

**NOVEMBER 2015**  
Free Report

# **BUGGING IN: YOUR TOP 3 BUG-IN NIGHTMARES SOLVED**

Dear Friend,

Your bug-in bag won't solve all of your preparedness problems, but it is the closest you'll ever come to a 'one-size-fits-all' solution.

If hunkering down is your choice, either due to your living circumstance, or simply to avoid the hordes on the highway, your bug-in bag should have all the essentials you need, from the most nutritious and space-efficient food, to the most dependable water purifier, and the most effective lifesaving medicine. Anything less will not only waste your time, space and money, but will pin your hopes to a fool's promise, endangering you and others too.

This responsibility is a heavy weight, that's why we made it easy for you with this free report. Here you'll discover exactly what you need to have in your bug-in bag, no matter what, without breaking the budget.

We put a lot of effort into making it, and we hope you find its guidance useful. Your home is your castle and we aim to keep it that way.

P.S.: Remember that sharing is caring, so please share this info with any friends that might benefit from this experience!

*Alec Deacon*

*Survivopedia.com*

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## **Bugging In:**

# **Your Top 3 Bug-in Nightmares Solved**

Today, many people are frustrated because they know that a major crisis is coming.

While these same people may have worked hard all their lives, are struggling to raise families, or have handicaps that prevent them from doing a lot of physical activities, they still want to survive a crisis and live to see the next generation.

Unfortunately, they, and you, may be in a position where a lot of advice related to bugging out may not be of use. By the same token, trying to adapt bug out methods to bugging in may be useless at best, given personal and environmental constraints.

This report is intended to give you some more detailed advice on how to bug in using only 60 – 138 pounds of resources that you will keep in a “bug in bag”, and will focus specifically on food, water, and air.



## **Healthy Food for Your Survival**

No matter whether you live in a tiny apartment, a trailer, or a building that is about to fall down under its own weight, you may find it very disturbing to see that most prepper guides recommend storing away 2 – 3 years' worth of food in your home or a nearby location. Not only is this advice impossible to make use of in most city based living situations, it may also make your home one of the first places that people (including FEMA soldiers looking for additional supplies to seize) will go in time of need.

Storing away vast amounts of food isn't just a liability, it is something that will cost a lot of money and prevent you from making good use of what little room you may have available. To add insult to injury, there is no such thing as food that will last for years on end without deteriorating.



For example, if you choose to buy canned food in the local supermarket, it may only be good for about a year. Speaking of which, MREs may only have a shelf life of a few months if they are stored outside of optimal temperature conditions. Even though they may say these foods can last 5 years or more, you may get a very nasty surprise in a crisis when these foods are no longer fit to eat.

For those bugging in, you will need at least some food to start off with while you are putting other food production plans into action (unless you start food production now and have already adapted to those foods). You should not store much beyond what you would have on hand after just completing a major shopping expedition.

Since many of the foods listed in this report will be ready within just a few days to two weeks, you can use that as your reference point for the amount of food to keep on hand. Just be sure that the bulk of your food cache features multi-purpose, multi-nutrient foods that requires a minimal amount of processing and storage.

Some good options include:

- Canned beans – about 15 cans per person. If you can get cans with multiple bean types instead of just one type. This gives you a wider range of nutrients in a single can. Canned bean soups with at least 5 – 10 different bean varieties may also be an option, but make sure they have at or near the same protein content, and also make sure they contain as little salt as possible.
- Rice – 15 pounds per person – major source of fiber, carbohydrates, and vitamins.
- Quinoa – about 15 pounds per person. While quinoa is available on the market, few people realize that it is one of the few plant based foods that offer total proteins that are also digestible. This means you can use quinoa to replace meat.
- Soy milk (organic and not kept in the freezer case before opening) – about 15 cartons per person

- Your favorite candy bars – about 15 per person. Soy is another plant source that offers a total protein; and is often favored by vegans. Sadly, most soy in the United States is GMO soy, which means it also carries an increased risk of causing cancer and other diseases. You should also avoid soy with Carrageenan, since this chemical is known to cause cancer. A good quality organic soy milk should help you avoid both problems, and also add some liquid to your stores. It should also be noted that dairy milk, and by extension, powdered milk will not provide you with a total protein solution.
- A good quality, comprehensive multivitamin
- Vitamin D,K, and Calcium supplement
- Brewer's yeast – very important for getting enough B-12 in your diet. Even though a multi-vitamin should cover some of this need, a natural source of this vitamin is also crucial.

## Common Storing Foods to Avoid

If you read prepper sites, many recommend storing flour, powdered eggs, and dried milk. While these stores may be of some use for getting through a "routine" power outage or something unrelated to a full social collapse, they may not be of much use after a major crisis. Here are a few problems with these commonly stored items:

- Even if you store flour in a cool, dry place, it will not last more than one to six months past the expiration date. After that point, bacteria, fungus, insects, and other disease bearing organisms can start multiplying in the flour and make it unfit to eat even when cooked.

While you may need to raise insects for

survival in the post crisis world, bear in mind that those insects are safe for consumption



and, if you take proper care when choosing the eggs, will not have been exposed to pesticides or other poisons. By contrast, if bugs start accumulating in stored flour, it will be impossible to tell if they are safe to eat, even after cooking.

- Dried milk actually has very little nutritional value. Like regular cow's milk, it is very high in Casein, which is an indigestible protein. You are truly better off storing soy milk, which has a longer shelf life and has better nutritional value.
- While dried eggs have been consumed for decades, the process used to dehydrate them can cause an oxidation of cholesterol, which some say is dangerous to long term health. It should also be noted that powdered eggs can last for several years in storage, however they need to be in a vacuum sealed container and kept on the cooler side. Many people that buy powdered eggs leave them in the original bags or do not keep the storage temperature cool enough. Beans will provide more protein and a wider range of other nutrients. In addition, you will find it much easier to consume a few cans of beans each month than use a big bucket of powdered eggs if they are about to go bad. Beans are also much easier to obtain and arouse far less suspicion when you buy them.

## Evaluating Daily Needs

When it comes to evaluating your daily nutrient needs, it is not always easy to go by "recommended daily allowances", since you may have health related needs or other adjustments based on some other factor. Make sure that you know the following, and then adjust your stores so that you can meet a balance that works for you:

- Total number of calories consumed per day. If you are planning to lose or gain weight, keep that information on hand as well. There are many good calorie calculators online that can help you determine how many calories you should be consuming for optimal health.
- Basic nutrient ratios. Essentially, all foods that you consume are divided into four categories. Depending on your interests, you will need to adjust these ratios to fit your

activity and health levels. Under no circumstance should you drop below certain percentages as it can seriously undermine your health. Use the table below to help you determine which ratios to work with for your particular needs.

	<b>Normal Diet</b>	<b>Muscle Building</b>	<b>Diabetic</b> <i>(without medicine. If you are using medications, you should be able to use the normal diet ratios. If you are not able to do so, demand better options from your doctor.)</i>	<b>Kidney Challenged</b> <i>(try to keep your diet as alkaline as possible as this helps prevent further kidney damage. It is not a cure, and will not stop all damage, but it can help)</i>
<p><b>Carbohydrates (1 gram = 4 calories).</b></p> <p><i>Carbohydrates supply energy required by cells to carry out all activities. Your cells cannot use any other fuel source.</i></p> <p><i>The only type of carbohydrate molecule allowed into the cells is glucose. Glucose, in turn, is created when other carbohydrates and fats are broken down in the digestive system.</i></p> <p><i>Insulin is required to allow glucose into the cells. Therefore, if you cannot consume at least some carbohydrate, you will need insulin or an insulin replacer (ie. You are diabetic.)</i></p>	45 – 65%	55 – 60%	<p>20 – 30%</p> <p><i>You can go as low as 60 – 80 grams per day, and then break your carbs down into very small quantities. Monitor urine carefully for ketone burning, as that can be extremely dangerous. If your blood sugar levels are within a healthy range but urine shows ketones, then increase carbohydrates by 5 – 10 grams at a time. If your blood sugar levels are high, then you may need insulin if you cannot consume at least 60 grams of carbohydrate per day.</i></p> <p><i>See a doctor or nutrition expert that does low carb counseling to help you get the right carb amount plus sort out other ratios for your diet.</i></p>	<p><i>If you are not diabetic, you can go with higher ratios as long as it does not drive up your blood sugars. See a dietitian that specializes in renal care to get the best ratios for your condition.</i></p>

