

## Homesteading During the COVID-19 Pandemic

**Author :** bluseas

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What's it been like on our homestead during the COVID-19 crisis? Well, some things remain much the same, and others have become strangely different.

I think, like many people, we have been asking ourselves lots of questions, wondering what will happen, and what the “new” normal is going to look like six months or a year from now. The

answers to some of those questions have been instrumental in guiding our lives during the past couple months.

## ***What do we know about COVID-19?***

lethal is COVID-19? Based on the best available science (which is changing daily), what information I've gathered suggests that COVID-19 is not a particularly lethal virus, with an average mortality rate of around 0.66% (however, the mortality rate varies greatly by age, ranging from 0.0016% in 0 to 9-year-olds to 7.8% for people who were age 80 and above, and also varies greatly by country, ranging from 0.1% in the least affected to 16.4% in the most affected). By comparison, the mortality rates of other viral diseases are: seasonal flu – 0.1%, H1N1 – 0.2%, 1918 flu – 2.5%, SARS – 10%, MERS – 35%, and Ebola – >50%. So, COVID-19 is more or less about on par with the seasonal flu. However, statistical data at this time is very poor. Testing is largely carried out on target populations which are at high risk of being infected.

Many people who catch the virus have few or no symptoms – 25% to 50% of people with COVID-19 are unaware that they have the virus. Where intensive testing has been done, it has been estimated that anywhere from 2% to 75% of a given population are already infected.

About 8 out of 10 people with symptomatic COVID-19 will experience mild to moderate respiratory illness and will recover without requiring special treatment or hospitalization. About 1 in 6 people with symptomatic COVID-19 will become seriously ill and develop difficulty breathing. People who die from COVID-19 usually have secondary factors at play. There is an increased risk of more serious complications from COVID-19 for people who: (1) have an underlying medical condition such as a heart condition, stroke, high blood pressure, diabetes, cancer, chronic lung disease, severe obesity, or a compromised immune system; (2) have risk factors such as pregnancy, smoking or vaping, or poor diet; or (3) are aged 65 and over. The highest rate of mortality from the disease is in people age 80 and older. People with high blood pressure are 2.5 times more likely to die if they contract COVID-19, as compared to those with no underlying conditions. People who are stroke survivors are 3 times more likely to die from the virus than patients with no underlying conditions; however many of the risk factors associated with stroke are also associated with age, high blood pressure and diabetes, so there may be some confounding factors here. I would also suggest that general poor health (e.g, from an inadequate diet, poverty, etc.), stress, overcrowding (e.g., in cities), and air pollution are also potential factors which can increase the mortality rate for COVID-19.

Roughly 5% of COVID-19 hospitalized patients become critically ill. An estimated one in seven COVID-19 patients will develop a secondary infection while hospitalized. Further, only about 50% of patient deaths were due to the original viral infection, while the other 50% were caused by subsequent secondary bacterial or fungal infections. 71% of the admitted patients with COVID-19 received antibiotic drugs. Some of the critically ill patients died from a phenomenon known variously as a cytokine storm, systemic inflammatory response syndrome, cytokine release

syndrome, macrophage activation syndrome, or hemophagocytic lymphohistiocytosis. These conditions are all marked by an unbridled surge in immune molecules, and may all result in the fatal shutdown of multiple organs. Cytokine storms are not unique to COVID-19, and can be instigated by a number of infections, including influenza, pneumonia, and sepsis. However, many people are frightened by this phenomenon, even though relatively few COVID-19 patients die from it.

## ***Why has COVID-19 shut down our economy?***

**ic crisis as a result of COVID-19 is both puzzling and frightening. It seems to me that there are a number of factors at play here:**

- **The combination of a percentage of the population with asymptomatic COVID-19 who are infectious and the long incubation period for COVID-19 (up to 14 days) creates nearly “invisible” community transmission of the virus, allowing the virus to spread rapidly throughout a community.**
- **Attempts at quarantine and isolation have failed in many countries.**
- **People have become frightened by the rapid spread of COVID-19.**
- **Although COVID-19 deaths have largely occurred amongst vulnerable groups, there is an unpredictability about the outcome of a COVID-19 infection which is also very frightening.**
- **As people self-isolate and businesses are closed, the “safety net” for people who are suddenly unemployed or who must now stay at home to day care and/or school**

**their children is poor.**

- **Many people (and companies) have been living on the “edge”, heavily in debt, with little or no reserves.**

