The following are the most common mistakes westerners make when they decide to grow food in their home gardens in Cairns.

**Mistake # 1: Poor Choice Of Plants**

When most westerners think of vegetables they think potatoes, corn, onions, beetroot and lettuce.

Here's the bad news.

Those vegetables can be incredibly difficult to grow in the wet tropics...especially during the wet season.

The good news is there are a variety of vegetables that grow with very little maintenance here in Cairns...especially during the wet season...and most are perennial...meaning you can get a crop from them for a year, often several years before you have to think about replanting.

In fact some tropical vegetables are so easy to grow that once they're up and running it is literally easier to go get them from your garden than to buy them from a store or market.

When you come from the background of traditional European farming where plants require such a huge effort to plant and maintain it's fantastically liberating to have a garden that grows largely without your help.

Below is a list of plants that grow well here in the wet tropics in a home vegetable garden including short notes on each. For more information just make a search for each plant on Google:

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
- **Sweet potato.** This will grow from cuttings or you can get a sweet potato and put it in a low tray of water and cuttings will grow from that. Plant a few different varieties. The leaves and tubers are edible and tubers are easier to harvest if the plant is grown on a mound.

- **Snake beans.** Grown from seed. Eat the green beans. It's a fast crop where you can have beans to eat as soon as 7 weeks after planting the seed. Snake beans are an annual crop (although in the wet tropics you can plant them all year round). You have to replant if you want more beans unlike the other plants in this list. There are both dwarf varieties and climbing varieties of snake beans. You may plant either or both.

- **Sweet leaf.** A small light shrub that is often trimmed to waist high. Eat the leaves and the leaf and shoot tips (which taste like peas). Can be grown from seed (it will self seed prolifically) or from hardwood cuttings. It will grow in partial shade or full sun.

- **Kang kong (water spinach).** A perennial that will grow on land or in water. Grows well near the bottom of a banana circle. The leaves, shoots and flowers are edible (just like sweet potato). Also grows from cuttings.

- **Ceylon spinach.** A perennial climbing or spreading vine. Grows from seed and will self seed. Likes to grow up a trellis or tree (for example a moringa tree or pigeon pea).

- **Basil.** Locally adapted asian varieties will usually grow like a weed (which is what you want). The plant will grow from cuttings (you can usually buy them at local markets...just buy basil from vendors).

- **Brazilian spinach (sissoo spinach).** Attractive low growing plant. Grows from cuttings. Will grow in partial shade to full sun.

- **Aibika.** A small shrub with large edible leaves. Originally a swamp plant so it can take being planted lower (in a dish, near the bottom of a swale or banana circle) but it will also grow happily on a mound or flat ground. Grown from hardwood cuttings...
  

- **Cherry tomato.** Find a variety that is growing successfully locally. Once you get a vine that is really growing this can give you an enormous quantity of tomatoes.

- **Pigeon pea.** A very small nitrogen fixing shrub. Edible as a green bean and as hard seed (which can also be fed to chickens). Young leaves are edible and you can cut the plant regularly for mulch and use it as a living trellis for your cherry tomatoes and ceylon spinach.

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
- **Moringa oleifera.** Very fast growing tree which provides a very light shade. Leaves are edible and high in protein. Many other uses including cutting the tree back to use for mulch (leaves are high in nitrogen). Grows back quickly after cutting.

- **Banana.** Grows from “suckers” (a young miniature banana plant). Cutting off dead and dying leaves from banana plants helps to avoid many pests and diseases.

- **Paw paw.** Grows from seeds. Can bear fruit within a year of planting. Green paw paw can also be eaten as a vegetable in various ways (works well grated in salads). Fruit and seeds can also make good chicken food.

Most important of all is to be observant and open minded.

If you notice someone in your area successfully growing a food plant ask them what it is and what they're doing.

You may find varieties far more suited to your local area and your particular garden and area of your garden.

Also be open to using other edibles, herbs, ornamentals, flowers and other plants as part of your planting.

They can provide valuable mulch, beauty and they can confuse pests helping your edible plants to survive and thrive.

The list above is quite tiny (intentionally designed to increase your chances of success starting out) and our knowledge of edible gardening in the tropics is quite sparse in the western world.

Some cultures have been doing this for thousands of years so we have a lot to learn and many resources and plants that we either don't know about or we've overlooked.

Over time you should be aiming to grow hundreds of different varieties of food plants in your garden.

