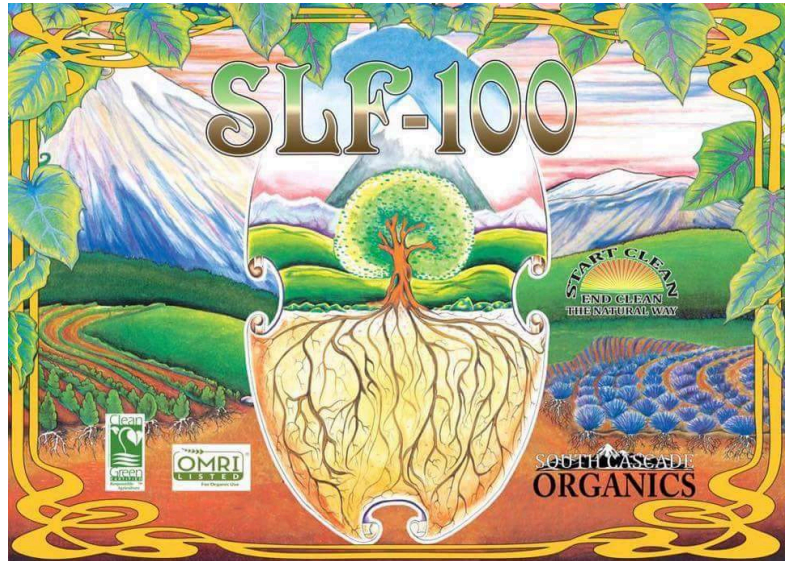


UNOFFICIAL GUIDE TO SLF-100 v3.0

Submerged Liquid Fermentation

*****Use at your own risk***** The information in this UNOFFICIAL Guide was compiled from the info on various websites, postings on internet forums and various postings on Facebook pages. This guide is neither affiliated with nor endorsed by South Cascade Organics or Newton Hayes. We are simply Growers helping fellow SLF-100 growers. #slfsoldiers If you would like to reach out to the company and Newton Hayes, you can do so at <http://southcascadeorganics.com>



Disclaimer:

This guide will be updated from time to time. Any and all updates will be issued through the Nectar for the Gods Facebook Page. The information in this guide may or may not be up to date, and/or there may be information that is missing or has been taken out of context and no longer applies. In short, check for the latest release in the group. Any and all updates will have the date at the top of the guide.



"I have a passion for bacteria and what they can do and I know that our current knowledge of them is extremely limited. I also love to promote products that do what they say they'll do...I believe if the product works, and the mindset of the people behind it is in the right place, then by all means support and promote the product. It's about growing families, plants and then businesses... and only growing businesses that promote family first."
– Newton Hayes

Table of Contents

SLF-100.....	3
In your own words Newton, what is SLF-100?.....	3
What is fermented to make SLF-100? What microbes are doing the fermentation?	4
Which bacteria in your product is the most beneficial?	4
Do you have any lab reports?	4
Where can I learn more about the different bacteria in SLF-100?	5
Is slf-100 a microbe product or an enzyme product? Does it add to the nitrogen cycle at all? .	6
What is the Nitrogen fixing bacteria South Cascade is releasing soon?	6
What has the data shown in relation to the effectiveness of Bacillus thuringiensis on fungus gnat larvae?	7
What are the recommendations for effective fungus gnat treatment?	7
What is the recommended rate of SLF-100 to control caterpillars?	7
I have heard some say they aerate SLF-100 for 24hrs to increase its pest control effectiveness. What is the theory behind this?.....	8
When you mention using SLF in concentrated form, are you referring to the weekly 5mL/gal application?	8
I'm having a lot of salt buildup in my medium, will 5mL/gal application rate be enough?	9
Is it ok to use SLF alongside Hygrozyme or will it eliminate my need/use for it?	9
I'm using Nectar for the Gods and I'm seeing a buildup of bone gum on top of our medium, will SLF help eliminate the buildup?	9
I'm using Nectar for the Gods and I'm noticing a significant pH drop after increasing SLF-100 application along with an increase of Herculean Harvest in flower. I always feed at 6.6 all the way through flower, but by mid flower, since going with SLF at 20 mL/gal, I am getting slurry pH's of 6.0-6.2. Any ideas?.....	10
I see some people are adding SLF-100 first into their reservoirs, others are adding it after they pH. Which is correct?.....	10
The SLF-100 inside my bottle is turning green! This seems like it's not okay. Please let me know if I should get a new bottle.	11
Is there any benefit to foliar feeding SLF? Pest management?	11
How much SLF-100 do you use in your cloner?	11
SLF-100 – Prevent and Cure Pythium (Root Rot)	12
Recycling Soils with SLF-100	12
I'm ready to make the purchase, but I'm not sure what store near me sells it.	13