**All of these factors (and probably many more) have worked together to create the current mess that we are in.**

***How will COVID-19 affect us? How will COVID-19 affect us?***

**solation. Ken is over 65, a stroke survivor, and taking medication for hypertension. While I am somewhat younger, I’ve had a long history of nasty secondary bacterial infections, and really don’t want to catch COVID-19.**

**However, we are trying to find a balance between being risk adverse while at the same time not overreacting. My personal feelings are that the risks of succumbing to COVID-19 are relatively low. Keeping in good health, eating well, getting lots of exercise, and not stressing out will increase our chances of survival should we catch it.**

**Therefore, neither of us is panicking, although we are trying to keep our risks down. Our decision, at this time, is that we are willing to travel into Sayward to pick up supplies, but will not be travelling to (or shopping in) Campbell River until the COVID-19 crisis settles down a bit.**

**At the end of the day, I think I’m more concerned about economics and the current shutdown of so many services in Canada than I am about catching COVID-19. I find myself wondering what items will become scarce as the summer**

**progresses. In a worst case scenario, Ken and I figure that we could probably survive out here for a number of months, between our garden and foraging/hunting, but I'd prefer not to put that to the test ...**

***What is the meaning of isolation? What is the meaning of isolation?***

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**This is what isolation looks like at the homestead.**

**Most people's concept of isolation is our state of "normal". During the winter, we frequently spend two months or more**

**out at the cabin between grocery trips. In the summer, we usually travel more frequently. However, COVID-19 is making our summer season seem too much like our winter isolation, and we do miss the chance to get out and do a little more shopping and visit some friends. So, while isolation is one of the things that remains much the same for us, there have been some changes.**

**i.**

### ***Communications***

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**one, and rely entirely on cellular for our phone, email, and internet. We're just at the edge of cell coverage, and use a booster to get a strong enough signal to be useful. It's one of those systems that has good days and bad days. Sometimes we get excellent signal strength and can surf the net like any city person, and other days we are lucky if we can squeeze a text through on the phone.**

As the COVID-19 crisis forces people to work from home and students to study from home, cellular usage in our area has increased dramatically. As a result, what was a flakey system at the best of times has become almost impossible. There are days when we can't even phone our nearest neighbour, some 8 miles away. If COVID-19 does nothing else of value for Canada, it has clearly demonstrated the inadequacy of the rural internet system, and shown the inequalities of access to information and services between rural and urban areas. Let's hope that our internet service providers step up to the plate and put some of their resources towards providing us with a better system. Otherwise, I'll happily buy satellite internet from Elon Musk when opens his [Starlink](#) system to the public.

ii.

### ***Working at home***

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for a good many years now, so again, COVID-19 has not really changed this situation for me. I enjoy working at home, choosing my own time and space to get tasks done. Although some administrators refuse to recognize this, most people who work at a home office are much more efficient than those who work in company office environments – I certainly have been! It's interesting to see that 65% of the people who started to work at home as a result of COVID-19 said that they would like to continue to work from home more often once the COVID-19 crisis is over. I suspect that the way people work will be one of the things that changes after all this is over.

iii.

### ***Getting supplies***

#### Sup>***Getting supplies***

We live 16 miles from the nearest road access, a 2.5 hour journey to Sayward in our sailboat and the same to return home at the end of the day. Sayward, unfortunately, has no real grocery stores, so we must then drive another hour into Campbell River. Thus, a trip to the grocery store involves 7 hours of travel and over a \$100 of fuel. We've been working various angles to try to get groceries (and other supplies) shipped from Campbell River to Sayward. That would make our trip significantly easier, reduce fuel costs and carbon emissions, and in the winter, when the road to Campbell River can be icy, make for a much safer journey.

COVID-19 has made things just that much more difficult. While we are willing to go to Sayward to pick up supplies, we don't want to drive to Campbell River and spend hours shopping inside an enclosed space with lots of other people. I finally managed, with some hair pulling and a fair bit of stress, to get a load of groceries delivered out here in order to keep us out of Campbell River. The groceries were ordered by phone and email from two stores in Campbell River, which went smoothly. Many stores in Campbell River are now delivering groceries and other supplies directly to people's vehicles out in their parking lots. We arranged with a friend who was coming our way to do the pickup. Then our cell service went down and our friend's cell phone when missing. So, after being out of contact for five days, it was a real joy to see our groceries show up at our float! All I can say is that good planning can save the day when all else fails, especially cell phones!