<b>Proteins (1 gram = 4 calories)</b>	10 – 35%	25 – 30%	30 – 40%	<i>Usually, proteins are cut back as kidney disease progresses. Powdered eggs might be a better option to store away than other protein sources since eggs are known as “kidney friendly” food, as is yogurt.</i>
<b>Fats (1 gram = 9 calories)</b>	20 – 35%	15 – 20%	20 – 35%	<i>Many kidney diets usually wind up with an increase in fats. Make sure that you choose healthy fats instead of ones that will cause more damage to your body.</i>
<b>Insoluble Fiber (1 gram = 0 calories)</b>	<i>5% (usually included in carbohydrate counts. Subtract this number from total carbohydrates to figure out how much usable carb you are taking in)</i>	5%	<i>5% Make sure you count this 5% as separate from your usable carbs, and make sure that you subtract this amount from your carb intake as insoluble fiber is not digestible and does not count towards your daily nutritional and energy supply needs.</i>	5%

\*\*\* Note: 1 gram = 0.035274 ounces

When evaluating the rest of your daily nutritional needs, it is important to realize that there are dozens of vitamins, dozens of amino acids that form millions of proteins, and thousands of micronutrients. It is very important to gain a complete, and accurate list of as many amino acids, vitamins, and minerals, plus the recommended daily allowances for each one. In general, most

doctors will tell that if you eat a wide range of foods and keep within the percentage ranges for a healthy diet, you should be getting all the nutrients that you need.

Since you will be adjusting to different foods, it never hurts to study each food type one by one, and then see how it compares nutritionally. In general, you will find that:

- Beans, quinoa, and soy beans carry more protein and better quality protein than meat and dairy products.
- Insects are far more nutritious and have a better range of vitamins and minerals than commercial meats and fish/seafood, or meats from animals that you may hunt.
- Plant sprouts can carry 3 – 5 times as many nutrients per gram when compared to full sized plants. Just be sure to know how long to let them grow in order to get the optimal amount of nutrients from them.

Before a crisis occurs, it is very important to keep up with the latest news on nutrition, and how guidelines are changing. This can help you avoid making costly mistakes that could cost your life and wellbeing later on.

## Part 1: Plants for Sprouting

### *How to Choose Plants for Sprouting*

Surprisingly enough, there are relatively few rules when it comes to choosing plants to raise for sprouting purposes.

Here are the basics:

- Choose only plants that are known to have edible leaves, stems and roots. For example, even though it is safe to eat tomatoes, the leaves are poisonous. Therefore, you would not choose tomatoes for sprouting.



- Make sure that you know how to prepare the seeds for sprouting. In this instance, wheat, oat, and other seeds may require pre-soaking or husk removal. If you do not take the proper pre-sprouting steps, then the seeds will rot instead of grow.
- Always choose seeds that are certified safe for sprouting and edible consumption. Sadly, simply going to your local department store and picking up a packet of seeds may not give you safe ones to use. In many cases, seeds sold for use in the garden are treated with all kinds of insecticides and pesticides. Typically, you can get sprouting seeds at organic food stores and some specialty stores.
- Try to choose varieties that are non-hybrid and non-GMO. Heirloom seeds will work well, however you may need to grow one set of seeds and then harvest those if the original seeds are not certified safe for consumption as sprouts. Heirloom seeds are the best for survival because they are the only ones that are guaranteed to produce viable seeds for generations on end. While sprouts may be very cost effective in terms of producing large amounts of edible food in small spaces and short periods of time, you will still need to let some plants mature in order to get more seeds for sprouting.

### *How to Grow Sprouts Using a Mason Jar Nursery*

Growing sprouts in a mason jar is fairly simple. Depending on the seed type, you may have good sizes sprouts in as little as 3 days or as long as 2 weeks. You will need to research each plant type in order to determine how many seeds to start with, and then when how many days it takes to get optimal nutritional value from each plant type.

Make sure that you know how much sunlight each plant type needs. Surprisingly enough, since plants germinate under the cover of soil, most sprouts actually need very little light. If you are going to let the sprouts develop at least one set of leaves, then sunlight will be very important.

#### **Basic Steps:**

- Make sure you start out with a clean mason jar.

- Put enough seeds in the jar to lightly cover the bottom
- Add enough water to the mason jar so that seeds are completely covered, and then slightly more. Remember, the seeds will soak up water as they prepare to germinate, and then also use the water for growth.
- Cover the mason jar with clean cheesecloth or some other clean cloth
- Use a rubber band or the ring part of a mason jar lid to hold the cloth in place

Once the jar is set up, you will need to rinse the seeds and add new water 3 – 4 times per day.

Standing water is a breeding ground for bacteria, which in turn, can make the sprouts unsafe to eat. Routine water changes is the best way to prevent this problem. When you change the water:

- Tilt the jar and then turn it upside down to get all the water out. As the seeds begin to germinate, you will have to be gentle so that you do not kill the sprouts before they reach optimal size.
- Open the jar lid and gently wash the seeds or sprouts in water
- If the seeds have not germinated yet, put just enough water in the jar to cover the seeds. Once the seeds have sprouted, just put a little bit of water in the bottom of the jar. You will need to experiment with the proper amount for each plant type. Some will grow well with very little water while others may require more.
- Replace the cheese cloth and lid band.





### *Making Sure Sprouts Are Safe to Eat*

Even though fresh sprouts are delicious to eat, they can also carry e.coli and other dangerous bacteria. Aside from keeping the water fresh, sprouts can be cooked using a variety of methods. You can boil them, bake, them, or fry them alone, or in combination with other foods. Take the same precautions with sprouts that you would with meats.

Many people eat sprouts raw as a matter of routine. Unless you have practiced extensively with growing sprouts, it is best to cook them. Since some seeds and sprouts are more inclined to develop bacterial and fungal infections, practice is the only way to make sure that you know how to handle each seed type and produce sprouts that are safe to eat. Sadly, many commercial supplies of both sprouting seeds and salad sprouts have led to serious outbreaks of salmonella and e.coli. In a survival situation this can truly be a disaster as bad as any other.

**[CLICK HERE to find out more about how to survive medical emergencies.](#)**

Chances are, if you have an interest in survival topics, then you might be wondering if exposure to UV light from the sun will be enough to kill bacteria that may be found on sprouts. For example, water placed in a plastic bottle (which creates another problem because toxins in the plastic leach into the water) and left in the hot sun for a few hours will be free of bacteria.

Since it is not possible for UV rays to reach every angle of sprouts sitting in a bottle, this may not be a safe option. So you can still experiment with this and see if it works for you.

### *Sprouts from Generation to Generation*

Consider a situation where you decided to store 2 pounds of mung beans in your bug in bag. After a crisis hits, you decide to use ¼ pound for creating new seeds. Even if you plant the seeds, and then they germinate and grow successfully indoors, you will have a major problem:

there won't be any bees to pollinate the flowers. Without this pollination, the flowers will not produce seed pods.

Aside from raising bees (see Part 2 of this guide on insects for food and defense), you should also know how to hand pollinate for every species of plant you intend to grow. In some cases, pollinating with a feather or other means can take a good bit of practice. Make sure you practice now so that you aren't left with a bunch of lovely plants and no seeds during a crisis situation.

## Part 2: Insects for Food and Defense

### How to Choose Insects

Sometimes, it is truly surprising that people are happy to eat arsenic and feces laden chicken, hotdogs that may contain parts of human beings (as evidenced by the presence of human DNA in some hotdogs) irradiated beef and tuna, and cancer causing bacon, salami, and other processed meats, yet they will not eat an insect if their life depends on it.



Culturally speaking, the United States is actually relatively backwards in this area, as many other cultures throughout the world eat insects as a matter of routine and some consider them a delicacy. Your bug in food plans will be seriously advanced if you can get over your cultural aversion to eating bugs and raising them for food purposes.

