food for all seasons
All about food grown in Auroville

1st edition 2014

FOODLINK • Auroville
FOOD FOR ALL SEASONS – ALL ABOUT FOOD GROWN IN AUROVILLE

Eating is our strongest link to the earth that sustains us. The choices we make about what we eat are ones that have a powerful impact on the earth.

This book is a celebration of the food that we grow in Auroville. It will tell you about what we grow, how we grow it and how to make the most of our locally grown organic food.

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Food for all seasons – all about food grown in Auroville
Healthy food for healthy people living on a healthy earth

Organic farming provides you not only with food that is healthy for you, but also that is healthy for the natural system that we all depend on for our life here on earth.

What is organic farming?

The aim of organic farming is to work with natural processes rather than seeking to dominate them as happens in large scale industrial type farming which can have very negative effects on the eco-system. Organic farming is a positive way of being and connecting with the earth in the process of food growing that works with the rhythms of nature and is sustainable in the long term. In addition the use of non-renewable natural resources such, as the fossil fuel used for the manufacture of fertilisers and pesticides, is minimised. Organic farming principles also encompass high animal welfare standards, and contributes to the improvement of the farm’s environmental infrastructure.

Organic farming vitalizes nature’s biological cycles in...

... the soil - by building up soil fertility through crop rotation, the use of nitrogen (N) fixation by legumes, enhancing soil organic matter with compost, and avoiding pollution.

... the crop - by using varieties that grow well in the climate and soil conditions of the farm and are resistant to pests.

... the livestock by keeping animals in a humane manner that enables them to fully express their instinctive activities as well as building up their natural immunity to diseases.

... the farm by treating it as a holistic cycle where the different activities of the farm support each other – the dung produced by animals is used for compost which enables the plants to grow and which in turn, partially returns to the animals as food.

An organic farmer farms in a way that is sustainable. In agriculture this means balancing what is taken from the soil by crops with what is returned to it. To be truly sustainable these inputs should come from within the farm. Or account must be taken of the cost and resources needed to obtain these things from outside the farm. For instance, if manure is obtained from outside the farm the financial and other cost of the resources required to collect and transport it must be considered.

A very important aspect of organic/sustainable farming is to create a situation where all the activities on the farm integrate with each to support the food producing effort. The way this is done will depend on the nature of the farm, but the the way eggs are produced in Buddha Garden (a farm in Auroville) is a good example of this. On this 10 acre farm, no more than 40-50 local chickens are kept, which is all that can
be fed from what is produced on the farm. All the weeds coming off the vegetable beds are given to the chickens which eat what they can and eventually turn it into a very potent compost which eventually goes back on the beds. At the same time they produce a small number of organic eggs which are much enjoyed. Since the chickens are of a local variety they are well used to the climate and are generally very healthy.

Ideally, on an organic/sustainable farm, everything that is needed for food growing - from soil nutrients to seeds to pesticides - comes from the farm land. It takes some years to create such a situation and most Auroville farmers haven’t yet arrived, but are continuing to work towards it.

Organic farming is also often based on different holistic views of the world and this has given rise to a number of different organic farming methods. This includes: biodynamic farming, permaculture and Natural Farming all of which are used by Auroville farmers, having been adapted by them to the Auroville environment.

The practical work that Auroville’s organic farmers do every day is based on these general principles but taking into account the individual practical circumstances of the farm. Gradually, over the years, each farmer finds out what works for him or her based on the response of the farm to different inputs. This, like everything else in nature, is in a constant state of flux. This unending process of working with the natural elements of food growing, of becoming aware of the results of different efforts and then responding appropriately is, for many farmers in Auroville, not only a practical but also a spiritual practice. As the farms evolve, so too do the farmers.

What does 'organic' really mean?

As the worldwide demand for organic food has grown, increasingly many large businesses have taken over the organic concept as a marketing tool. In this situation ‘organic’ is just another niche market led by consumer demand for this type of generally more expensive food. It can be very good for their business, but not necessarily good for the earth or for producers. One can, for instance, buy ‘organic’ convenience food where the ingredients come from many different parts of the world. While each ingredient may have been grown organically huge amounts of energy may have been used and pollution produced in its creation and marketing. It is possible that some of the organic ingredients produced in less developed countries have not paid the growers a living wage.

As a result ‘organic’ has been redefined to include the cost of ‘food miles’ which is a measure of the carbon released in order to get the food from the farm to the fork. Other factors taken into account include water use and whether growers are receiving a fair return for their work. Increasingly organic farming is seen as a potent tool in efforts to mitigate carbon production in the atmosphere which is a factor in climate change. Research from the UK Soil Association shows that if all UK farmland was converted to organic farming, at least 3.2 million tonnes of carbon would be taken up by the soil each year¹. This is the equivalent of taking nearly 1 million cars off the road. A worldwide switch to organic farming could offset 11% of all global greenhouse gas emissions. Raising soil carbon levels would also make farming worldwide more resilient which is very important for long term sustainability and food security.

¹Report ‘Soil Carbon and Organic Farming’ from Soil Association UK
Another very important factor is that organic farming encourages the sustainable use of water. In the Auroville region we are confronted with a situation where 80% more water is being pumped out of the underground aquifers than is being replaced by yearly rainfall. If this continues it is unlikely that farming can continue in this region in the long term and it is part of Auroville’s five year sustainable agriculture plan to address this issue for all farmers in the bio-region.

As food consumers we need to reconnect with the source of our food and this can only happen if the food is grown locally. This limits the environmental costs of shipping food around as well as ensuring that growers are paid enough to make a living. In Auroville we have the advantage of having our own farms and to be able to eat organically grown local food. It is true that at some times of the year the variety of food we can grow is limited. Nevertheless, for our health and the health of the earth we need to make the best of the local food which is available.
Growing food

The seasonal cycle

The Auroville climate is not the easiest one for growing food, consisting as it does of two seasons when there is ‘too much’ – either of sun (hot season) or rain (monsoon). Increasingly the rains are becoming less reliable and all Auroville’s farmers have to rely to some extent on irrigation, especially for growing vegetables.

The summer rains

For farmers the growing season starts with the summer rains which are eagerly awaited after the heat of the hot season, hopefully arriving sometime during June, July or August. Often there are storms which tend to come at night although the days are sunny. This combination of rain and sunshine is perfect for growing a wide range of crops and especially Indian vegetables.

The monsoon

Although the monsoon rain is very welcome, especially for farmers growing rice, it can rain very hard and too much rain can come too quickly that leads to flooding and other damage. This is the time of year when we can get cyclones (also called hurricanes or typhoons) which are deep depressions which drift over us from the nearby sea. They can be very destructive indeed with strong winds and heavy rain which leads to flooding and destruction of vegetable plants, fruit trees and cereal crops. During this time farmers grow what they can and are happy with anything that can be harvested.

The cool season

The cool season starts when the monsoon ends in mid December and lasts to the middle of March when temperatures start to rise. Nights are cool and days are bright and sunny. For the farmer this is a magical time as almost anything will grow, especially European vegetables like tomatoes and lettuce which are much appreciated by Aurovilians and the many guests who come at this time of year. It is not, however, cool enough to grow potatoes, cauliflower, broccoli and although some farms manage sometimes to grow carrots, these do not grow easily even at this time of year.

Growing rice and other grains

The rhythm of growing rice and other grains is closely aligned with the rains especially when there is no irrigation.