I've always wondered why Sayward, which has a significant population of seniors, hasn't set up some kind of supply delivery system from Campbell River already. I've talked to a few folks in

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Sayward, but haven't found anyone who was interested in setting up this type of delivery as a business. With all the people who are self-isolating, this might become something of greater interest for the community in "new" normal to come.

## ***What impact will the economic crisis have on us?***

There's no doubt that COVID-19 will have an i>***What impact will the economic crisis have on us?***

ng towards the marine conservation type projects that I have been working on over the past few years. But, as a self-employed person working from home, I don't fit any of the categories for which the government is currently handing out subsidies. We've lived through lean years before, and I suspect that this will simply be one more that we'll have to weather. On a positive note, Ken turned 65 this month, and we are waiting with bated breath to see if he will get his old age pension cheque at the end of the month. If I can hold out for one more year, I will be eligible for my early retirement pension, and hopefully that, along with a little income from my writing, should be enough to keep our finances out of the red.

Ken and I worry about our food supply, both in terms of cost and availability. The load of groceries we just bought cost 30% more than they would have a few months ago. Some things were in short supply (peanut butter, sausages), but surprisingly, we were able to get toilet paper! We've arranged to get a fairly large load of grains (oats, barley, wheat, flax) from a supplier on Vancouver Island, which will serve as a bit of an emergency buffer if things get worse. The grain is grown locally on the Island, and I feel good about supporting our local economy. The COVID-19 crisis has emphasized our need to have strong local economies that can sustain our communities during times when imports from world markets may be unavailable.

## ***How are we preparing for the "new" normal to come?***

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Garden just after planting, 2020.

i.

### ***Self-sufficiency***

I suppose it's not surprising that in times of uncertainty people > ***Self-sufficiency***

helps become the current norm. Some things become the hot item of the day – seeds, toilet paper, sheds. What we think we need is not always what we truly need. Some people try to escape the situation by going into the wilderness, usually ill-prepared (consider the news story of the two people from Quebec driving to the Yukon, not even having warm clothing to wear, where they were turned away by a population fearing COVID-19 exposure).

Given the life I am leading, I would be the last person to discourage someone from choosing a path of simplicity and self-sufficiency; however, I do strongly encourage people to take the time to analyze what their needs really are. Do you need a truckload of toilet paper (24 rolls keeps Ken and I going for two months)? Where are you going to plant your garden if you live in the city? Take some time to consider the best value for your planting space (which might only be a patio or deck). Many people plant things like lettuce and tomatoes. Lettuce is great for salads, but is relatively nutrient poor compared to other garden greens, and cannot be preserved. We plant kale instead. It has a much higher nutrient value, and can be easily dried for use in the winter. Beware the \$10 tomato. Plants like tomatoes and cucumbers usually require a greenhouse and a watering

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system, as well as a little bit of skill to grow. And why is everyone buying garden sheds? Are they looking for someplace to ditch their spouse should they come down with COVID-19?

Seriously though, attempting to be as self-sufficient as possible during difficult times is an excellent idea. I'm not going to suggest that it's possible to become totally self-sufficient, unless you want to live at the stone age level; however, the more of your basic needs that you can meet, the more resilient you will be to the changes that an uncertain future will bring.

The most basic human need is water. Where does your water come from, and could you find more if the "tap" went dry? For us on our homestead, water is supplied by the rain and a seasonal creek. Because our water is limited in supply and has a strong variability (too much in the winter and too little in the summer), we've had to install rainwater catchment systems and a reservoir system for our creek. Having done that, we are fairly confident that with careful water management, we can have enough water for all our needs, including the garden. We also have a "fallback" water supply – a nearby creek (not on our property) that flows year round which we can use to supplement our supply if we run short.

The next most important thing for survival is food. Proximally, most people get their food from grocery stores, but what are the ultimate sources of your food? Are they local or global? Are there any threats to the various supply chains for the food you buy?

When we started our discussion about food supplies, we realized that we really had no idea how much food we required for a year, particularly if we wanted to maintain a healthy diet. The first step we needed to do was calculate how many calories we required per day (see the [Daily Calorie Needs Calculator](#)). The amount of energy required per day is not the same for all people – it varies depending on height, weight, age, gender, and level of activity. Having determined this, the next step was to figure out how much of our daily calories should come from carbohydrates, proteins, and fats (see [Macro Calculator](#)). But wait ... energy is not the only thing we get from food. We also need vitamins, minerals, fiber, essential fatty and amino acids, and cholesterol, amongst other things, in order to remain healthy. Information about how much of each of these essential nutrients we require per day comes from the [Dietary Reference Intakes](#) (DRI) Table. Everything we eat contributes to both the energy and essential elements we require, and if our diet is correctly balanced, it should provide us with all that we need. However, achieving a balanced diet can be challenging!

