



# GOING GREEN

## GREAT FOOD AND FUN FROM A SPRING LETTUCE HARVEST

BY LAURA HUNT ANGEL

Here in the Angel household we're experiencing an exceptional spring lettuce harvest. Most years, our leaf crops are kept in check by a number of hungry rabbits. I don't really mind, as long as I get some.

Last year, we tried using chicken wire to protect our rows. It worked fairly well until a fat mama rabbit learned that by stepping on the wire, the leaves pushed close enough that she could wiggle her little nose in the mesh and eat to her heart's content. I didn't get a single leaf.

This spring, Hubby Chuck devised a simple, open-topped mini greenhouse that has worked like a charm. The rabbits seem to be doing fine without it, happily munching on abundant patches of nearby clover.

Now, without the rabbits taking their portion of salad greens, I have a ton of the stuff. Since we do mostly low-carb dining here at home, some of it will go into breadless sandwich wraps. However, that still leaves a lot of leaves. We'll be feasting on them for the next few weeks, so I decided to learn a little bit about my ordinary salad greens.

### A SEEDY PAST

Not surprisingly, those clever Egyptians take the ribbon for earliest use and cultivation of lettuce, over 5,000 years ago. But it wasn't leafy salad that they were after, at least not at first. The earliest forms of lettuce had prickly, bitter leaves that grew on a tall, weedy-looking stalk. These first lettuces had seeds that were high in oil that the Egyptians prized for cooking.

Then, some imaginative soul noticed that when lettuce plants were cut for harvest, they emitted a sticky, white resin. It's a form of latex, akin to what rubber plants and figs produce. This resin, they decided, was evidence that consuming lettuce might boost the libido, and there you have it: a Viagra salad.

Ancient Egyptian tombs were often adorned with images of Min — the Egyptian god of fertility — with lettuce growing near him. These ancient depictions of lettuce appear to be either a type of Cos or an Asparagus-stemmed variety. Additionally, it was discovered that lettuce sap soothed rashes and helped treat insomnia.

Certain types of lettuce were also much sought after to relieve pain. One kind, known as opium lettuce, is native to central and southern Europe and Asia but has since spread to many parts of the world. The leaves are gathered in early summer before the plant goes to seed and are still used by herbalists for natural medicine today.

### HAIL, CAESARI!

In antiquity, Greeks served lettuce salads at the end of a meal to encourage a good night's sleep. When the Romans got ahold of the green, they discovered that it seemed to calm the digestive system, so they began serving salad as a first course, a tradition that we stick with today.

Believe it or not, the familiar Caesar salad may have actually been eaten by Emperor Caesar Augustus himself. Attributing it as the cure for what ailed him, he even had a monument built in honor of lettuce. So, when you order up a Caesar salad, keep in mind that you're truly eating a meal fit for a king (or emperor, in this case).

Today, weight-conscious Americans can either bless or curse Christopher Columbus, the man responsible for bringing this dieter's dream/bane to the Americas in 1492.

In the 1800s, most salad greens were cooked before serving. Though a mush of limp, soggy greens sounds



Charles Angel

John Pate of Madisonville jams on the dobro.

quite unappealing as a salad, the cooking was thought to kill off any harmful parasites that may have taken up residence in the lettuce patch.

Victorian-era cooked "salads," as they were called, were often dressed with a heavy, creamy mixture of eggs and fresh or sour cream, blended with vinegar and sometimes sugar. Salt, pepper and sometimes mustard and spices were added to change up the flavor. With such a heavy topping, Victorian salads were hardly diet food.

### TYPES OF LETTUCE

Finally, when other, easier-garnered types of plant oils were discovered, folks began to appreciate the leafy lettuce tops. Through selective breeding, they began to root out some of the inherent bitterness of the greens to create milder varieties. Today, there are five main types of lettuce, with innumerable variations of each type, all relatives of sunflowers, daisies and thistles.

Romain: Also known as Cos lettuce, this is thought to be the oldest type of lettuce in existence. It's characterized by its lettuce being a narrow, tower-like shape with firm, crisp leaves. This type is used in classic Caesar salads and retains its crispness even when doused with dressing.

Heading/Crisphead: A favorite of Chef James Beard, this most common variety of lettuce includes the



Laura Hunt Angel

Insalata Supremo, bursting with garden fresh flavor.



