

# BUCKWHEAT



## **Buckwheat**

Buckwheat is not as the name of the plant implies a cereal it is a member of the Polygonaceae family of flowering plants that includes docks, sorrels and rhubarb. There are three major buckwheat species, common *Fagopyrum esculentum*, tartary *Fagopyrum tataricum* and perennial *Fagopyrum cymosum*. Common buckwheat is the species most often grown, though tartary buckwheat (also known as bitter buckwheat) is grown in parts of Asia.

Buckwheat is a broad-leafed herbaceous annual plant which after a pretty white or pink flower produces a fruit referred to as an achene, which means it contains a single seed that doesn't open at maturity. The tough outer hull, is a triangular shaped, dark brown, shell which has a hard fibrous structure and surrounds the seed coat, endosperm and embryo tightly. Buckwheat has a shallow tap root system, with numerous laterals extending to about 3' in depth. There are many benefits to buckwheat and it has a long history of being cultivated.

Buckwheat likely originated in the northwest part of the Yunnan province in China (1). The oldest known archaeological remains date to circa 2600 BC. Buckwheat pollen is documented as early as 4000 BC so domestication of this plant most likely occurred earlier than the archaeological remains suggest. It is generally thought that from this region buckwheat found its way into Europe via the silk road, the ancient trade route. The common opinion that buckwheat was not growing in Europe before the late Medieval period may be wrong. Pollen evidence suggests it may have been growing in Europe during the Bronze Age (2). Nowadays, buckwheat is grown as a commercial crop in China, Japan, Russia, Canada, USA, Australia, & Europe

### **Commercial buckwheat production**

Buckwheat is notable for being a short season crop it thrives best in cool, moist climates, although it will be killed by frost. It can be grown on a variety of soils tolerating a wide pH range from 4.5 to 7 and a crop can be obtained within 10–12 weeks of sowing. Russia is the world's top producer of buckwheat where 'grechka' as the Russians call it, has been an integral part of their cuisine for centuries. Commercial fields are sown by mechanical drilling in rows spaced 12" apart. Buckwheat is harvested within 12 weeks and windrowing is the traditional method. (3)(4) Hulled buckwheat is prepared either through thermal processing (steamed) or de-hulled without thermal treatment (raw). Hulled buckwheat is further processed into flours, kasha & grits.



### **Buckwheat as a green manure crop**

Buckwheat is commonly grown as a green manure crop in order to increase soil fertility. The buckwheat should be cut down before flowering when the stems are nice and soft as they decompose quicker, retain more beneficial nutrients and are easier to incorporate into the soil. They can either be dug into the soil or left on the top as a mulch, as the worms will drag down the organic matter and help to aerate the soil. Either way the plant material decays rapidly in the soil making nitrogen and mineral constituents available to later-sown crops. The fast growing nature of buckwheat and the dense canopy it forms as it grows smothers & out competes weeds. Buckwheat is an annual that is susceptible to frost so early spring or later autumn frosts will kill it.

Buckwheat does not fix nitrogen but it will prevent it leaching. Phosphorous is an important nutrient needed by plants. Soils that are regularly enriched with organic matter often contain an abundance of phosphorous but in a form that is difficult for plants to take up. Buckwheat has the ability to take up soil phosphorus and return it in a more plant-friendly form.

Buckwheat is thought to produce toxic substances that inhibit the growth of other seeds. Known as ‘allelopathy’ it can result in reduced seed germination and plant growth to anything close by.

Whilst this might be affective against the germination of annual broad leaved weeds it can cause a problem with small veg seeds sown directly after buckwheat has been dug in, so it is advisable to leave 4 weeks before sowing. It doesn’t cause any problems for small seedling transplants. Plant allelopathy is just a means of survival in nature by reducing competition.

### **Buckwheat flowers and bees**

If left to flower buckwheat produces pretty little pink or white flowers that are loved by bees. Creating a habitat for bees is reason enough for growing buckwheat. Bees are responsible for pollinating many of our everyday fruits and vegetables but they are disappearing at alarming rates. We must do all we can to protect them and one way of doing this is to grow as many bee loving plants as possible.

### **Buckwheat honey**

Buckwheat honey has a deep, dark brown color, pungent, strong molasses like earthy flavor and is high in mineral content and antioxidant compounds. Recent studies have shown buckwheat honey to be more effective than over-the-counter cough syrup for treating a cough.

A study conducted by Penn State College of Medicine, determined that small amounts of buckwheat honey administered before bedtime helped relieve night time coughing more effectively in children when compared to the pharmaceutical cough suppressant dextromethorphan. (5)

### **Buckwheat flowers and hoverflies.**

Buckwheat’s flowers are very attractive to hoverflies which are very beneficial because their larvae feed on aphids. Growing buckwheat alongside vegetable crops will help deter pests.