Testimonials.....14

SLF-100

SLF-100 is a commercially proven enzymatic formula with over 18 years of proven success. It is a 100% organic and OMRI listed formula specifically designed to break out salts. Used as a cleanser for hydroponic systems and soilless media SLF-100 goes to work immediately to keep your system running smooth and free of toxic build up.

SLF-100 is effective in all phases of the growing cycle and is compatible with all nutrients, fertilizers and rooting compounds. SLF-100 is also compatible with H2O2 (Hydrogen Peroxide). Thanks to a proprietary blend of naturally occurring enzymes, SLF-100 is pH neutral in concentrated form and has NO added sugars or NPK.

As part of its proven enzymatic formula, South Cascade Organics utilizes *Bacillus thuringiensis* and *Pseudomonas putida* for their ability to break down nutrients and organic matter into enzymes like amino acids which feed plants. As an added side effect, *Bacillus thuringiensis* produces a crystalline protein that when ingested by the larvae of fungus gnats, the protein cuts the gut of the larvae- effectively killing it. In addition, the inoculants are designed to completely solubilize all forms of organic fertilizers from compost to bone meal to feather meal to salt based fertilizers. In short, SLF has been reported to help increase brix, increase terpenes, combatting possible pest larvae and it also solubilizes phosphorus and breaks salts into soluble forms while breaking down calcium deposits on the surface of the soil.

In your own words Newton, what is SLF-100?

“I want to post what SLF-100 is rather than a bunch of hype. That way, you can do the research if you want. SLF stands for Submerged Liquid Fermentation. SLF is a microbe based enzymatic product. We start with a base of microbes which we add to several species of grasses that we grow. We then bring in plants from extreme environments, for their ability to survive those extremes, and we let it ferment. Most of the plants we bring in are proprietary but one plant comes from a salt flat for the plants ability to survive high EC's. From this plant we get bacteria like *Virgibacillus pantothenicus* which is known to help plants survive osmotic stress and produces enzymes necessary to remediate high salt environments. SLF-100 was actually created to break down salts. Breaking phosphorus bonds and calcium build up (bone gum) are beneficial side effects from the use of SLF-100. It is not just a microbial product. There are microbes left from the fermentation process and researching the specific microbes will help to understand what the product is capable of.

SLF-100 is: A formulation of multiple species of bacteria, however there are four that really stand out and make their presence known.

- *Pseudomonas putida* - Phosphor solubilizer - amazing bacteria, also an antagonist for pythium and fusarium.
 - *Virgibacillus pantothenicus* - production of ectoine and proline, causes plants to adapt to environmental stressors - among many other things
 - *Bacillus thuringiensis* - helps with some pests - also has anti-pathogenic properties.
 - *Bacillus subtilis* - catalase-positive bacteria - meaning given the ability to grow overnight in a simple sugar medium and added to H₂O₂ it will break the extra oxygen atom off the end - the real enzyme test.” ~ Newton Hayes
-

What is fermented to make SLF-100? What microbes are doing the fermentation?

Several species of grasses and plants from extreme environments I.e. A whole plant is fermented from a salt flat for its ability to survive in that environment along with other proprietary ingredients. Species most prevalent are *Pseudomonas putida*, *Virgibacillus pantothenicus*, *Bacillus subtilis* and *Bacillus thuringiensis*.

Which bacteria in your product is the most beneficial?

“All these bacteria have many, many advantages alone but do amazing things together as well. SLF-100 bacteria are mostly in a dormant stage, obviously for shelf life in the concentrated form. Craziest thing about SLF-100 is *Pseudomonas putida* is strictly aerobic bacteria - meaning it needs air to live. We have tested SLF-100 after seven years of sitting and it is still the most prevalent bacteria in the formula. Used as the concentrated form with Nectar for the Gods products is where we see their synergistic effect together. Breaking down calcium or bone gum takes more than one type of bacteria and at the right balance.” ~ Newton Hayes

Do you have any lab reports?