Here are some advantages you may not have considered in the pre-crisis period and beyond:

- As long as you raise insects on your own, there is no need to worry about them carrying poisons commonly found in commercial meat supplies
- A good supply of captive born insects will ensure you aren't consuming wild ones that may not have yet been killed by insecticides

- Since insects usually eat garbage and kitchen scraps, you can recycle leftovers that would alert others to your presence in the area
- Insects are incredibly prolific and starting with just a handful can give you enough food to live on for months or years on end without spending a fortune on care that would be required for other animals
- When it comes to nutrient rich foods, insects are some of the best, nutrient dense sources of food on Earth
- Once you dare to eat them, you will find insects are tasty, easy to digest, and enjoyable to consume

There are two types of insects that you should aim to store eggs and nurseries for:

- Insects that you will consume for food – essentially ants, mealworms, crickets, grasshoppers, flies (for their larvae), grubs, roaches, and some species of beetle.
- Insects that can be used for home defense – Scorpions, spiders, red ants, and other stinging or biting insects. For example, red ants can make huge swarms that can get through just about any kind of clothing or cover. In fact, even if someone enters your apartment in full armor and wearing a shield, they aren't about to be very comfortable with hundreds of ants swarming all over their bodies. This, in turn, can allow you enough time to escape, or put other plans of defense into action.

### *A Note about Raising Honeybees*

As you may be aware, the global decline of bees is making it extremely important to preserve as many of them as possible. Most people believe that it takes a huge hive or extensive resources to raise these usually gentle creatures. While it does take experience and skill to raise large hives of bees, there are still some DIY methods that you can try.

Aside from producing an excellent source of food (honey), some bees can also be set aside for defensive purposes and pollination. The latter will be especially important as you enter the

weeks and months past the initial crisis. Without bees to pollinate a wide range of plants, you won't get new seeds for sprouts and future plants, let alone produce to consume.

Fortunately, with a little bit of practice, you can raise bees in a mason jar. A guideline on how to do this safely and efficiently is available here:

[pioneersettler.com/beekeeping-in-mason-jars/](http://pioneersettler.com/beekeeping-in-mason-jars/).

You can also purchase kits that will allow you to use a single jar as a beehive. These kits also come with a queen bee that will start her own hive and give you approximately two gallons of honey per jar.

Since these kits also include features that make it easy to feed the bees, and also prevent them from drowning, purchasing one may be of immense benefit in terms of helping you figure out how to make your own DIY designs.



Even one jar can be of immense help as long as you figure out how to release the bees into a confined area for pollinating key plants, and then get them back into the hive once the pollinating is done.

Here are some basic tips for bee keeping. This list is not inclusive, but it will give you a place to start:

- Make sure you are not allergic to bee stings. Even if you can tolerate one or two stings with no problems, multiple stings can be a killer to people that don't normally consider themselves allergic to bees. A good sized hive may contain hundreds of bees, so always be aware of this risk.

- Always wear a bee keeping suit.
- When working with bees, always remain calm. Bees are incredibly intelligent creatures and they have very good memories. In fact, you can almost say they are like miniature dogs in the sense that they will look at you, study you, get to know you, and demonstrate that they remember you.
- Bees will also communicate what they learn to other bees in the hive via their dances. To put it simply, if you hurt one bee intentionally or become nervous around them, they can and will swarm attack you the next time you show up. On the other hand, if they think of you as being like a flower, or a good thing – they will welcome you and not harm you.
- Always remember that when a bee stings, it dies because its internal organs come out with the stinger. They will not sting unless they have to. If they have to sting, then you have done something very wrong in terms of threatening them.
- If you need to get into the hive, smoke will make the bees lethargic and sleepy. Once the bees are asleep, you can put them into another jar. Some beekeepers also recommend taking the queen out first, and then when the other bees wake up, simply let her call them to the new jar. They will follow almost immediately because that is the way of bee society.



### *A Basic Guide to Raising Insects for Food*

When raising insects for food you will need to keep the following in mind:

- Insects are like any other living thing. In order for them to produce a next generation of viable offspring, they must have the right temperatures, lighting conditions, food, water, and environmental conditions. For example, winged insects usually need a place to fly so that they can mate. Other insects may require paper or some other type of material in order to make a nest. Still other insects may require darkness or underground type conditions in order to live and reproduce. You will need to study the life cycle of each insect that you plan to raise so that you know what they will require at each stage.
- In order to produce viable offspring for years on end, insects must also have sufficient genetic diversity. Remember that some insects may only live for few days to a few weeks. If you only have one male and one female insect, they may produce thousands of offspring, but none of them will be diverse enough genetically to ensure future generations. Make sure that you have several breeding pairs, and that you keep them properly separated.

### *DIY vs. Pre-Manufactured Insect Farm Kits*

Even though it may seem surprising to you, there is a growing interest in raising insects for food. As such, you will find a number of websites that will sell eggs and supplies that can be used to start your own insect farm. Just make sure that you have enough genetic diversity in the kits to ensure the populations remain healthy.

You can also make your own shelters and insect nurseries from plastic shoe boxes and other materials. Here are some sites where you can purchase supplies and gain access to more information about the life cycles of various edible insects and how to raise and cook them using the best and most efficient methods:

- [tiny-farms.com/](http://tiny-farms.com/)
- [thefarmedinsectcompany.com](http://thefarmedinsectcompany.com)

### Using Insects for Defense

Even people that routinely eat insects are often repulsed by them and will do what they can to keep them from landing on their arms, legs, and faces. As such, there are some insects that can readily act as deterrents for invaders. Here are some ways that you can use at least some insects to make thieves, thugs, and other invaders very uncomfortable in your bug in location:

- Scorpions – Even though they are not technically insects, scorpions are distant cousins of spiders and are notorious for delivering very painful stings. Keep them in or near fire zones or other areas where you intend to release them if invaders arrive at your home.
- Spiders – they make excellent webs that can make people disoriented and disturbed. Keep spiders near front doors, windows, or any other place that you want to look old or abandoned. Of course, it never hurts to have a few spiders hanging around to distract invaders even more. Poisonous spiders and other insects should be managed carefully, especially if there are children or pets in the bug in location with you. The last thing you will want to have happen is for a child or pet to come into contact with these insects and wind up getting hurt.
- Red ants – they tend to be very aggressive, and can be released near front doors or in other areas where you want to keep people distracted.
- Roaches – if your goal is to make your bug in location look uninhabited, a few roaches running around should give invaders the idea that nothing of value is present in your area. Since roaches are relatively harmless, they can free range with you and others as long as you get past the ick factor and know how to keep them out of food and bedding



areas. Free ranging roaches may not be safe to consume since they may have come into contact with insecticides or other poisons.

Many people that are interested in using insects as crime deterrents in a survival situation often wonder about using **hornets**, **bees**, and **wasps**. There are some advantages and disadvantages that you can consider.

- Even though all of these insects can deliver a powerful sting and disrupt the plans of invaders, they can also get very aggressive to those living in the bug in location.
- After the situation, you will also have to try and round these insects up and then take the risk of getting stung yourself. While this risk also exists with other insects listed in this report, at least you won't have to worry about the other ones flying around.
- On the good side, bees, wasps, and hornets cannot multiply without the queen, who will most likely stay in the hive. By contrast, scorpions spiders, and roaches can multiply as long as there are males and females around. If a few pairs of them escape, then it can lead to quite an infestation.



### *Annoying and Dangerous Insects to Beware Of*

Some people want nothing to do with insects even if it means they will starve to death or have no means to deter other people from invading their space. While this cultural bias is not shared by over 80% of the global human population, there are some insects that should not be used for food or defensive measures because they carry too many dangerous diseases.



In particular, ticks, mites, and mosquitoes can certainly cause people to leave an area, they are also notoriously difficult to control and can bite you just as much as they can an invader. The last thing you want to do is have a bunch of mosquitoes or ticks hanging around, and then contract Lyme disease or worse.

[CLICK HERE to find out more about how to survive medical emergencies.](#)

### Part 3. Brewer's Yeast and Other Important Food/Medicine Cultures

No matter whether you want to make cheese, bread, alcohol (for both drinking and medicinal wines), or gain access to a wider range of vitamins, knowing how to use and cultivate bacteria is extremely important.

You can start off with a general purpose yeast that can be used in everything from making wine and bread to vitamin B complex supplements.

