

Liquid Sunshine

Small Scale Alcohol Production in Local Communities ~ Growing Clean Energy and Organic Food Can Save the World During GD2 & WW3 By David Chu, PE

"My friend Sarah says that I get to be the voice of God. I usually roll my eyes when she says it, because if I were God, I would never have chosen me of all people to speak for him."

Such are the words of wisdom of Bethany Hamilton, a typical young American girl who is not so typical in many little ways.

Bethany is famous for losing her left arm to a shark attack off the surfing shores of Kauai, Hawaii in October 2003. If she had given up her budding surfing career and left it at that, she would still be an amazing human being. But what Bethany did next is what the world can emulate and learn from, most especially our *norte americano amigos!*

In a recent theatrical release, starring the very talented AnnaSophia Robb¹ and supported by Hollywood's crème de la crème, Dennis Quaid and Helen Hunt,² *Soul Surfer* tells the incredibly journey of Bethany Hamilton. If you haven't seen this empowering movie on the big screen, I highly recommend you to go see it. Or if you would rather read her story, check out "[Soul Surfer: A True Story of Faith, Family, and Fighting to Get Back on the Board.](#)"

The indelible faith that this young woman has in God, not to mention her incredible surfing skills with just one arm, is enough to move any mountain, solve any problem, and cause anyone breathing to shed a tear or two.

Bethany is our Seabiscuit during these extremely trying times.

I just love this girl who surfs above any fear and doubt. Some of her most memorable sayings are worthy to frame:

"I don't need easy. I just need possible."

"Love is bigger than any tidal wave or fear."

"Compassion can drive us to do amazing things and give us perspective."

So, what has Bethany Hamilton got to do with this article on alcohol production?

¹ If Ms. Robb does not follow the self-destructive path of Lindsay Lohan, she will become one of the best actresses in Hollywood. She just needs a few more years of experience to season and hone her acting abilities.

² If there is ever a beach-surfing mom, Helen Hunt is it! And what can we say about Mr. All-America? Dennis Quaid is Hollywood's version of the "man for all seasons."

Outline of This Article

The economic and financial limbs of the world are being chewed off and chopped off by the financial sharks from Wall Street and their co-conspirators and enablers, the world's Central Banksters, whose only modus operandi is bottomless *GREED* and the unquenchable lust for absolute power and absolute control over the "little people."

This real life horror film and the *real* reality show is being played out right in front of our eyes in broad daylight in the Lamestream Media. Their paid minions are called "presstitutes" by Gerald Celente of the Trends Research Institute. These presstitutes give the whoring business a really bad name.

Concurrently, the entire world is going through a great transition called "Great Depression 2" or GD2. Ground zero of GD2 is the United States of America. Whether people in the U.S. and around the world believe that GD2 is happening right now or not, it doesn't matter.

Because it is happening right *NOW*. GD2 started in October 2008.

This Greatest Depression is going to be longer and much more severe than the first one. Why? Because the governments of all the major countries around the world are "solving" their economic and financial collapses with one and only one tool: *FINANCIAL HEROIN*, i.e., creating zillions of dollars, euros, pesos, and yuans from thin air, and using this form of credit or debt, which is the same thing, as the only means to solve all their economic and financial problems.³

The only economic and financial bubble left to inflate, especially for the the "Axis of the Righteous"—U.S., U.K., and Israel—is War, as in World War 3 or WW3 which will probably engulf the entire northern hemisphere and it will include nuclear, chemical, and biological weapons of mass destruction on a global scale.

No, this planet is not going to end because of WW3, but millions of uninformed and unprepared people are going to die needlessly—not because of nuclear radiation and radioactive fallout, but due to the ensuing shortage of clean energy and organic food.

Between now and this Greatest War, there is still time (*VERY* little time left) to prepare for survival and, more importantly, to prepare to *thrive* during GD2 and WW3.

In this article, we are going to do a "Bethany Hamilton" thing and surf right through these seemingly insurmountable problems. As General George Patton would put it: "We're going to go through *them* like crap through a goose; like shit through a tin horn!"

We are going to cover small scale alcohol production⁴—making clean, renewable energy and

³ Read my previous articles for more background on the worldwide financial collapse perpetrated by the U.S.:
<http://reense.com/general92/stdr.htm> ~ Nine 2011 Predictions
<http://www.reense.com/Currency%20Wars%20For%20Dummies.pdf> ~ Currencies Wars for Dummies

⁴ Alcohol or alcohol fuel is also called ethanol or ethyl alcohol. But for purposes of simplicity and clarity, we are going to use the word "alcohol" to mean both "alcohol fuel" and "ethanol."

organic food in our local communities—in four main topics of discussion:

1. The extremely entertaining and forbidden history of alcohol as a fuel,
2. The Big Myths against alcohol as a fuel perpetrated by Big Oil in the Lamestream Media,
3. How to grow clean energy and organic food in local communities right now, and
4. How to use alcohol as an automobile fuel, cooking fuel, heating fuel, lighting fuel, refrigeration fuel, and electricity generation fuel.

1. Forbidden History of Alcohol

We are told over and over again that “Those who don’t learn from history are destined to repeat it.” But history is written by the winners. Make that, *ALL* history is written by the winners. So how do we glean lessons from history that is tainted?

While both statements above may be true in a superficial way, Mark Twain said it best: “History does not repeat itself, but it rhythms.” Here are two interesting historical rhythms.

