

# Anyone Growing IMOs?

## *or, How I grew lettuce outside over winter*

by Al Chomica

Does anyone even know what an IMO is? In January of 2018 I embarked on a different journey of growing things. In its most simple form it is all about farming the microbes which in turn feed and nourish plants. The concept is called KNF or Korean Natural Farming and is a much different way of growing things than I have ever practiced before. There are many techniques and many phases and nutritive cycles of the plants to understand and I have spent two months learning from others, mainly through You Tube videos and facebook group discussions but also with others on the Island who practice KNF. Previously, I thought I was getting good at growing things but now I realize how very little I know. Everyday I learn something astonishing from this method of growing food and realize my gardens are like a classroom that teach me something new and wondrous every day.

One of the main components of KNF is to make one's own fermented solutions that are applied to the leaves of plants when their stomata are open. A small amount goes a long way when they are mixed with rainwater in miniscule ratios like 1:500 or 1:1000! This equates to a teaspoon in a four liter jug of rainwater. I am in favour of this method of applying solutions because I make them myself and they are all safe to drink with no toxins or poisons. In fact, many people take daily doses of several of these solutions for their health. Some of these solutions like the OHN, or Oriental Herbal Nutrients, contain five different nutrients that get fermented over an eight-week period of time using vodka to extract those nutrients on a weekly basis. I may discuss some of these 'inputs', as they are called, at a later date but for now let's go back to those IMOs.

IMO stands for Indigenous MicroOrganisms. The indigenous part means they come from my own garden soils and not from any other location. These microbes have lived here on Cottam Point for a millennium and are perfectly suited to living in the soils and growing conditions found on my land. When mixed with some of the fermented inputs, these microorganisms transfer the nutrients directly to the plant's roots so essentially, I can directly feed my plants such things as water-soluble calcium, that I make from egg shells, nitrogen from fermented fish carcasses, or phosphorous made from charred sunflower seeds and even potassium made from wood ash.

Some of you may recall an excellent NGC presentation on soil microbes by Dr. Shannon Berch over a year ago. I showed her a bottle of EM (effective microorganisms) I had purchased from a nursery for about 12 bucks and asked what she knew about these microorganisms. She said she knew microorganisms don't live in a plastic bottle on the shelf of a store so buying these might not give one what they were looking for.

The first step to make IMO-1 is to fill a box with cooked rice (think microbe food) that is partially buried in the garden and protected from the elements with a cover. I made mine in January when it was cold and the microbes I was searching for took 10 days to populate the rice as in the picture below.



This white beard on the rice is good microbes and exactly what I was trying to grow. I have learned that green and red mold are not good but okay in small amounts. Black mold is bad so if it grew black, I would have to throw it out. Those black particles are cedar leaves that fell in when I removed the cover every day. You are looking at a completed IMO-1 here. The next steps will eventually multiply those microbes into large physical amounts of growing medium.

The IMO1 is now mixed by hand with an equal weight of brown sugar to make IMO-2. The sugar draws out the moisture from the millions of microbes in the rice and puts them into dormancy until I wake them up later. It turns into a gruel-like substance that is put in a container with a breathable cover and given a sugar cap that acts as a lid.

IMO-3 is a bit harder to make than that but essentially, I take about 40 pounds of carbon and carbohydrate and mix a mere handful of the IMO2 into the heap. This is watered with special solutions full of microbes and nutrients and is lightly covered. The aim is for a 60% moisture content to allow the microbes the right environment to grow. My carbon/carbohydrate mix consisted of organic soil from an ant hill, ground up hazelnuts with their old dried leaves and twigs and some ground up Niger sunflower seed from last year that was rancid. Many people use bran but I used what I had on hand. I made the heap in a plastic hoop house to ensure rainwater did not alter the moisture content. The heap had a compost thermometer stuck in the middle and was covered with an old coffee bean jute sack and checked every day to see if it would start to grow.

I turned and mixed it with a hoe every day then after four days the pile started to heat up. It went from ambient temperatures to about 90F (sorry but the compost thermometer is from the USA). That was in the first week of February just before we got hit with five weeks of freezing temperatures from a stalled arctic outflow. It was actually perfect timing on my part.

The next morning there were two things to take note of. One, there was about a foot of snow crushing the hoop house and the temperature was at -4C! Two, the little heap of IMO-3 was cooking at almost 140F! Yikes... The temperature inside the hoop house was +8C, meaning the IMO3 had contributed a 12-degree temperature difference. My lettuce and celery were fine.



The IM03 heap was turned inside out, given a drink and then covered with the sack again. The temp dropped down to 90F after doing this. The next morning the temp was up to 130F so it was turned again to mix all the food ingredients for those hungry little microbes that generate heat – a lot of heat. As the microbes grew at an exponential rate, that IM01 beard culture that I collected in January on the rice was running rampant within this IM03 heap. Every morning the temp hits 130F and a fine webbing of my original IM01 culture can be seen growing in wisps on the surface before getting mixed into the heap again. Clouds of steam come out of the pile and it smells like I am baking bread. From that one little cup of rice I now had a wheelbarrow-sized pile of living microbes that were easily consuming all the hazelnuts and sunflower seeds and was

turning them into a living and breathing compost. Wow, this was a very cool experiment although I have to admit it was almost a bit eerie as well.

According to the instructions for making IM03, one is supposed to let it cook for about a week until the temperatures start to drop and do not recover. Then one moves on to IM04 which is a whole new level of mass production. I achieved IM03 after a week when the temp recovery did not happen. Somehow winter still kept a tight grip on us so I hatched a new plan and



decided to see if I could harness this little heap and feed it to keep it cooking and heating the hoophouse.

I made more juice and fed the heap stale white flour and more crushed up sunflower seeds and voila! The next morning it went back up to 130F. The temp for my lettuce was still at +8C and it was -4C outside. I turned the pile, added a bit more flour, watered it and let it cook overnight every day for another month! I had inadvertently created a renewable heat source in an unheated structure and grew my lettuce, celery and now peas while we experienced adverse, freezing weather outside. Okay, maybe I cheated a bit but it was a great experiment nonetheless and certainly a highlight of our garden tours during the month of February. The hoophouse was soon filled with nursery pots of grapes and Goji Berries to keep them from freezing as well.



The lettuce that withstood the cool temperatures deserves mention here. It is called Cracoviencis and is a Polish heirloom that is quite frost hardy down to about -3 or -4C. It is also known as celtuce (celery/lettuce cross) or asparagus lettuce because it grows a long stalk that the leaves grow out from as it reached a four foot height. The stalk is edible like asparagus. The leaves are thick and crunchy and the best part is they do not get bitter in the summer time. Truly a wonderful lettuce and the only variety we have grown so far this year. Now, on April 11, they have been planted outside in our raised beds as tiny starts and don't seem to mind the cold nights. One of our garden club members, Riki Sato, graciously gave me the seed last year. The plants in the picture self-sowed and have grown thick and strong during five weeks of winter.

Thinking ahead, if I could cover my entire garden over the winter I could keep it warm enough to alter the growing conditions in my yard with one of these little heaps of IMOs.