While there are several other methods beside the ones shown below, this one requires the least amount of equipment. If you are going to get into culturing bacteria for different cheeses, you will be best served by getting a pre-fabricated starter kit that contains all the needed equipment and bacteria strains.



#### *Making and Maintaining a Multi-Purpose Bread Starter*

Before you launch into making a yeast starter mix, it should be noted that if the conditions are right for growing yeast, they may also be right for the growth of harmful fungi, bacteria, molds, and mildew.

You must always ensure that all of your equipment is clean, and that you take proper precautions when working and storing the yeast mixes.

Remember, the process of keeping a starter mix going is very different from proofing yeast. In the latter instance, the yeast is only actively growing for about 2 hours and then killed off by the cooking process. On the other hand, yeast starters may grow for years on end and be used hundreds of times.

### *A Word about Penicillin and Mold Based Medicines*

As you may be aware, one of the most common and popular antibiotics in the world is actually made from a mold that grows readily enough in the refrigerator. When penicillin was discovered in 1928, there were no complex procedures for isolating this important chemical.

Most people will tell you that it is not feasible or practical to try and isolate penicillin in a survival or DIY environment. Here are the main reasons why:

- Even though penicillin may be produced by some mold on a piece of bread, that does not mean there is enough penicillin to be of therapeutic value.
- During the process of isolating and concentrating the penicillin, you may inadvertently introduce other toxins or bacteria that are resistant to penicillin.
- Today, the simple penicillin that was originally isolated from bread mold is not effective against the vast majority of infections. Do some research on the evolution of superbugs and you will soon see why using penicillin is all but useless in many cases. Sadly, creating adjustments to penicillin is something that is likely to be lost for decades, if not more once society collapses. You will be better served by growing a range of herbs with anti-bacterial, anti-fungal, and anti-viral properties instead of trying to cultivate bread mold in hopes that you can make your own penicillin. That being said, it never hurts to have some basic instructions on hand and try to see if you can produce concentrated penicillin using simpler methods.

### *Are There Other Mold Based Medicines?*

Even though most people think of Penicillin as the first antibiotic, there were discoveries leading up to that time that point to other molds that might be of use. In particular, Ernest Duchesne noted that certain kinds of bacteria (including e.coli and the bacteria that cause typhoid fever) will not grow in the presence of certain molds.

Since some bacteria are "gram negative" and others are "gram positive" (basically, bacteria cultures will cause certain chemical colors or stains to change colors. This helps in the process of identifying bacteria), they may or may not be killed off by penicillin or some other antibiotic.

It is thought at this time that Duchesne was not working with penicillin, therefore it is possible that other molds may be of interest for survival medicine. That being said, you will more than likely need to study Ayurvedic and Chinese medicine to get some ideas about which molds to cultivate and how to go about the task without relying on complex laboratory equipment.

Consider that in ancient cultures, some of these molds may have been cultivated for hundreds of years. In some cases, you may be able to obtain therapeutic levels of any given "antibiotic" with little more than a few leaves and a proper growing temperature.

As a final note on the topic of microbial or related medicines, many common chemotherapy agents are, essentially, antibiotics that were modified to kill animal cells based on the speed that they multiply. Under these circumstances, you may just find that some of these molds or other microbial strains may be useful in treating malignancies.

Take the time now to study Ayurvedic and Chinese herbal and related medicines. While it may take some time to get past the vocabulary and spellings, it will be well worth your effort. Not only will you have an expanded list of treatments for a wide range of diseases, you may also have a means to slow down or stop cancers long after conventional agents become unavailable.

Do some additional research on people that have been cured of cancer by using these treatments, and you may be even more surprised by what you find.



## **Water Solutions for Your Bug In Plan**

As you may be aware, a single gallon of water weighs about 8 pounds and takes up quite a bit of space. If you are having problems keeping just one or two gallons in your living space on a regular basis, you will find it almost impossible to store enough water away to last several weeks, or even years. This is just one of many reasons why you should only store away 5 – 10 gallons of water to get you started in a crisis, and devote your prepping to pulling water from the air.

There are several ways that you can achieve this goal, however some are more cost effective than others. In addition, once you pull the moisture from the air, you will still need to make sure it is fit for drinking and bathing. Fortunately, all of these obstacles can be overcome with solutions that are small enough and easy enough to store in your bug in bag.

## How Much Do You Need Each Day?

Before assembling the materials and equipment required to pull water from the air, it is important to know how much water you will need per person. Under normal conditions, you can expect to use 80 – 100 gallons of water per day. Here are some rough estimates to go by based on routine needs in a survival situation compared to routine times:

	<b>Routine Life</b>	<b>During a Crisis</b>	<b>Notes</b>
<b>Cooking</b>	<i>1 – 2 gallons per day</i>	<i>1 – 2 gallons per day</i>	
<b>Hydration</b>	<i>1 gallon per day</i>	<i>1 gallon per day</i>	<i>Does not include water used in cooking.</i>
<b>Bathing and Personal Care</b>	<i>2 – 5 gallons per minute.</i>	<i>2 – 5 gallons per minute if you continue to use faucets.</i>	
<b>House Cleaning</b>	<i>30 gallons</i>	<i>Up to 30 gallons</i>	
<b>Sanitation</b>	<i>50+ gallons per day.</i>	<i>With care, you can take this down to 15 – 20 gallons per day.</i>	<i>Toilets can take up to 7 gallons per flush. It is estimated that over 50 gallons of water is used per person each day to flush the toilet.</i>
<b>Growing Food</b>	<i>30 – 40 gallons per watering a regular garden</i>	<i>5 – 10 gallons per week for container based gardens</i>	
<b>Other Needs</b>	<i>2 – 3 gallons per day</i>	<i>2 - 3 gallons per day</i>	

## 6 Ways to Conserve, Recycle and Repurpose Water after Crisis

Even though there are actually thousands of gallons of water sitting in the air around you, actually converting that water vapor into usable water can take a bit of effort. It is still very

important to know how to conserve water and recycle it as much as possible. If you have to fine tune water production systems, you will have a bit more time to achieve that goal.

- Chances are, you already know that the fastest and easiest way to cut back on toilet water usage is to gather water from other activities such as cooking and cleaning, and then simply dump it down the toilet. On a day to day basis, you can also fill a ½ gallon milk container with water, cap it up, and set it in the toilet tank. This will take up area that would normally be taken up by water that would be used for flushing the toilet even though it isn't necessarily needed. You can add more milk jugs if you find that you want to reduce the amount of water used for flushing even more.
- When preparing meals, combine as many things as possible so that you do not have to waste water. You can also reduce the amount of water used to cook many items by using lower cooking temperatures or other methods. For example, if you want to make spaghetti or macaroni, try boiling just enough water to cover the pasta. Thermos cooking also offers a number of ways to reduce both the amount of water used to cook food and also the energy required.
- When it comes to washing your hands and face, there are a number of ways to save water that don't necessarily rely on pre-moistened wipes or other stores that will run out. To begin, instead of turning on the tap, and letting it run, pour water into a bowl instead. From there, dip your hands in the bowl and lather up. Once that is accomplished, take a towel or sponge to get the majority of the soap off your face. Follow up with some additional splashes of water to get the remainder of the soap off your face. From start to finish, you should only need about ½ gallon versus 2 – 5 gallons for each minute that a faucet would be running. You can also use small bowls for brushing teeth and then a larger one for sponge baths.
- Contrary to popular belief, it is not a good idea to believe that all house cleaning will end in the post crisis world. If you do not keep floors, walls, furniture, and other internal landscape parts clean, you will soon be in a disease filled, hazardous environment. From

that perspective, toilets and sinks will still require water for cleaning. In the case of toilets, you can use leftover water from cooking or other cleaning chores, just as you would for flushing the toilet.

- If you are planning to bug in, then it makes sense that any food growing will occur indoors. Today, there are a number of growing methods that reduce reliance on water to well below what you would use in a conventional outdoor garden and also a container garden. This includes utilizing different potting arrangements and also tried and true ways to preserve moisture as much as possible. For example, just because your container garden is indoors, that doesn't mean you can't use plastic mulches or other covers that will prevent water from evaporating back into the air.
- There are also a number of misting techniques you can use when watering plants to ensure they get as much moisture as possible where it is actually needed. For some species of plants, this includes misting under the leaves, since this is where the leaf is actually able to take in the most water.