Almost 100 years ago, John D. Rockefeller sponsored a bunch of crazies called the Women’s Christian Temperance Movement whose singular purpose in life was to stamp out alcoholic drinking. They wanted to send the “devil rum” back to hell. What they didn’t know was that they’d be working hand in glove with the Devil himself.

You see, John Rockefeller was in the kerosine lighting (as in supplying kerosine fuel for use in kerosine lamps) and heating (as in kerosine heaters) business. He distilled kerosine from petroleum. He would flush into the rivers at night the volatile, explosive, toxic junk left over from his distillation business, because nobody wanted a “molotov cocktail” as their kerosine lamp in their homes.

John Rockefeller, being a very shred Capitalist and Mr. Greed incarnate, found out that he could use this toxic, explosive, waste by-product to run the newly invented automobile—if the internal combustion (IC) engine was slightly modified.

Most people don’t know that Henry Ford’s Model T car originally ran on alcohol first. It was subsequently modified to run on alcohol *AND* gasoline. See this video for more information: [Henry Ford’s Model T car was the world’s first “Flex Fuel” vehicle](#). Henry Ford’s motto was this: “How can we expect the farmers to be our customers if we are not theirs?” Good question. He wanted to work with farmers, not against them.

John D. Rockefeller’s motto and business practice were a bit different. He called the toxic by-product of his kerosine distillation business “gasoline.”⁵ And he called the farmers of America his number one enemy.

⁵ The more things change, the more they become perverted. Today’s “gasoline” is composed of 400+ toxic substances left over from the distillation of petroleum into plastics, Vaseline, linoleum, etc. We get the privilege of paying these oil devils our money to burn and, subsequently, breathe in their toxic wastes. MTBE, which has contaminated about 90% of all the groundwater near large cities in the U.S., is a toxic waste produced by only 2-3 companies in the world. They suckered the Americans into using it as an oxygenator in gasoline when they could have used (and are now using) alcohol. For example, California now uses 10% alcohol in all of their gasoline to oxygenate it and to clean up gasoline’s emissions, *after* contaminating their groundwater with MTBE.

In the cities, John Rockefeller controlled the gasoline stations and sold his gasoline to the public. When Mr. and Mrs. Smith left the city and went on a cruise in the countryside, they would stop and fuel up at the local farmer's alcohol fueling station. Why? Because there were very few gasoline stations in the countryside at that time.

Around 1918, Mr. "Standard Oil of New York" (by the way, what does the acronym SONY stand for?) decided that he had enough of competition from those tens of thousands of pesky farmers in the hinterland of America. So he sponsored the above aforementioned crazies with approximately \$4 million U.S. dollars.

What the Women's Christian Temperance Movement did with that money was nothing short of the miraculous! They got the U.S. Congress to pass not just a regular law but a constitutional amendment in 1919 to ban the drinking of alcohol for all of its citizens and, much more importantly, to ban the production of alcohol for all of its farmers and everyone else.

Four million dollars went a long way back then. Do you know how hard it is to pass an amendment to the United States Constitution? Well, Congress did it. One that was filled with hard-drinking congressmen (no women, of course). Imagine the courage it must have taken for these brave elected officials to ban the drinking of alcohol for their fellow hard-working citizens!

The results were nothing short of spectacular. Hundreds of thousands of American farmers lost work because of Prohibition and millions of dollars for millions of families evaporated. And for John D. Rockefeller? Let's just say that in 1933 when Prohibition was finally lifted, i.e., repealed by Congress, there was no more competition from those pesky farmers because alcohol was no longer available as a fuel for the modern automobile. Gasoline became the only game in town and out of town.

Mission accomplished.

During the early part of the 1900s, most of the farmers in the U.S. and around the world including South America, especially Brazil, Europe, New Zealand, and the Philippines grew crops to make alcohol as a fuel for heating, cooking, and lighting. The by-products from making alcohol using grains were used as nutritious food for animals. More on this later.

Around the same time period as Prohibition, Germany was also in the alcohol business. The Germans, being very practical and a no-nonsense people, made alcohol from potatoes. Because they didn't have pools of petroleum sitting beneath their fatherland, the farmers would bring potatoes to their local community alcohol distilleries. No money exchanged hands. The cooperative distillery got free alcohol *feedstock* (the input material for making alcohol) and the farmers got back 1/3 of the alcohol distilled from their potatoes. The cooperative distillery kept 2/3 of the alcohol made, most probably for the war effort.

What is really interesting to note is that the farmers got back all the mash, or the solid leftovers which are full of proteins, fats, nutrients, vitamins, etc. Making alcohol only removes the sugar and/or starch content. These farmers used the mash to feed their cows, pigs, chickens, etc. They used the alcohol for their alcohol lamps, alcohol stoves, alcohol heaters, and for running their tractors and other fuel-driven farm equipment.

This cooperative alcohol distillery model worked so well that it actually prolonged World War 2 as the Allies had to bomb every single one of the 70,000 cooperative distilleries in Germany. Yes, there were that many spread all across Germany.

During World War 2, German Panzer tanks ran on alcohol because of its higher octane (105) and because it could be stored much longer than either gasoline or diesel.⁶ Alcohol fires could be easily put out by just spraying water. American torpedoes ran on alcohol because it's tolerant of water. Japanese Zeros that bombed Pearl Harbor ran on alcohol because of its greater power and long-distance capabilities.

The first thing the Americans did after the Nuremberg Trials was to put into the new constitution of the recently defeated Germany a prohibition against making alcohol as fuel.

How is that for history rhythming?

2. Five Big Myths about Alcohol

What are the Big Myths about alcohol as a fuel?