"Buckwheat furnishes an excellent Fall feed for bees; and often enables them to fill their hives with a generous supply against Winter, The honey being gathered either in the early part of the day, or when the atmosphere is moist, is often quite thin; the bees sweat out a large portion of its moisture, but still they do not exhaust the whole, and in wet seasons, it is somewhat liable to sour in the cells- Honey gathered in a dry season, is always thicker, and of course more valuable than that gathered in a wet one, as it contains much less water. Buckwheat is uncertain in its honey-bearing qualities; in some seasons, it yields next to none, and hardly a bee will be seen upon a large field, while in others, it furnishes an extraordinary supply. The most practical and scientific agriculturists agree that so far from being an impoverishing crop, it is on many soils, one of the most profitable that can be raised. Every bee-keeper should have, some in the vicinity of his hives."

*A Practical Treatise on the Hive and Honey-bee,*  
in 1857, Lorenzo Langstroth



### **Growing small crops of buckwheat**

If you have any kind of a garden, an allotment or small-holding growing buckwheat can be very beneficial. The plant has many uses, green manure crop, weed smothering, pest deterrent, bee food, animal food, and nourishing food for us. The seeds can be sown any time between April & August in the UK but if you are after seeds best to plant by July. It can be simply sown by broadcasting and should be scattered at a rate of about one pound of seed per 500 square feet of soil.

½ kg will be enough for approx 500 sq ft. Buckwheat will grow on most soils, including on poor, slightly acidic, low fertility or clay soils, but the soil must be well drained. Too much fertiliser will reduce yields.

### **Harvesting and processing buckwheat**

It's very easy to harvest small amounts in the garden by hand, however the seeds do not all ripen at the same time so there are 2 approaches. The seeds can be removed by hand as and when they ripen or alternatively, the whole plant could be harvested with a scythe, or cut down with garden shears at the end of the season when about 75% of the seeds are brown. After cutting down tie into bundles and dry undercover in an airy space. Once dry thresh off the seeds they will most likely come off with a good shake. Winnowing must then be done to separate out the chaff and stem bits.

A simple way to use your buckwheat is to grow it as buckwheat greens (see methods/recipes) You can grind the un-hulled seed into flour and there are various options how to go about this. Certain types of blenders work, a coffee grinder or alternatively a small flour mill, the hand operated junior deluxe wonder-mill works well.

After grinding use the flour as it is or depending on how well you have ground the husks you may prefer to sieve them out by rubbing the flour through a kitchen sieve. Grind just the amount of flour you need to directly use so that the flour is fresh. However, if you do have any left-over flour it can be stored in the fridge in a screw top jar. De-hulled whole buckwheat groats can be used in a wide variety of dishes but it is not that simple to de-hull on a domestic scale. You could buy the equipment to do this and share within your community.

### **Storing buckwheat seeds**

Heat, air and moisture will cause deterioration so it is important to store the right way.

Un hulled seeds will store in a cool dry place in an airtight container for 4 months or in the freezer for 9 months.

Buckwheat contains volatile essential fatty acids inside the seed and once the airtight hull is removed these fatty acids are no longer protected and the hulled seed can go rancid. Ideally it is best to store the whole grain and make flour as and when you need it. However if you buy flour or hulled buckwheat you can store both in a cool dry place in an airtight container for 1 month or the freezer for 2 months.

It isn't a good storing grain unless precautions are taken to remove the oxygen. Like brown rice, oxygen makes the essential oils in the seed go rancid, giving it a bad taste and making it unfit to eat. So, when storing buckwheat for long term storage, be sure you place it in airtight containers and use oxygen absorber technology which should give it a long storage life.

For proper long term storage of un hulled buckwheat the seeds should be double packed. Place the seeds in a bag and push out all the excess air (you could add an oxygen absorber to the bag), then use a heat/vacuum sealer to seal the bag. Place the bag in a food grade bucket with an airtight seal. Stored like this the seeds will last up to 5 years

### **Buckwheat nutrition**

The protein content in common buckwheat groats is similar to that in cereal grains and ranges from 13 to 14% . However, unlike cereal proteins, buckwheat proteins have a well-balanced amino acid composition (6) containing all eight essential amino acids, including lysine. Due to high lysine content, buckwheat proteins have a higher biological value than cereal proteins such as those of wheat, barley, rye, and corn.(7) Buckwheat's amino acid score is 100 which is one of the highest amino acid scores among plant sources. Buckwheat proteins were found to act similarly to dietary fibre. They had cholesterol-lowering and anti-hypertension effects, and also reduced constipation and obesity

Buckwheat is a very good source of manganese. It is also a good source of copper, magnesium, phosphorous and dietary fibre. Buckwheat contains rutin a flavonoid with significant health-promoting actions. Rutin was first discovered in buckwheat in the 19th century, and it used to be isolated from cultivated buckwheat to produce an herbal drug known for its effectiveness in reducing blood cholesterol, improving strength and flexibility of blood capillaries.