If the outdoors are dry enough, you will see tree leaves turn upside down so that those pores can take in the rain as quickly as possible. From that perspective, if you mist under the leaves instead of on top, the plant will get more water, and less will evaporate off the top areas that may have wax or some other natural coating to help prevent evaporation.

## 3 Basic Ways to Pull Water from the Air or Ground

### Condensation Methods

These methods are designed to work when there is a sudden change in air temperature, which affects how much water vapor the air can hold. Typically, when temperatures drop, this will increase the odds of precipitation.

There are many different ways to use condensation methods to retrieve water from outdoor settings, however they may not yield as much water, if any from indoor locations.

Regardless of the system that you use, the hours before sunrise are apt to yield the most water because they are the coolest hours of the day.

- Pulling water from the earth is actually fairly easy. Just dig a hole and place a bowl, pot, or cup in the center of the hole. Next, spread some plastic sheeting across. Make sure that the edges of the plastic are sealed off. Use a rock in the center of the plastic so that the lowest point of the plastic is aimed into the cup or bowl. As the ground temperature changes, water vapor will rise up and be trapped by the plastic.



From there, the water droplets will roll down to the center point of the plastic and finally drop into the vessel waiting below. Depending on the moisture levels in the soil, you can collect as little as a cup or as much as several gallons of water in a single night.

- Water stills can also be very useful if you have used cooking water or other water that needs to be purified before it can be used for consumption and bathing. Basically, in these systems, the water may be in a bowl, cup, or even housed in the ground as in the method listed above. For this version, the plastic tent will have an upward high point instead of a low point. As the sun or other heat source causes an increased temperature inside the tent, water vapor rises up and encounters the top of the tent.

From there, water droplets adhere to the sides, and then to waiting cups along the inner ring of the plastic. This water will, or should be, free of chemicals, heavy metals, bacteria, salts, and minerals. Therefore, not only can you use this system to produce fresh water, you can also use it as a final stage for purifying any water that may be on hand.



As with other systems that use plastic, always make sure that the plastic remains clean and free of bacteria, mold, mildew, or other forms of soiling that can make the water unfit to drink. For long term usage, you may prefer a glass tent, however this will weigh more and require additional support structures for daily needs.

- Once you start your indoor container garden, simply enclose the entire area in plastic (basically you will be creating an indoor greenhouse), and then make depressions in the roof that will point to cups or pots waiting below. This method is one of the most passive and easiest methods for gathering water from the air, and will also help conserve overall moisture used for growing food.

### Desiccants

As you may be aware, silicon and table salt are two commonly available desiccants. If you are seeking to make water for consumption, bathing, or other purposes, then it is better to use salt as the desiccant in your system. If you look at some commercial atmospheric water generation systems, you will find that many different desiccants are used for this purpose.

You can do more research on these other chemicals and see if they are readily available in your area. When choosing these chemicals, you must also consider how much energy it will require to remove the chemical from the water, and also how much water yield you will get with each desiccant when compared to table salt.

### Air Pressurizers

These systems are somewhat similar to a modern air conditioner in the sense that they blow air over cold coils in order to reduce the air's temperature, which causes moisture to drop into a waiting receptacle.

While these systems can pull a good bit of water from the air, the coolants can be quite expensive, as can the electricity required to run them. In a bug-in situation where you have limited power and resources, this system may not be a viable option. Even if you can purchase a

miniature system that runs on batteries or solar power, it will not produce as much water as other methods. It may also be very noisy and break down sooner rather than later.

## Innovative Methods to Consider

Globally speaking, there are many people interested in pulling water from the air, or from brackish environments. You will find that some of the most innovative methods are making use of wind turbines or with alternative blade forms. Even though these systems tend to rely on condensers and coolants, they can still offer some insights that may be of use to you.

At the very least, if you can design something based on these systems, or integrate passive heating and cooling into the design, you will spend less money and have a system that will work in any emergency type. Remember that the ultimate survival water purifier and generator must have the following features:

- It must use as little energy as possible
- It must be easy to build and maintain
- Must require a minimum of moving parts in order to reduce energy consumption and the need to replace parts
- Must produce enough water on a daily basis for your needs
- Must be portable or easy enough to move around in case you have to leave your current location or put the equipment in an area where it can gather more water

## How to Make and Recycle Activated Carbon

When it comes to some medicinal needs, purifying water, and purifying air, few substances rival activated charcoal for meeting a wide range of needs. Unfortunately, most people do not know how to make this vital substance let alone which steps are involved in the process.

Contrary to popular belief, activated charcoal and regular charcoal are not the same thing.

Activated charcoal is more porous and also has a much greater ability to absorb toxins. If you try

to use regular charcoal in place of activated charcoal, it will either not work as well or not work at all.

Before going in to any kind of survival situation, make sure that you actually practice making activated charcoal, and also make sure that you have the method fine-tuned as much as possible. This includes making sure that you can make activated charcoal using a wide range of heating sources.

For example, if you are bugging in and do not intend to leave the inner confines of a building, you will need to be able to make activated charcoal using a much more limited set of heat resources. As with any other survival situation, do not assume that you can just turn on the electric stove or that you will have enough propane stored away for this type of stove.

Make sure that you can make activated charcoal using a solar cooker device indoors. Even if you have to start over several times before getting it right, the experience may just save your life in a situation where you will have to use that process for weeks or months in order to obtain clean water and air.

Here are some links for sites that give details on how to make activated charcoal. As you can see, there are some chemicals required, so the remainder of this section will focus on how to best use these chemicals, and also possible replacements that you may be able to obtain over time: [ehow.com/how\\_10025245\\_cheap-way-make-activated-carbon.html](http://ehow.com/how_10025245_cheap-way-make-activated-carbon.html).

Even though calcium chloride is frequently used in foods, you may want to consider using lemon juice: [instructables.com/id/Creating-Activated-Carbon-From-Food-Waste-CCC-Car](http://instructables.com/id/Creating-Activated-Carbon-From-Food-Waste-CCC-Car).

If you don't have confidence about making activated charcoal, reactivating it may seem like a suitable first step until you learn how to make it from scratch. This guide will also be of use later on, since suitable kitchen scraps or other sources of carbon may become more scarce than expected: [ehow.com/how\\_7394544\\_reactivate-charcoal-filter.html](http://ehow.com/how_7394544_reactivate-charcoal-filter.html).

## How to Make and Recycle Bone Char

The process for making bone char is not so different from making activated carbon in the sense that you will be using heat to drive off moisture so that the porosity of the substance increases. It should be noted that even though bone char may be black in color, it is not the same thing as activated carbon because the bone itself may not completely break down.

Bones are likely to become scarce in a bug in survival scenario since you may not have any suitable animals to use for food, let alone save the bones for making bone char. Bone char can also be recycled and can last a long time if managed properly.

Today, many people think that they are doing enough to purify water and air by simply using activated charcoal. While this substance truly can get rid of many toxins, it cannot get rid of radioactive materials, nor can get rid of heavy metals.

Bone char has been used for centuries and is, today, considered, one of the best substances for purifying water during a nuclear disaster. Take the extra time now to learn how to make bone char safely, and also how to recycle it. Remember that even though cattle bones are preferred, other bones will also work just as well.

## A Guide to Purifying Water

Aside from a steady supply of nutritious food, obtaining enough water will also be an enormous challenge when you are bugging in and have limited space and resources.

Even though water is readily available in the air, you will still need to know how to purify it once you convert it from the gas to liquid form.

It should also be noted that you may not be able to complete this process in a single day, especially if you are in a nuclear fallout zone or you are using tap water or some other source of water that may be contaminated with heavy metals or other toxins.

Always know the characteristics of the water before you start purifying it. In some cases, you may be able to skip a few steps, and thereby conserve vital resources that may be needed later on, as well as save time.

### *Sock 1 of the Sock Based Water Purifier*

Unless you are pulling crystal clear water from the air, all water filtering should start with removing dust and debris. You can start with coarse gravel to remove twigs, leaves, and other large particles, and then go all the way down to sand to remove larger bits of dust. These layers can easily be set up in a large tubed sock.