Have you ever heard the one they say that making alcohol in the United States causes the children in Africa to go hungry? More specifically, the accusation is that making alcohol causes the price of corn to go up and hence causes food to be expensive and scarce.

Myth Number One is utterly unscientific, but it is good Big Oil propaganda because it's an easy sell in their Lamestream Media, especially to those who call themselves "progressives" or "liberals" or "environmentalists."

First of all, corn is not used as food for human beings in the majority or in the precise sense of the words, "human food." Approximately 87% of the corn grown in the U.S. is used for animal feed (and in making alcohol fuel or ethanol *concurrently*—more on this important fact later).

Only about 1% all the corn grown is used for actual human consumption as in corn flakes for breakfast cereals⁷, corn chips, canned and frozen corn, etc. Another 1% is used to make whiskey which you may or may not consider to be human food. The rest of the corn grown is used for things like high-fructose corn syrup, modified food starch, and other corn-based products that are not exactly fit for human consumption.

You could make a half-convincing argument that the corn used for the cows that are then

⁶ The author has personal experience with the storage of gasoline and diesel in 1989 at a spiritual community in Montana. They both began to rot and go bad after about 6 months of storage in underground storage tanks. Alcohol can be stored almost forever. There are bottles of gin from the Roman times still drinkable today!

⁷ When the price of your breakfast corn flakes goes up, it is not due to corn prices going up, which only make up about 1 to 2 cents of the total sale price. The cereal box in which the corn flakes are shipped, the plastic bag in which the corn flakes are packaged, the advertising that goes into selling corn flakes, etc. all cost a lot more than the actual corn flakes themselves. So, the next time someone says to you that the rise in the price of corn due to alcohol is causing the price of breakfast corn flakes cereal to go up, just roll your eyes and tell them to read this article at www.LiquidEnergyOasis.com!

eaten by human beings is human food. So, let's tackle this argument head on, shall we?

It takes about 10 pounds (or 10 kg) of corn to grow 1 pound (or 1 kg) of beef in the U.S. Why? Because cows are not designed by Mother Nature to digest starch. Cows are meant to graze on woody brushes (and grasses). Forcing them to eat corn, i.e., all that starch which make up 70% of the corn kernel, is animal cruelty and causes all sorts of problems including bloating and digestive diseases. Inefficient digestion equates to inefficient meat production.

Were that 10 pounds (or 10 kg) of corn be turned into alcohol first by fermentation, we would get alcohol as a fuel and about 3.3 pounds (or 3.3 kg) of mash—the leftover solids from the fermentation process, full of proteins, fats, nutrients, vitamins, etc. Feeding cows this mash, also called distiller's dried grains or DDG, actually produces 17% more meat 13% faster!

So instead of feeding cows 10 pounds (or 10 kg) of corn to only get 1 pound (or 1 kg) of beef, we could feed them the 3.3 pounds (or 3.3 kg) of the mash instead—after turning corn into alcohol fuel first—and still get 1.17 pounds (or 1.17 kg) of beef!

Less animal feed, more beef, and healthier cows. What a concept!

During Prohibition, the revenuers, i.e., the alcohol police enforcers, would go to the county fairs to discover who the “moonshiners” are, i.e., those farmers illegally making alcohol by the light of the moon. How? They would look for the fattest cows and fattest pigs, because those farmers were feeding their prized animals with the leftover mash they got from their illegal moonshine stills. That's how! Talk about a historical precedence.

So, making alcohol as a fuel can provide both fuel for human beings and food for animals at the same time. It makes cows happier. And it makes more beef.

Myth Number One goes straight into the dust bin of Propaganda History 101.

Myth Number Two goes along this track: There is not enough land to grow crops for making alcohol as a fuel and to grow crops for human food at the same time.

What this argument leaves out is the assumption that they are using corn as the only feedstock to make alcohol fuel. Corn is one of the worst feedstocks to make alcohol from.

Let's use this corn feedstock as our example to demolish Myth Number Two. It's a silly argument that's already debunked above, but you'll get the gist of this Big Lie as we tackle it in another manner.

Typically, growing corn can produce up to 250 gallons of alcohol fuel per acre per year (about 2,300 liters per hectare per year). In Brazil, they use sugarcane as their main feedstock. Sugarcane can produce up to 900 gallons of alcohol per acre per year (about 8,400 liters per hectare per year), or almost 4 times what corn can yield.

To supply *ALL* the gasoline and diesel fuel needs of the U.S. (yes, alcohol can run diesel engines too!), we need about 200 billion gallons of alcohol fuel per year. At 250 gallons of alcohol produced per acre of corn per year, we need about 800 million acres of farmland to

grow this amount of corn.⁸ There are about 1.373 billion acres of farmland and cropland in the U.S. So, we need about 58.3% of the entire farmable land⁹ to grow the amount of corn necessary to supply *all* the fuel needs for the U.S.

That is if we are really stupid and want to use corn which is one of the worst feedstocks for making alcohol.

We could use fodder beets (~1,000 gallons per acre per year, the 58.3% mentioned above goes down to 14.6%), sweet sorghum (~1,500 gallons per acre per year, the 58.3% now goes down to 9.7%), or mesquite pods (~340 gallons per acre per year) which don't even require any farmland, farm work. or irrigation water because they already grow in the deserts of Arizona! All that is necessary to do is to harvest the pods. Imagine that.

And we can use many other non-agricultural plants and crops like sea kelp (marine algae) that produce sugars and/or starches. In fact, feedstocks for making alcohol fuel can be almost anything that contains sugars and/or starch.