Buckwheat is a rich source of iron essential for healthy blood. It also provides an important, protective effect against osteoporosis because of its high boron and calcium levels.



## **Health benefits**

### **Aids sleep and relaxation**

One of the great health benefits of buckwheat is that it's high in magnesium, a mineral that many are deficient in. One of magnesium's roles is to help muscle relaxation. Magnesium has a calming effect on the body and mind, helping us to cope with stress and aiding restful sleep.

### **Help manage your weight**

Buckwheat scores low to medium on the glycemic index which means that the carbohydrates it contains break down and release slowly into your blood so it should not cause unhealthy spikes in blood sugar levels. You'll find it easier to manage your appetite and eliminate cravings for sugary foods when you avoid the swings that happen after eating higher GI foods

### **Balance your energy**

Keeping a steady blood sugar level is also essential for maintaining your energy levels throughout the day. In addition, buckwheat is a good source of B vitamins, which are essential to help your body turn food into energy.

### **Could help prevent varicose veins**

Buckwheat is high in rutin, a type of flavonoid. Rutin is especially associated with toning and strengthening veins and capillaries. It may even help to prevent the weakening of the valves or walls of the veins that can lead to varicose veins.(8) Rutin also helps your body produce collagen and use vitamin C.

### **Provides antioxidant protection**

Rutin and other flavonoids in buckwheat are similar to – or the same as – those found in fresh fruits and vegetables. For this reason, it's thought that buckwheat and some other whole grains could have just as good antioxidant properties as fruits and veggies! (9)

### **Helps to lower cholesterol**

Studies comparing populations who eat a lot of buckwheat to those who don't show that the buckwheat-eaters have lower cholesterol. So potentially buckwheat could be beneficial in lowering cholesterol. (10)

### **Keeps your blood pressure in check**

Buckwheat could help in maintaining a healthy blood pressure. This could be partly due to the high content of magnesium in buckwheat. As magnesium plays a role in relaxing muscle, magnesium also relaxes artery walls too – which are partly made up of muscle. As the artery walls relax, the vessels dilate, easing pressure and allowing better blood flow.

### **Gluten free**

Despite its name, buckwheat is not related to wheat at all, and contains no gluten. This makes buckwheat a great alternative for those with the autoimmune disease 'coeliac' or a gluten intolerance. It can also be a gentler alternative for those with digestive problems.

Many people now avoid grains containing gluten and some follow a very low carb diet. For women grains have many health benefits so if they choose not to include them in their diet buckwheat makes a good alternative.

### **Cardiovascular benefits for postmenopausal women**

A 3-year study of over 220 postmenopausal women with cardiovascular disease published in the *American Heart Journal*, shows that those eating at least 6 servings of **whole grains** including buckwheat, each week slowed progression of atherosclerosis as well as the narrowing of the diameter of arterial passageways. An interesting finding was that the women's intake of fibre from fruits, vegetables and refined grains was **not** associated with a lessening in cardiovascular disease progression.

### **Fibre from buckwheat protects against breast cancer**

A 2007 study found a diet rich in fibre from whole grains, such as buckwheat, (and fruit) offered significant protection against breast cancer for pre-menopausal women. Cade et al, 2007 Dietary fibre and risk of breast cancer in the UK Women's Cohort Study. *Int J Epidemiol*.

Fibre supplied by whole grains offered the most protection. Pre-menopausal women eating the most whole grain fiber (at least 13 g/day) had a 41% reduced risk of breast cancer, compared to those with the lowest whole grain fiber intake (4 g or less per day).

Buckwheat like all seeds contains phytic acid. Phytic acid impairs the absorption of iron, zinc and calcium, and may promote mineral deficiencies. This is one of the reasons why traditional cultures prepare their grains in very specific ways, like soaking, sprouting and fermenting. During soaking, and particularly fermentation of raw batters, the enzyme phytase goes to work breaking down the phytic acid. Not all seeds are endowed with enough phytase to break down phytic acid in a short period of time. Buckwheat contains a lot of phytase, so fermented buckwheat batters contain very little phytic acid soaking and sprouting also breaks down phytic acid.

### **Buckwheat food culture**

Buckwheat has long been an integral part of diverse food cultures.

It has been fundamental to so many cuisines from the dark buckwheat flour used to make *sourdough crêpes* in France to the toasted groats used in the *porridges* and *varnishkes* which were integral to Jewish peasant cooking in provincial Russia and Poland. Buckwheat is used to create *kutti ki puri* or *kutta pakors* in India. In Italy it is used to make *pizzoccheri*, flat, ribbon pasta comprised primarily of buckwheat flour, tossed with butter, potatoes, cheese, and savoy cabbage. Buckwheat is used in Japanese and Korean cuisines to make *noodles* and a variety of other foods and *ara*, is an alcoholic beverage from Bhutan.