Simply place sand in the toe of the sock, and then make increasingly coarse layer until you reach the top. In general, the wider the filter bands are, the more debris will be removed from the water. If you find that the water still has a lot of debris in it, you may need to use separate socks in order to make a larger filter.

### *Using Bone Char*

Unlike activated carbon, you cannot simply run water through a sock filled with bone char and expect the water to be as clean as possible. Most sources recommend letting the water soak in bone char for at least 48 hours.

You can set the water in a large covered bowl, or some other vessel until enough time elapses. Once you empty the water out, do not forget to recycle the bone char if needed. If you must use bone char on water that contains arsenic, it may be best to discard it since the arsenic will make



permanent changes to the bone char chemical lattice that may make it useless for filtering water.

### *Sock 2 of the Sock Based Water Purifier*

Once all the heavy metals and debris are removed from the water, it may still have a foul odor or other problems. This may be especially problematic if you did not make the bone char correctly or if it is wearing out. To solve these problems, take a second sock and fill it with activated carbon. After you run the water through this sock, all odors and bad taste should be removed from the water.

**[CLICK HERE to find out more about how to survive medical emergencies.](#)**

### *Removing Bacteria and Pathogens*

Once you have removed as many impurities as possible from the water, it is very important to kill off any bacteria, fungus, or other micro-organisms that may still remain in the water. Even though you may be taking water from the air, never assume that it is safe to drink, or that the vessel you collected the water in is truly free from contamination.

Boiling the water is an essential step once you are sure that you won't be simply concentrating heavy metals or other chemicals into whatever water remains after boiling it.

There are two basic ways to boil water. The simplest method involves placing some water in a pot, bring it to a boil, and then leave it at a rolling boil for 5 – 10 minutes.

The second method involves placing a glass tent over the boiling water and then collecting the steam residue in pitchers or cups waiting along the sides of the tent. This method will give you pure, distilled water that will be as free as possible of chemicals and other pathogens. Sadly, this method will not remove nuclear contamination. Your best bet for removing nuclear debris remains using the bone char.



## **Respirator and Filter Media**

When people think of survival needs, water, food, defense, and shelter tend to be at the top of everyone's list. While all of these things are truly important, you can't go more than 5 minutes without taking a breath of air. If the air is full of dust, nuclear debris, poisonous gas, or other dangerous contaminants, you may well be dead within an hour.

This is just one of many reasons why people who plan to bug in need to know how to build and maintain a comprehensive respirator mask. Even if you cannot concentrate oxygen, at least you can filter the most harmful toxins from the air before allowing it into your lungs.

Here are the most important parts of a respirator:

- It must fit tightly around your nose and mouth so that no air from the outside can get in without going through the filter medium.
- The filter area must be large enough so that you can breathe in and out easily
- You must be able to determine when the filter media is losing its ability to filter out toxins so that you can change the media out for fresh material
- The filter media must be recyclable or easy to make using limited resources and materials
- You should be able to make at least two respirators per person and be able to maintain both of them with ease
- The filter should be easy enough for you to remove, but difficult for others to remove. This is especially important to consider if invaders come to your home and realize that you are protected from any poisonous gases that they might want to unleash in order to disable or kill you.
- Consider integrating an eye shield into the respirator mask. The shield should be able to withstand pepper spray and anything else that might be aimed at your eyes. While you may not want to wear this type of shield all the time, your respirator should still be built in a way that an eye shield can be added with ease.
- The material for the mask should be lightweight and leave as few marks as possible on the skin. If possible, try to make a mask that has an inner breathable layer where the mask will touch your face. The last thing you will want to have happen is a situation where you must wear a mask for several days on end, and then have sores develop because skin cannot breathe properly where the mask covers. Depending on your preferences and other elements of the mask, this may mean that your mask will fit over your entire head instead of simply covering your nose and mouth.
- Have an emergency opening or hatch that can be used just in case you cannot get the mask off and need to get air in to avoid suffocation. Never forget that respirators can actually be dangerous equipment because of the tight seals and other features designed



to limit air flow within the mask. Better yet, always have a second person on hand that can get you out of the respirator if needed. This is especially important when you are practicing using the respirator.

- Be able to combine, add, or subtract filter media units or cartridges in order to create the best filter for the situation. For example, if your primary concern is dust, and not gasses, then you might be best served by eliminating the activated charcoal cartridge. Not only will you be able to breathe more easily through the respirator, you can save the activated charcoal for a situation where it is truly needed.
- Must have an easily accessible exhaust valve. As you breathe out, water vapor and carbon dioxide will still build up in the respirator. Most commercial respirators have a small valve that you can open up to dry out the interior of the mask and also get rid of the carbon dioxide.
- If possible, design a mask with filter cartridge housings on the outside of the mask area. This will make it easier to change out the cartridges and also reduce your exposure to any toxins in the environment.
- For children and people with lung disorders, it may be difficult, if not impossible to breathe through a conventional respirator. For these situations, you can build a small, battery operated fan into the respirator in such a way that only clean air is blown into the mask area. Needless to say, you will need to keep a supply of spare motors, batteries, and a solar battery recharging station on hand so that you can run this part of the device.

## 3 Media for Respirators and How to Use Them

### Activated Charcoal

This substance is one of the most important media for gas masks as well as for water purification and ingested poison control. Activated charcoal will remove most toxic gasses and fumes from the air. When storing charcoal, always keep it away from humidity and warm

temperatures. Both of these factors can prevent the pores in the charcoal from absorbing toxins. This scenario can be even worse with activated charcoal intended for use in a respirator. If you aren't sure whether or not stored activated carbon is still useful, try using a recycling process to freshen it up. To test activated carbon, try running it under some water. You should hear a hiss from the charcoal, which means that it is dry enough to function.

You can use the instructions in the links provided in the water filtration section for making activated charcoal. Always practice with the respirator and DIY activated charcoal before an emergency occurs.

To test the effectiveness of your filter, you can do something as simple as light up a cigarette and then see if you can smell the smoke while you have the respirator on. This will also tell you if you can breathe safely and comfortably in the mask. Try for at least ½ hour to 1 hour just to make sure you are getting an adequate air supply. If you start to feel dizzy or uncomfortable, immediately remove the mask.

### *Particle Filter Medium*

There are many different kinds of paper or filtering medium that can be used for this purpose. At the simplest and cheapest level, you can use a coffee filter in time of need. OSHA rated dust masks for construction workers and other industrial jobs may also be of use. Just remember that these masks will eventually become clogged with debris. Make sure that you know how to clean them and keep them in good condition for as long as possible.

You can also try cloth based filters that can be washed out and reused. Try doing some research on vacuum cleaner filters that can trap all kinds of dust and then remain very easy to clean. When trying out these materials, always bear in mind that they may be hard to breathe through. By the time you add activated carbon and other filter media, it can take quite a lot of work just to breathe in these masks.

### Cotton Sari Cloth

Interestingly enough, this attractive, lightweight fabric can be used to filter both toxins and bacteria from water and air. You will need at least four layers of the cloth to make an effective filter for water. It may take additional layers to filter out smaller pathogens from the air.

There may also be other cloths or fibers that can be used to filter bacteria and other germs from the air. This include some specialty fabrics that have silver mesh in them and other chemicals that are known to kill bacteria on contact.

Before using chemicals, never forget that you might be breathing through them for hours on end for several days. What may seem like no problem now can pose a serious health risk under extreme circumstances.

### What About Apple Cider Vinegar, Lemon Juice, and Water?

If you do some research, you will find that there is quite a bit of controversy about whether or not a conventional dust mask or bandanna soaked in lemon juice, apple cider/white vinegar, or water will actually stop tear gas from reaching your lungs.

Some experts say that the acid level in these substances is actually too low to neutralize the tear gas. Many others claim that it works, however they offer few, if any tangible testimonials or test results.



When it comes to lung health, never forget that lung tissue is very fragile and tends not to do well when large burdens of chemicals are introduced via breathing. If you are inhaling vinegar, lemon juice, or even water vapor for hours on end, rest assured that it will cause some

respiratory problems. This problem alone should make it easy to see why liquid based air filter media aren't a good idea.

