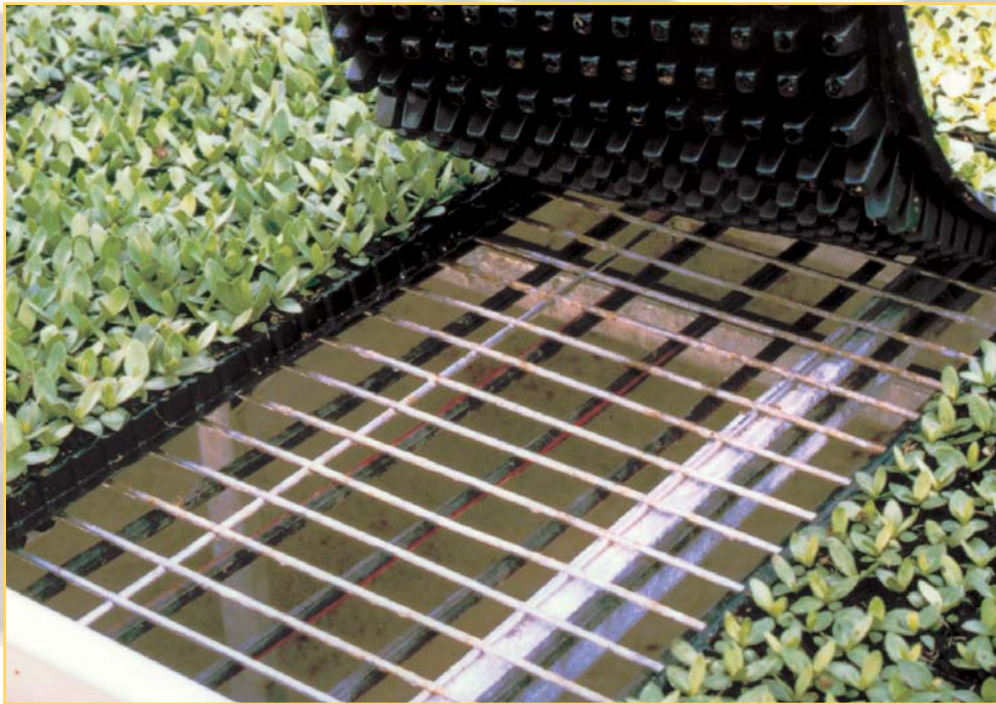




The Original TrueLeaf Benchwarmer Kits™



The Original *BioTherm® Bench Top Heating Kits, now featuring three choices of tubing, including:*

TWO NEW Roll-N-Grow options
for easier bench and floor heating.

TrueLeaf Benchwarmer™ Kits

Features:

- Efficient— Puts the heat where it is needed, at the crop level. Allows lower air temperatures and 20-40% less fuel use.
- Effective— Heating the root zone and microclimate increases plant quality and shortens the production cycle.
- Simple— Pre-packaged Benchwarmer Kit installs quickly and easily— no special tools needed. One to Five benches up to 1,000 SF— install on top of benches, under benches or on the greenhouse floor.
- Safe— Reliable heat without the shocking experience of electric mats.
- Supported— 24/7 technical support @ 800.438.4328

Benchwarmer Kit includes:

- TrueLeaf BioTherm MicroClimate™ Tubing
- TrueLeaf BioTherm MicroClimate™ Headers
- TrueLeaf BioTherm MicroClimate™ Grabber-Trak
- Air and Water Controls
- Circulator Pump
- Pre-Wired Control with special Soil Sensor
- Thermometers to check supply and return water temperatures
- Installation Manual with extensive drawings
- 24/7 Technical Support
- 10 year limited warranty on bench top materials

Options and Upgrades:

Ask us for pricing when you order

- Roll 'N Grow™ Mat for tables or ground
- Piping Kits— Piping from the bench to the heat source
- Temperature Zoning - zone valve & zone valve controller
- Heat Source— Hot Water Heater(s)
- Ball valve for manual shut-off to benches
- Digital Temperature Display Upgrade
- Water Treatment/Water Test Kit

Photos top to bottom:

1. TrueLeaf BioTherm MicroClimate™ Tubing.
2. TrueLeaf BioTherm MicroClimate™ Header.
3. TrueLeaf BioTherm MicroClimate™ GrabberTrak.
4. Manual Shutoff Valves.
5. Optional Roll-N-Grow Mat for bench applications.
6. Optional Roll-N-Grow showing new mesh netting for floor installations.
7. Water Treatment and Test Kit.



1.



2.



3.