### **Bhutan**

In Bhutan, buckwheat is grown in non-rice growing regions and highland areas where cultivating other cereals is not possible. Buckwheat is used throughout Bhutan in a myriad of culinary preparations, including *hoentay* a buckwheat dough wrapper filled with a combination of a local spinach or turnip leaves and cheese that can either be steamed or fried, *khur-le* a pancake made from buckwheat and *puta*, a buckwheat noodle. Puta is often served as a special dish to guests. During festivals and rituals, it is served more as a food offering to the gods being invoked and to the priest presiding over the ritual. Buckwheat is also used for making *ara* (distilled alcohol). A special *ara* called *menchang* or medicinal alcohol is distilled from a mixture of sweet and bitter buckwheat.



## France

Buckwheat, known as “ble noir”, was once widely grown in many regions of France. Whilst cultivation has declined tremendously over the years the newer food trends are now bringing about a revival. Brittany is the area in France most associated with buckwheat and there are two dishes that the region is well known for savory crêpes are made with buckwheat flour and are called *crêpes de sarrasin* and the traditional butter cake of the region, almost a shortbread known as *gâteau Breton*

## Russia

Traditionally Russian peasants used to grow buckwheat or *grechka* in their gardens so as to be able to feed the family with a hearty porridge. *Kasha* (or porridge) is one of the most common meals of East European and Russian cuisines. *Kasha* is not only made from buckwheat historically this is a meal prepared using any grain (buckwheat, oats, wheat, millet, barley, rice, etc) as a main ingredient. Today when we talk about kasha we are talking about buckwheat and it is one of the basic elements of Russian food. It can be sweet or savory, served at breakfast, as a side dish or as a meal in itself. *Kasha* can be plain or cooked with other ingredients. Buckwheat for kasha is lightly roasted you can buy it ready roasted but it is a simple process to roast, or toast, the grains yourself. There are many traditional kasha recipes. *Kasha varnishkes* is a traditional Eastern European Jewish recipe made with sautéed onions, kasha buckwheat and bowtie pasta  
In Russia another great classic is *blini* (little pancakes) made using freshly ground buckwheat the blini were traditionally an accompaniment to caviar.

## Japan

Japan, the buckwheat noodles known as soba are a staple. On the southern island of Shikoku the soil is poor and buckwheat is one of the few crops that will grow successfully so the region has been well known for centuries for its soba

Making the noodles is a time honoured tradition and in a little village in the remote mountains on Shikoku. Reiko Tsuzuki, 70, has been carrying on the tradition of soba-making for more than four decades. She runs a small restaurant Tsuzuki Soba House she makes the noodles she serves in the restaurant from freshly ground buckwheat and water and also runs demonstrations to teach others the art of soba noodle making.

A distilled spirit known as shochu and akin to vodka is often made from buckwheat in Japan.



Reiko Tsuzuki, 70, makes buckwheat soba noodles by hand in her restaurant kitchen in the Japanese island of Shikoku.

## Different types of buckwheat



### **Un-hulled buckwheat**

This is buckwheat that still has a hull covering a dark, triangular-shaped shell, which in turn covers the actual seed at the centre. It can be ground into a dark fairly strong tasting buckwheat flour.



### **Buckwheat groats (hulled buckwheat)**

Buckwheat groats, are seeds hulled to remove their black outer hulls. The groats are white turning to green with a mild flavour. Often sold roasted in which case they are brown with a nuttier flavour.



### **Kasha**

Kasha is made from hulled buckwheat kernels that are toasted then cracked into coarse, medium or fine grains. This form of buckwheat is popular in eastern Europe, especially Russia.



### **Buckwheat grits**

Buckwheat grits are buckwheat groats ground up so that they can be used to make a quick-cooking breakfast cereal.



### **Buckwheat flour**

Flour can be made from un-hulled or hulled buckwheat. The flour can be used to make breads, noodles and pancakes with the advantage for many people of being gluten free.



### **Buckwheat greens**

Buckwheat greens are usually grown from un-hulled seeds (you can use raw hulled). Grown in a tray of soil it doesn't take long before you have a tray of young green plants



### **Buckwheat sprouts**

Made by soaking and sprouting hulled buckwheat (raw not roasted!) this is a good way to further improve the nutritional value of buckwheat.



### **Buckwheat sprout flour**

Buckwheat sprout flour is made from dried and milled buckwheat sprouts. Add to biscuits & breads.