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Mistake # 2: Searching For Good Soil Or Blaming Bad Soil

In the tropics there is good soil. You'll find it under a half a meter layer of mulch in the rainforest (which is a pretty good model if you're looking for an example to copy from).

But soil in most backyards is terrible. In many cases the topsoil has been ripped off the surface and sold by developers.

Add to that years of torrential rain and harsh sun and you get an idea of how little life is left in most backyard soil.

In many tropical back yards where the soil is left unprotected you'll see one of the extremes...clay or sand.

In some back yards you'll see both.

Also most of the water and nutrients in the tropics is held in the plants and “dead” organic matter not in the soil.

That's not suggesting for a second that soil and the life in soil is not important...it is critically important.

But when you're starting out you need to focus on creating good soil by using heavy mulch, manure and urine from animals like chickens and “green” manure by using leaves and branches of nitrogen fixing trees and shrubs.

This soil creation is an ongoing process and something you will get more sophisticated at over time.

Mistake # 3: Digging Or Plowing Soil And Leaving It Bare

In the wet tropics the sun is too harsh and the rain is too heavy for the soil to be left exposed to the elements.

Also most organic matter breaks down fast (it will rot or compost very quickly).

We can use this to our advantage by putting heavy mulch whenever we plant.

Often you can avoid digging altogether by using a layer of cardboard or newspapers and heavy mulch on top when you plant.

For more free resources and videos go to: http://www.PermacultureCairns.com
The mulch also stops plants from drying out when it's not raining which means less watering and less stress on plants.

Never underestimate how much mulch your garden will take.

Mulch knee high (a good start in the wet tropics) can break down in a few short months during the wet season.

Generally speaking the more mulch you use on your garden the better and to reduce external inputs grow mulch in your own garden by using plants that you can cut for high quality mulch (like pigeon pea and moringa), by cutting back vines like sweet potato for mulch and by observing which ornamental plants and other plants you can use for mulch (being observant and resourceful is a huge key to being a great food gardener).

Neighbours may also be happy to give you cuttings from their gardens.

As a basic guideline in the wet tropics you want to use a LOT of mulch in your edible food garden and have most of the soil covered by living mulch as well (plants like sweet potato, kang kong, snake beans, brazilian spinach etc etc.)

Don't leave the ground bare.

One fantastic starting strategy is to create a banana circle that acts as a compost pile and generates huge quantities of mulch (more on this later).

Mistake # 4: Starting Too Big Or Spreading Your Effort Too Thin

It takes a LOT of mulch and a lot of plants to plant even a small area in the wet tropics so that it will grow vigorously and won't be overcome by weeds and grass.

Many beginners starting out will plant a corn patch in one area surrounded by the lawn grass that was growing originally in the backyard.

Then they might plant a climber next to a fence...also surrounded by grass and perhaps a few herbs in another area.

And then a paw paw tree near the side fence and a banana tree near the back fence...again all surrounded by lawn grass.

And nothing grows well. Nothing thrives.

For more free resources and videos go to: http://www.PermacultureCairns.com
You simply don't have the time and resources to plant this way and mulch, fertilize, water and maintain plants spread around like that.

If you concentrate all your efforts and resources in one small area when you're starting out...for example in a banana circle 2-3 meters wide...you can mulch, fertilize and plant that small area using every resource at your disposal.

You can plant shrubs and trees that fix nitrogen and have leaves and branches high in nitrogen (like pigeon pea and moringa) and other plants that generate large quantities of mulch (like sweet potato and banana plants).

The spreading plants (like sweet potato) will act as a weed barrier from grass.

And from that concentration of your resources your garden will be easy to spread out into a larger area without requiring substantial external inputs.

You'll have cuttings, seed and mulch you can use.

You'll also have time to observe the rest of the space you want to garden and create a design that's likely to be more effective or get some expert advice on how to do that.

You'll also have a far better idea of which plants grow vigorously, how they grow, what they like and dislike, how much you like them, how water is falling and moving on your property and a whole pile of other incredibly useful information.

Starting small gives you resources and experience that make it much easier to expand out into a larger area.

You can also plan other strategies like using chickens to prepare the next patch of ground you want to expand into.

Start small and give yourself and your on site resources a chance to grow.

Mistake # 5: Not Planting Support Plants

As we've already pointed out it may take a lot of mulch and a lot of fertilizer to keep plants healthy in the wet tropics.