“Sure, I wanted to post this lab report here in lieu of recent questions about SLF-100 and the bacteria in it. We have had this for some time but didn't want to necessarily narrow down our product. Remember our main focus is not just bacteria, although at these numbers, SLF-100 has a decent concentration at 1,220,000,000/ml. I do want my friends and customers to have the knowledge they need especially when marketing 'seeds' argue with them. We aren't looking to compete with products as we feel we have something completely different than anyone else and competition is the bane of corporations and greed. If it works for you fine, if it doesn't work for you that too is totally fine. What I want to see is a little less, 'my product is better than yours' and a little more 'hey let's do lunch a figure out how we can work together'. Our product is a whole

plant product and these numbers can vary from batch to batch but that's what makes the product (whole plant vs synthesized and/or hand-picked bacteria and enzymes). If we label as a bacteria product I feel that we do SLF-100 a disservice. Being a whole plant based product brings so much more than just bacteria and enzymes, it brings a balance.

Also, the Bacillus that is *genus only* in the report is, in fact, our Virgibacillus pantothenicus. When I spoke with her she told me they didn't have that strain in their database as it was previously Bacillus pantothenicus. So there is some kind of confusion in the database.” ~ Newton Hayes

Microbial Matrix Systems Inc. Office: 541-967-0554
 2300 Ferry St. Unit #5 Fax: 541-967-4025
 Albany, OR 97322

Biological Analysis - Serial Dilution Cultural Media Isolation/Identification

Client: Newton Hayes

Sample ID	Isolate ID	CFU/ml	Bacteria ID
SLF 100 A	SLF 100 A	1.00E+09	<i>Pseudomonas putida</i>
SLF 100 B	SLF 100 B	1.00E+07	<i>Bacillus (genus only)</i>
SLF 100 C	SLF 100 C	1.10E+08	<i>Bacillus subtilis</i>
SLF 100 D	SLF 100 D	1.00E+08	<i>Bacillus thuringensis</i>

Procedure:

1. A 1:10 serial dilution of product is made using sterile phosphate buffer (1M, pH7.2)
2. A 100uL aliquot of each dilution is spread onto a variety of different cultural media to select for different functional groups and incubated for 24 hours at 28C
3. An examination of each plate is made to determine the most "persistent" and stronger colonies present. A single colony is isolated and purified by growing again onto TSA plates and incubated at 28C for 24 hours.
4. Identification of microorganisms based on a Similarity Index using Fatty Acid Analysis. Once identification is achieved a cross reference is made to the Dilution used to obtain the pure single colony to then calculate the Colony Forming Units of the bacteria.

Function of identified bacteria:

Pseudomonas putida is a saprotrophic bacterium that can break down alkene and other organic compounds and thus is used in bioremediation. This bacterium is also an effective antagonist for pythium and fusarium. Produces precursor IAA (indole acetic acid). A precursor to Auxin hormone.

Bacillus thuringensis is associated with insect control

Bacillus subtilis commonly found in soil. Involved in early breakdown of plant and animal residues. Plays role in Nitrogen and Carbon Cycles.

Where can I learn more about the different bacteria in SLF-100?

Pseudomonas putida –

http://web.mst.edu/~microbio/bio221_2007/P_putida.htm

https://microbewiki.kenyon.edu/index.php/Pseudomonas_putida

Virgibacillus pantothenicus –

<http://aem.asm.org/content/74/14/4560.full>

Bacillus thuringiensis –

<http://www.bt.ucsd.edu/>
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3035146/>
<http://www.entomology.wisc.edu/mbcn/fea207.html>

Bacillus subtilis –
<http://www.entomology.wisc.edu/mbcn/fea207.html>
https://en.wikipedia.org/wiki/Bacillus_subtilis

Is slf-100 a microbe product or an enzyme product? Does it add to the nitrogen cycle at all?