Rice

Much of the rice consumed in Auroville is grown in Annapurna and the description of rice growing that follows is based on the way they do it there. Rice growing is very dependent on the rainfall, even when there is irrigation, and the growing process usually starts sometime in September provided there has been enough rain to make the soil wet.
The process begins with making the special beds for growing rice seedlings. These are small beds about 350 square metres in size which are cultivated with a power tiller and made level. This process is known as puddling. The beds are then flooded to a depth of about 2 cm, just above the surface of the soil. The rice seeds are prepared for sowing by being washed in salt water to get rid of the husks and then put in a container and covered with water for about twelve hours. The seeds are then drained of water and left for 12-24 hours to germinate. Once the water in the beds has gone clear the seeds are sown.

After two days when the rice has started to sprout they will be given more water and this will be continued every three days. After three weeks the seedlings will be at the optimum point for transplantation into the rice fields.

Each rice field is about 750 square metres in size and needs to be flooded to a depth of 5-10cm before being puddled. This is done with power tools consisting of what is known as a cage-wheel (an open wheel made of pieces of metal) on the tractor and a power tiller which is a mechanical digger that someone pushes through the mud. One trailer load of compost is used for each field and the green manure that has been growing on the field will also be dug in during this process. The soil needs to mixed up very well into a soft mud. Finally the mud is levelled and the bunds around the field are repaired if necessary to keep in the water. The field is left for one day after puddling and then the seedlings are transplanted. This is traditionally a job undertaken by women who plant the seedlings by hand 30cm apart, two seedlings in each hole.

As soon as the transplanted seedlings put out green shoots the field is flooded again and is then flooded every other day unless it rains. After 15-30 days weeding has to be done, another job traditionally undertaken by women and which has to be done by hand. Weeding will be done at least once and if there is sufficient time and human resources it will be done twice. The soil must be kept wet, either through irrigation or by the rain, until the plants flower. Once that happens the fields can be pumped dry and the plants left to produce rice.

It takes about four months for the rice to grow and ripen after which it will be harvested, again by hand, and taken for threshing when the rice and the straw will be separated. The threshing will be carried out with a paddy thresher, a machine which goes on the back of the tractor. Some of the straw obtained from this process will go back to the field as organic matter to improve the soil. The rest will be dried, bundled and fed.
to the cows. This organic food source ensures that the cows at Annapurna produce organic milk.

Auroville include ragi, samai, kumbu, varagu and tennai all of which, unlike rice, have within them a range of micro-nutrients which are good for health.

Since rice and all these other grains are grown, processed and dried they are usually available throughout the year.

Growing vegetables

Vegetable growing in Auroville is usually carried out using intensive irrigated vegetable beds although a few farmers grow vegetables as field crops. These latter, however, can only be grown at the time of the year which is exactly right for the plants whereas on irrigated beds the season can be extended and for some vegetables it means they can be grown all year round.

Other grains

A variety of other millet grains are grown in Auroville. These have the advantage over rice that they need much less water to survive. They are known as ‘rain fed crops’ as they are not irrigated and depend entirely on the rain and will grow even when the rain is very irregular. They will also grow where the soil is less good. Millet grains grown in

The rice kernels are at this stage known as ‘paddy’ and they have to be dried and then winnowed to get rid of the husks. This is done several times after which the paddy is put through the de-stoning machine to take out small stones and mud. This makes the best quality paddy or ‘full grain rice’. Care has to be taken that the rice is not dried too much otherwise it breaks and must then be sold as second quality ‘broken rice’. The husks are winnowed by hand for a second time to get the second quality rice which is not quite full grown. This rice is still a good quality rice but will have to be sold first as it does not have the keeping qualities of the full grown rice obtained through the first winnowing process. The husks are used both as cow food and as mulch cover for the soil.

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Growing fruit

Most farms have an orchard consisting of a variety of different sorts of fruit trees and often have other fruit trees dotted about in different parts of the farm. Papayas and bananas that need irrigation are usually grown in separate areas.

Is it really ripe?

When a fruit or vegetable becomes mature it undergoes a process known as ripening. Ethylene gas, produced by the plant, is an important substance in this process. It increases the activity of chemicals within the fruit which becomes sweeter, less acidic, softer and generally more edible as well as changing in colour.

Some fruit and vegetables, like cherry, cucumber, grape, lemon and pineapple need to stay on the plant until they are ripe. Others like apple, banana, melon, papaya and tomato can be picked and continue to ripen off the plant. Since ripe fruit and vegetables are often difficult to transport much of what we buy in ordinary shops is artificially ripened. Using this process the rate of ripening is controlled, thus enabling transport and distribution to be carefully planned.

How is this done?

One method is to saturate the fruit with ethylene gas instead of waiting for the plant to produce it. Fruit and vegetables are harvested green, put in an air tight place which is then filled with ethylene until the fruit ripens. This process has enabled tropical fruit such as mangoes and bananas to be shipped to distant markets.

Unfortunately fruit and vegetables ripened under these conditions may have less healthy qualities than those ripened naturally. Artificially ripened produce contains less phytochemicals which are different kinds of sugars necessary for healthy functioning of cells in human beings.

A much more problematic and potentially poisonous way of ripening fruit is to use calcium carbide, a chemical more commonly used in welding. It is much cheaper than ethylene gas but the treatment is potentially very hazardous as in the ripening process traces of arsenic and phosphorous are produced which can settle on the fruit.

How do you recognize fruit that has been artificially ripened in this way?

Look carefully, and if the fruit or vegetables are of a uniform colour, carbide has probably been used. If the fruit tastes bland and is watery then it has almost certainly been ripened artificially.

All the fruit and vegetable coming from Auroville farms is naturally ripened. Which not only tastes better but is more healthy for you and the environment.
Seasonal Food

Each season has its special food and what follows is information about the different vegetables and fruit that you can enjoy at different times of the year. At the end is information about the different sorts of Auroville grown grains that are available year round.

Summer rains

Vegetables and fruit that you can enjoy during this season includes:

- ladies finger
- maize
- beans
- pumpkin
- basil
- cucumber
- bananas
- pommeloes
- starfruit

Ladies Finger

This is a plant, a species of mallow, that is thought to have originated in the Ethiopian highlands and which over the centuries has spread to almost all tropical countries. Given the wide extent of its use the plant is known by many different names including "okra" which is thought to be of West African origin, "bāmyah" which is the basis of the names in the middle east, eastern Europe and north Africa. In India it is known as ‘bhindi’ or ‘vendikai’ in Tamil.

Ladies finger is a plant that is heat and drought tolerant and will grow in poor soils so is a very good vegetable to grow and eat in this area. The ladies finger that you usually get in Auroville are the immature pods which are picked and eaten as a vegetable. Interestingly in the north of India ladies finger is eaten when it is very small and is often served whole. In Tamil Nadu the vegetable is picked when it is much larger so it is normally sliced up before cooking.

The pods are mucilaginous, a characteristic which is intensified when the seed pods are cooked. If you don’t like this you can either stir fry the sliced vegetable, which dries up the mucous, or cook them with a slightly acid ingredient such citrus or tomatoes.
Maize and sweetcorn

What is the difference between maize and sweetcorn? It comes from the same plant but whereas sweet corn kernels (the yellow seeds on the cob) are sweet and tender, maize kernels are hard and tough for humans (but not animals!) to eat. This happens because as the cob ages the sugar in the kernels is converted by the plant into starch. There is about a week to ten days in the life of the plant when the cobs are sweet and in Auroville this is when they are picked and sold as sweet corn.