## **Buckwheat sprouts**

Buckwheat, like all sprouts, becomes packed with live enzymes and bio-available nutrients when sprouted. Sprouted buckwheat is high in bio-flavonoids and co-enzyme Q10, in addition the sprouts contains plenty of B vitamins, magnesium, manganese, and selenium, as well as many other health giving compounds.

Sprouted buckwheat is a complete and easy to digest protein, it supports beneficial gut bacteria, helps cleanse the colon and has an alkalising effect on the body. Scientists have found that sprouting buckwheat increased the concentration of rutin tenfold and increased quercetin two flavonoids known for their anti-inflammatory effects. Korean researchers found that an extract from germinated buckwheat had an hypertensive effect

Lecithin is another extremely beneficial component of sprouted buckwheat. Lecithin is essential for the structure of every living cell, especially the liver and brain. 28% of the brain is made of lecithin. Research suggests that regularly eating lecithin rich foods can help prevent mental fatigue, nervous breakdown and other forms of brain and mental stress. Buckwheat sprouts are good for circulation and digestion

## **How to make buckwheat sprouts**

Place raw buckwheat groats (i.e. hulled) into a bowl (quantity depends on how many you are going to feed, start with 100g then next time adjust accordingly)

Cover the buckwheat with 3 times as much room-temperature, chlorine free water.

Mix the seeds so that none are floating on top.

Allow seeds to soak for about an hour.

Drain through a colander and rinse well until the water runs clear.

Rest the colander over a bowl, cover with a damp cloth and leave on the side in the kitchen

Rinse a couple of times a day with cool water.

After only 2 days the sprouts will have formed

Sprouts will form after only a day or two.

Give the sprouts a final rinse, shake well to dry and store in the fridge for up to 3 days.

## **Dehydrated buckwheat sprouts**

spread your sprouts on a dehydrator tray and dehydrate at 135 58 for about 6hours

store the dried buckwheat sprouts in an airtight jar for up to 3 months.



## **Buckwheat lettuce**

Buckwheat lettuce is rich in rutin, this is apparent by the pink stalk of the sprout. Buckwheat lettuce is also rich in lecithin. Buckwheat lettuce contains chlorophyll which helps neutralize the body of toxins, cleanse the lymphatic system, and alkalize the body.

To grow buckwheat lettuce all you need are un-hulled seeds, a jar with muslin and string, water, a seed tray and vibrant soil.

Pop the un-hulled seeds in a jar, cover with water and soak for 12 hours. Drain off the soaking water, and rinse thoroughly. Leave the jar on the side at room temperature out of direct sunlight.

After another 12 hours rinse again. Repeat this until tiny roots begin to appear

2/3rds fill a seed tray with soil gently spread the seeds over the soil

Sprinkle with a little extra soil

Place in a light place but not in direct sunlight, check daily and water as necessary.

After about 4 days they will be a few inches tall at this point move to a sunny windowsill to develop the chlorophyll. They are ready to harvest when 3-4 inches tall and with the first 2 green leaves.

As the buckwheat grows it will shed the shells but there are invariably a few left behind which you can remove by brushing your hand backwards and forwards over the small plants.

## **Fagopyrin**

Buckwheat lettuce (not other kinds of buckwheat) contains fagopyrin which when ingested in sufficient quantity causes skin hypersensitivity to sunlight. The condition known as fagopyrism occurs when there is an accumulation of fagopyrin under the skin, which when exposed to sunlight creates a reaction which turns the skin pink accompanied with a strong burning sensation

Within a few hours the exposed areas usually normally return to normal, but remain ultra-sensitive to cold water, hot water and to friction. This and this sensitivity can last for days. Some people report anumbing, itching and tickling on the face, nose and ears after sun exposure causing a desire to scratch the skin, thus worsening the condition. Fagopyrin is not activated by ultraviolet light but reacts to a different portion of the sunlight spectrum. Therefore, the normal application of sunscreen offers no protection at all. Glass, which filters out ultraviolet rays, does not however filter out the reactive range relative to fagopyrin. This means that sunlight coming through home or car windows also causes a phototoxic reaction.

Young leaves, stems and blossoms of both the common buckwheat plant and the tartary buckwheat plant have long been used both for medicinal and culinary purposes in eastern Europe and Asia.

When used as a food, the leaves and stems are cooked and consumed as a vegetable, or they are dried and ground into fine green flour. Buckwheat lettuce is also consumed. When used medicinally, dried buckwheat leaves are typically infused to make a herbal tea or processed into supplements.