“Both. SLF-100 is a fermented product that contains both microbes and enzymes. It is more enzymatic in nature and action many times but if you disregard the living factor you may miss crucial understandings of what it can do. SLF-100 was created to bring a healthy living balance within the rhizosphere not just for one thing. Think of it as synthetic vitamins vs whole foods. Enzymes are protein chains that are created within a cell. A living enzymatic product is what really makes it stand out. The microbes in SLF are also capable of producing nitrogenase enzyme which enables atmospheric nitrogen fixation.” ~ Newton Hayes

What is the Nitrogen fixing bacteria South Cascade is releasing soon?

I've been researching the 'not yet released' Nitrogen fixing bacteria product from South Cascade and aside from the Nitrogen fixation, what I am most impressed with is the studies that have been conducted concerning Azospirillum brasilense inoculation and the resulting increase in plant growth. (no studies yet that I have found on cannabis) Below is condensed from the studies:

- Inoculation results in alteration in root morphology, which has been ascribed to the bacterial production of plant growth regulating substances.
- There were an increased number of lateral roots and root hairs, enlarging the root surface available for nutrients. Studies have shown that this results in a higher nutrient uptake by inoculated roots and an improved water status of the plant, which in turn could be the main factor enhancing overall plant growth.
- An Azospirillum–plant root association can only be successful if the bacterium is able to survive in the soil and attain significant populations on the host root system. In the rhizosphere, decreasing nutrient gradients from the root to the surrounding soil are generated by plant root exudates. The bacteria move towards plant roots where they can benefit from root exudates as carbon and energy source, and may therefore contribute to survival and rhizosphere colonization. The exact mechanism of how Azospirillum interacts with the plant roots is not yet fully understood.

- One of the alternative explanations for the observed plant growth stimulation by *Azospirillum* inoculation, involves the production of plant growth regulatory substances by the bacterium. Three types of plant growth promoting substances could be detected in the supernatant of *Azospirillum* cultures (auxins, cytokinins and gibberellines).
 - The quantitatively most important phytohormone produced by *Azospirillum* is the auxin indole-3-acetic acid (IAA).
 - Bacterial phytohormone production is assumed to cause the detected changes in root morphology after *Azospirillum* inoculation, which in turn may be related to enhanced mineral uptake.
 - Extensive genetic, biochemical and ecological studies have ranked *Azospirillum* as one of the best characterized genera among associative plant growth promoting rhizobacteria.
-

What has the data shown in relation to the effectiveness of *Bacillus thuringiensis* on fungus gnat larvae?

Many users are reporting success with *Bacillus thuringiensis israelensis* (Bti) in SLF-100. Bti has to be eaten to cause mortality. During the spore-forming stage of its life cycle, the Bti bacterium produces a protein crystal which is toxic only to mosquito, black fly larvae and fungus gnats. These microscopic crystals are ingested by insect larvae when they are feeding. The Bti toxin dissolves in the high pH insect gut and become active. The toxins then attack the gut cells of the insect, punching holes in the lining. The Bti spores spill out of the gut and germinate in the insect causing death within a couple days. Even though the toxin does not kill the insect immediately, treated plant parts will not be damaged because the insect stops feeding within hours. Bti only becomes toxic in the stomachs of mosquito, black fly larvae and fungus gnats. Because of this, it does not affect other insects, honeybees, fish, birds or mammals. The insecticidal toxin biodegrades quickly in the environment through exposure to sunlight and microorganisms.

What are the recommendations for effective fungus gnat treatment?

The recommended application rate of 5 mL/gal may not be enough for an active fungus gnat infestation. Some users are reporting success with 15 ml/gal up to 30 ml/gal.

What is the recommended rate of SLF-100 to control caterpillars?

There are various strains of *Bacillus thuringiensis*. SLF-100 contains the strain *Bacillus thuringiensis israelensis* (Bti). Bti produces toxins which are effective in killing various species of mosquitoes, fungus gnats, and blackflies, while having almost no effect on other organisms. *Bacillus thuringiensis* var. *kurstaki* (Btk) is used to control caterpillar pests such as gypsy moths.

There is NO Btk in SLF-100. You should be looking for another product to control caterpillars and moths. We, as responsible gardeners, kindly request that you use a natural product that is environmentally and 'good bug' friendly and doesn't line the pockets of companies that are profiting from contaminating the earth with inflammatory, carcinogenic and neurotoxic chemicals.