Each cob has a ‘tassle’ on the top composed of filaments of corn silk which cover the kernels and which is removed before the cob is cooked and eaten. A tea made out of corn silk is very good if you have bladder problems or just want a drink that feels warm and soothing in your stomach.

It is possible to obtain seeds of ‘sweet corn’ where the cobs remain sweet for the whole life of the plant. These seeds are derived from a natural genetic mutation that stops the plant converting sugar into starch within the kernel. Eventually some of these seeds were obtained for Buddha Garden but trying to grow them turned out to be much more difficult than anticipated. They were so sweet that every living thing in the garden came to have a bite. It is usual to lose some sweet corn to parrots but these cobs were so sweet they attracted insects and mongoose as well as birds. The animals and birds could be kept off the plants with nets but it was impossible to keep off the insects who managed to crawl in through whatever the barrier was erected. It was a race to see whether the cobs would ripen enough to pick before they had been eaten by everything else in the garden. They tasted delicious, much sweeter and more tender than the normal plants, but in the end there were only two cobs from ten plants. As a result Buddha Garden now grows ordinary maize which is picked when the cob is immature and is known as ‘young maize’ and tastes a lot like sweet corn.

Originally sweet corn was grown by native American tribes and the first sweet corn seeds were given to European settlers in the eighteenth century. These plants were planted using a complex system of companion planting known as the Three Sisters. Beans were planted in the same hole as the corn seed and as the two plants grew the bean used the corn plant for support. Pumpkins were planted between the corn and beans to provide ground cover which also kept the weeds from growing. Beans fix nitrogen in the soil and thus provided nutrients for the other plants.
Maize is widely cultivated throughout the world and more maize is produced worldwide than any other grain – even rice or wheat. Almost half of the world’s harvest is produced by the United States and over half of that has been genetically modified for pest and/or herbicide resistance. If maize is used as a grain, rather than as a vegetable, the kernels are used to make flour which is used to make the porridge, dumplings and other corn flour foodstuffs found in different parts of the world. In India maize flour is used to make wadai as well as improving the texture of dosai and idly.

In the USA and Canada the primary use for maize is as feed for livestock. Increasingly it is used as a heating fuel and industrially is used for making plastics (the bio-degradable kind) and fabrics. In the form of corn syrup it is much used as a sweetener in many convenience foods. It can also be made into alcohol and is traditionally the basis of bourbon whiskey. Increasingly it is being used to produce ethanol which is a ‘bio-fuel’ thought to be less polluting and generally more environmentally friendly than fuel from oil derivatives. Because of this the 2007 maize harvest was one of the most profitable in modern history, but this has caused a rapid rise in food costs. This of course brings into question whether bio-fuels are really as environmentally friendly as they are described.

Green Beans

Beans have been grown almost ever since agriculture began and along with gourds are one of the longest-cultivated plants. Records show that broad (fava) beans were grown in ancient Egypt and many species of bean originated from the Americas more than 7000 years ago in what is now Mexico and the Andes and spread from there to the rest of the world. Over thousands of years, farmers grew complex mixtures of bean types as a hedge against drought, disease, and pest attacks. This process has produced an almost limitless array of beans with a wide variety of colours, textures, and sizes to meet the growing conditions and taste preferences of many different regions. Beans have been, and still are, a staple part of the diet of many people, being equivalent in protein and vitamins to meat but much easier and cheaper to produce. What are known as ‘green beans’ are not necessarily green in colour but are unripe beans which are eaten as a vegetable.

For Auroville farmers beans are invaluable as they bring nitrogen to the soil and are therefore an essential part of any crop rotation and soil maintenance program. During the period of the summer rains the main seasonal beans are cluster beans and avarakai beans. At this time you will also be able to find long beans which in Auroville are grown throughout the year and are often hard to find outside Auroville. Wing beans are exceptionally nutritious but are hard to sell in Auroville – they do not keep very well and for many people who came to Auroville in the beginning, wing beans are associated with a poor diet and not having enough to eat.
Basil

There are many different varieties of basil which feature prominently in the food of Italy, south and South East Asia.

Throughout the world the power of this plant is acknowledged by many different groups in rituals and beliefs. In France it is known as 'the royal herb' and in Italy it is a symbol of love, although in Greece and some other parts of Europe it is thought to be the symbol of Satan. Many of the Christian orthodox churches use basil to prepare holy water and in ancient Greece and Egypt leaves of the plant would be placed between the hands of the dead to ensure that they reached the gates of heaven. In Africa basil is thought to protect against scorpions.

In India the local variety of basil is known as tulsi and is cultivated for religious and medicinal purposes. It has many uses in Ayurveda (the local healing system) as well as various religious rituals. For centuries, the dried leaves of tulsi have been mixed with stored grains to repel insects and many Auroville farmers use tulsi together with neem leaves when making biological pest sprays.

Tulsi, which can be taken as a tea, dried powder, fresh leaf or mixed with ghee, is considered to be very good for balancing the different processes in the body, and helpful for adapting to stress. It is regarded in Ayurveda as a kind of "elixir of life" and believed to promote longevity. It is thought to be useful for a wide variety of conditions especially skin preparations due to its antibacterial qualities.

The basil that we grow on our farms in Auroville and sell in Pour Tous are different varieties of the sweet basil that is grown in Mediterranean countries. It can be used as a herb in many different dishes although is best added towards the end of the cooking to preserve its distinctive smell and taste.

Cucumber

This is one of four vegetables that originated in India, the others being egg plant (brinjal), Indian mustard and cow peas. The vegetable spread westward from its origins long before written history and has been cultivated for such a long time that wild cucumbers do not now exist, although related plants can still be found. There is great diversity in size, colour and texture from small thick, stubby little fruits, three to four inches long, often known as gherkins and used for pickle, up to the...
English greenhouse varieties that often reach a length of nearly two feet.

Cucumbers are highly nutritious and are a good source of sulphur, silicon, chlorine, potassium, sodium, magnesium, and fluorine. They can be used in a wide variety of different ways either in raw or cooked food or in pickles and are also said to help aid digestion and constipation. They can be used as a beauty aid for the skin.

**Star fruit**

Originally from Sri Lanka and the Moluccas, this fruit gets its name from the star shaped slices that are made when it is cut up. It makes an excellent fruit juice with a refreshing taste which can also serve as the base for mixed fruit juice. It also makes a good jam and is often used as a garnish and can also be put in salads. Star fruits are an excellent source of vitamin C.

**Banana**

Bananas come originally from Southeast Asia and Australia although today they are cultivated throughout the tropics. Because of their size and structure bananas are often mistaken for trees, but they are bushes as the main or upright growth (called a pseudostem) is not a trunk which is a characteristic of trees. This stem can grow very tall although many Auroville farmers prefer to grow the shorter varieties of bananas as they are easier to manage and are less likely to be blown down in a high wind or heavy rain.

Each pseudostem produces a single bunch of bananas after which it dies and is replaced by a new pseudostem. The banana fruit grow in hanging clusters, with the fruit growing upwards, with up to 20 fruit to a tier. This is known as ‘a hand’ of bananas. At the end of each stem is a very large flower and this is used locally in cooking. In Southeast Asia it is considered a very good food for breast feeding mothers and is often given to them in the weeks after giving birth.

Since bananas grow so quickly and produce so much they need to be fed very well. Where bananas are an export crop and not grown organically, the negative effects on the...
environment and people are considerable. The plants are grown very close together so that huge amounts of fertilizer and pesticides are needed, which poisons the earth and leaches into the rivers and wells. People working in the banana plantations, who have to administer the pesticides, often suffer from very poor health.