Aside from that, if you are dealing with poisonous gases or other air based toxins, it is impossible to know how they will interact with these liquids. In fact, it is said that water can actually reactivate tear gas and make it much worse to deal with (this is why you use soap and a shower to remove it from your skin instead of taking a bath). If you are faced with other kinds of chemicals in the air that weren't poisonous before, they can easily become far more dangerous in the presence of weak acids and other substances. It is just not worth the chance.

Use activated charcoal and other inert substances that have a tested and proven track record in both military and civil defense applications when it comes to providing safe air via a respirator.

## What About UV Bulbs?

As you may be aware, there are many air cleaners on the market today that include UV bulb for killing bacteria, fungi, and other infectious agents that may be floating in the air. While these bulbs may work just fine in this type of unit, they are not suitable in a respirator.

Here are just a few problems you will encounter if you try to use this kind of bulb:

- The bulb and power source for it may be ruined during an EMP blast.
- The bulb will generate quite a bit of heat. Even if you use a tube assembly to keep the bulb further away from your body, the heat can still build up to dangerous levels inside the respirator. Always bear in mind that heat from your own body will build up inside the mask and will cause enough problems without adding to it by using a bulb that also generates heat.
- Once the bulb burns out, you may not be able to replace it easily in the post-crisis world.

## What About Radioactive Materials

When it comes to nuclear fallout, it is true that you will need to protect yourself from it as much as possible. It is also true that some of the most lethal damage comes from breathing in radioactive materials because they are in close contact with major organs.

On the other hand, the respirator that you use for other filtration needs is actually sufficient for the types of radiation that you can keep from your body. In fact, if you have no mask at all, even a few layers of coffee filter or a bandanna over your mouth and nose will be able to stop alpha and beta particles.

Gamma rays, which penetrate matter the most, cannot really be trapped in a conventional filter, nor can they be bounced off readily. On the other hand, if you can keep dust out of your nose and mouth, then those rays may not hit your lungs as badly. Therefore, when it comes to finding the best respirator for nuclear survival, a good quality dust mask will be about your best option on a budget.

## Non-DIY Respirator Options

As you learn more about how a respirator works and how important it is to have one, you may conclude that this is one area where you will want to spend a bit extra to purchase a quality product. There are many problems that you will encounter during this process. In each case, you must know what your options are, and also know how to test each respirator for suitability.

Here are some important things to consider before you buy a respirator:

- The cartridges used inside the respirator do not have an indefinite shelf life. Activated carbon and other filtering mediums can be easily affected by temperature changes and humidity. When you buy these cartridges at a discounted price, they may only have a shelf life of a few months, or may have already been ruined by temperature and humidity

issues. Unfortunately, it won't be possible to tell what is going on with these cartridges or even if they will work properly.

- Different purposes require different respirators. For survival purposes, you will usually want a respirator that is certified for NBC (nuclear, biological, and chemical) use.

Unfortunately, many people assume that a construction grade respirator will be sufficient simply because it can filter out mold, mildew, or other types of spores.

An NBC respirator may contain chemicals that can neutralize anthrax and many other micro-organisms that might not be filtered by a more conventional mask. Oddly enough, layers of sari cloth might actually work better than a conventional "dust mask". Always know the size of the particles that can be filtered by the media, and then compare that information to organisms and particles of interest to you.

- Once you enter a crisis situation, it may be days or weeks before you can take the respirator off for more than a few minutes at a time. Depending on the size and quality of the cartridges, you may have to replace them every day, or even sooner if there is a lot of debris in the air. If you cannot restore, reactivate, or otherwise reuse these cartridges, you will be in far worse shape than you would be with a DIY mask that you are able to reuse.

## Why You Need to Prepare for Using a Respirator

Many people that purchase masks for painting a room or engaging in other hobby construction work tend to think that respirators are relatively simple gadgets. In most cases, these people may think that when a crisis hits, they will just strap on the respirator, wear it for as long as needed, and then store it away for another time.

Here are just a few problems with that scenario that show why you need to practice and ensure that you can get the most out of any respirator that you choose to own or make:

- As you breathe normally, there is actually very little that impedes the flow of air in and out of your lungs. If you have even had a slightly stuffed nose, then you should know how even a minor change can affect your ability to breathe. From that perspective, now consider that when you wear a respirator, you may be breathing through several layers of activated charcoal, cloth, and other filtering media. This can make it very hard to breathe, and you are likely to feel exhausted and sweaty after just a few minutes. Practice now and keep on practicing in order to build up lung strength.
- Have you ever breathed onto your glasses or a mirror in order to clean them off? If so, then you already know that a good bit of water leaves your body with each breath. This will not change when you are wearing a respirator. In fact, most respirators are built with an escape valve so that you can open that to let clean air in and some of the moisture out. Failure to know when to open this valve can lead to a range of problems including increased risk of infection and overheating.
- If you look at a respirator, then you may ultimately realize that it may be possible to drink liquids through the respirator, however you will not be able to eat without taking it off. As such, you must be very careful about when you remove the respirator and how you manage it while it is off your face.
- Lack of fresh air can cause serious skin damage. Many people do not realize that wearing a respirator for even a few hours can cut off air circulation to the point where skin is damaged. Not only does the skin need fresh air circulating, the skin also excretes moisture. If this builds up, it is entirely possible to develop all kinds of infections and rashes.

As you practice with your respirator, you will learn more about your individual tolerances as well as how to manage times and situations where it may not be possible to wear a mask. This may include going to a room with less air contamination or seeking to build an airtight chamber where you can pump oxygen in.

This type of setup can be quite expensive, and may not be feasible in a small setting. Your best bet, then is to know how to limit exposure or space out your exposure to air contaminants during times when you are not wearing the respirator.

## Respirators for the Disabled, Elderly, and Children

There is no question that an adult sized respirator is not likely to have a mask portion that will fit properly on a child or others with smaller faces. This is one place where a DIY solution may work better simply because you can create custom sized mask.

Regardless of the respirator that you choose, children, people with asthma, or even someone with a cold or other lung condition may find it very hard to get enough air through all the filters. It is very important that people in these categories make use of some form of fan or other positive airway pressure device to introduce clean air into the mask area.

If you are going to make your own respirator with a fan in it, make sure that the following elements are included:

- The fan must only allow clean air into the mask area.
- The fan must move fast enough and pull enough air in to make breathing as easy as possible. Do not forget that thicker or more densely packed media will also make it harder for the fan to work
- You must be able to use the fan even when there is no power or motors have been burned out by an EMP
- The fan and motor units must be as easy to replace as the filter media
- For people with a heart related health conditions, the fan motor and batteries must not interfere with pacemakers or other devices that are crucial to survival. In some cases, moving the motor out to a distant location and connecting it via a hose may work better than having it too close to the body.



## Can a CPAP Machine Work as a Respirator?

While a CPAP (Continuous Positive Airway Pressure) machine, does, in fact, allow extra air pressure into the mask area, it is not a suitable device for usage as a filtering mechanism in a survival scenario. Here are just a few problems to consider:

- It may not be possible to obtain CPAP filters that can filter at the NBC level
- CPAPs can introduce too much pressure into the airways. This can have long term consequences that can cause permanent damage to your health
- when power is out, you will not be able to run the CPAP machine
- some of these devices include IC chips and other mechanisms that may reveal your location as well as what you are using the device for
- CPAP machines are notorious for being noisy. Even if you have power and filters that will serve your needs, the noise from this type of machine will give away your presence
- CPAP machines can be very difficult to maintain and can cause a range of health problems. In particular, if the air is too dry, it can cause nose bleeds and other problems. If you use a humidifier, the water can become contaminated and lead to a respiratory infection.

It should be noted that many people today use both CPAP and BiPAP (two levels of airway pressure) machines to manage sleep apnea and snoring. While these devices can be very important for personal health, they are designed to treat a medical condition and should not be repurposed for a survival scenario.

Needless to say, if you rely on one of these devices, then you will need to think about its usage during a crisis situation. Do some research on less invasive methods for managing snoring and sleep apnea. It is very important, once again, to work with a holistic doctor that can help you wean yourself off this device. This is especially important if you have been using the device for

some time and cannot breathe at night without it. While it may take some time to get your ability to breathe freely back, it is more than worth the effort.