I have heard some say they aerate SLF-100 for 24hrs to increase its pest control effectiveness. What is the theory behind this?

“If I could please note that I have retracted my previous statements about brewing strictly to utilize the Bt toxin in SLF-100 for pest control. SLF-100, in concentration, contains the Bt toxin. It has already sporulated due to the fermentation process and should be sufficient for most applications. I now suggest not brewing it just for the Bt, because there is no way of knowing you're creating the perfect conditions to increase the effectiveness of the Bt toxin. Aerating it was a thought/theory I had, for better effect and, to help with overall cost and I may have overstepped my theoretical bounds. Brewing SLF-100 with a compost tea, it will begin to compete with other bacteria. It will depend upon various environmental conditions as to which bacteria will out-compete the others. Think of billions of bacteria doubling every 42-120m; one is going to outperform the others and dominate the medium given more time. Each bacterium in SLF-100 has a different doubling rate or generation rate. Pseudomonas putida can double every 60-120 in the first 24 hours and then will slow down. Bacillus subtilus doubles every 120m and Bacillus thuringiensis can double every 42-84m.

You may not know this, but the foaming action that occurs outside of normal foaming from saponins is caused by the bacteria competing. It is believed they are sequestering nutrients. There are definitely enough bacteria in SLF to have a successful brew, but why not diversify with EWC or Bokashi or even a raw kelp. It really depends on what you want out of your teas and if whatever you're doing is working for you, keep doing it. Until further research demonstrates the proper way to guarantee an increase in the Bt concentrations and that the other bacteria, won't out-compete, it's best to deliver Bt in recommended dosages for root drench. Feedback is always welcomed.” ~ Newton Hayes

When you mention using SLF in concentrated form, are you referring to the weekly 5mL/gal application?

“When I say concentrated form, yes, I mean the normal 5mL/gal, mixed in with normal feed.” ~ Newton Hayes

I'm having a lot of salt buildup in my medium, will 5mL/gal application rate be enough?

For flush, we use anywhere from 15ml up to 30ml per gallon as the recommended rate for immediate break out. Apply thoroughly once a day for three days.

Is it ok to use SLF alongside Hygrozyme or will it eliminate my need/use for it?

Question: I currently mix in 5mL/gal of Hygrozyme into my feed solution every two weeks to maintain enzyme levels to keep dead/dying root masses breaking down. Is this sufficient? Does slf-100 work well alongside products like hygrozyme?

Answer: "I have several customers that love using SLF and Hygrozyme together while others have eliminated Hygrozyme. Forgive me for asking but why do you have dead roots? Also, enzymes are provided by bacteria and bacteria thrive where there are roots, alive or dead. I think it's really about keeping the bacterial population bent towards the beneficial side. I am not going to pretend to know more. I enjoy the microbial world immensely and believe it is the 'new frontier'.

Try it with Hygrozyme and without and see if you notice a difference. Without saying too much negative about Hygrozyme, I would just say that Hygrozyme is a Cellulase based enzyme product. SLF-100 is an array of beneficial bacteria that provide a host different kinds of enzymes along with their specific attributes." ~ Newton Hayes

I'm using Nectar for the Gods and I'm seeing a buildup of bone gum on top of our medium, will SLF help eliminate the buildup?

"A 5mL to 15mL/gal weekly root drench for bone gum breakdown. As you increase the amount of bonemeal you will want to increase the amount of SLF-100. Some are reporting success with 5 ml per gallon for every Tablespoon of Herculean Harvest in the early stages. I believe that some also apply SLF all on its own in between feedings to maximize effectiveness of the nutrients. (anywhere from 2.5-10ml per gal of water) as a standalone soil drench. A couple of applications with just SLF/water at 15-30 ml should take care of the issue. If your crust gets completely out of control, one application of 30-45ml/gal with one watering will remediate that problem pretty quick. A simple maintenance dose should stay ahead of the issue though, if not it's a tool in the shed." ~ Newton Hayes

I'm using Nectar for the Gods and I'm noticing a significant pH drop after increasing SLF-100 application along with an increase of Herculean Harvest in flower. I always feed at 6.6 all the way through flower, but by mid flower, since going with SLF at 20 mL/gal, I am getting slurry pH's of 6.0-6.2. Any ideas?