All the bananas grown in Auroville are grown organically with sensitivity towards the amount of feeding and watering they need. Since water is not that plentiful in this area the amount of bananas we can grow here is necessarily restricted. It is also important that the energy of the plant is directed to the main fruit bearing stem so all but one of the suckers which tend to grow in great profusion around the plants, are cut away. When the fruit is harvested the stem is cut and then cut up and used as mulch for the plant and the one sucker grows up to produce the next crop.

Popularly "a banana" refers to the soft, sweet "dessert" bananas that are usually eaten raw and which come in a variety of sizes and colours. Anyone coming from the west has probably been exposed to only one variety of banana (known as ‘Cavendish’) that is grown for export and has qualities that enable it to be grown and shipped in bulk. One of the delights of being in a tropical country is being able to enjoy the differences in taste and texture of the many different varieties of banana that are available. At Brihaspathi Farm green cooking bananas are grown and regularly sent to the Solar Kitchen where they are used to make a variety of different savoury dishes.

**Monsoon**

- Radish
- Pumpkin
- Lettuce

- Oyster mushrooms
- Lemon

**Radish**

The radish is an edible root vegetable that was first domesticated in Europe in pre-Roman times and is related to mustard and turnip plants. There are numerous varieties varying in size and colour but the one grown most commonly in Auroville is the white radish sometimes known by its Japanese name of ‘daikon’. It looks rather like a white carrot with a bunch of green leaves growing from its top. Like the root these leaves have a peppery taste and can also be eaten. Sometimes during the cool season you may come across the small red European type radishes but they don’t grow well in the climate here apart from a very short time in the cool season. So if you like them you will need to get them when you see them.
The Greek name for these plants – Raphanus – means 'quickly appearing' and refers to the very rapid germination of the plants. In the Auroville area, however, this will only happen when the night temperature is sufficiently cool – around 25°C. When the farmer plants out seed that is slow to germinate it is nearly always because the night temperature are not cool enough. These root crops prefer a light soil so much of the soil in Auroville farms – being of clay and rather heavy – do not suit these plants very well although as tough plants they do survive. They quicker they grow the better they taste and provided the rain is not too heavy and or the soil does not get waterlogged, monsoon time provides the best environment for this to happen. They are quick maturing plants that are ready to eat within a month of the seeds being planted.

Radish is low in calories with a peppery flavour and lots of crunch which provides good amounts of potassium, vitamin C, folate and fibre. Several cultures believe that the white radish is a very effective digestive aid and will provide small plates of grated radish to eat with fried foods and other heavy dishes to help digest the meal. Radishes are thought to have an array of healing properties and in this part of the world are considered to be very effective for various types of liver disease, especially hepatitis.

**Pumpkins**

The pumpkin season in Auroville is usually quite short. This is because the plants cannot be planted until August and take three months to grow, by which time it is almost the monsoon when it is too wet and cold for the plant to continue growing and producing. The hybrid seeds that are generally used seemed to only grow during this very short time.

In Buddha Garden a local variety of pumpkin is being grown that gives pumpkins all year round and the story of how this happened shows how plants adapt to local conditions. The story starts with a rogue pumpkin plant that found its way onto one of the vegetable beds. Not only did it grow very strongly but it also produced a huge pumpkin – which is very unusual for the hot season.

The seeds from the original pumpkin were dried and ever since then pumpkin plants have been grown continuously all year round. Each time the plants grow and produce seeds they become more adapted to the particular conditions in Buddha Garden and the plants now grow and produce pumpkins at most times of the year. During the cyclone in November 2008 the pumpkin plants were completely flooded – the leaves could just be seen poking above the water – and everyone thought they must surely die. Miraculously, once the water had gone, the plants not only continued to live but to produce pumpkins. They were too small to sell but produced seeds that in future times will produce plants that can deal with excess amounts of water. Growing plants in this way so that they adapt to local conditions is
a slow process (at least six generations have to be grown before full adaptation is achieved) but the plants that are a result of this process have a symbiotic relationship with all the elements of the environment to which they have adapted.

Pumpkins are rich in vitamin A and potassium and are therefore a very useful vegetable for creating food security. They can be used in a wide variety of dishes and pumpkin seeds, which provide protein and iron, make a nutritious snack. In some places pumpkins are also an important animal food.

**Lettuce**

Lettuce first becomes available in small quantities during the monsoon and as the weather gets cooler more can be grown as this plant prefers the cooler weather both for germination and growth.

Originally this plant comes from the temperate regions of the world and is a member of the daisy family. Both the English and Latin name for the plant derives from 'lac' the Latin word for 'milk' which refers to the plants milky juice found in the leaves when they are cut from the plant. Lettuce was considered an aphrodisiac food in Ancient Egypt and Ancient Greek physicians believed lettuce could act as a sleep-inducing agent. For this reason lettuce would often be eaten at the end of a meal to induce sleep.

The most important nutrients in lettuce are vitamin A and potassium. The vitamin A comes from beta carotene, whose yellow-orange is hidden by green chlorophyll pigments, beta carotene being converted to vitamin A in the human body. The darker green the leaves, the more beta carotene. Lettuce, except iceberg, is also a moderately good source of vitamin C, calcium, iron and copper. The spine and ribs provide dietary fiber, while vitamins and minerals are concentrated in the delicate leaf portion.

**Oyster Mushrooms**

Monsoon is not an easy time for farming. Heavy rain or stagnant water can easily destroy a crop. But this time of the year is definitely the best for mushrooms to grow.

These mushrooms are grown organically by Anbu in Windarra Farm. They are harvested every morning and are immediately delivered so freshness and low food-miles are guaranteed.

The oyster mushroom is a common one prized for its edibility and lack of confusing look-alikes. Long cultivated in Asia, it is now cultivated around the world for food. It is frequently used in Japanese and Chinese cookery as a delicacy: either served on its own as soup, sometimes stuffed, or in stir-fry recipes with soy sauce. The mushroom's taste has been described as a mild with a slight odour similar to anise.

The oyster mushroom has a high nutritional value for its high level of vitamins (C and B complex), proteins and its non-saturated fatty acids. It has most of the mineral salts required by the human body.

It may be considered a medicinal mushroom due to the fact it contains statins such as lovastatin which work to reduce cholesterol without any bad effect on the liver and kidney. It helps to reduce blood glucose and blood pressure and to cure diabetes, ulcer, anaemia and obesity.

**Lemons / limes**

What are known as ‘lemons’ in Tamil Nadu are in fact limes. They are part of a group known as citrus which includes oranges, grapefruit and lemons. This tree is thought
to originate from north western areas of India and to have spread to the middle east and Mediterranean. India, with about 16% of the world's overall lemon and lime output, tops the production list, followed by Mexico (14.5%), Argentina (10%), Brazil (8%) and Spain (7%).

Unlike other citrus trees grown in Auroville the local lime tree can cope with the climate and does not need any extra watering once it has been established. Since we do not have a cool winter these fruits retain their green colour even when they are ripe. This is true for other citrus plants such as masumbe oranges that are usually more green than orange.

Citrus fruits are notable for their fragrance, and the juice contains a high quantity of citric acid giving them their characteristic sharp flavour. They are also good sources of vitamin C and flavonoids.

**Cool Season**

- Tomatoes
- Roccolla
- Brinjal
- Sweet potato

- Rosella
- Bananas

**Tomato**

Tomatoes are one of the most popular vegetables in Auroville but they can only be grown locally during the cool season. Auroville Farmers have tried to grow them at other times, but so far only very small amounts have been produced after a large amount of work.