A 2013 study on fagopyrin in buckwheat concluded that there were benefits in consumption of the young sprouts/leaves/stems as they were a rich source of important anti-oxidants for human nutrition. A safe intake of buckwheat lettuce would be 40 sprouts per day, equivalent to a small handful or 14g of dry matter

## 24 reasons why buckwheat is a beneficial plant.

*At every stage of growth there are benefits to buckwheat from sprout to green manure crop, to flower, to seed.*

- Buckwheat will grow in less fertile soil
- Quick growing cover crop
- Improves soil fertility when dug in before flowering
- Improves soil structure due to network of fine roots
- Buckwheat is good for weed suppressing
- Provides material for the compost heap
- Good companion plant
- Phosphorous scavenger
- Pest control - attracts hoverflies whose larvae feed on aphids
- People with celiac disease can eat it
- Excellent protein quality
- Good source of magnesium which supports the nervous system
- Blood glucose lowering due to chiro-inositol
- Helps prevent gallstones due to insoluble fibre
- Concentrated source of flavonoids which are strong anti-oxidants
- Excellent source of rutin which strengthens blood capillaries
- Can help reduce blood pressure
- Lowers risk of high cholesterol
- Buckwheat protein exhibits fiber-like effects-helps prevent constipation
- Buckwheat is a rich source of iron
- Significant benefits for post-menopausal women
- Protects against heart disease due to plant lignans
- Contains calcium & boron for strong bones
- Helps support good gut health

## **Soba-cha**

In Japan, Korea and China roasted buckwheat kernel tea, or soba-cha, has been consumed for centuries. The health benefits associated with drinking buckwheat tea are various from improved circulation and prevention of varicose veins to cardiovascular and metabolic benefits.

It's very easy to prepare

Loosely cover the bottom of a large, preferably cast iron, definitely not Teflon fry/sauté pan. Heat over medium-high heat.

As the buckwheat begins to roast gently stir and toss until you have a deep dark brown colour. The darker it becomes the stronger the taste.

Remove from the heat, let it cool, and store in an air tight container.

*To make 2 cups of tea*

Place 10g of roasted buckwheat (that's about a tablespoon) in a pot and pour over 500ml boiling water. Leave to steep for 5 mins, strain and enjoy

## **Buckwheat breakfast**

*Serves 1*

handful of sprouted buckwheat  
1 tablespoon shelled hemp seeds  
1 dessertspoon pumpkin seeds  
1 dessertspoon sunflower seeds  
110ml oat milk  
1 teaspoon honey  
handful of seasonal berries or an apple diced  
1 dessertspoon ground linseed

Place the sprouted buckwheat, hemp, pumpkin, & sunflower seeds in a bowl with the honey, pour over the oat milk and leave overnight.

The next morning add the berries or apple and serve topped with ground linseed  
Serve topped with ground linseed

## **Sprouted buckwheat porridge**

*Serves 1*

handful of 3 day old buckwheat sprouts  
4 soaked prunes + the soak water  
1 tbsp shelled hemp seeds  
tsp grated ginger  
pinch cinnamon

In a processor blend the buckwheat sprouts with the hemp, ginger cinnamon, prunes and enough of the soak water to make a thick creamy porridge.

You could use soaked dried apricots or dates instead of the prunes

### **Buckwheat crackers**

*makes 100*

250g raw buckwheat groats sprouted for 1 day

75g ground linseed

1 finely grated carrot

2 tsp grated fresh turmeric

1 tsp ground cumin

1 tsp salt

½ teaspoon black pepper

3 tbsps olive oil

4 cloves garlic

Process the buckwheat and carrot in a food processor until well mixed. Place this mixture in a bowl and stir in the remaining ingredients. Spread this mixture on baking parchment or the teflex sheets that come with your dehydrator to a thickness of 3 – 5 mm. Score into squares of a size that takes your fancy. Dehydrate at 115 °F (46°C) for about 4 hours before flipping over (peel off the paper if using parchment) and drying for a further 4

When they are dry & crisp, remove, cool and store in an airtight jar

### **Soba noodle salad**

*serves 4 -6*

225g soba noodles (100% buckwheat)

3 tablespoons tamari (wheat free soy sauce)

1 tablespoon sesame oil

2 tablespoons olive oil

1 tablespoon rice wine vinegar

1 teaspoon red pepper flakes

small handful chopped chives

handful chopped coriander

1 red bell pepper sliced thinly

1 yellow pepper sliced thinly

3 carrots cut into matchsticks

2 handfuls of sprouted mung beans

3 tablespoons sesame seeds

Cook the soba noodles according to the packet directions, drain, rinse well and place into a large bowl.

Mix together the tamari, sesame oil, olive oil, rice wine vinegar and red pepper flakes.

Pour over the noodles, add the herbs, vegetables and sesame seeds, toss well to combine and turn into a serving dish.