So what does a properly balanced diet for two people over a period of one year look like? Information about the nutritional content for various foods can be found at the [FoodData Central](#). I've tabulated a lot of this information in a [spreadsheet](#). A person's diet is based on various food choices – vegetarian vs. omnivorous, local vs. global, home-grown vs. available from a grocery store vs foraged/hunted, etc. I've included a second [spreadsheet](#) (currently optimized for individuals between ages 51 to 70; male 5'5", 125 lbs; female 5'4", 120 lbs) which can be used to convert food selections into a yearly amount, and calculate the percentage of each required macro

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and micro nutrient that diet provides (ideally, a balanced diet will provide at least 100% of each of these). Using this method, we calculated that the amount of food required for one year for the two of us based on what we could grow in our garden and forage, including home canned and dried fish but with no eggs or milk (e.g. we have no chickens or cows at our homestead yet) was as follows:

Potatoes, red, flesh and skin, raw – 375 lbs  
Oats – 9 lbs  
Barley, hulled – 13 lbs  
Wheat, Kamut Khorasan, uncooked – 13 lbs  
Rye grain – 13 lbs  
Jerusalem-artichokes, raw – 25 lbs  
Kale, raw – 30 lbs  
Amaranth grain, uncooked – 5 lbs  
Amaranth leaves, cooked, boiled, drained, without salt – 40 lbs  
Beans, black, mature seeds, raw – 10 lbs  
Beans, pinto, mature seeds, raw – 10 lbs  
Beans, white, mature seeds, raw – 10 lbs  
Carrots, raw – 150 lbs  
Seeds, flaxseed – 3 lbs  
Corn, dried, yellow (northern plains Indians) – 20 lbs  
Pumpkin, raw – 135 lbs  
Pumpkin and squash kernels, dried – 5 lbs  
Apples, raw, with skin – 200 lbs  
Walnuts, black, dried – 75 lbs  
Acorns, raw – 300 lbs  
Cherries, sweet, raw – 150 lbs  
Prune, dried, uncooked – 35 lbs  
Apricot, dried, uncooked – 53 lbs  
Blackberries, raw – 20 lbs  
Strawberries, raw – 40 lbs  
Raspberries, raw – 30 lbs  
Loganberries, frozen – 10 lbs  
Currants, red and white, raw – 20 lbs  
Blueberries, raw – 20 lbs  
Beechnuts, dried – 75 lbs  
Hazelnuts or filberts – 100 lbs  
Chestnuts, Japanese, dried – 75 lbs  
Hickorynuts, dried – 75 lbs  
Game meat, deer, ground, raw – 100 lbs  
Salmon, sockeye, canned, total can contents – 50 lbs  
Lingcod, raw – 50 lbs  
Mackerel, jack, canned, drained – 50 lbs  
Cockles, raw (Alaska native) – 10 lbs  
Clam, mixed species, raw – 10 lbs  
Crab, Dungeness, raw – 5 lbs  
Duck, wild, meat and skin, raw – 5 lbs  
Ruffed grouse, breast meat, skinless, raw – 5 lbs  
Syrup, maple, Canadian – 5 lbs  
Smelt, dried (Alaska native) – 50 lbs

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Wow! So this is basically what we need to achieve each year in order to be self-sufficient from a food perspective. I can tell you that we definitely aren't there yet, but we are continuing to work towards this goal.

Finally, the last important survival need is shelter. Where do you live? Is it safe from human and natural disasters? How do you heat your home? What is your source of lighting? Electricity? Communications? Do you have back up plans if any of these systems fail? In many ways, living off-grid is much simpler than living in the city – we know that we must provide for all our needs, and are not reliant on the “system” for things like electricity. We have a small, compact, well-insulated cabin that is heated by a wood stove using the abundant supply of alder that grows on our property. Electricity is provided mainly by solar panels, but in the winter we have to supplement using a gas-powered generator. We are still working on getting better batteries and possibly some vertical axis wind turbines for additional electrical generation. We have running water in the cabin that is supplied by a gravity system (doesn't require electricity), and is heated by the wood stove. Communications are via cellular, which can be problematic, and alternatively, marine radio. We are looking into satellite internet as well.

So, all in all, we are not totally self-sufficient, but we are much better off than many people living in the city today, and are probably resilient enough to survive at least a few of the changes that could be coming down the tube.

ii.