The tomato originated in the highlands of the west coast of South America and is related to potatoes, chillies, tobacco brinjal (egg plant) and the poisonous nightshade from which belladonna, a heart drug is obtained. After the Spanish colonization of south America the Spanish distributed the tomato throughout their colonies in the Caribbean and the Philippines from where it spread to Southeast Asia. The Spanish also brought the tomato to Europe where it grew easily in the Mediterranean climate and was used as a food. While the tomato was grown in Britain at this time it was believed to be poisonous and unfit for eating and this did not change until the mid 1700’s. In Victorian times tomatoes were cultivated on an industrial scale in heated green houses and were used in a wide range of dishes. Nowadays tomatoes are grown in most areas of the globe and it is one of the most popular ‘industrialised’ plants being grown in huge green houses where the climate can be controlled.
The tomato is botanically a berry which is a kind of fruit although it is nutritionally categorized as a vegetable. Since "vegetable" is not a botanical term, there is no contradiction in a plant part being a fruit botanically while still being considered a vegetable.

There are a great many varieties of tomatoes (about 7,500) and many hybrids which have been bred for their disease resistance, productivity and shelf life, sometimes at the expense of their taste. Tomatoes can be divided into several categories based mainly on their shape and size. So called ‘globe’ tomatoes are the usual hybrid variety which has a good shelf life as well as being used for a number of commercial purposes. Beefsteak tomatoes are large and are difficult to grow in Auroville as the heat often leads them to burst out of their skins. Plum tomatoes, as their name suggests, are plum shaped and often bred with a high solid content that is good for making tomato sauce and paste. They usually fruit very heavily and ripen all at the same time – a definite advantage if the tomatoes are going to be canned and therefore needed all at the same time. Cherry tomatoes are small and round and often very sweet and are much prized in Auroville for use in salad.

Farmers in Auroville grow a wide range of tomatoes in different colours and shapes. The local so called ‘country tomato’ is the local variety and is small and sweet with a thin skin so unfortunately does not travel very well and doesn’t last long on the shelf.

Tomatoes are now eaten freely throughout the world, and their consumption is believed to benefit the heart among other things. They contain lycopene, carotene, anthocyanin, and other antioxidants which are thought to protect against various sorts of cancer and has been shown to improve the skin’s ability to protect against harmful UV rays. In addition they contain vitamins C and A. The colour of the tomato does not make any difference to its nutritional content.

**Rucola**

Rucola, also known as Rocket, Roquette and Arugula is a leafy vegetable that looks a bit like a lettuce but has a hot peppery taste. It has been grown in the Mediterranean area since Roman times where it was considered an aphrodisiac. This vegetable has only been cultivated on a large scale since the 1990’s. Before then it was usually collected in the wild or was cultivated on a very small scale in a corner of the domestic garden.

In Auroville this plant can be grown for six months of the year starting in the summer rains. Unlike lettuce it will germinate at higher temperatures and seems to tolerate the heat better although once the hot season arrives it bolts and stops producing leaves.

This plant is generally used in salads but can be cooked as a vegetable with pasta or meat.
In parts of Slovenia it is added to cheese and is also used as part of the topping on pizza. It is sometimes used as an ingredient in pesto, either in addition to basil or as a non traditional substitute.

Brinjal is also known as ‘eggplant’ because when it was introduced to the Americas and Australia, (in the 18th century) from this part of the world where it originated, the vegetables were mainly yellow or white and resembled goose eggs. Nowadays when we think of brinjal we tend to think of purple vegetables, but in fact this vegetable comes in a very wide variety of size, shape and colours.

Although farmers normally grow it as an annual, with new plants being cultivated each year, the wild variety is perennial which means that it will go on growing indefinitely. Even as an annual plant, however, it goes on producing for six to eight months. If the plant is well established it will produce during the climatic extremes of the monsoon and the hot season, which is where it probably gets its reputation for toughness.

Over the years brinjal plants have spread all over the world and is used in many different ways in various cuisines. A simple way to cook brinjal is to slice it and then to fry it with garlic, adding chilli and turmeric spices and salt. Beware, however, if you are trying to lose weight. Much is made of the low calorie/high nutrient value of brinjal, but they are capable of absorbing a lot of oil. If you fry them you therefore add a lot of calories as well as taste.

Sweet Potato

The sweet potato is neither a potato or a yam. This plant has never recovered from the confusion caused when the first Europeans, members of Columbus’ expedition, tasted them in 1492. There were a number of different names for the plant but the one that stuck was the Taino name of ‘batata’. Later this developed into a similar name for a different vegetable – the ordinary potato which although it looks similar is a completely different type of plant.

Sweet potatoes come in many different sizes, shapes and colours, but the ones grown in Auroville are either red or orange, the former with white flesh and the latter with
slightly orange flesh. Both the roots and the leaves can be eaten.

Besides simple starches sweet potatoes are rich in complex carbohydrates, dietary fibre, beta caretone (Vitamin A) as well as vitamins C and B6. Because the plants are so rich in nutrients and are drought resistant, in many countries of Africa they are grown as a subsidiary crop which will provide food even if the rains fail. Sweet potatoes are far superior in nutritional value to the ordinary potato and were an important part of the diet in the United States for most of its history, especially in the southeast of the country. The average per capita consumption now is only about 2kg/year, down from 13kg/year in the 1920’s. From the middle of the 20th century sweet potatoes became less and less popular, maybe because they were associated with hard times. When people became affluent enough to change their menu sweet potatoes were served less often.

**Rosella**

This plant is a native of tropical West Africa and does well in the Auroville climate. It is an annual shrub and the way that many farmers in Auroville grow it is to have patches of the plants which self seed each year. It is related to the ladies finger plant and the pale yellow flowers are very similar. Unlike the ladies finger it has no pest problems, is hardy and productive and needs little or no care.

The plant starts fruiting during the monsoon and continues until the end of the cool season. The main problem for farmers is that the fruit has to be cleaned – i.e. the fleshy calyx taken from the seed pod that it surrounds. This is a very fiddly and time consuming job that greatly increases the price of the fruit.

In Auroville the fruit is used mainly for making jam and juice and it can also be used in salads, jellies and to make wine. The dried fruit is an important ingredient in several commercial herb teas and the Auroville equivalent can be purchased as a tea – either by itself of mixed with dried lemon grass. The young leaves can be used as spinach and the seeds make a very good and nutritious chicken food.

**Hot Season**

Many vegetables have difficulty growing in the hot season, but it is a wonderful season for all sorts of fruit.

**Vegetables**

- Bottle gourd
- Drumstick
Gourds were one of the first vegetables to be domesticated and grown by humans, but originally there were probably grown as a container rather than to eat. The dried and cored thick outer skin has traditionally been used to make musical instruments like the tanpura and veena in India. Container gourds can be round (when they are known as calabash gourds) or bottle shaped and hence the name of bottle gourd.

In Auroville we mainly grow the bottle gourd which is often known as ‘lauki’ which is actually the Urdu name for this vegetable. In Tamil they are known as sorakkay but this usually refers to the local variety of large round gourds. Bottle gourds can be quite large but the smaller ones – sometimes called ‘baby lauki’ - can be used like courgettes. The plant probably originated in Africa and India although it is now widely cultivated throughout the topics. It likes warm and humid weather and is one of the few plants to grow well during the Auroville hot season, although you may find it in Pour Tous at other times of the year.

This vegetable has a high moisture content (so is a good low calorie food) yet contains significant amounts of calcium and phosphorus with small amounts of iron and vitamin B complex.