Think: waste wine, waste fruits, waste breads, waste donuts, waste candies, etc.

And we haven't even talked about making alcohol from cellulose (maybe a future article on this topic perhaps). A cost-effective, cellulosic alcohol process that is open-sourced is about 1 to 2 years away and it will change the entire alcohol fuel business for the better.

Think: lawn grass clippings, newspapers, papers, all sorts of biomass, etc.

This whole argument that we don't have enough land to make alcohol is totally bogus.

Myth Number Three says that using alcohol fuel will damage our car engines. Another totally unscientific lie based on asinine assumptions left unstated.

Their assumption is that you are driving a car or truck older than 1983. Why? Because some cars made prior to 1983 use certain materials that are not compatible with alcohol. Alcohol could degrade these materials over time. Guess what? If you have a car or truck that old (more than 28 years old), maybe it's time to replace a few hoses so that you can run your car on clean alcohol?

In many states in the U.S. like California, gasoline supplied at fuel stations already contains up to 10% alcohol to clean up fuel emissions. So, the argument that alcohol damages cars is *almost* totally bogus, if not 99.99% bogus.

In fact, running your car on alcohol actually makes the engine last longer. You could probably get two to three times the engine life if you run your car on alcohol instead of gasoline. This is because running the internal combustion engine on alcohol produces no carbon soot which is one of the major causes of engine wear and tear. Studies have shown that cars and trucks in

⁸ (200,000,000,000 gallons of alcohol fuel per year needed) divided by (250 gallons of alcohol fuel produced by growing corn per acre per year) equates to (800,000,000 acres of land required).

⁹ (800,000,000 acres growing corn) divided by (1,373,000,000,000 acres of total farmable) is 0.583 or 58.3%.

Brazil and the U.K. that used only alcohol lasted almost three times as long as their gasoline and diesel counterparts.¹⁰

The other major cause of short engine life is high engine temperature. Cars and motorcycles running on alcohol actually run cooler. Alcohol exhausts the engine at around 1,000 degree Fahrenheit (or 540 degree Celsius) whereas gasoline comes out at around 1,400 degrees Fahrenheit (or 760 degree Celsius). You can put your hand on the tailpipe of a motorcycle without burning your hand—that is if it is running on alcohol and not gasoline.

You may lose up to 12% miles per gallon (or 12% less km per liter) when you use 100% alcohol in your fuel tank. That's because the modern internal combustion engine has been co-opted by Big Oil to run on this toxic junk called "gasoline" which has a range of burning points, not a single burning point like alcohol. When the IC engine is re-redesigned back to run on alcohol alone, as has been done in Brazil since the early 1980s, they will get up to 22% more miles per gallon (or 22% more km per liter).

Myth Number Three goes straight into the toilet bowl.

Myth Number Four is that it takes more energy to grow the feedstock (corn) to make alcohol fuel than the energy you get when you burn it in your car. This myth is disseminated almost solely and ceaselessly by one professor from Cornell University by the name of David Pimental. He factored into his alcohol or ethanol "study" the energy required to make the steel that goes into making a 6 to 8 ton tractor (the supposed reason is that it takes this *supersized* tractor to farm the 40 acres used in his "study"!). Wonder if he would do the same for gasoline or diesel as it takes oil tankers to ship them from the Middle East? Probably not.

It just so happened that David Pimental was working with Mobile Oil at the same time his first ethanol "study" came out in the early 1980s—the same Mobile Oil that was pursuing a patent-pending cellulosic alcohol process. Conflict of interests? How do we know this interesting fact? Well, Mobile Oil took out full page ads in major newspapers defending the right of David Pimental to work for Big Oil after the intrepid news columnist Jack Anderson exposed their incestuous business relationship in one of his newspaper columns in 1982.

Money can't buy you love, but it sure can buy you "science." Monsanto GMO science!

Myth Number Five states that making and using alcohol as a fuel causes global warming because it produces more carbon dioxide or CO₂ gas when alcohol is used up (fermented first and then burned in cars) than when it is grown. Studies done in Brazil, where they have been using alcohol as a fuel since the early 1980s, demonstrate that more CO₂ gas is sequestered by the plants and crops used to grow alcohol than by the fermentation of those

¹⁰ When you first use alcohol in your car or truck, don't fill it up completely with alcohol, because alcohol will clean out your engine system and wash out the crud from your gasoline or diesel usage. The junk that alcohol cleans out could plug up certain engine parts such as the oil filter. So, use 1 gallon (or 4 liters) of alcohol the first time you use alcohol and keep increasing the alcohol amount the next time you fuel up in 1 gallon (or 4 liters) increments, until you get up to 100% full tank. Filling up to about 50% alcohol in your fuel tank requires no changes to your gasoline fuel injection car. To use more than 50% alcohol requires a conversion kit that costs around \$300 USD depending on the number of cylinders your car engine has. It takes about 15 to 20 minutes to literally "plug and play" the installation of this conversion kit underneath the hood of your car engine.

feedstocks and the subsequent use in cars, i.e., growing and using alcohol fuel actually causes CO₂ gas levels to go down.

What Big Oil purposefully don't tell you is that when you use gasoline and diesel in your cars and trucks, they produce CO₂ gas too. But the big difference is that the CO₂ gas produced from burning gasoline and diesel is a one-way, non-renewable process. This only adds more CO₂ gas to the atmosphere, not less.

More crappy science.

There are a few other Big Myths perpetrated against alcohol in the Lamestream Media by Big Oil, equally bogus and unscientific. But you get the idea.