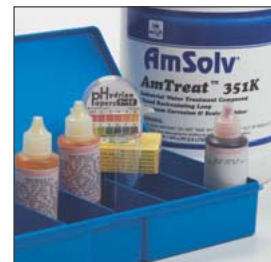
4.



5.



6.



7.

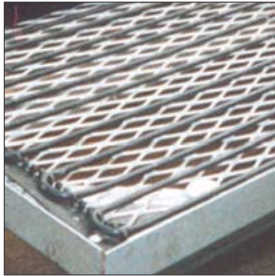
Heat up to 1,000 sq. ft. of growing area using a conventional "Back Porch" type of water heater.

The TrueLeaf Benchwarmer Kit provides effective and economical bottom heat for germination, propagation, and growing. Place heat right where the plants need it!

Pre-wired controls make it possible for you to set the soil temperature your plants require using a sensor in a sample pot. The system will regulate the temperature with a pre-wired temperature control.

Energy efficient, effective, bottom heat uses conventional hot water heaters. Install on or under the bench top or on the floor.

The Original BioTherm tubing Benchwarmer Kit.



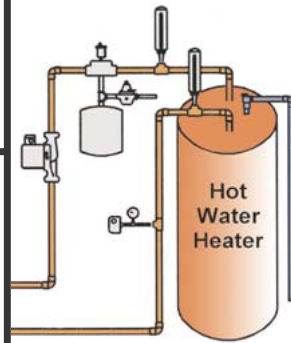
Optional Roll-N-Grow Mat for bench applications.



Optional Roll-N-Grow Mesh for floor applications.



Note: Floor mesh has tubes on 3 inch centers.

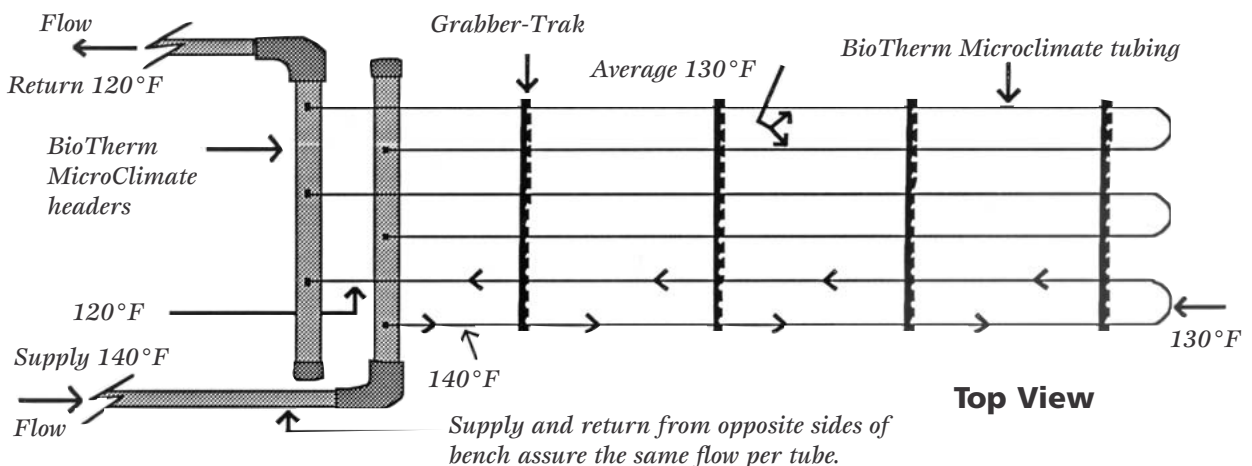
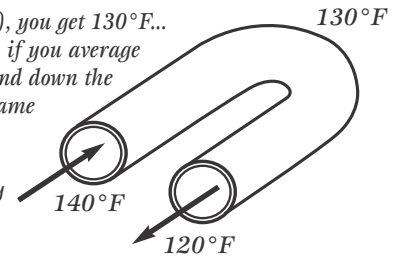


The concept of root zone heating in the greenhouse was perfected during the 1980's energy crisis by TrueLeaf, it remains current for today's economy— heat just where you need it, at crop level. This reduces your fuel use, increases your plant quality and speeds production.

The illustration below demonstrates how we ensure that our systems deliver heat to every square foot in exactly the same amount. Water enters at 140°F and starts into the tube circuits and begins giving off it's energy. By the time it gets to the half way point, the water has dropped to 130°F and it turns around the loop end. Now the water continues back to the return header and leaves the tube circuits at 120°F.

