study:- Certificate in Horticulture 1983, a two weeks Permaculture Design Certificate Course 1992, Microbe Course and Chromatography Course with Mas Humas 2012, Elaine Ingham's online Microscope Course' 2013, Graeme Sait's 4 day Nutri tech Solutions, Certificate in Nutrition Farming 2014, and while attending National Biological Farming Conference 2016 I attended David Hardwick's Workshop on Soils. Other Soil workshops I have attended are with Terrain, Northern Resource Management and FNQ Biodynamics. I have an extensive library on many subjects, but mostly on how to grow food using the biology and the many microbes in the soil. I have a long established Permacultue garden with lots of tropical perennial vegetable plants.

Workshops are all conducted with Permaculture. Ethics, Principles and Practices in mind.

Some tips for growing food in a challenging climate

Well December was a doozie a bit more vicious than usual, the 42C a couple of days was very very unusual and I think it was hotter than that at my place as Cannon Park Race Course just up the road a little they registered 43.6C.

I moved the worm farms to a shady spot under the tall trees, not sure if they all survived but maybe they laid lots of eggs as now there are heaps of young worms. The metre of rain didn't do harm as the rectangle shaped farms have an overhang on the lid and I placed a large tile on kiln stilts on top of the round farms to stop water going in the lid air holes.

The Native Bee hives are all under cover so they weren't affected by rain and the 42C didn't upset them at all, they kept working.

Speaking of wet, well the 1m of rain in December came and flooded the backyard, the bananas loved it, but all the plants in pots will be needing fertilising or repotting. Yellow leaves are a definite sign of Nitrogen deficiency, .but in this case more likely a general deficiency of everything. Be sure to use a balanced fertiliser and some seaweed fert to help them revive.

So what survived in the veggie garden, Chinese Potatoes, 4 varieties Egg plants, Beans, Perennial capsicum, Kang Kong, Pawpaws, Ginger, 3 varieties Turmeric, 4 varieties Basil, The greens Ceylon, Sambung, Okinawa, Brazilian, Tropical Lettuce, Chili, 2 varieties Comfrey, Arrowroot, Cocoyam, 3 varieties Taro, Sweet Potato, Cassava, Watercress. Rungia, Lebanese cress, Thyme, Mexican Tarragon, Rosemary, 5 in 1 herb, Vietnamese Mint, Mint, Chives, 2 varieties Garlic Chives, Lavender, Rosella, Pigeon pea, Galangal, the lettuce in wicking beds look a bit sick but some still edible, chicory is looking good. As you can see there are lots of tropical perennial amongst that lot. Still plenty to eat.

Need shade fast, plant a Pigeon pea and grow it like a standard so you can walk underneath and it will shade your garden. Good for mulch or adding to compost.

Grow some greens in a wicking bed that can be moved from heavy rain or hot sun. grow herbs in self watering pots on a patio

What to do now- make compost, trim you bushes, collect dry leaves and lawn clippings, and if no bin just pile it up somewhere and keep moist, The soil underneath will change into a rich dark colour and there will be earthworms. A good addition to a garden bed or make a bed on the spot.

Grow a green manure patch, use any seeds you have and when about to set seed chop and cover with mulch or dig into top couple of centimetres of soil. Now ready to plant a crop.

Plant edible tropical perennial groundcovers under fruit trees, as a living mulch, they like this weather, it's a win-win as you can eat them too.

I have recently planted, Snake Beans, Bok Choy, Bunching shallots, Tropical Lettuce, Garlic chives, Rayyko onion more Chinese potatoes, and Cucumbers. The beans are flowering so pickled beans coming up soon.

Cheers Editor Carol Laing

Watercress is the number one powerhouse vegetable.

I found this article in the Brisbane Organic Growers Newsletter

The top powerhouse vegetables in order of nutrition

1. Watercress
2. Chinese Cabbage
3. Chard
4. Beet Greens
5. Spinach
6. chicory
7. Leaf lettuce
8. Parsley
9. Romaine lettuce
10. Collard green
11. Turnip green
12. Mustard green
13. Endive
14. Chive
15. Kale

Surprising isn't it, the US research team that identified fruits and vegetables containing 10 per cent or more of the daily recommended intake of critical nutrients, including fibre, iron, protein and vitamins B, C and K.