3. Growing Clean Alcohol and Organic Food Locally

Now we get to the really interesting part of this article: How to grow clean energy and organic food in local communities.

But first we need to distinguish between *LARGE* scale and *SMALL* scale alcohol production, because they are totally different.¹¹ It should be noted that there are no real economies of scale between the two, i.e., large scale is neither more efficient nor more cost effective than small scale. In practice however, it is actually more economical and efficient to use small scale to make alcohol *AND* all of its useful by-products.

Large scale alcohol production as an industry that currently exists in the U.S. and Brazil is a monoculture practice that uses corn and sugarcane as their respective feedstocks. Monoculture means that they only use one crop and one crop only. As we stated previously, corn is one of the lowest yield alcohol feedstocks, producing up to approximately 250 gallons of alcohol per acre per year (or about 2,300 liters per hectare).

There are three things produced when we make alcohol from grains. They are (1) the alcohol liquid, (2) the carbon dioxide or CO₂ gas, and (3) the mash or distiller's dried grains or DDG.

Typically in large scale alcohol production, the CO₂ gas produced during the fermentation process is vented into the atmosphere as a waste product. The mash is used in animal feed and is also sold and traded as a commodity. But the last step necessitates shipping.

Small scale alcohol fuel production is at its nascent stage in the U.S. and around the world, due to a lot of historical and geopolitical factors noted previously. It can be produced locally in a *polyculture* environment using a variety of crops suitable for the local community. And, more importantly, we can use the principles of *permaculture* to utilize all the "waste products" as inputs for growing something else much more valuable. Polyculture and permaculture.

¹¹ Industrially, "large scale alcohol production" means producing more than 50 million gallons of alcohol per year (190 million liters per year). And "small scale alcohol production" means making less than 5 million gallons of alcohol per year (19 million liters per year). However, according to the U.S. Alcohol and Tobacco Tax and Trade Bureau, a "small scale alcohol producer" is a plant that produces approximately 5,200 gallons of 190-proof alcohol in one calendar year or less. And a "large scale alcohol producer" is one that makes more than 263,000 gallons of 190-proof alcohol in one calendar year. 190-proof alcohol is 95% alcohol and 5% water.

To make alcohol fuel, large or small scale production, we need to have at least three things:¹²

1. The feedstock(s) which can be almost anything that contains sugars and/or starches.
2. A fermentation system that turns the prepared feedstock¹³ into approximately 12% alcohol or “beer.” We use certain enzymes first to convert the starches into simple sugars and then yeasts to convert the simple sugars into alcohol. Alcohol is literally yeast poop: yeasts eat simple sugars, and then excrete alcohol while producing CO₂ gas at a rate of about 1 lb (or 1 kg) of CO₂ gas per 1 lb (or 1 kg) of alcohol produced. The yeasts then die when the alcohol concentration reaches around 12%.
3. A distillation system that turns the 12% “beer” into approximately 190-proof alcohol which is 95% alcohol and 5% water. This 190-proof alcohol is ready for use as a clean fuel in cars and for cooking, lighting, heating, and electricity generation.

Small scale alcohol production allows the local grower or producer to use a variety of feedstocks, suitable to the local climate and soil conditions, many of which have much higher alcohol yields than the conventional corn used in large scale alcohol production.

For example, sweet sorghum can be grown and could potentially yield up to 1,500 gallons of alcohol per acre per year (about 14,000 liters per hectare), assuming three harvests per year. Cattails, a marshy plant that can be used in sewage treatment, can yield up to 2,500 gallons per acre per year (about 23,400 liters per hectare). If the cellulosic part of cattails is also used to make alcohol, potentially the yield could reach 10,000 gallons of alcohol per acre per year (or 93,500 liters per hectare per year). Molasses, a byproduct of the sugar industry which can be purchased industrially, could yield approximately 70 gallons per ton (or 290 liters per metric ton).

There are a variety of other feedstocks that can be grown to make alcohol fuel, including waste products that contain high levels of sugar and/or starch. They may be obtained for free from companies looking for ecological means to get rid of their organic production wastes.

Currently, there is no *automated* fermentation system on the market for the small scale alcohol production, because each feedstock requires a slightly different fermentation process. The manual fermentation process can be a bit complicated for the novice as it involves measuring pH, temperature, and sugar concentration levels, and then making adjustments during the fermentation process. It can be like a science lab experiment for the uninitiated. Having an automated fermentation system would make this process easily doable for everyone.

Today, there are only three companies in the U.S. manufacturing the *automated* distillation systems for small scale alcohol fuel production. One of these three companies is still at the fundraising stage and has not began the manufacturing of their automated distillation system.