pH drift is an ongoing discussion and is different for everyone. Some never experience it, while others believe increased use of SLF and Bone Meal is causing pH drop. Both sides have some seriously valid points on this issue. You can use 5ml/gal for a maintenance but if you are increasing your Calcium for more of a power feed you need to increase your application of SLF. Some gardeners report using as much as 6 to 9 Tbl of Herculean Harvest and 20 ml/gal of SLF. In theory, if it is in fact SLF changing your pH, it would be the Bacillus subtilus species going to town and producing more acids than normal. The fix may be to buffer the feed with a bit higher pH than you are used to.

The one variable that may be considered is that the SLF-100 is such an efficient digester that this could be one of the culprits. Not that it is acidic, per say, but that it is likely making the organic acids extremely available, dropping the pH. It's just a theory, especially now that I see it is being ran every feed as opposed to once a week. I wouldn't say it's a bad idea to run every feed, you'll just really need to be sure to use that Olympus Up and use a higher pH to counteract the organic acid increase. This is why some gardeners are feeding and flushing at 6.8 as part of their regular feed pH in flower while having to run SLF so heavy.

I see some people are adding SLF-100 first into their reservoirs, others are adding it after they pH. Which is correct?

“I think we may be a little too technical. Some add it first; some add it last. I personally add SLF-100 at the end but that's only because that is my normal order of things. I don't know if it is absolutely crucial, but since you ask I will say 'put it in last'. We have always seen a balanced pH when SLF-100 is in the mix. When you mix nutrients and bacteria, bacteria will begin to feed on the food. How long will it sit before it's used is another question. As bacteria have access to oxygen, correct temperatures and nutrients they will become much more active. If it sits in an anaerobic mixture for a few minutes I really believe SLF-100 will remain the same, left in an anaerobic mixture for a week might change it slightly but not enough to make a difference in bacteria populations. The pH of SLF-100 in concentrate is 6.8-7.0. These microbes have withstood some of the worst environments and can certainly handle small amounts of Phosphoric

acid (Hades Down). Limestone (such as Olympus Up) has actually improved microbial populations. The most important part for the bone gum and breakdown of calcium is that SLF-100 is in your nutrient mix.” ~ Newton Hayes

The SLF-100 inside my bottle is turning green/has brown specks! This seems like it's not okay. Please let me know if I should get a new bottle.

“We get these questions often. It is totally fine and normal. Every batch of SLF-100 is unique, but always has the same outcome. Sometimes you can smell a bit of chemical, sometimes a bit of sulfur, sometimes a bit of iron. We’ve seen green, brown and red and that is also the bacteria; it’s all good and natural bacteria doing their thing. We have had some users who have reported a sediment. That’s what we call flocking material. It is just the bacteria going through life cycles, basically dead bacteria, which is extremely beneficial to your plants. We were originally advised to color and add scents to the product so no one would see this natural process. I will not put anything in the product that doesn't need to be in there. We feel it’s better to keep SLF natural. Hope that helps” – Newton Hayes

Is there any benefit to foliar feeding SLF? Pest management?

“I have heard of gardeners using atomizers with great results. I tend to tell everyone who asks, that SLF-100 was made for the rhizosphere (soil drench) simply because SLF-100 does not contain a surfactant. So applied with just water SLF-100 will simply bead off and drop to the soil. Using an atomizer will help for leaf penetration with additional benefits when applied with a nutrient foliar recipe that has a surfactant, i.e. aloe or yucca (both good organic sources). I'm assuming the enzymes in SLF-100 irritate or damage the exoskeletons of many pests enough to send them packing. The other reason would be utilizing the subtilis for its effects against Powdery Mildew, but I've heard mixed reviews on that. Some have had luck while others do not.” ~ Newton Hayes

*note: Some users report great results using Yucca extract, such as Nectar for the Gods Hygeia Hydration, as a surfactant. Others report that a silica product, such as Simply Silica from Supreme Growers, works well as an emulsifier when foliar feeding SLF-100. The Silica will allow SLF to stick to the plant.

How much SLF-100 do you use in your cloner?

2.5 ml to 5 ml per gallon of RO or distilled water will assist in rooting and keeping the res clean.