The good news is you can make growing that mulch and fertilizer a part of your planting scheme.

For more free resources and videos go to: http://www.PermacultureCairns.com
Trees and shrubs that fix nitrogen in their roots and have leaves high in nitrogen (like pigeon pea and moringa) can be great support plants for your other edible plants.

Moringa will drop leaves high in nitrogen and supply some light shade for young plants.

As plants get larger you can cut the branches of the moringa, crotolaria and pigeon pea to let more light in and give more space.

These branches and leaves you can use as high quality mulch.

Also cutting those branches causes nitrogen fixing trees to release nitrogen nodules attached to their roots which then becomes available to other plants.

It's like fertilizing without using manure.

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**Mistake # 6: Ignoring The Land's Natural Contours And Each Plant's Natural Preferences**

Planting in straight rows in the wet tropics is often a very poor strategy for many different reasons.

Depending on the direction of the rows relative to the slope of the land it could allow water, nutrients and topsoil to run straight off your garden bed and off your property.

Rows of identical plants also tends to make it easier for pests to feed on your plants.

Nature almost never plants in straight lines. It plants on contour and in multiple seemingly chaotic directions that can make up an astonishingly beautiful tapestry of multiple diversity.

Space is also a factor. If the shortest distance between two points is a straight line then why limit your yield by planting in straight lines.

It makes sense...especially in a home garden...to use other geometric shapes like crescents, curves and circles to plant so we can fit in more plants.

Some plants hate being in too much water. Some plants love it.

By being aware of this you can plant your water loving plants near the bottom of your mounds, banana circles and swales and put the plants that don't like being swamped at the top.

You may have raised beds for many plants depending on your location, the plants you're

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
growing and the way water sits on your property.

Smart food gardeners use a variety of different land forming methods to preserve soil and water in the landscape including but not limited to swales, mounds, dishes and banana circles.

These different methods are described in detail in many other publications and on other sites.

In this report we'll briefly cover the concept of a banana circle.

**The “Banana” Circle:**

A banana circle is a powerful permaculture design that can help you grow a wide variety of food in a small area while composting garden waste, improving soil fertility, reducing water needs.

To create a banana circle you dig a dish shaped hole with a 1-2m diameter and stack up the soil in a mound around the rim of the hole.

You then cover the bottom of the hole and most of the mound with cardboard or newspapers, plant along the rim at the top and on the sides.

Then you fill the hole with mulch and mulch around your plants.

Once the plants are established your banana circle will need very little watering (if any). If you do need to water you can do it with a watering can a hose or with a cheap circular sprinkler placed in the middle of the banana circle.

These links will give you some more ideas and insights into creating your own banana circle. Many have conflicting advice.

Just a few points...yes you can have different trees and plants in a banana circle (not just bananas). No you don't have to run waste water into it or use it as an outdoor shower if you don't want to. Yes you can plant beans at the same time as you plant the other trees and plants:

Construction Of A Banana Circle...  

A Mandala Garden Design Including Banana Circles...  

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
How To Make A Banana Circle...

Fast Facts On Banana Circles...

Build A Banana Circle...

Creating A Banana Circle...
http://www.permup.com/banana.html

Banana Circle In India...
http://goodnewsindia.com/pointreturn/online/home/2009/12/a-banana-circle/

Mistake # 7: Not Choosing And Managing Animals Wisely

While we all love animals you need to be aware that the placement and containment of animals is crucial to having them be a positive effective part of your edible garden (and to keep them from destroying it).

Dogs are wonderful, loyal animals and can be trained to protect your chickens and guinea pigs if you keep them.

But they can also eat a lot of meat and do a lot of damage to your garden and kill your chickens, guinea pigs and other native animals.

You may consider not keeping dogs and cats or having them highly trained.

In the same way chickens are fantastic animals for a food garden.

They give you high quality protein in eggs. You can eat the odd chicken.

They will dig you ground for you and eat pests and weed seeds preparing the area for planting.

But chickens left to run wild in a young garden can dig up seedlings, eat seeds that you were hoping to sprout, leave their manure on verandahs and other areas where it's unwanted.

Thinking through a fencing system carefully so the chickens can get access to the greens, bugs and seeds they need without destroying your garden is essential.

For more free resources and videos go to: http://www.PermacultureCairns.com
You also want an enclosure for chickens to roost in at night that is safe from dogs and snakes.

One of the simplest examples in the tropics is dividing a large area of the garden into two fenced parts and moving the chickens from one half to other every 3-6 months.