Laura Hunt Angel

The slightly-buttery texture of Red Ruffles leaf lettuce makes a perfect wrap for burgers.

# What's up with the freeze-dried mouse sperm from space?

But you never thought you'd be reading that headline, did you? I must admit, I'm a little surprised to be writing it. It's not really anything that has crossed my radar before now. Then again, it opens up a few pretty interesting questions about science and technology, so we'll just try to touch on some of them.



MICHAEL J. HOWARD

Let's take things in order. We'll start with freeze-drying, then we'll move on to why so much scientific research seems to involve mice. After that, we'll get into why anyone would bother freeze-drying mouse sperm and sending it into space, and we'll end up with why has this news made it into the papers.

So, freeze drying. My first acquaintance with freeze-drying was probably from coffee commercials back in the late 1960s or early 70s. Apparently, freeze-drying is the best way to make instant coffee. I wouldn't know, because I'm not a coffee drinker, but I'll take their word for it. Since then, I've dealt with freeze-drying quite a bit, both in my professional life in science and in my personal life.

Everyone understands freezing things — you put something in an environment that's cold enough and it freezes. The obvious application of this is the freezer in your kitchen, where you store foods for extended periods. Most residential freezers maintain a temperature of about -20°C (-4°F).

A little tangent here: Something you might not know is that freezing things will not stop them from spoiling. It only slows the process down. Most bacteria that tend to cause problems with spoilage grow best at temperatures around our body temperature (37°C/98.6°F). The point of refrigeration is to slow down the rate at which those bacteria multiply. All food, with the exception of foods that have been specifically treated and packaged to be sterile, contains bacteria. Some of those bacteria are potentially harmful, if there are enough of them on

the food. In earlier articles we touched on how bacteria multiply exponentially, doubling in number every so often. The doubling time for some food-borne bacteria can be as short as just a few minutes. E. coli, for instance, can double in numbers about every 20 minutes under good conditions, meaning that the bacterial load in your potato salad can go from a perfectly safe level to a dangerous level in just a few hours, if it's allowed to sit around in a warm environment. If you refrigerate it, the doubling time will be greatly extended and your yummy potato salad will likely be perfectly safe for at least a couple of days. Freezing foods slows bacterial growth even further, but it doesn't stop it entirely. Food will still spoil in the freezer — it just takes longer.

Back to freeze-drying. One problem with how we normally freeze things is that things tend to freeze rather slowly at -20°C. A slow freezing process allows large ice crystals to form inside the food, inside the cells of the vegetables or the meat. These ice crystals tend to rupture the cells, which can cause the texture and quality of frozen foods to be less than fresh foods.

Rapid freezing is one way to minimize this problem — the faster you freeze something, the smaller the ice crystals will tend to be. This is what Clarence Birdseye discovered when he started his frozen-foods empire. Flash-freezing his vegetables helped them to retain more of the texture, taste and nutrition of fresh vegetables, since the smaller ice crystals didn't tend to damage the cells as badly.

Freeze drying does much the same thing. In the freeze-drying process, as the material is frozen, it's also subjected to a vacuum. In the low-pressure environment of a vacuum, the water in the material that's being frozen tends to evaporate, which dehydrates the sample without damaging the cellular

structure. Once it's dehydrated, you can package it up, and it will stay preserved at room temperature for extended periods.

The reason it doesn't need to stay frozen once it's dehydrated is that one of the things bacteria need to reproduce is water. Without water, reproduction stops. That's why dried foods and cured meats last a long time without refrigeration. Freeze-dried foods are great for backpacking and things like that because they're very light in weight, once the water is removed, and they keep really well. When you want to eat them, you just add water back in, the food rehydrates and you eat it.

It's not always the best-tasting food (although some reconstituted freeze-dried food is really good), but it's nutritious. In addition to food, freeze-drying is also used in some types of electron microscopy to prepare samples to look at. It's also used to preserve biologic samples, like some pharmaceuticals and other things like sperm samples.

Now then, why is so much research done on mice? There are a few good reasons, a couple of which are probably obvious and one that maybe isn't.

First, mice breed like, well, mice. The gestation period of a mouse is about 20 days, and a female mouse can have anywhere from 5 to 10 litters of pups in a year. That means that if you're trying to generate a lot of animals, mice are a good choice. A breeding pair can generate thousands of descendants in a year.