SLF-100 – Prevent and Cure Pythium (Root Rot)

The enzymes in SLF-100 have been proven to be an effective antagonist for pythium. Hydrolytic enzymes like cellulase and glucanase have been known to combat the pythium fungus. For most, dealing with pythium can be difficult and can result in a complete loss of crops. While some have found yet another use for SLF-100 and saved the life of their plants.

Pythium, the fungus that can wreak havoc on your plants root system, affects first the root tips which are necessary for nutrient and water uptake. Species of Pythium can be found in just about every soil, field, crop, greenhouse and even soilless potting mixes. Pythium is also easily transferred from dirty tools, pots, flats, your pets feet and dirty hands. Fungus nats and shoreflies have also been found to move pythium. If your roots are brown or grey or if your seedlings are dying by damping off, you most likely have a species of pythium affecting your plants. *P. aphanidermatum* and *P. irregulare* are the enemies of the ebb and flow system because they can form a swimming spore that can move in water. *Pythium ultimum* is mostly associated with sand and soil. It really doesn't matter what species of pythium you have since they all do damage to your plants.

Cellulase and glucanase are hydrolytic enzymes that work on the cell wall of pythium therefore weakening the pathogen and eventually destroying it. Utilizing the enzymes in SLF-100 in soil or hydroponics and especially ebb and flow on a weekly basis will ensure the health of your system. If you haven't been using SLF-100 as a maintenance and preventative tool and have noticed the effects of pythium the sooner you deal with the problem the better off you will be. Bumping up the application of SLF-100 to 3 teaspoons per gallon of water or even direct application by top feeding may help severe cases. The lack of preventative measures like the enzymes in SLF-100 or neglect will result in a failed crop. You must get on top of pythium and fast.

Recycling Soils with SLF-100

We have had more questions about recycling soils with SLF-100 recently so we have put this together to answer some of those questions. The quick answer is “yes”, you can recycle your soils with SLF-100 sometimes increasing the quality of those soils from the previous year. The enzymes in SLF-100 immediately go to work on your active and slow soil organic matter giving your plants the necessary nutrients to thrive. Soils, especially organic soils, contain soil organic matter (SOM) that has yet to decompose, adding an enzyme like SLF-100 can speed up the decomposition of that SOM reducing the need to buy new soil every year. Adding SLF-100 to soils from previous years will increase the benefits of your soil and prevent immobilization.

Active soil organic matter is primarily made up of fresh plant and animal residues that break down in a very short time, from a few weeks to a few years. This SOM plays a large role in the life of the soil by supplying most of the nutrients for microbial activity. As the enzymes decompose this active SOM they release carbon, nitrogen, phosphorus, potassium and sulfur. If your soil still looks as though it contains high amounts of organic matter amending your soil may not be necessary. If you are unsure amending your soils with alfalfa meal, soybean meal, bone meal, feather meal, finished compost, mushroom compost or other types of organic matter will help with making sure the soil environment remains rich. Along with composts and alfalfa meal we prefer to amend our soil with a bokashi from a reputable source like Southern Oregon Bokashi. Adding bokashi to your soil creates a healthy microbial environment and the added benefit of the inoculated grain provides more organic material for decomposition and soil aggregates.

Enzymes are the catalysts necessary for mineralization. The enzymes in SLF-100 breakdown organic matter but most importantly they break bonds that would immobilize minerals and nutrients thus mineralizing them and making them readily accessible to your plants. Save money and recycle your soil with SLF-100. Added to your soil at 3 teaspoons to a gallon of water to recondition your soil could cost you less than .60 cents a gallon. Three teaspoons to a gallon is only required once at the end or beginning of your season. After that 1 teaspoon per gallon once a week for maintenance is all that is needed (less than .20 cents per gallon). That is half the recommended rate for Hygrozyme.

I'm ready to make the purchase, but I'm not sure what store near me sells it.