You plant heavily when the chickens are absent and give plants a chance to establish.

You also protect the roots of long term species like paw paws and other fruit tress with chicken mesh so these trees can mature and provide food to yourself and your chickens.

Over time the plants in the two pen system become mature enough that they provide a large part of the chicken's needs and your needs with very little maintenance.

But be aware that poor choice and management of your animals can be destructive for your garden, your home and your neighbours properties.

So choosing the animals you keep and being sure to contain them effectively in an area so they benefit your garden is vital.

**Mistake # 8: Not Eating What Grows Easily**

If you learn to eat and enjoy the food that grows easily in your garden then it's going to be a whole lot easier to grow a high percentage of your food needs.

In some cases this may involve developing new tastes or learning new ways of cooking food (all part of the exciting adventure).

Since eating from your garden will usually involve eating a high percentage of greens and vegetables it's going to be good for your health, good for your finances and good for your soul.

There's nothing that connects you to the earth more than growing and eating your own food.

There's a very good reason that being stable and happy is called being “grounded”.

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Mistake # 9: Not Using A Design System

This short report was designed to help you avoid the most common mistakes westerners make when they try to grow food in a home garden and to help you start growing a substantial amount of nutritious food in 3-6 months.

But designing your land to provide for your needs can go way beyond just growing food.

Every element in your garden design can serve many different functions beyond just feeding yourself.

Examples might be:

# Placing different elements in your garden and your overall system to get the maximum benefit with the least effort.

# Cooling your home. Plants provide shade and careful placement of plants can help shade the walls of your home and areas surrounding your home reducing heat.

In cooler months cutting back some plants intelligently may also help let the sun in helping to warm your home.

(This is just one small example. There are many other ways a well designed system can help keep your home cooler when it's hot and warmer when it's cold).

# Social. Growing food might help you to build deep relationships with neighbors who also grow food.

Many of these people might be older and wiser and you can benefit from that or they may be young and enthusiastic.

Expanding your social circle also tends to give you access to more resources for gardening and for many other areas in your life.

# Peace of mind. Having a food supply right out your back door means you don't have to worry where your next meal is coming from.

Food security is becoming a vital issue and will become even more important in coming years.

Current modern agriculture relies heavily on oil to drive agricultural machinery, to create artificial fertilizers and pesticides and to transport produce long distances to market.

For more free resources and videos go to: http://www.PermacultureCairns.com
As the price of oil increases the price of food will also rise...and this rise could become quite dramatic in “remote” areas like Cairns where food is traveling extreme distances to reach our stores.

When you grow food in your own home you don't have to worry about rising food prices or the potential for some food supplies to stop altogether in extreme circumstances.

Once you've developed the simple basic skills of growing your own food you can start sharing and teaching those skills with others.

# Financial. The average Australian household spends around $153/week on food and non alcoholic beverages.

Growing your own food could drastically cut those costs. You could also make an income growing and selling produce to your neighbors.

If there are 100 households within easy walking distance of your home you only need to pick up a tiny percentage of their $15,300 weekly food expenditure to make a nice income for yourself.

Or you could simply trade with your neighbors...your food for services and resources they can provide to you.

As your skill grows you may be able to make arrangements with neighbors to grow food on their land to increase your growing space.

# Designing parts of your property and surrounding areas for native wildlife.

# Effective catching and use of water on your property.

# Providing other needs like hot water (for example you can heat water with a compost heap).

# Reducing energy needs by using alternative methods like solar ovens, solar energy, cooking food in the barbeque with wood you've grown etc etc.

# Understanding patterns in nature and using those in your designs.

# And a whole range of other design issues way too numerous to list here.

For more free resources and videos go to: http://www.PermacultureCairns.com
One of the most effective ways to understand and implement all these design strategies is to study basic permaculture.

Permaculture is a proven design system based on care of the earth, care of people and sharing the surplus.

It includes ALL the elements required for a healthy sustainable lifestyle including building construction and design, designing or making over neighborhoods, growing food and providing for all your needs, the needs of your livestock and the needs of native wildlife.

For more free resources and videos go to: http://www.PermacultureCairns.com
**Cuttings And Advice**

Acquiring local varieties of plants and local advice is exceptionally valuable when you're growing food at home.

For cuttings, seeds and advice in Cairns you may get some free by looking over fences in your neighborhood and making friends with locals who are growing food.