We want/need to eat foods rich in these nutrients as they have been linked with a reduced risk of developing chronic diseases, including some forms of cancer and cardiovascular disease. Professor Jennifer Di Nola says powerhouse food rankings aim to "provide clarity on the nutrient quality of the different foods and may aid in the selection of more nutrient-dense items within the powerhouse group"

So what is it that makes watercress so special?

Well, just two cups contain 212 per cent of the daily recommended amount of Vitamin K (a nutrient important for normal blood clotting and protein synthesis in the blood, bones and kidneys). Watercress also contains large amounts of glucosinolate compounds (which inhibit breast, lung, colon cancer development) as well as smaller amounts of calcium, magnesium and potassium. And did we mention it contains next to no kilojoules?

We can grow watercress here in Cairns, I am surprised my watercress has withstood the heat and rain and is still growing in a shaded part of a raised bed. Use it in salads, soups, sandwiches and egg dishes.

It grows well in aquaponic or hydroponic systems, or in a bed with lots of compost and water every day. A self watering pot would probably work, I havnt tried it yet, will add some to my wicking beds and see how it goes.

Mint and Mexican Coriander Dip

A recipe from Yujung Song one of our members

Ingredients:

A handful of mint
A handful of Mexican coriander
A handful of pistachio nuts
1 or 2 tblsp ground toasted sesame seeds
1 or 2 tblsp lemon juice
2 or 3 tblsp olive oil
Pinch of salt and pepper.

How

1. Crush Pistachio nuts with mortar and pestle and set aside.
2. Crush and grind mint and coriander together
3. Mix well the nuts and ground herbs with lemon juice, olive oil and salt and pepper.

It is a great dip full of flavour and will keep in fridge for a week.

Events in the Region

Mareeba Seed Savers and Gardening Group Meeting Notice

Our meetings are friendly and informal. It is a time when we meet to share / exchange seeds and plant materials, to swap ideas with and gather knowledge from other gardeners

**Our next meeting will be held on
SUNDAY 20th January 2019**

Come anytime from 10am to 4pm. We will pack, clean and register seeds, share lunch, then wander through the garden, followed by afternoon tea

~ Venue ~

**Colin Heges
2 Barron Close, MAREEBA**

for further information contact Lindy Alba on 4092 1116

Please bring a chair and if staying for lunch, cutlery, mug, plate and lunch / afternoon tea to share. Also, any seeds or plant materials you have for the give away table and a gold coin donation to cover tea and coffee supplies.

**** Also, remember your hat and sensible shoes for the garden walk ****

**Special guest speaker at 1pm ~
Maria Gillies**

Topic: Pollinator Friendly Properties

BIODYNAMICS FNQ EVENTS CALENDAR 2019

JANUARY 20th SUNDAY 11.30am to 2pm BDFNQ New Beginnings Party
Bring a donation for the Raffle—plants, something of your produce, or craft or even your Davidson Plum wine ! OBI's, 20 Gillies Hwy Yungaburra (Eden House). We will be on the shaded veranda in the garden. To confirm you can make it, please send us an email (bdfnq@bigpond.com) or txt/ phone Satya on 0425 411 545. We need seat numbers by Wednesday 16th Jan, 2019

FEBRUARY 24th Sunday 10am-3.30pm Working with the Planning Calendar Malanda Patrick
English Pavillion Malanda Showground.

MARCH 24th Sunday 10am-3.30pm Practical Biodynamic Basics Setting up a new garden, making compost and Seaweed tea and using the Biodynamic Preparations. Kuranda

APRIL 28th Sunday 10am -3.30pm Nutriton—Fermentng and Dehydraing. Malanda

MAY 26th Sunday 10am-3.30pm Annual Horn Burial and AGM Kaban

JUNE 23 Sunday 10am-3.30pm Pruning and grafting Tropical Fruit trees TBA

JULY 28th Sunday 10am-3.30pm Tropical Home Gardening Cairns

AUGUST 25th Sunday 10am-3.30pm Planning your seasonal garden Ravenshoe

SEPTEMBER 22nd Sunday 10am-3.30pm Horn Lifting Using the Biodynamic Preparations on your land . Kaban JG & A R Collins

OCTOBER 27th Sunday 10am - 3.30pm Soil Food Web- Building soil biology TBA

NOVEMBER 24th Sunday 10am-3.30pm TBA

Bring chairs unless at Hall.