**Drumstick**

Drumstick - or Murungakai’ as it is known locally – comes into full production during the hot season. Originally from Tamil Nadu this tree is now widely cultivated in Africa, South America, Sri Lanka, Mexico, Malaysia and Philippines. It is an exceptionally nutritious tree where almost every part, leaves, flowers, fruit, bark and roots can be used for food or medicine. It will grow in arid and semi arid regions, on poor soil and in coastal areas. It is drought resistant and fast growing with trees able to produce drumsticks within a year of planting.
The green pods, called “drumsticks” are probably the most valued and widely used part of the tree. Probably the easiest way to use them is to cut them up into short lengths, boil them and add them to a sambar or other vegetable mixture. Seeds can be removed from the riper pods and roasted like nuts for eating. Seeds are also a source of oil which has many uses including cooking and cosmetics. The seedcake remaining from the oil producing process can be used as a fertilizer and to purify water. The flowers can also be cooked and eaten.

The leaves are particularly nutritious, being a significant source of beta-carotene (which turns to vitamin A in the body), vitamin C, protein, iron and potassium. A tonic can be made by boiling the leaves in the evening, leave to stand overnight and then drink in the morning after adding a little salt. The leaves can also be cooked and used like spinach as well as being dried and powdered and added to soups and sauces. The leaves are full of medicinal properties which are used in Siddha Medicine. They also make an excellent and nutritious food for cows.

Locally the tree is considered to be a useful part of a dowry for women getting married. With a cow or goat and a large drumstick branch to plant a woman could be totally self sufficient and able to feed herself and her animals. Not surprisingly this tree is used in combating malnutrition and has been used for this purpose in many parts of Africa.

Snake Gourd

The snake gourd is a local vegetable, which can be up to 2 meters long and curl up into strange shapes unless a stone is tied to the bottom of the vegetable to keep it straight. Many farmers now use hybrid varieties, which are straight and shorter and are therefore easier to transport. As they mature they turn brilliant orange and then red, but at this stage they are not good for eating.

Snake gourds grow well during the very hot weather and in Ayurveda it is considered to be a food that cools the body. Young snake gourds do not require peeling although the seeds in the centre need to be taken out and discarded as they taste rather bitter. With its mild taste snake gourd can be added to any vegetable mixture or curry.
Spinach

Spinach is an edible flowering plant that is thought to have originated in ancient Persia from where it spread into India, China and Nepal. It reached Mediterranean areas in the tenth century and from where it became a popular vegetable in the Arab Mediterranean known as ‘captain of leafy greens’.

In this area spinach is known as ‘keerai’ and there are many different varieties, both cultivated and wild.

Spinach is highly nutritious and is an extremely rich source of iron although this is poorly absorbed unless it is eaten with vitamin C. It is also extremely rich in vitamins A, C, E, K and B as well as a range of micro-nutrients and particularly folic acid. To benefit from these nutrients it is best to eat the spinach either raw or only lightly cooked.

Mango

The mango is a wonderful tree to grow in this area as it needs no watering and can last for hundreds of years. This tree is indigenous to India and originated in the Himalayas where some of the original wild mango trees still grow although their fruit is small, bitter and tough, making them unsuitable to eat. The mango is now cultivated in many tropical regions throughout the world.

Mangoes, of which there are over one thousand varieties, is one of the most extensively exploited fruits for food. More mangoes are eaten fresh than any other fruit in the world. Though India is the largest producer of mangoes in the world, it accounts for less than one percent of the global mango trade.

Nutritionally the mango is identified as a ‘super-fruit’, a term used to highlight the value of certain fruits for health. Mangoes contain many essential vitamins and dietary minerals including vitamins A, C, E, B6 as well as essential nutrients such as potassium, copper and 17 different amino acids. They also have good quantities of fibre and aid digestion and are also low in calories. Like papayas they also contain enzymes that tenderize meat. With these qualities it is unsurprising that mangoes are called amrita – fala, the fruit of immortality.
More than any other local fruit the mango is most likely to have been ripened artificially. This means that its nutritional value will be less as well as the possibility of containing traces of the poisonous gas used in the artificial ripening process.

Papaya

Papayas grow all year round in Auroville but are particularly plentiful in the hot season. This tree was originally cultivated in Mexico but is now familiar in nearly all tropical regions of the World and the Pacific Islands. In many areas it has become naturalized into a variety that is particularly adapted to local conditions.

Papaya trees grow very fast and it is possible to be eating papaya from a tree that was planted only nine months previously. Since they grow so fast and have a hollow trunk they are, unfortunately, rather weak trees that are the first to fall down in high winds or rain. This isn’t helped by the fact that the heavy fruit is at the top of the tree making the tree rather unbalanced even in the best of circumstances. Farmers usually need to support the tree so that the weight of the fruit doesn’t make them fall over. Since they grow and produce so fast they need to be planted in a good soil and get plenty of compost and water although they are sensitive to too much water and cannot cope with being flooded.

In India where many children suffer from vitamin A deficiency, papaya is a very good remedy against this as it is very high in this vitamin as well as being an excellent source of vitamin C, E and K together with folate and potassium. For these reasons pregnant women are encouraged to eat ripe papaya but many local women are cautious because unripe green papaya is thought to cause miscarriages.

The fruit, as well as the other parts of the papaya tree, contain papain, an enzyme that helps digest proteins. This enzyme is especially concentrated in the fruit when it is unripe from where it can be extracted to be used in a range of products. It is used to clarify beer, also to treat wool and silk before dyeing, to de-hair hides before tanning, and it serves as an adjunct in rubber manufacturing. It is used in toothpastes, cosmetics and detergents, as well as
pharmaceutical preparations to aid digestion.

To obtain the latex is quite a fiddly process, rather like rubber tapping, that involves making incisions on the surface of green fruits, and sometimes the tree trunk, and putting a cup below it to catch the latex. It then has to be dried and powered before being sent away. Cooking meat with a chunk of green papaya will help the meat become more tender.

In this area the trees are easy to grow. You could plant one just outside the kitchen door and water it with the washing up water.

Jack Fruit

The jack fruit tree is related to that of the mulberry and the most striking thing about it is the large size to which it can grow and the quantity and size of its fruit which are the largest of all fruit trees. One jack fruit can weigh up to 40 kilos.

The jackfruit is believed to be indigenous to the rain forests of the Western Ghats of India and has always been an important part of Indian agriculture. Early on the tree spread to other parts of India, southeast Asia, the East Indies and the Philippines. It is also planted in central and eastern Africa and is fairly popular in Brazil and Surinam, although in parts of Brazil the tree has become something of a pest. It bears fruit for over six months of the year, producing many large fruit in the course of a season. In Sri Lanka the fruit is considered a good substitute for rice and is sometimes called the "rice tree" by rural people.

In Auroville the fruit is usually eaten ripe and you can find bags of the inner bulbs of flesh for sale in Pour tous. In the north the fruit is usually eaten unripe. It is used in many different sorts of dishes and can also be used to make crisps. There are various different sorts of jackfruit with different...
textures and slightly different tastes, but the one most often found in Auroville has a crisp texture. Within each of the fleshy bulbs is a seed and these too, can be eaten.

Chikku/Sapota

Chikku trees produce twice yearly, once during the hot season. The trees grow to be large and productive and don’t need to be watered, making them a good tree to have in the water stressed area of Auroville.