Also you can get a range of advice from the Cairns permaculture group...  

The Limberlost nursery on 113 Old Smithfield Road, Freshwater also carries some useful, locally adapted plants.

Best of all you could talk to a highly experienced permaculture consultant like Bruce Zell (keep in mind that high quality advice, seeds and cuttings are valuable so you should be willing to pay something to an expert like Bruce):

Bruce Zell  
Kamerunga  
Phone: 07 40390621

If you would like to be added to this list of permaculturalists or local food growers willing to give away or sell cuttings please contact me through this help desk with your name, contact details and details of what you're willing to supply and I will probably add you to this report.

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
More On Plants

**Banana (musa sp.)**

In the west we think of bananas mainly as the ripe fruit but around 2/3 rd of the bananas eaten in the world are peeled and cooked in the green stage in stews, curries, baked or mashed in much the same way as you cook a potato.

When you've taken the bunch of bananas from a mature banana tree you cut it down so that the suckers around it will have light and room to grow and mature.

The tree you cut down can be used in various ways:

# The tender core of the trunk can be cut out and eaten in various ways (the Burmese use it in their traditional mohinga dish...a cooked soup that includes rice and fish).

# As mulch (you throw or roll it into the center of the banana circle or you can cut it up first to speed up its breakdown).

# The trunk can be used as a border to help hold in a raised garden bed.

# The trunks can be tied together and made into a raft (the trunks will float).

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Sweet Potato (ipomea batas)

A highly nutritious plant. You can eat every part of the sweet potato plant...the tubers, the leaves, the shoots.

The leaves are great in salads and soups, the tubers have many uses from frying as chips to soups, to boiled, steamed or baked vegetable and many other uses.

Growing sweet potato is simple.

Take around 30cm of the vine from a growing plant and plant it in the ground somewhere in a sunny spot.

Keep it well watered for the first couple of weeks and the plant will take off itself from there.

It also helps if you plant your sweet potato in mounds, raised beds or near the top of your banana circle (although you could plant sweet potato anywhere in a banana circle.

Sweet potato will take being waterlogged...the plant will survive and the leaves and vines will grow...but the tubers will often rot if they're in too much water too long.

If you don't have a growing sweet potato plant to take cuttings from you can get a sweet potato or two from the markets and put it in a shallow tray of water.

Shoots will grow from the sweet potato and you can plant those out.

Sweet potato is used in many parts of Cairns as an attractive ground cover planting for kerbs on the roadside or in the middle of the road.

For more free resources and videos go to: http://www.PermacultureCairns.com
**Sweet Leaf** *(Sauropus Androgynus)*

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Brazilian Spinach (Alternanthera sissoo)

For more free resources and videos go to: http://www.PermacultureCairns.com
**Pigeon Pea** (cajanus cajan)

Pigeon pea has many varied uses:

# It will grow in a variety of poor soils and will survive without a lot of water.

# The plant fixes nitrogen in nodules attached to its roots.

# You can cut the plant back for mulch and that will also make the plant free some of those nodules releasing nitrogen into the soil that your other plants can use (it's like fertilizing without having to use fertilizer.)

# The plant can be used as a living trellis for cherry tomatoes, beans, ceylon spinach and other small climbing plants.

# The green peas can be cooked and eaten like any green pea.

# Fresh young pods can be cooked and eaten like you would eat green beans.

# The young leaves can be cooked and eaten.

# The mature beans can be cooked and eaten and are used in many different dishes including the indian dahl.

# The leaves and mature beans can be used as valuable chicken food. Many people plant pigeon pea and other useful plants around their chicken pen to allow quick access to these sources of chicken food.

# The woody stems of the pigeon pea are used in some areas for firewood, fencing and thatching. [http://www.permaculturecairns.com/MoringaTree.html](http://www.permaculturecairns.com/MoringaTree.html)

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Moringa Oleifera

Possible uses for Moringa include:
# Eating the leaves raw (although most people don't like the taste much).
# Eating the highly nutritious leaves cooked in soups and other dishes.
# Drying the leaves and powdering them and using them as a food supplement.
# Leaves used as animal forage.

# Cooking the green immature seed pods (drumsticks) as a vegetable (like very large green beans). They have a taste similar to asparagus.
# Stir frying the mature seeds (stir fried they taste something like peanuts).
# Cold pressing the seeds to create an oil (used for cooking, cosmetics and lubrication).