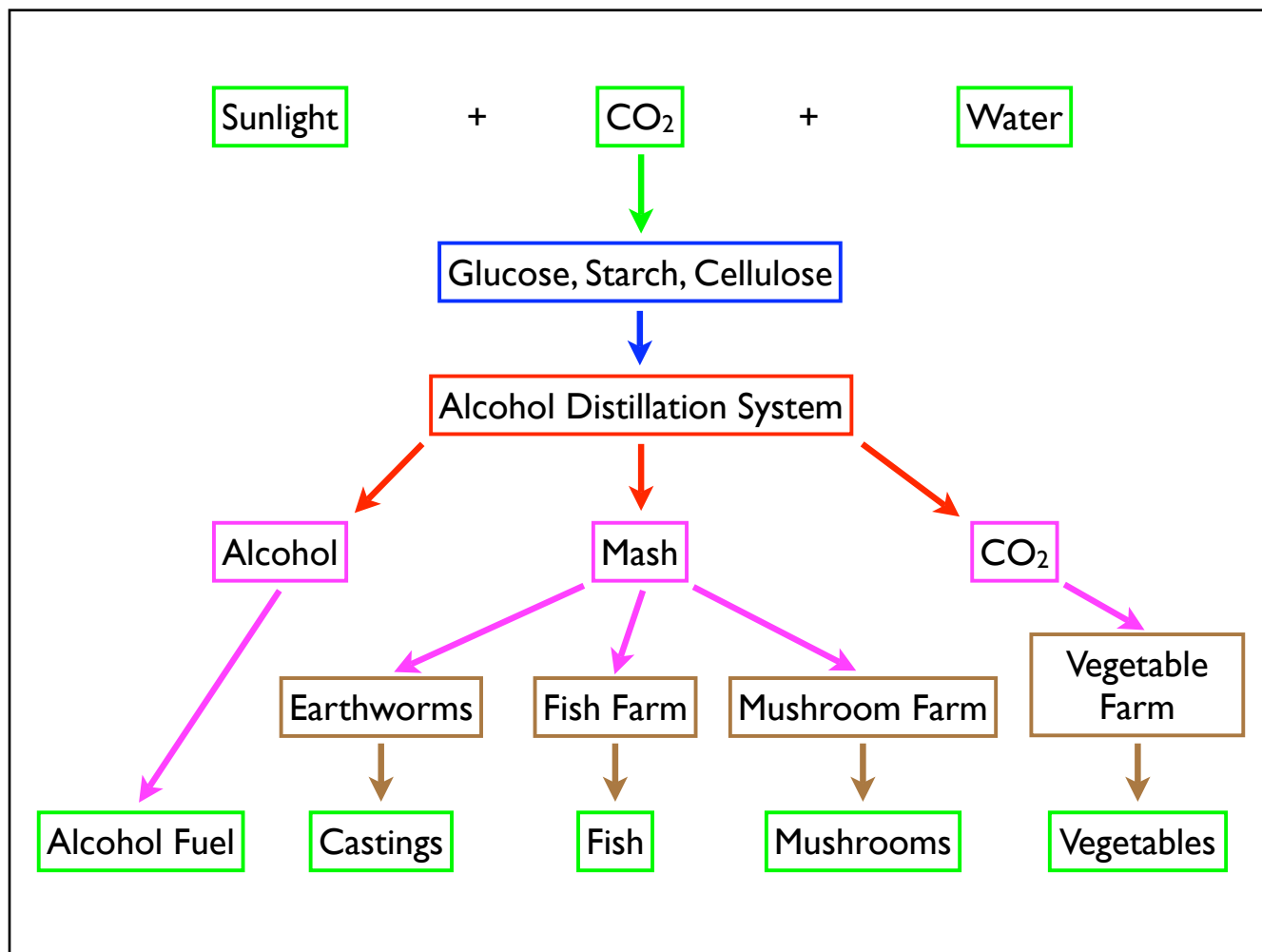
¹² There is one more step that may be required for making alcohol used in cars. It is called “denaturing” the alcohol which means adding a small amount of gasoline to the alcohol to make it poisonous and undrinkable.

¹³ Almost all feedstocks, especially grains, need pre-processing before we can begin the fermentation process. This pre-processing stage uses different mechanical machines for different feedstocks: *hammer mills* for grains, *roller crushers* for sugarcane and sweet sorghum, *fruit juicers* and *concentrators* for fruits and some vegetables, *rotary colliders* for certain hard grains like rice and corn, etc.

Of the two remaining companies, only one has a product that fits the bill of an automated distillation system with the service to back up and troubleshoot their distillation units.¹⁴

Manual distillation is not for the faint at heart. Using an automated distillation system is the key for the mass adoption and utilization of small scale alcohol production.

The following schematic diagram of fuel and food production shows how we can grow organic food at the same time as we are making our clean alcohol fuel.



First of all, vegetables and plants take in CO₂ and water, and, through the process of photosynthesis (using sunshine energy), they create carbohydrates, ranging from simple sugars like glucose and fructose, to more complex carbohydrates like starches, and finally to even more complex carbohydrates like cellulose.

Alcohol production is all about fermenting a feedstock and distilling the captured sunshine energy (simple sugars, starches, and cellulose) into a liquid form. Hence making alcohol is literally making “liquid sunshine.” Maybe that’s why people are so happy drinking this stuff!

¹⁴ To find out more about this company, you can purchase the “[10-Family Coop Proposal & Cost Estimate](#)” created by the author of this article. Detailed information on this 220-page PDF report is at the end of this article.

The *drinkable* alcohol that is. Never ever drink the alcohol made for fuel, because you will probably die or, if you are lucky, you *will* get a hang-over that you will never ever forget.

During the fermentation process, the amount of CO2 gas that is release by the yeast is equal to the amount of alcohol that is produced (lb per lb, or kg per kg). Instead of just venting the CO2 gas into the atmosphere as is typically done in large scale alcohol productions, we can pipe this CO2 gas into our greenhouses growing vegetables and plants. Why? Because vegetables and plants just love CO2.

Studies have shown that lettuce grown in a CO2-enriched environment actually can grow twice as fast as their cousins breathing normal air with a lower CO2 level. And pumpkins can grow almost twice as large in a CO2-enriched environment. The amount of CO2 levels in these CO2-enriched greenhouses is about 3 to 4 times the normal atmospheric CO2 levels which is approximately 350 parts per million or ppm.¹⁵

The mash or DDG left over from the alcohol fermentation process is nutritious food for growing fishes in aquaponics¹⁶, mushrooms¹⁷, and earthworms¹⁸, among many other useful products.