The fruit are like a large berry and when you see them in the shop it is easy to mistake them for small potatoes. They have to picked unripe and this is the best way of buying them. A good way to make sure that they ripen evenly is put them in a bag of rice.

They have a very sweet taste and are best eaten on their own or in a fruit salad. Best to wait until they are properly soft before trying to eat them as before they are properly ripe they are full of saponin which is a bit like tannin and tastes very astringent.

If the ripe fruit was left on the tree to ripen it would fall and crush before it could be harvested. It is therefore picked when it is full grown but still firm and this is how it is sold in Pour Tous. The fruit should ripen in a few days and is ready to eat when the flesh feels soft. If at this stage the fruit is put in the refrigerator the skin will turn black but the flesh will remain usable. The flesh consists of an edible white pulp which is rather fibrous. In some places the sweet pulp is used commercially to make juice as well as candies, sorbets, and ice cream flavourings.

Soursop

The soursop is not grown widely in this area but is grown in Discipline farm, home to quite a few unusual and experimental fruit and vegetables.
Nutritionally, soursop is high in carbohydrates, particularly fructose as well as containing significant amounts of vitamins C, B1 and B2. The leaves of the soursop are considered throughout the West Indies to have a sedative effect and the mashed leaves to have a positive effect on various skin conditions.

**Pineapple**

Being neither a pine nor an apple the pineapple is another plant with a confusing name. The word ‘pineapple’ originally referred to the pine cones found on conifer trees but was also used to describe the fruit when it was first found by Europeans on the Island of Guadeloupe and in Brazil where it is thought to have originated. Gradually the name ‘pineapple’ came to refer to the tropical fruit while ‘pine cone’ referred to the cones found on conifer trees. The Spanish introduced the fruit to the Philippines and to Hawaii and it now grown throughout the tropical areas of the world although most pineapples for export are now grown in South East Asia.

The pineapple is a herbaceous perennial plant which in this area is quite small but where there is a lot of rain can grow up to 1.5 metres high. It consists of a circle of hard, rather sharp pointed leaves around a central stem from which the pineapple grows – generally one each year. The pineapple is an example of what is known as a multiple fruit as each ‘eye’ of the pineapple is in fact a separate fruit which press together around a central core to form what appears to be a single large fruit. The pineapple will grow with little water and on a poor soil, so is an excellent crop for the Auroville environment.

Pineapples do not travel well and were a rarity that was much desired by the early American colonists. Glazed, sugar coated pineapples (this was one way of preserving them) were a luxurious treat but it was the fresh pineapple that was a symbol of prestige and social class – sometimes as a decorative centre piece on the tables of the rich and upwardly aspiring. At the beginning of the twentieth century, however, James Drummond Dole began canning pineapple, using a machine that automated the skinning and coring of the fruit. This made it easily available all over the world and
Pineapple is even now the third most canned fruit behind applesauce and peaches.

Pineapples contain bromelain which breaks down protein so that pineapple juice can be used as a marinade and tenderizer for meat. This substance is a useful anti inflammatory and can be used as an aid to digestion. Pineapples are a good source of vitamin C with good amounts of vitamin B1 and manganese as well as fibre. They have been shown to help maintain good eye health and protect against macular degeneration.

Cashew

The cashew is related to the mango and pistachio tree and originated in South America. Portuguese traders introduced the tree to the west coast of India (as well as west Africa) in the sixteenth century where it was originally planted for erosion control. The international nut trade did not start until the 1920’s and the international demand for cashew nuts has grown only in the last forty years. Cashews are a major export crop for India and a major cash crop in this area.

The so called cashew nut develops first on the tree, followed by what is known as the cashew fruit which can be yellow or red. This contrasts with the usual process which is for the fruit to develop and then the seed.
Outside Auroville the majority of cashews are grown using very toxic chemicals to get rid of pests. This has devastating effects on the people who do the spraying and those who live nearby as well as the soil and the trees which generally have to be replaced every 20 years or so. Spraying starts when the flowers come in February and continues until just before the nuts are harvested in May. All cashews grown on Auroville land, however, are grown organically.

Cashews are a highly nutritious food. They have a lower fat content than most other nuts and about three quarters of this fat is unsaturated fatty acid. Three quarters of this unsaturated fatty acid is oleic acid, the same heart healthy monounsaturated fat found in olive oil. These nuts also contain B vitamins, fibre, protein, carbohydrate potassium, iron, zinc, magnesium, phosphorus and copper.
For all seasons - Auroville grains

Rice

Annapurna grows three varieties of rice:

**Chinna ponni** which takes 3-4 months to grow and needs to be stored for at least two months to maximise its taste and cooking qualities. This is sold as:

Boiled rice: which is made by soaking the rice for 12 hours, par-boiling and then drying out in the sun. This needs to be done very carefully to ensure that the rice gets properly dry otherwise it will smell and not store well. Properly made boiled rice will store for 8 months and will be milled just before it is sold.

Raw rice: is dried in the sun for one or two hours to harden and will then be polished twice. The first polish will take off the husks and the second will polish the grains. After this process the grains will be separated (by hand) into first quality unbroken grains and second quality broken rice.

**Complete rice** takes slightly longer to grow – 4-5 months – and much less processing is needed after harvesting. It is dried for 1-2 hours in the sun and is then put through rubber rollers to take the husks out. It is then de-stoned after which it can be sold.

**Red rice (pora samba)**, like complete rice takes 4-5 months to grow and is processed in the same way.

**Samai Kudravelli**

Samai Kudravelli is a traditional millet which is grown in Annapurna. Cultivation begins after the first rains which usually come in the middle of July and needs to be completed by the middle of August. The soil is ploughed to get rid of the weeds and the seeds are sown, if possible, while it is raining as this aids germination. Seeds can stay in the soil for several weeks without rain but need the rain to germinate. Rosella is grown with this crop so that the red berries can be harvested to make into tea and juice.

After three weeks the field is weeded and if there is sufficient human resources it will be weeded again. The crop takes about four months to grow after which it will be harvested. The top of the plants with the ripe samai will be cut off after which it will be dried. During the drying process the seeds drop off and these are sold without further processing. Annapurna also makes a samai flour by grinding up the seeds.
Varagu

Varagu, another traditional millet, is grown in a similar way. Unlike samai the harvested plant needs to be threshed after which it will be husked. It will be stored like this until it is ready to be sold after which it will be milled. Varagu is sold unpolished (it looks brown in the packet) after it has been put through the rubber rollers. It can also be polished (it looks white in the packet). Varagu is a good source of vitamin B as well as thiamine and riboflavin, iron, calcium and phosphorus. All the millets are rich in trace elements which are often missing from more processed food.
Farming in Auroville - past and future

In the beginning of Auroville individuals who were interested in farming in Auroville took whatever land (some of it quite unpromising) that was available and started to farm. They were completely responsible both for the development of the farm and for supporting themselves from it, using a variety of organic techniques that enabled food to be grown in the generally poor soil and difficult climate of Auroville.

Auroville's farms

**Annapurna**: a 135 acre “Certified Organic” farm comprising 30 acres food crops – rice, millets, oilseeds, with the remainder in firewood crops, fodder and forest. The farm, which uses electric and diesel powered pumps, and has catchment ponds for irrigation, has a dairy herd of predominantly indigenous breeds and produces a variety of cheeses.

**Aurogreen**: 35 acres, of which one is irrigated. Grows citrus fruits, papaya, cow fodder and vegetables on the irrigated land. Also has large orchards of non-irrigated cashew, jackfruit, chiku, mango and tamarind under dry land conditions, plus some forest land, with timber trees interplanted around the farm and in a number of separate plots. Additionally, there is a small dairy. The farm uses TNEB main well pump and solar panel booster pump sets for drip and micro sprinkler system on the irrigated plots.