# Cutting leaves and branches and using them as a high nitrogen mulch for other plants.
# As a companion plant with very light shade in the home garden and high nitrogen, year round leaf drop.
# Live fencing.

# And many other uses including medicinal uses.

Planting And Growth:

The Moringa tree is very easy to grow. Simply plant seeds, cuttings or seedlings in the ground in a sunny spot at the top of your banana circle rim (the trees don't like being waterlogged).

Hardwood cuttings of 30cm to 1 metre planted in the ground should grow vigorously. You can harvest the leaves at will and cut the tree back regularly for mulch or as a way of harvesting leaves.

For more information and videos on the Moringa tree go to...
http://www.permaculturecairns.com/MoringaTree.html

Approximate Nutritional Value Of Various Moringa Products:
(All values below are per 100 grams of edible portion)

**Green Pods 100g:**
Calories 26  
Carbohydrates 3.7 g  
Fat 0.1 g  
Protein 2.5 g  
Calcium 30 mg  
Carotene 110 mcg

For more free resources and videos go to: http://www.PermacultureCairns.com
Chlorine 423 mg  
Chromium 0.003 mg  
Copper 0.01 mg  
Fiber 4.8 g  
Iron 0.18 mg  
Magnesium 28 mg  
Manganese 0.05 mg  
Minerals 2.0 g  
Moisture 86.9 g (86.9%)  
Niacin 0.2 mg  
Phosphorus 110 mg  
Potassium 259 mg  
Riboflavin 0.07 mg  
Sodium 0 mg  
Thiamine 0.05 mg  
Vitamin C 120 mg  
Zinc 0.16 mg

**Dried Leaves:**

Calories 205  
Protein (g) 27.1  
Fat (g) 2.3  
Carbohydrate (g) 38.2  
Fiber (g) 19.2  
Ca (mg) 2,003  
MG (mg) 368  
P (mg) 204  
K (mg) 1,324  
Cu (mg) 0.57  
Fe (mg) 28.2  
S (mg) 870  
Oxalic acid (mg) 1.6%  
Vitamin A-B carotene (mg) 16.3  
Vitamin B - choline (mg) -  
Vitamin B1 - thiamin (mg) 2.64  
Vitamin B2 - riboflavin (mg) 20.5  
Vitamin B3 - nicotinic acid (mg) 8.2  
Vitamin C 0 ascorbic acid (mg) 17.3  
Vitamin E tocopherol acetate mg) 113  
Arginine (g/16gN) 1.33%  
Histidine (g/16gN) 0.61%

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
Lysine (g/16gN) 1.32%
Tryptophan (g/16gN) 0.43%
Phenylanaline (g/16gN) 1.39%
Methionine (g/16gN) 0.35%
Threonine (g/16gN) 1.19%
Leucine (g/16gN) 1.95%
Isoleucine (g/16gN) 0.83%
Valine (g/16gN) 1.06%

Please Note: the information about Moringa leaves having 4 times the protein of yoghurt, 4 times the vitamin A of carrots, 3 times the potassium of bananas, 4 times the calcium of milk while reasonably accurate can be misleading because you're comparing the weight of leaves to the weight of other solid foods.

It's a whole lot easier to eat 200g of bananas than 200g of leaf matter!

Many leaf crops are high in nutrition and adding leafy greens to your diet in multiple different ways is excellent dietary advice.

**Oil From Moringa Seeds:**

The oil from moringa seeds is a monounsaturated oil with similar nutritional properties and uses to olive oil (although moringa seeds do seem to be higher in protein).
Protein 38.3
Fat 30.8
Carbohydrate 16.5
Fibre 4.5

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)
**Crotolaria** (rattlepod)

Not edible but a very small nitrogen fixing shrub that can also kill nematodes enhancing soil health.

The seeds can be toxic to chickens if they eat too many. Grows from seeds. The plant can often be found growing as a weed on beaches and on empty plots of land.

There are many different varieties of crotolaria across the world.

Below is a photo of several crotolaria growing wild in Cairns. Note the yellow flowers and the seed pods which rattle when the seeds are mature...

Crotolaria seeds can be toxic to chickens if they eat too many and the plant can be poisonous to cattle so if you choose to plant crotolaria you do have to manage it wisely.

In the USA it is considered an invasive weed but in most other areas it is considered low risk.

For more free resources and videos go to: [http://www.PermacultureCairns.com](http://www.PermacultureCairns.com)