Crop	Quantity	Unit Price	Gross Value
Alcohol	9,000 gal. 34,000 liters	\$2.50/gal. \$0.66/liters	\$22,500 1X
Castings	33 tons 30,000 kg	\$1.00/lb. \$2.21/kg	\$66,000 3X
Fish	9,000 lbs. 4,100 kg	\$7.00/lb. \$15.43/kg	\$63,000 3X
Fish Emulsion	10,000 gal. 38,000 liters	\$6.00/gal. \$1.59/liters	\$60,000 3X
Mushrooms	44,000 lbs. 20,000 kg	\$3.00/lbs. \$6.60/kg	\$132,000 6X
Vegetables	65,000 lbs. 29,500 kg	\$2.50/lbs. \$5.51/kg	\$163,000 7X
Total			\$506,500 23X

¹⁵ ["Gardening Indoors with CO2"](#) by George F. Van Patten.

¹⁶ ["Recirculating Aquaculture"](#) by M.B. Timmons and J.M. Ebeling.

¹⁷ ["Mushroom Cultivator: A Practical Guide to Growing Mushrooms at Home"](#) by Paul Stamets.

¹⁸ ["Raising Earthworms for Profit: A Multi-Million Dollar Market"](#) by Earl B. Shields.

The above “Table of 10-Acre Fuel and Food Production”¹⁹ shows how a cooperative of, say, 10 families can produce 9,000 gallons (34,000 liters) of alcohol fuel per year, depending on the feedstock used. Using the CO₂ to grow organic vegetables in greenhouses and using the mash to grow fishes, mushrooms, earthworms, etc. could potentially yield over \$500,000 USD of organic products per year, depending on the local market conditions.

The by-products of the making alcohol in a small scale are actually much more valuable than the alcohol fuel. In fact, the potential revenue that can be generated from selling organic vegetables, fishes, mushrooms, and earthworms can be over 20 times the revenue made from selling the alcohol fuel alone. Therefore, in making alcohol fuel, the alcohol becomes the *by-product* and the organic vegetables, fishes, mushrooms, and earthworms become the main products.

A cooperative of families using this model to grow clean energy and organic food would not only survive, but they could thrive. Let’s assume that all the overhead and on-going costs of such a cooperative is around \$100,000 USD per year. This means that the net profit left on the table is approximately \$400,000 USD per year. Therefore, each family could net \$40,000 USD per year. And we are talking about 25 to 35 hours per week of work per family!

That is not a bad way to survive and *thrive* during GD2 and WW3.

4. Using Alcohol in Cars and for Cooking, Heating, Lighting, Refrigeration & Electricity

Once alcohol is produced in a local community, opportunities open up for the community members to start using alcohol stoves, alcohol heaters, alcohol lamps, alcohol refrigerators, alcohol electricity generators, etc. You can purchase some of these alcohol-fueled equipment from manufacturers and dealers that specialize in marine and/or recreational vehicle (RV) appliances. And, of course, alcohol can be used in all vehicles—gasoline and diesel.

Almost every gasoline fuel-injection car can use alcohol fuel (190-proof alcohol which is 95% alcohol and 5% water) up to 50% in its fuel tank without ANY changes whatsoever or experience any problems. Carburetor vehicles can utilize up to 25% alcohol fuel without ANY physical modifications.

For gasoline fuel-injection cars to achieve the ability to run from 50% to 100% alcohol, you need to buy and install a plug-and-play conversion kit that costs around \$300 USD, depending on the number of cylinders in your car’s engine. This conversion kit is a computer device that extends the capability of the engine’s existing computer to deal with the extra amount of oxygen in alcohol as compared to gasoline. It takes about 15 to 20 minutes to install such a conversion kit. And anybody can do this conversion.

So-called “Flex Fuel” vehicles made by Detroit auto manufacturers like Ford, GM, and Chrysler already have this capability built into the car computer system. You can run such a “Flex Fuel” vehicle or a regular gasoline car that has the conversion kit installed on (1) gasoline only, (2) alcohol only, or (3) any combination of gasoline and alcohol thereof.

¹⁹ The data in this table is adapted from David Blume’s book, [Alcohol Can Be A Gas!](#)

For carburetor vehicles, you need to make some physical modifications to the carburetion system (i.e., carburetor, metering system, idle circuit, accelerator pump, etc.) before you can run your carburetor car from 25% to 100% alcohol. The information on how to perform such modifications can be found in two alcohol fuel books footnoted below.²⁰

If you have a vehicle that requires premium gasoline, one neat way to save money during GD2 is to use 50% alcohol and 50% *regular* unleaded gasoline. Because alcohol is 105 octane and premium gasoline is approximately 92 octane, you will save some money and still have a fuel with a resultant octane higher than the more expensive premium gasoline!

Diesel vehicles can also run on alcohol. This topic could take up an entire new article and so for the sake of keeping this one to a reasonable number of pages, you are encouraged to do your own research to find out how liquid sunshine can run all diesel engines and vehicles.

For cooking, heating, lighting, and refrigeration, there are existing alcohol appliances for each application. Alcohol stoves, alcohol heaters, and alcohol refrigerators are sold in the boating and recreational vehicle (RV) industries. On boats, due to the explosive and dense nature of a fuel like propane, alcohol is used instead as the fuel of choice and for safety reasons. Spilled alcohol tend to evaporate and rise and not collect at the bottom of boat hulls, as spilled propane would do, creating a potentially explosive situation.