Bring lunch to share

Refreshments provided

For further info : Call Satya 0425411545

Tricia—0467 089458—plus lifts from Cairns

Two VERY Interesting News Items

Why we need to take food education in Australian schools more seriously

January 7, 2019 6.05am AEDT

From the newsletter The Conversation

This article is part of a series focusing on the politics of food – what we eat, how our views of food are changing and why it matters from a cultural and political standpoint.



Schools are expected to do a lot of important things. We frequently hear calls for schools to [make children job-ready](#), help drive [economic innovation](#), provide them with [greater literacy and numeracy skills](#), maintain social cohesion and fairness through [anti-bullying and gender equity programs](#), prevent [obesity](#) and [promote students' mental health](#). And much more. So what is happening about food in secondary schools?

The renewal of interest in food issues In recent years, there has been a renewal of interest in food education, particularly in secondary schools. This is partly encouraged by celebrity chef television shows, the surge in obesity, growing unease about our environmental impacts, and the diverse, multicultural nature of contemporary Australian food. This range of interests is reflected in what is being [taught in Australian schools](#).

The renewed interest is seen among various international innovations. One example is [compulsory cooking programs](#) in [English and Welsh schools](#). These programs require students to develop an enjoyable meal repertoire consistent with the UK [dietary recommendations](#), and sustainably source school food.

How is food education taught in Australian secondary schools?

The current Australian curriculum splits food education into two streams: the [health and physical education \(HPE\) stream](#) and the [design and technologies stream](#). Nutrition principles are taught in the HPE stream and food skills (such as cooking) are taught in the technologies stream. If a school is fortunate enough to have a year 7 or year 8 home economics course, the two streams may be combined in the one course.

The duration of food education courses in secondary schools varies a lot, from none to one or two hours a week, often for a year or less. At senior levels (years 11 and 12) elective subjects are offered in

the various states and territories such as [Food Technology](#) or the new [food studies curriculum in Victoria](#).

[Research](#) with home economics teachers in Queensland and elsewhere in Australia suggests time and resources are often inadequate for teaching the diverse knowledge and skills associated with food.

Read more: [Poor nutrition can put children at higher risk of mental illness](#)

Aspects of food may be taught in science (such as food chemistry) or in humanities (such as cultural foods and environmental issues) or in PE. But most food education happens in home economics, and [contrary to many people's opinions](#), it is alive and well in many parts of Australia.

Food education takes place in preschools, primary schools and secondary schools, though in different ways and to different degrees. Programs like the [kitchen garden scheme](#) have been well received.

Many teachers deal with food, in all its aspects, across the school years. These include activities like growing food in school gardens, cooking it, analysing its nutritional properties and environmental impacts, exploring local farms, shops and food markets, taking part in [BBQ or Masterchef style competitions](#) and catering for schools and Fair Food Universities.

Research in secondary food education A [growing evidence base](#), mainly in the US, Canada, western Europe and Australia suggests food literacy and skills education programs [lead to greater confidence](#) in performing practical food skills, such as planning and preparing meals, interpreting food labels, basic food safety, food regulations. This, in turn, is associated with [healthier dietary choices](#).

Australian [research](#) in this area has grown strongly over the past ten years. It has provided evidence for the establishment of several food literacy frameworks with focuses on [food gatekeepers](#) and [families](#) as well as broader [environmental aspects](#) of food systems.



Understanding how to read food labels can help people make healthier choices. from www.shutterstock.com

Recent [research](#) has shown many secondary school food teachers tend to favour practical domestic skills and associated knowledge. They express [less interest](#) in broader historic, social, environmental and ethical issues. Food and health professionals remain [strongly supportive](#) of food education – especially for acquiring practical skills – as does the [general public](#).

Our [recent work](#) has also examined the views of parents and recent school leavers who live independently. Although they hold a broad spectrum of opinions, around two thirds see food education as an important life skills subject. Most think it should be compulsory for [between one and three hours per week](#) in each of years 7 to 10. These views contrast sharply with the priorities of most secondary schools.

Current and future challenges

Food education in Australian secondary schools is now facing several challenges. These challenges are related to changes in population health status, changing food patterns, food technologies, food and beverage marketing and environmental impacts.

The fundamental question is: Does it meet the present and future life needs of students and their families? At present, food education tends to be patchy, with some emphasis on students' acquisition of food preparation skills but lesser coverage of environmental and social issues, marketing practices or family dynamics.