Second, mice are small and they don't eat much, so they're cheap. They're cheap to buy from suppliers, and shipping costs are low. They're cheap to house in the animal facility of a research institution because the cages are small. Small cages mean you can house lots of animals in a relatively small space. Rats, for instance, take up about 10 times as much space, and animal housing space is expensive because the rooms are very clean with very expensive air-filtration systems

to prevent disease. Small cages are also cheaper to clean and sterilize.

The third reason is the really important one, though. Mice are much cheaper and easier to manipulate genetically than rats or other animals. The mouse genome (the genetic content and location of the mouse's genes in their chromosomes) is very well-understood. Most of the methods of genetic engineering in mammals were developed in mice, so that's also well-understood. There are many, many more laboratory reagents (compounds that are used in experiments) for mice than for any other mammals, and probably any other animals of any kind, including frogs and fruit flies (the other most popular models for studies involving genetics).

So, if you ever wondered why so many studies are done with mice, now you know. Physiologically and genetically, mice are very similar to humans, so mouse studies are almost always a good place to start research. After all the hard stuff is done in mice or rats, if the results warrant, then you move into other models or into human studies.

So who cares if you can use freeze-dried mouse sperm that's been stored on the ISS for nine months to produce normal mouse pups? If that was the only goal, the answer would be "pretty much nobody." Certainly nobody would be willing to spend whatever it cost to send the samples to the space station and bring them back. But as in most cases, it's not the mouse study that matters. It's what we can learn from the mouse study that may then be applied to a human issue.

In this case, the value of this study has to do with the effect that radiation in space has on the DNA of reproductive cells. Our atmosphere screens out almost all the harmful radiation that is prevalent in space. The ISS, in low Earth orbit (you should know what that means, from my column a few weeks ago), receives a much higher level of background radiation than we do on Earth. The

background radiation as you move further from Earth is even higher, so this information is important, both now and for our future, as we venture back out into the solar system, where we haven't been since the Apollo missions.

Astronauts are spending months, or even years, at the space station, and understanding how the radiation they're exposed to is important if they plan on having children after they come back to Earth. It's also of great importance to understand what happens over the long term, because we will, one day (I hope), begin manned exploration missions in space again.

As we look to visiting other planets or even other star systems, some day, we need to know these things. Those missions will take months or years to complete, and human and animal reproduction will be important. The experiment with the freeze-dried mouse sperm is just the first step toward knowing what we'll need to know.

Beyond that, there were also some really interesting things that happened when the mouse eggs were fertilized with the "space sperm." The radiation on the ISS had, as expected, caused more damage to the DNA in the space sperm samples than was seen in control samples that were kept here on Earth. However, there was no difference between the fertility or health of the pups from the experimental or control samples. Apparently, the damage to the space sperm DNA was repaired sometime after it was introduced into the eggs. That observation could have important consequences for the type of human fertility research that we have been conducting for many years.

So, now you know why freeze-dried mouse sperm from space matters.

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## NUGGET 13: MEMORIAL LITERATURE

### How memorial poems became tradition

Memorialization is a common practice for poets, dramatists and artists of every stripe.

Back before the print revolution of the late-1400s, poets were sometimes hired or kept on retainer in a patronage system. This was the only way they could make a living at their art, for there was no publishing industry, and bookstores hadn't been invented yet. For

the financial support they received, they were tasked with writing for specific occasions in the lives of their patrons — a birth, a promotion, a death. Frequently then, they wrote eulogies for the dead, and the tradition included adding the poetic verse to the casket or tomb of the departed important

personage. Because they wrote for such occasions, they became known or classed as "occasional

poets." The systems that named a poet as the one who wrote for the king or for the nation, the position of "Poet Laureate," is much in keeping with this tradition.

Some famous memorial poems are Milton's "Lycadid," in honor of his drowned colleague, Edward King; Tennyson's "In Memoriam," for friend Arthur Henry Hallam; and Whitman's "When Lilacs Last in the Dooryard Bloomed," reacting to the assassination of Abraham Lincoln.

In post-Civil War America, both sides marked days to honor the fallen soldiers, and in some places the event was variously called "Decoration Day," as the tradition was to decorate the graves. The red poppy became the flower of choice after a famous poem by John McCrae referenced it in 1919, "In Flanders Fields":  
In Flanders fields the poppies blow  
/Between the crosses, row on row/  
That mark our place; and in the sky  
/The larks, still bravely singing, fly  
/Scarce heard amid the guns below.  
We are the Dead.