## Air Quality for Your Pets

Historically speaking, you may have heard a good bit about the way miners would lower parakeets into mines in order to find out if there were poisonous gasses in the mine. In a crisis scenario, if you cannot breathe, your pets won't be able to either.

If you are raising insects for food, they may also be killed off by the poisons in the air. Therefore, it is very important to make sure that you can provide clean, safe air for any animal in your care.

### Fish Care

Always remember that fish require oxygen just like you do. In fact, when water passes through their gills, they remove oxygen gas dissolved in the water.

Typically, poisonous or toxic gasses are actually more dangerous in water because they can concentrate more heavily, and there is also no way for the fish to escape the water.



Simply making the aquarium airtight is not a viable option because it takes new air entering the tank to replace the oxygen used by the fish. If you do choose to seal off the aquarium, make sure that the pump, filters, and air stones can get enough air into the tank.

Remember that it may well be much more than usually required. Test this out and watch fish carefully before a crisis so that you can monitor fish activities and open the tank back up at signs

of distress. Here are some things to consider when preparing your aquariums and avoiding damage from airborne toxins:

- Even though aquarium plants will produce oxygen during daylight hours, they will produce carbon dioxide at night.
- Keeping the lights on day and night (so that plants can make oxygen) will stress the fish, and lead to death in 2 – 3 days because they will not be able to sleep.
- Most aquariums and ponds do not have enough plants to make sufficient oxygen for all fish in the tank
- If the surface of the water is not being disrupted, no amount of bubbles will provide adequate oxygen for the tank.
- Even if you can use oxygen producing tablets in the tank, they won't filter out other toxins.
- Activated carbon filters can only do so much in terms of filtering out toxic gasses. You may have to change the filters every few hours to keep the air as clean as possible.
- If you are using hydroponics and ponds, make sure that you can get enough clean air in, and also filter out the toxins as quickly as possible.
- Keep plenty of pH, hardness, nitrate, nitrite, and ammonia testing strips on hand. In some cases, poison gases may raise the acidity or alkalinity of the water. In these cases, pH enhancers or reducers may act to neutralize the toxin. Just be aware that it may not work if the toxins do not bind to the chemicals used for this purpose. You can also try adding zeolites, and other filter media designed to eliminate toxins from the water. Today, there are many synthetic media forms that can clear up all kinds of toxins, however they can be quite expensive and may not last for long. That being said, if you only need them for a few days in the post crisis world, they may be of immense benefit, especially if you are using the fish for food or providing fertilizer for plant based crops.

### Mammals

Cats, dogs, hamsters, and other mammals can succumb to toxic gasses faster than humans. In general, the smaller they are, the faster the gases will overcome them. On the other side, they will not have lungs that are as strong as a human. In these situations, the best you can do is create a custom mask for your pet, and then add the appropriate filters. Most, if not all animals will also need a fan to make it easier to draw clean air into the filter.

If you have ever put a muzzle on a dog or cat, then you know they do not like to have masks or anything similar on their faces. It is very important to make sure the mask fit is snug. You should also practice as often with your pets so that they are comfortable wearing the respirator. This includes making sure they are accustomed to the feel and sound of the fan so that they do not become startled and panic even worse during a crisis situation.

### Birds and Reptiles

Sadly, there is no practical way to fit any kind of mask or respirator on these animals. Instead, you will need to seal off the tank or cage so that no air can get in. You will also have to add a tube that allows air in from an external source.



This may include large enough fish pump to push air into the closed off area plus through any filters required to clean the air. Needless to say, securing these pumps from EMPs and making sure you have power to run them is very important.

### Insects

When it comes to a steady supply of food that you can raise in a very small place, few options will rival insects. On the other hand, even exposure to a very small amount of toxic gas can kill

off entire colonies plus their eggs. Here are some instances where failure to protect insects from air based toxins can cause some serious problems with your food production plans:

- Invaders come in with tear gas, neurotoxins, or anything else that may kill insects. Even though these people may not be thinking about killing off an unrecognized source of food, the effects will be the same.
- Neighbors that may be in surrounding apartments may be using bug spray or other insecticides that will contaminate the air in your apartment.
- Even if invaders do not come into your living space as a first line of attack, they can still add poison gasses to air ducts and other systems that lead right into your living space. Under those circumstances, you may not have enough time to put on your own respirator, let alone secure the living space for insects you are planning to use for food. Needless to say, as soon as you are aware that a crisis has happened, you can, and should seal off insect boxes and start providing filtered air for them.

Fortunately, as long as you raise your insects in containers, it is may also be possible to protect them from poisonous gases. When designing the insect habitat, make sure that it is air tight, or can be sealed off in a matter of seconds. Next, you can use a pump and filter system similar to what you would use for the reptiles. Just make sure that you can regulate the air supply so that it does not disturb the insects or create a wind force that causes damage to them.

You will also need to add some kind of exhaust hole so that the air pressure in the chamber does not simply continue to increase until an explosion occurs, the pump blows, or some other problem occurs. When creating the exhaust hole, it should be large enough to ensure the air flow in and out of the chamber is even.

Make sure that the exhaust hole(s) have full filtration on them. Even though you may intend for air to move exclusively out of the chamber, it can also move inward. At the very least, if you have a filter in place, the incoming air will also be as clean as possible.

## Air Quality and Plant Based Food Production

There is no question that plants can act as some of the most powerful air filters on Earth. That being said, if you are going to eat these plants, it may not be a good idea to consume leaves or sprouts that may still be harboring all kinds of toxins in them.

As such, it is very important to make sure that you can raise plants in an environment where they will not come into contact with air based toxins.

This is especially important when it comes to radioactive dust, since the radiation may not kill the plants immediately. If you consume them, then you will also be ingesting more radiation than expected.



Aside from that, in a crisis situation, never underestimate the possibility that rogue gangs and other assorted thugs will want to use poison gasses to kill as many people off as possible before putting looting plans into action. So, all they would need to do is put some poison gas in a central heating system to knock you out or otherwise prevent you from defending yourself and your bug in location.

Typically, gasses used for these purposes are very irritating and tend to stick to oily or waxy surfaces. Since plants utilize both oils and waxes on leaves to preserve moisture, rest assured that these gasses will coat the leaves with a toxic residue. While this is often overlooked in many survival guides and associated resources, do not overlook it in your own plans.

Since plants can convert back and forth between oxygen and carbon dioxide, you do not need to be worried about plants suffocating to death. On the other hand, you will still need at least some filtered fresh air into their growing area for the following reasons:

- Plants such as beans and other legumes rely on nitrogen from the air in order to grow properly. Without fresh air moving into the growing area, the nitrogen will be depleted.
- Moisture from the ground and plants themselves will quickly collect in the growing area. This, in turn, will increase the risk of bacterial and fungal growth
- leaves and stems that become too wet may be unable to “breathe” properly, which can prevent them from converting between oxygen and carbon dioxide
- If you release bees into the chamber for pollination, or earthworms into the soil for conditioning, they will die without sufficient oxygen.



As with reptiles, and insects, your best option will include using a pump to force clean air into the growing chamber. Just make sure that you also have an exhaust hole with sufficient filter medium on it so that air can also get out.

If you thought bugging in was going to be easier than bugging out, then you may not have realized that there are still many moving parts and elements associated with designing a comprehensive and viable survival plan. For example, while you may already be well versed in water and food related issues, that does not mean you are adequately prepared to manage air quality.

No matter whether you are in a tiny apartment located in a skyscraper, or have larger accommodations, that does not mean you can just strap on an air mask and hope for the best. Since creating an airtight chamber within your living area can be extremely expensive, you may be better off with using a range of options to secure both your well-being and those of other living organisms that you depend on.

At the current time, appropriate filter media for both air and water tend to be somewhat limited in terms of diversity. That does not mean you should not continue researching this topic or

finding out what new technologies are emerging on the market. For example, as outlandish as it may seem, there is a lot of research going on right now about how to use sound waves to make changes to chemicals. Any one of these technologies may one day become part of air and water purifiers that are safe, easy to use, and do not require extensive maintenance.

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Take the time now to think about how you can take advantage of new technologies and ideas to make your bug in location more suitable from a food, water, and breathable air perspective. There are options open to you, however you will need to do a bit of research and be willing to experiment with some new materials and concepts in order to arrive at a comprehensive plan.