Read more: [Breakfast actually boosts children's school grades, our new study suggests](#)

Possible solutions include providing more intensive education about food in university teacher education programs and continuing professional education for food teachers. These teachers also need more adequate timetable allocations and resources.

A comprehensive food education framework from pre-school to senior secondary school is required to prevent repetition and reinforce skills learned in the early years. This has [begun in the UK](#) and in the RefreshED program in [Western Australia](#).

A more focused curriculum across all years of education is required. This should be accompanied by continuing evaluation of the impact of food education on students, their families and the wider population.

Arid fungi that sequesters carbon in exchange for root exudates might save crops in a drought

Jamie Brown 19 Apr 2018, 1:32 p.m.

[Cropping](#)



Jeremy Bradley and Cathy Eggert, Beechwood via Wauchope, have commercial experience isolating useful fungi, some of which can sequester carbon in the soil for hundreds of years which will also boost soil health.

Soil without biology is geology, according to “bio-pro prospector” Jeremy Bradley, a member of the group Soil C Quest which is exploring the use of fungi to boost agricultural yield – while sequestering atmospheric carbon dioxide.

“There is biology that fixes nitrogen or holds soil together and biology that helps to process nutrients,” Mr Bradley said. “But the new kid on the block is the endophyte. Scientists, over the past few years, have discovered there are fungi living inside the roots of every plant on earth that help them to thrive, especially in harsh environments.”

Endophytes can process locked-up phosphorus, reduce drought stress or protect plants from pest and disease. The most valuable, Dark Septate Endophytes, find a home in arid environments. These fungi are dark because of their melanin which is almost pure carbon and this excites members of Soil C Quest, led by Forbes agronomist Guy Webb.

Last January, during one of those extreme heat waves that lash the semi-arid plains west of Cobar and Nymagee, this small group of keen scientists and committed farmers ventured into a shimmering expanse.

Dressed in long sleeves and big hats they looked for plants showing signs of vigour and dug them up, roots and all. Among those thriving in the oven-like environment were kangaroo and wire grasses, *Panicum* and *Poa*, defying a soil temperature of over 50 degrees Celcius, measured 50mm below the surface.

“Only mad dogs and Englishmen were out in that heat,” mused Mr Webb. “But the more extreme the environment, the more plants rely on their friend the fungi.” In fact, Mr Webb’s team found some of the desert grasses ringed with soil carbon as a direct result of that relationship. The primary goal of this volunteer group is to create a user-friendly soil inoculant from Australian endophytes that will build enduring carbon aggregates, deep in the soil, by drawing down atmospheric carbon.

At the same time this fungal association should benefit crops, like wheat and canola, by increasing their capacity to absorb water and nutrients – especially during drought.

This is particularly important for Australia which, according to CSIRO soil scientist Roger Gifford, has lost 40 per cent of its original soil carbon since the introduction of western agriculture.

Soil survival benefits from a fungi



Soil with greater carbon levels not only hold more water, they are also less acidic, as shown here in core samples. The bottom core is from Jeremy Bradley's farm at Beechwood where lower stocking and biological intervention in the past ten years has resulted in greater carbon storage. The core at the top, taken only meters away, is from a neighbouring property



Forbes agronomist Guy Webb leads a group called Soil C Quest, whose primary goal is to create a user-friendly soil inoculant from Australian endophytes that will sequester carbon in the soil, by drawing down atmospheric carbon.



Volunteer members of the group Soil C Quest found plants showing signs of vigour and dug them up, roots and all. Among those thriving in the oven-like environment were kangaroo and wire grasses, Panicum and Poa, defying a soil temperature of over 50 degrees Celcius, measured 50mm below the surface.



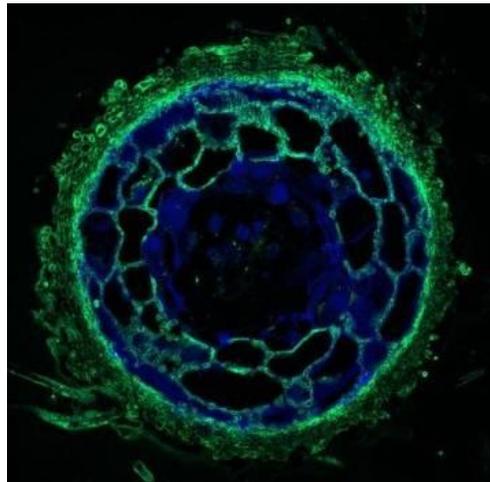
Only mad dogs and Englishmen were out in the noon day sun west of Cobar, where soil temperatures below the surface were above 50 degrees Celcius. And yet plant life survived, with a little help from fungi.