### **Sprouted buckwheat salad with hemp dressing**

*serves 4*

225g sprouted buckwheat  
16 cherry tomatoes cut in half  
1 large handful of spinach shredded  
2 shallots finely chopped  
1 handful parsley roughly chopped

#### *Hemp dressing*

1 tbsp lemon juice  
zest of 1 lemon  
1 teaspoon honey  
6 tbsp hemp oil  
1 clove garlic finely diced  
1 tsp ground cumin  
Salt & pepper

In a large bowl, combine all the salad ingredients together.

Put all the ingredients for the hemp dressing into a jam jar with a lid on and shake well to emulsify

Toss the salad with the herb dressing and serve

### **Buckwheat kasha with mushrooms**

*serves 4*

250g buckwheat groats  
2 onions chopped  
250g mushrooms  
440ml vegetable stock  
3 tablespoons oil  
1 tablespoon butter  
3 spring onions finely sliced  
handful of parsley roughly chopped

In a frying pan, preferably cast iron, over medium-high heat cook the buckwheat as it begins to colour gently stir and toss until you have a deep golden brown colour.

Heat the 1 tblsp of oil and butter in a pan and gently cook the onions until soft add the buckwheat and mix and toss well to coat the buckwheat with the oil.

Pour the stock over the buckwheat mixture, bring to a boil and reduce to low and simmer for 12 minutes, with the lid on. Don't stir the buckwheat during this time. The buckwheat is ready when all the water evaporates and the buckwheat is soft and fluffy.

Whilst the buckwheat is cooking, slice the mushrooms and cook in the remaining oil until they are soft add the spring onions and parsley season well with salt and pepper then add to the buckwheat, mix well and serve.



### **Buckwheat bread**

400g hulled whole buckwheat  
250ml water + extra for soaking  
½ teaspoon salt  
1 teaspoon finely chopped thyme  
1 teaspoon honey

Place the buckwheat in a bowl, cover with water and leave overnight, in a cool-warm place covered with a cloth.

Strain the buckwheat through a sieve into a bowl so you catch the soak water. Do not rinse. Pop ½ the buckwheat into a blender with the salt and enough of the saved water to blend into a smooth fairly thick but pourable batter. Tip in the remainder of the buckwheat and pulse 2 or 3 times to mix well. Stir in the thyme and honey

Line the bottom of a loaf tin with baking parchment and oil well.

Pour the batter into the tin. The buckwheat bread now needs to be left for 18 hours at room temperature. To stop it from drying out place inside a lidded glass storage container.

Check from time to time and if the loaf begins to rise more than 1 inch bake before 18 hours

Heat the oven 220C/425F/gas mark 7 and place in the middle to bake for 35 – 45 minutes until firm  
Cool in the tin for 10 minutes, turn out, cool on a rack and store wrapped in parchment

### **Buckwheat Muffins**

100g toasted buckwheat  
2 tablespoons apple cider vinegar  
100ml boiling water  
100g buckwheat flour  
250g spelt flour  
1 teaspoon salt  
200ml water  
25g yeast  
25g melted butter

Pour the boiling water over the buckwheat and stir in the cider vinegar. Set aside for 5 minutes.

In a large bowl, combine the buckwheat flour, spelt flour and salt. Blend the yeast with a little of the water then add this, along with the soaked buckwheat to the bowl of flour with enough of the remaining water to make a soft, but not too sticky dough. Add the melted butter and mix together well, cover and leave for 10 mins.

Turn the dough out on to a lightly oiled surface and gently knead for 1 minute. Clean and dry the bowl and rub lightly with oil. Return the dough to the bowl for 10 mins then repeat and leave for 1 hour.

Lightly flour a work surface and roll the dough to 2cm thick, using a cutter (10cm), stamp out discs and lay them on a flour dusted tray, roll up any scraps and repeat. Leave in a warm place for 45 mins to rise. Cook the muffins on a griddle or a very lightly oiled frying pan for about 5 minutes on either side.

### **Buckwheat pancakes**

*makes about 6 pancakes*

275g/10oz buckwheat groats  
2 tablespoons sauerkraut juice or kefir  
1 teaspoon salt  
ghee or coconut oil

Place the buckwheat in a bowl, cover well with water and soak overnight. The next morning pour off the soak water and rinse well.

Blend the buckwheat, sauerkraut juice or kefir and salt in a blender with enough water so that it reaches the consistency of pancake batter. Aim to make your mixture as smooth as possible. Pour into a jug which has room for expansion, cover and leave in a warm place for 12 – 18 hours.

Heat a fry pan and swirl a little ghee or coconut oil around the base then pour in enough batter to cover the pan and make a pancake that is not too thick. Cook all the way through before flipping over and cooking for a further minute and sliding out onto a plate.

Repeat until you have made all the pancakes you want. Store unused batter in the fridge where it will last for 3 days.