Short days ago/  
We lived, felt dawn, saw sunset glow  
/Loved and were loved, and now we lie/  
In Flanders fields.

Take up our quarrel with the foe:  
/To you from failing hands we throw  
/The torch; be yours to hold it high./  
If ye break faith with us who die  
/We shall not sleep, though poppies grow/  
In Flanders fields.

Though the reference to Flanders places the poem in World War I, the issue of keeping the memory of the fallen soldier, of passing the torch, remains a standard trope for us today. My

ancestors were Flemish, and I've seen the red poppies in the field and have been struck by their color and resilience.

For a different take on the issue of loss and remembrance, and a relatively modern retrofitting, try listening (on Youtube) to the 20-plus minute 1978 song "Memoirs Of An Officer And A Gentleman" by prog-rock stars Emerson, Lake and Palmer.

Have a memorable literary day!

Scott Vander Ploeg, Ph. D. is a literary critic and 37-year veteran educator who offers to help elucidate the complex and evolving world of the humanities.

## GREEN

FROM THE FRONT PAGE

ubiquitous "Iceberg" lettuce. It's thought that Iceberg lettuce got its name because it used to be packed in large quantities of ice for shipping. Popular though it may be, it is also the least nutritious of all lettuce varieties.

Red Leaf: The appealing, wavy red leaves of this lettuce are often mixed with other types to fancy up ordinary green leaves.

Green Leaf: An excellent choice for sandwich wraps or for topping burgers, its softer texture won't slide off a bun like the crunchier varieties.

Asparagus/Stem Lettuce: This is one type of lettuce that doesn't often appear in regular grocery stores. The small, pointed leaves of this green are

born on thick white stalks that some say resembles asparagus. The stalks of this green are sought, rather than the leaves.

### LOVE IT OR LEAF IT

What do you do when you have too much of a good thing? You throw a party, of course. This past weekend a banjo-picking, horse-doctoring friend from Paducah said she would be out this way and was in the mood to jam. We decided that an impromptu bluegrass session was in order. I contacted my pals, the Pennyrile Dulcimer Players, to join us for an evening of music and a light dinner.

About halfway into stirring, peeling and chopping up a big fancy salad for our meal my friend called. A horse in Illinois had come down with pneumonia. What could she do? With less than an hour before party

time and a table full of food, I decided to power ahead even without our guest of honor.

As it turns out, we had a great time anyway. Bluegrass people are like that.

### THE RECIPE

My garden greens consist mostly of hearty Romain lettuce, which can hold its own against a creamy dressing and hearty add-ins. This dressed up Caesar is a meal in itself or, in smaller portions, makes a great side.

### INSALATA ROMAINE SUPREMO

Because Romain lettuce is a bit sturdier than other types, you can put this salad together 30-45 minutes before serving time. If you're unsure whether your guests have seafood allergies, omit the anchovies in the dressing.  
**1 large head Romain lettuce**

**1 recipe Creamy Caesar Dressing**  
**1 cup mixed cherry tomatoes, halved**  
**4-6 ounces thick sliced Genoa salami, slivered**  
**1/3 cup shaved Parmesan**  
**1/2 teaspoon oregano**  
**Crushed red pepper, to taste**  
**CROUTONS, if desired**

Remove tough outer leaves and wash lettuce well. Slice the head in half lengthwise and lay on a platter. Top with the

prepared dressing then with the salami and Parmesan. Sprinkle with oregano and crushed red pepper. If you like, add croutons right before serving.

**FOR THE DRESSING:**  
**3 cloves garlic, minced (3 teaspoons)**  
**1 teaspoon anchovy paste, optional**  
**2 teaspoons whole grain Dijon mustard**  
**2 tablespoons lemon juice**

**1 teaspoon Worcestershire sauce**  
**1 cup mayonnaise**  
**1/2 cup grated Parmigiano Reggiano cheese**  
**Salt to taste**  
**1/2 teaspoon black pepper**  
Whisk together the garlic, anchovy paste (if using), mustard, lemon juice and Worcestershire. Add the remaining ingredients and whisk until well blended. Makes 4 generous servings.

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