**Auro-Orchard**: 44 acres, of which 20 are cultivated. 10 acres are under irrigation (drip and sprinkler), with 2 bore wells and pumps, yielding coconuts, fruit, vegetables, green manure, fodder, millets and pulses. 20 acres are used for cashew, mango and regenerative forest. We reduced our herd to 1 cow and 1 bull. For egg production, we raise 2 or 3 batches of 400 hens. On top of the team of 11 workers, we welcome volunteers from 7 to 11am. Annual production: 10t of vegetables, 5t of fruits, 200,000 eggs. The farm is in the process of organic conversion.

**Ayarpadi**: 7 acres with 22 cows and 50 chickens. In the rainy season the farm grows peanuts, kambu and rice. 5 acres under irrigation yield vegetables and cow grass. The farm uses a solar system for its water supply.

**Brihaspati**: Total acreage of the farm is 19 acres, of which 12 are in cashew production. The remaining land is devoted to fodder crops to support a 15-cow dairy herd and vegetables.

**Buddha Garden**: A 12 acre farm with raised beds and drip irrigation, Buddha Garden grows vegetables and fruit, as well as small quantities of organic eggs. The farm has a variety of education and volunteer programmes based at the Centre for Sustainable Farming and sells a number of publications on organic farming.

**Discipline**: 20 acres, 3 of which contain irrigated crops such as fruits (coconut, banana, guava, chikoo and citrus), cow fodder and vegetables. 5+ dry land acres yield mainly mangos. The farm also grows monsoon-fed red rice, millets and sesame. A solar pump and sprinklers are used for vegetables and fodder. The farm also has 8 cows.

**Djaima**: 10 acres with very good topsoil producing fruits and seasonal vegetables. Uses a solar panel pumpset on the borewell, with electric generator as back-up.

**Kalpavruksha**: This relatively young farm of 13.5 acres near Irumbai tank grows...
millets, rice, and a variety of rainfed crops. Crops are rotated, and drip irrigation helps economise on water, which is provided by the lake and a small open well. The farms aims at preserving, reviving and promoting indigenous food traditions.

**Kottakarai**: Comprises 2 acres irrigated land, 2 acres dry land farming, 3 acres orchard, plus some forest. Grows vegetables, rice, traditional millets, pulses and oilseeds.

**Pazhamudir Cholai**: This farm of 5 acres, situated near Courage and Rêve, was established in 2010. Using water from a borewell and an overhead tank, Lakshmi and Renuka are cultivating a variety of fruit, vegetables, and field crops.

**Siddhartha Farm**: Situated on traditional rice land near Irumbai lake, with plans to develop into an integrated farm project. Includes a dairy, chickens, geese and a bakery. Varieties of rice, sugarcane and black gram are grown in rotation with green gram, peanuts, sesame, millets and dahl. Other crops are cashews, part of which are processed into butter. Organic jaggery is made on site. Solar irrigation feeds most of the planted areas, while lake water is used to irrigate the paddy fields. Biogas serves for domestic cooking.

**Solitude**: Solitude farm is an Auroville centre for permaculture and natural farming, a sustainability project on 6 acres that aims at integrating permaculture and natural farming with an organic restaurant and education in the form of internships and workshops. There is place for arts and creative activities with a strong focus on community. Solitude is also home to the dynamic rock band ‘Emergence’.

**Sustenance**: Established in 2010 on 4 acres situated west of Adventure, this farm grows a wide range of vegetables, pulses, grain crops and fruit. Irrigation is done with a TNEB connection, with plans to install a solar pump. Sustenance intends to become a model farm, with focus on preserving and promoting indigenous knowledge and traditions, and training programmes particularly aimed at school drop-outs.

**Windarra**: Windarra farm grows vegetables, fruit, and monsoon-fed field crops like sesame, tennai and rosella. The natural farming methods include mixed crops, mulching, green manure, vermi-compost, as well as application of liquid manures from the herbs of the farm, tulsi and neem. Water is pumped by a windmill and solar pump as well as an electrical pump for the sprinkler and drip irrigation in the vegetable section. Windarra is also home to a mushroom and a spirulina farming unit.

**Pebble Garden – ‘A Garden for Everyone’**: 8 acres of severely eroded, barren land in the West of Auroville, along the Kootroad, have been successfully regenerated since 1994, without external inputs – no soil or organic matter from outside – and no hired labour. Pebble Garden has today a vibrant indigenous forest with returning wildlife, a productive bio-diverse garden and a fledgling fruit tree area. A garden area of a quarter acre is devoted to Seed Conservation. It was created by an intensive process of soil building, using select pioneer species to create biomass in-situ in raised beds, and today supports a plant collection of more than 100 endangered traditional vegetable varieties from all over India - root crops, herbs, perennial and wild food crops, medicinal plants and flowers. These varieties are ideal for home use and home gardens. ‘A Garden for Everyone’ is an outreach initiative to share these hardy plant varieties, which have performed well on this wasteland, with home gardeners and subsistence farmers throughout India. They are shared within known organic farmers’ collectives via organic fairs, seed melas and
through personal contacts and references. A place of continuous learning, Pebble Garden also has a charcoal/wood vinegar production plant, and conducts research on in terra preta.

The history of Farm Group

In the 1990's farmers got together to form the Farm Group which takes collective responsibility for all the participating farms in Auroville. The group serves as a mouthpiece for farmers to the community and a source of support for its members. In 2004 the first farm assessment was undertaken in which farms were assessed and a vision and mission for the future were clarified. This led to the expansion of FoodLink as a distribution centre together with the promotion of Auroville farm produce and some five farms becoming organically certified.

In 2009 in collaboration with the Funds and Asset Management Committee (FAMC) of Auroville the Farm Group started the process of examining food security issues in Auroville and was asked to come up with a five year Auroville Sustainable Agriculture Plan (ASAP). This was a considerable challenge, as a plan for Auroville must not only take into account possible future realities (such as climate change and increasing population pressures) but must function in a way that protects the inner and outer freedoms from which the new spiritual consciousness will arise.

A range of information gathering exercises were undertaken and from this a strategy for the next five years was developed as follows:

- Auroville should increase our own production of food and depend less on external procurement.

- The agricultural assets of Auroville should be optimized to produce more food in a sustainable manner. This will include making links with partner farms which grow organic food both in the bio region and other climate areas.

- A variety of educational tools should be used to create interest in the need for healthy organically grown food with the option of it leading to more participation in food and agriculture, whether in a practical way for food production or understanding of market behaviour.

- The agriculture sector should be made an attractive and creative sector in which to work and those who do so should be rewarded adequately – especially in terms of appreciation.

- Various initiatives, (such as community supported agriculture – CSA and educational initiatives) should be made to change food habits to a more sustainable diet of more locally grown organic farm produce.

- Foodlink will be the organization that drives this forward by managing the demand and supply gap within the Auroville food system. Coordinating production and distribution, it will be the commodities link between farms, external farms internal kitchens, food processors and consumers. Not all food will physically go through the Foodlink building, but Foodlink will be an electronic hub of all the relevant information about food demand and supply in Auroville. This will enable a demand/supply management plan to be formulated and intelligent response to any crises to be possible. The knowledge base will also show to what extent the five year plan is being successfully implemented.

For more information about the plan and farms in Auroville please contact the Farm Group office: farmgroup@auroville.org.in