The beauty of burning alcohol is that it's extremely clean burning with no toxic fumes. Plus, alcohol fires can be extinguished by spraying water.

One of the biggest problems in the world is the toxic effects of cooking fuels like coal and wood: "Over 3 billion people worldwide cook and/or heat their homes with simple stoves that burn polluting fuels, resulting in a smoky and unhealthy living environment. Around 1.96 million deaths worldwide [each year] are caused by illnesses related to smoke inhalation. Pneumonia in infants and small children is the primary cause of death, and there is good evidence linking smoke to chronic bronchitis in women, low birth-weight, active TB, and various eye ailments."²¹

Cooking and heating with alcohol would solve *ALL* of these pernicious health problems.

There is a least one electricity generator on the market that runs solely on alcohol called the GridBuster. This equipment is manufactured by a company based in Los Gatos, California. You could also modify an existing gasoline or diesel gen-set to run on alcohol only. Again, general instructions on how to do the modifications can be found in the two alcohol fuel books mentioned in Footnote 20 below.

The following "Overview of Small Scale Alcohol Production" shows how a community can truly become self-sufficient. Up until now, permaculture, organic farming, *grow biointensive*, aquaponics, hydroponics, and other farming methods that proclaim self-sufficiency all lack one key and vital component: the ability to produce clean and renewable energy locally.

²⁰ "[Alcohol Fuel: A Guide to Making and Using Ethanol as a Renewable Fuel](#)" by Richard Freudenberger and "[Alcohol Can Be A Gas!: Fueling an Ethanol Revolution for the 21st Century](#)" by David Blume.

²¹ <http://www.projectgaia.com/page.php?page=problem>

With alcohol, we can achieve true energy and food self-sufficiency in our local communities.



Conclusions

Alcohol is liquid sunshine. Pure and simple.

Small scale alcohol production in growing clean renewable energy and organic food in local communities is *THE* transitional technology for GD2 and WW3. It is based on years and years of practice and experience by our grandparents and great grandparents. Now by utilizing permaculture and polyculture practices, we can take what our ancestors knew and practiced onto the next level.

With liquid sunshine produced locally, we can literally tell Big Oil and the other “corporations from hell” like Monsanto and BP to all go where the sun don’t shine!

But remember, talk does not boil rice.

It’s time for us to implement this small scale alcohol production where we are. It is time for everyone who cares about the environment, Mother Earth, clean and renewable energy for cooking, heating, lighting, and vehicle needs, organic food for our families, children, and neighbors to *JUST DO IT!*

Let's take a page from our beloved Bethany Hamilton and General George Patton:

"LET'S PLOW THROUGH ALL THESE MAN-MADE PROBLEMS OF GREED AND ARTIFICIALLY CREATED SHORTAGES LIKE CRAP THROUGH A GOOSE; LIKE SHIT THROUGH A TIN HORN!"

Make liquid sunshine where you are, and be happy and prosperous . . .

If you would like to tell others about this liquid sunshine, just tell them to go to www.LiquidEnergyOasis.com.

To obtain a PDF copy of the "10-Family Coop Proposal & Cost Estimate" which details all the necessary equipments and tools (including the car conversion kit) you need to implement the small scale alcohol production system for growing clean energy and organic food where you are, please use the following PayPal clickable link: <https://www.paypal.com>.

This 220-page report costs \$25 USD and contains all the basic information and much more to help you get started right now wherever you are. This PDF report includes the following information:

Introduction . . . Why Ethanol (Alcohol)? . . . Overview of Small Scale Alcohol Production . . . Schematic Diagram of Fuel and Food Production . . . Table of 10-Acre Fuel and Food Production (Potential) . . . 10-Family Coop ~ Cost Estimates . . . Automated Distillation System Price List and Data Sheet . . . Car Conversion Kit Data, Warranty, Pricing, and Manual . . . Greenhouse Data and Pricing . . . Digital pH Meter Brochure . . . Brix/Sucrose Refractometer Brochure . . . Deluxe Alcohol Test Kit with Floating Thermometer . . . Shredder-Chipper Brochure . . . Two Amazon.com Books Info . . . Alcohol Fuel Producer Permit . . . Volumetric Ethanol Excise Tax Credit . . . B&I Guaranteed Loan Program & REAP Loan/Grant Info . . . Community Supported Energy (CSE) Model . . . Reference Information . . . Food or Fuel? Article . . . Common Sense Article . . . David Blume's US Patent on How to Destroy Monsanto . . . Biofuel for the Future Article . . . Instilling a New Alcohol Fuel Revolution Article . . . David Pimentel's "Study" on Ethanol . . . David Blume Debunks Pimentel's "Study" . . . Energy Balance of Corn Ethanol . . . Germany's Alcohol Production History . . . History of Ethanol (Alcohol) Article.

David Chu is an author and professional engineer who has worked throughout the United States for over 20 years. Since late 2008, he has devoted his career and engineering know-how to help people everywhere to learn about and to implement the small scale alcohol production system described in this article. Mr. Chu has appeared on many radio shows on diverse topics, and he is available for radio interviews on this topic. Please contact him via email at David@LiquidEnergyOasis.com.

In August 2008, he wrote the book, *NO FORECLOSURES!*, to help homeowners fight the banksters on Wall Street and in Washington, D.C. by delaying and stopping illegal foreclosures. This book also has a bonus chapter with information on how to prepare for GD2 and WW3, including vital information on four natural and inexpensive cancer cures. For more information on this book, please go to www.no2foreclosures.info.