Serve your pancakes with anything you fancy, savory or sweet

## **Kasha salad**

*serves 4*

450ml vegetable stock  
2 cloves garlic, minced  
250g roasted buckwheat groats  
4 medium size cooked beetroot, diced  
4 stalks celery, sliced  
6 spring onions thinly sliced  
2 pickled dill cucumbers diced  
small bunch parsley roughly chopped  
150g feta cheese. crumbled

### *Dressing*

2 tbsp apple cider vinegar  
1 tsp. Dijon mustard  
½ tsp. salt  
½ tsp. freshly ground black pepper  
6 tbsp extra virgin olive oil

In a saucepan over medium-high heat, bring the stock and garlic to a boil.  
Gradually add the roasted buckwheat, stirring gently all the time and bring back to the boil.  
Reduce the heat, cover and simmer until all the liquid is absorbed and the buckwheat is tender about 12 minutes. Remove from heat. Fluff up with a fork and transfer to a serving bowl and leave to cool slightly.  
Whisk all the ingredients for the dressing together then add to the buckwheat and toss well.  
Add the beetroot, celery, spring onions and dill cucumbers to the buckwheat and toss together  
When you are ready to serve top with the feta cheese and parsley.

## RESOURCES

- 1 Ohnishi, Ohmi, 1998 “Search for the Wild Ancestor of Buckwheat. III. The Wild Ancestor of Cultivated Common Buckwheat, and of Tartary Buckwheat,” *Economic Botany*
- 2 Pim de Klerk et al 2015  
Pollen and microfossils attributable to *Fagopyrum* in western Eurasia prior to the Late Medieval: An intercontinental mystery
3. [www.hort.cornell.edu/bjorkman/lab/buck/guide/sowinghow.php](http://www.hort.cornell.edu/bjorkman/lab/buck/guide/sowinghow.php)
4. [www.hort.cornell.edu/bjorkman/lab/buck/guide/harvesthow.php](http://www.hort.cornell.edu/bjorkman/lab/buck/guide/harvesthow.php)
5. Paul et al 2007 Effect of honey, dextromethorphan & no treatment on nocturnal cough & sleep quality for coughing children and their parents
6. Cai et al 2004 Encyclopedia of grain science
- 7 Ikeda 2002 Buckwheat: composition, chemistry & processing *Adv Food Nutri*
8. Aziz Z et al. 2015 A systematic review of the efficacy and tolerability of hydroxyethylrutinosides for improvement of the signs and symptoms of chronic venous insufficiency. *J Clin Pharm*
- 9 Whfoods.com. (2017)
10. Zhang HW et al. 2007 Comparison of hypertension, dyslipidaemia and hyperglycaemia between buckwheat seed-consuming and non-consuming Mongolian-Chinese populations in Inner Mongolia, China.

### **Rutin**

Germinated buckwheat extract decreases blood pressure; *Phytotherapy Research*, 2009  
Rutin increase in sprouts *Phytomedicine*, August 2007

### **Hypertension**

Hypertensive effect of germinated buckwheat extract *Phytotherapy Research*, 2009;

### **Fagopyrin**

Kreft et al 2013 The content of fagopyrin and polyphenols in common and tartary buckwheat sprouts

### **Phytic acid**

Egli et al 2002 The Influence of Soaking and Germination on the Phytase Activity and Phytic Acid Content of Grains and Seeds *Journal of food science*

Norbu, S., 1995. Buckwheat in Bhutan.. *Shinshu University Press*,

Isdorzcyk et al 2014 Canadian buckwheat. A unique, useful & under utilised crop *Canadian Journal Plant Science*

### **Cover crop video**

<http://articles.extension.org/pages/59419/video-clip:-summer-cover-crop:-buckwheat-from-vegetable-farmers-and-their-innovative-cover-cropping->

### **Buckwheat seeds to sow**

[www.organiccatalogue.com/seeds/green-manure-seeds/buckwheat-3kg.htm](http://www.organiccatalogue.com/seeds/green-manure-seeds/buckwheat-3kg.htm)

### **Buckwheat grains and flours**

[www.buywholefoodsonline.co.uk/buckwheat-grain](http://www.buywholefoodsonline.co.uk/buckwheat-grain)

### **Buckwheat honey**

[www.baltichoneyshop.co.uk](http://www.baltichoneyshop.co.uk)

### **Wondermill**

<http://www.wondermill.co.uk/wondermill-products>

### **Oxygen absorbers**

[https://www.fresherpack.co.uk/products/12/55/oxygen\\_absorbers\\_-\\_300cc/](https://www.fresherpack.co.uk/products/12/55/oxygen_absorbers_-_300cc/)

### **Small-Scale Grain Raising:**

An Organic Guide to Growing, Processing, and Using Nutritious Whole Grains for Home Gardeners and Local Farmers by Gene Logsdon. Chelsea Green Publishing ISBN -10 1603580778