This very unusual fungi sequesters aggregates of melanised carbon in return for sugars from plant roots. Members of Soil C Quest are excited by this find.



Bands of green show where melanosporium fungi were injected into the soil using a Yeomans plough provide inspiration for farmed land in more arid regions.



Fungi hyphae surrounding plant cell walls, seen in this stem cross-section, exchange water and nutrients for plant carbohydrates.

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Fungi a solution to carbon depleted soils

The Soil C Quest project is based on peer-reviewed research done a few years ago by Associate Professor Peter McGee and Dr Tendo Mukasa Mugerwa at the University of Sydney. They found that 20 melanised endophytic fungi increased carbon by up to 17 percent over 14 weeks in aluminium and iron rich soils. Two of these fungi increased organic carbon within micro-aggregates, and that which means it will be stored for a long time.

While linear carbon – created from plant carbohydrates – will revert to carbon dioxide in the presence of oxygen and water, poly-aromatic carbon, built by fungi, will not. Its tough, ring-like structure can hold a resilient form of carbon that has been shown to stay in-situ for hundreds, even thousands of years.

“Take roots and soil and put fungus in between and suddenly you have stable soil carbon,” explained Mr Webb, who pointed to trials in carbon rich soil, greater than 6 percent, as well as in poor soils at just 1pc among a crop of canola, that proved endophytes significantly increase soil

carbon levels and can sequester carbon dioxide from the atmosphere in the order of 130 tonnes/ hectare per decade.

“Considering there is something like 800 million hectares of cultivated land worldwide, if we could employ agriculture to do that job the numbers would add up,” said Mr Webb.

Commercial reality not far

Farmer and microbiologist, Jeremy Bradley was a member of this bio-prospecting venture and later grew out samples of fungi in his on-farm laboratory at Beechwood, near Wauchope.

“Individual fungal strains are selected as they emerge,” he said. “Some are highly melanised with black tendrils that promise greater carbon storage potential.

“Once we have identified the fungi and are sure that we haven’t captured a ‘cane toad’, we will make our first seed treatments for pot trials with crop and pasture species”.

Mr Bradley, working with his partner Cathy Eggert, has already commercialised one of the first ever endophytic fungal pasture inoculants, Parra Trooper. The fungi, *Nigrospora oryzae*, was originally found by the NSW Department of Primary Industries, to initiate a crown rot in Giant Parramatta Grass.

“*Nigrospora oryzae*, however, is an all-around good fungi”, Mr Bradley says “It helps break down dead organic material and it assists with feeding both the soil and the pasture.”

Now, Mr Bradley is excited by the prospect that his innovative work with Parra Trooper could help turn wild desert fungi into products that could be used to help farmers beat the biggest challenges of our times.

Meanwhile, a new documentary about Soil C Quest’s ambitions called “Grassroots” this week won an international science documentary award at a film festival in Vancouver. It will be shown in Palace Cinemas across Australia from May 31 – June 21.

Membership form on next page

Please PRINT – SIGN – SCAN and RETURN by email to
info@permaculturecairns.org.au.



Permaculture Cairns

Membership Form 2019

One year's membership fee - 1 Jan – 31 Dec:

- | | | | |
|--|-----------------------|-----------------|-----------------------|
| <input type="radio"/> Household membership \$30 | <input type="radio"/> | Renewing Member | <input type="radio"/> |
| <input type="radio"/> Individual membership \$20 | <input type="radio"/> | New Member | <input type="radio"/> |

Name(s) of all applicant(s) & DOB if under 18yrs):

.....
.....
.....

Postal Address:

..... Postcode:

Phone(s):

Email:

Signature:

Payment may be made at Meetings, at Cairns Penny or Online Direct Deposit to Permaculture Cairns A/c at Cairns Penny in Grafton Street. BSB704-966 A/c No. 100009440 please include your Surname as reference.

If you have a Permaculture Design Certificate could you please complete the following survey.

YOUR NAME:.....

Who was the Course Presenter:.....

When did you do the Course:.....

Where did you do the Course:.....

Enquiries

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