### ***Building infrastructure***

Intimately linked with our continuing drive towards self-sufficiency is an ongoing need to build and maintain infrastructure. We started out five y> ***Building infrastructure***

e composting system and the first of our gardens. Over the last few years, our gardens have expanded, a small orchard has been added, and additional land around the cabin has been cleared. Last year, we built a large wood shed, opened up a road through our 50 acre property, and established a large water reservoir system. This year, we are working towards adding two more outbuildings to the homestead – a workshop and a processing kitchen/apothecary. Next year, I'm sure it will be something else. Life off-grid is never static. You are always building something new to make life easier or more convenient, or you are repairing something that was built years ago and is now wearing out. COVID-19 simply adds more impetus to the desire to have as much of a support system in place as we are able to afford and have time to build.

iii.

### ***Finding alternate sources***

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I have long supported localism, and in the face of the impacts being felt from COVID-19, I strongly recommend a movement towards finding local sources and su>***Finding alternate sources***

ensive in days to come:

### a. ***Vegetables***

Many of the vegetable crops grown in Canada rely on migrant workers for harvesting (why??). Border closures and quarantines are making it difficult for these workers to get to the farms, and some crops may ended up rotting in the fields, thus reducing supply and increasing costs. To some extent, this can be offset by growing a garden or foraging. The more food that you can provide for yourself, the better you will fare. If you live in the city, get involved in a local CSA (Community Supported Agriculture) program. CSA is a food distribution system that enables urban people to support local agriculture, give farmers job security, take care of the environment and guarantee themselves a share of fresh, healthy local produce at a fair price.

Recognize that foraging for food has natural limits. There is a fair bit of skill required to find edible wild food and prepare it in a way that makes it palatable. Nancy Turner has done a wonderful job in showing us how the First Nations lived off the land, but I've met numerous people who believe that all they need to do in order to survive in the wilderness is find a tree and eat the bark. Not only can improper cambium harvesting damage or kill trees, it takes both time and skill to prepare the cambium in a way that makes it edible (cooking, drying, grinding). While rich in vitamins and minerals, cambium is low in protein, fats, and digestible carbohydrates. Ultimately, a person trying to live on cambium alone would starve to death. A typical diet for coastal First Nations consisted of >70% meat and animal-derived fats. Also, in many places, particularly around cities, the human population is much too large to be supported by foraging.

We use a combination of foraging and gardening to meet as many of vegetable requirements as possible. Except for a small of amount of exotic tropical fruit (a luxury) and the occasional pepper (we are working on growing these in our greenhouse eventually), we pretty much supply all our own vegetables.

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Drying seaweed on the roof of the wood shed.

### **b. Grains**

At the moment, Canada's grain supply seems secure. Given that we are a major producer of grains, I should hope so! However, I have spent several years looking for a local source of grains, since I knew that grain grows well on Vancouver Island, and have happily finally found a supplier ([Vancouver Island Grain and Milling](#)).

### **c. Meat**

Large meat processing plants have been seriously affected by COVID-19. This is definitely going to put a kink in the supply chain for meat purchased from grocery stores. While small processing facilities that have not been affected by COVID-19 appear to have sufficient capacity to keep a supply coming into the stores, you can expect that the prices of processed meat will increase, and the amount available may be limited. I suspect that vegetarians will be happy! The rest of us may do well to consider sourcing what meat we do chose to consume directly from the farm.

Alternately, some of us off-grid types will depend more heavily on wild meat – fish, shellfish, deer, and other wild game. Again, this may not be much of an option for people living in the city, and there certainly isn't enough wild game to support our current population should everyone decide to start hunting and fishing.

### **d. Medications**

As it turns out, many of the prescription drugs used by Canadians are supplied by India and China. Oops! So, there is currently a shortage of a number of prescription drugs (if you are wondering why you can only get a one month supply of your prescription). We are quite concerned about this, as well as the lack of any sort of treatment for COVID-19, should one or both of us acquire it.

A few years ago, I got interested in herbalism, and have spent a fair bit of time since studying various plants and their uses, as either replacements to some of the medications that we are currently taking or as preventatives and/or therapeutics for potential diseases, such as COVID-19. With a degree in biochemistry, I have a particular interest in the scientific data behind many of the old traditional herbal remedies. I am happy to share what I have learned, and have posted my "[Materia Medica](#)" for anyone who is interested.

So there you have it! Life on the homestead during the times of COVID-19.