You can use the Store Locator at South Cascade's website:

<http://www.socascade.com/site/stores/>

If there are no local brick and mortar stores near you that sell SLF-100, your next best bet is to purchase it online. PLEASE SUPPORT LOCAL FIRST. If by chance that doesn't work you can find SLF-100 on the web at:

www.monstergardens.com

<http://www.seattleshydrospot.com/>

<https://www.oregonconstantgardener.com/store/>

Testimonials

"I have been an indoor gardener for several years and when I first started I came across several flushing agents. The first one I tried was Flora Kleen and it was weak, really didn't notice any benefit. The second one was by Botanicare and saw great results. One day I was at my supply shop and the owner led me on to SLF-100. I was a little hesitant to try it due to the fact that I was satisfied with what I had already, but he insisted that I try SLF-100. So my next watering I tried SLF-100. I was more than satisfied; this product is by far the best out on the market. My garden said thanks to me. Not only do I now use SLF-100 for my whole feeding regiment, I decided to contact them for a few questions and the customer service I received was outstanding, they definitely did their job. This is a big thanks to South Cascade Organics, you have helped me improve my garden. Too bad my garden can't speak because it is saying thanks as well." ~ Levi

"BTW, the lady you spoke to from the coast with the powdery mildew problem tried some SLF-100 on a sickly plant and she reports that it did wonders!" ~ H

"Thank you so much SLF-100. I put your product on my plants and it made a huge and noticeable difference. It revived my garden almost immediately and I will definitely be using SLF-100 again." ~ Makai

"SLF-100 is phenomenal!! I have been using it for several months now and have noticed a major difference with both my established plants and transplants. Greener, stronger and more vigorous growth along with extensive root development are the primary traits of note. Thank you for developing such an effective organic product." ~ Fletcher

"I am now four weeks into flower and I can make a few pretty clear distinctions. First off, I had come upon a rather unfortunate bout of spider mites. Along with a 1% mix of neem oil and safer once every 5 days I also applied SLF-100 to the roots and used it as a foliar spray. It has virtually taken the place of other more expensive products. The SLF-100 seems to bother the mites to the point that they are now all but gone. Six weeks have gone by now without any sign of those little pests. Secondly it cleans the heck out of all misting equipment. Thirdly, I can say that using it every 4-5 days actually saved 4 of my plants from root rot." ~ Stephen

"SLF-100 has become a regular part of my regiment. It has especially found its home in my leaching and flushing process. I have noticed a marked improvement in my finished product. One of the first times I used SLF-100 for leaching salts, I applied a heavy dose and waited 30 minutes and then rinsed with fresh water until significant run-off was achieved. The next day I noticed a residue of white to tan salts had formed on the outside of my cloth pots. SLF-100 had helped break down and remove salts to such a degree that the naked eye could even see it. Those are real results you don't need a microscope to understand" ~ J

"I have been using SLF-100 for several months and have definitely seen an impressive improvement in vigor and overall health of my plants. Though, for me, the final proof I needed was after an accidental over feeding I used full strength SLF-100 and let it sit for two hours and then thoroughly flushed my plants again. Within six to seven hours the wilting had stopped progressing and the health of my plants began to restore my garden." ~ V

"I was recently introduced to SLF-100 about a month ago when I received a sample bottle from a helpful representative from South Cascade Organics. I took it home and decided to use it combined with my nutrient regimen. After a few days of use, I noticed the plant seemed more attentive to anything I threw at it, literally it was power feeding, meaning bigger and stronger all the way down to the stock! I'm one week away from flushing and I'm going to use SLF-100. I'm so happy with the results so far, awesome product guys!" ~ Chinaman

"I started carrying SLF-100 about 7 months ago and the feedback has been fantastic. I started using SLF-100 and FulPower along with Clonex solution and the root base I got within eight days were larger than the two inch hole in the Oxy-Cloner, bright white and very healthy. I have also used it in conjunction with Coco Cat on stressed plants and had great results and full recovery of the stressed out veggie's. My customers have had less health issues and also increases in yields from 10-15%. It pays for itself with results" ~ K

"I have been using SLF-100 for approximately 3 months. I saw outstanding results after just the first application. Examining the roots before and after I noticed the SLF-100 roots were solid thick white and even hard to break apart when transplanting. An amazing product and a must buy." ~ Nathan

"I have done side-by-side controlled comparisons. I have seen and have personally proven the results of SLF-100. My plants with SLF-100 had an average of 30% more growth than the plants without SLF-100. Leaf structure was more firm and thicker" ~ Hardan