If you average 140°F (supply) and 120°F (return), you get 130°F... which is exactly what the loop temperature is. Also, if you average the supply and return temperatures anywhere up and down the loop— that's right, 130°F! That translates to the same BTUH transfer everywhere on your bed or bench... which translates into a better crop! If what you are growing is within the proximity of two tubes, totally even heat is the result!

How we do it:



The TrueLeaf Benchwarmer advantage:

1. The tubing Look for the TrueLeaf brand! The imprint on our BioTherm tubing is your assurance that you have purchased the genuine original BioTherm MicroClimate tubing. We print a date code on each foot of our tubing to verify the year we manufactured it. Remember, we back every foot with a 10 year warranty*, however, you can expect a life span of 50 years or more. This is because the compound we have developed is based on a synthetic rubber developed by NASA called EPDM. This formula withstands high temperatures (up to 250°F), foot and small cart traffic, the hot sun and general greenhouse abuse.



Convenient Roll Size

Our MicroClimate tubing is shipped on convenient, easy to carry reels of 1,000 linear feet. When your installation is complete, recycle the reel core cardboard.



2. The Grabber-Trak comes on a continuous 200 foot roll. The unique design has several features that allow flexibility in installation.

The groove in the base is for nails or screws to make centering and installation a breeze. There are serrations on the underside to accommodate adhesives for installations on steel bench systems.

The Grabber slots are spaced at

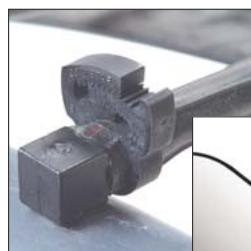
one half inch intervals for flexibility in tube placement:

Floor applications (3" intervals), Plug growing (1 1/2") and Solar collectors (1/2"). Grabber-Trak is also warranted for 10 years.

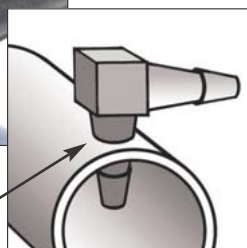
3. The Header

All components (clamps, unions, "L" and "T" fittings) are designed with a special "wedge-lok" system to assure long life and no leaks!

*Ask for complete warranty details



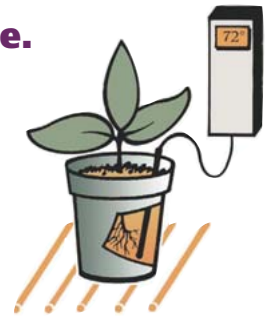
The friction fit will not leak.



Schedule 80 PVC pipe fittings connect the Benchwarmer BioTherm header to your supply and return pipes.

Technology made simple.

Our bench heat kits give you bottom heat for propagation and germination benches, the places you need the heat most. *Witness robust growth and incredible rooting with our high-tech yet simple system.*



A sensor in the soil of a sample pot or tray tells the system when to come on and go off. You set the temperature where it needs to be. Stand back and watch the growth!

Anybody can install it.

We packaged our Benchwarmer kits so they install quickly and easily. We supply all the drawings, we've prewired all of the electrical parts, and if you do get stuck all you have to do is call us at

800-438-4328!

If you can glue together PVC pipe, you can install your own hot water bench heat system.

Inexpensive to buy, hard to beat performance.

We've got thousands of satisfied customers who have installed our bench heating systems and report back unprecedented growth... fantastic rooting... and unparalleled seed germination. For the money, you can't beat the investment in Benchwarmer.

Say goodbye to electric mats and cables!

For years, growers have struggled with electric mats and cables. They break down, they wear out, and they don't heat evenly. And worse than that, they're shock hazards. If you need heat for more than 100 sq. ft., throw away the electrical system and go Benchwarmer!

You'll never regret it, and you won't need to replace the system every few years. Benchwarmer bench top components are warranted for 10 years!

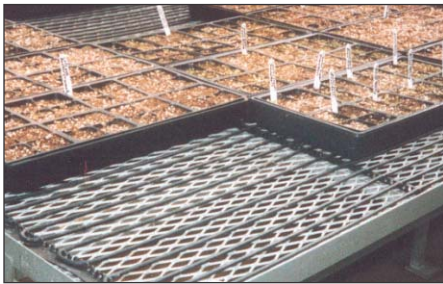
Same components as our big systems.

Benchwarmer systems were designed because we had so many growers calling us for small systems for spot bottom heat. Because of these requests we took the same heavy duty components from our big systems and adapted them to our Benchwarmer packages. You'll be impressed with the industrial quality!

Everything you need is included.

We include all of the parts you need, even the piping (if you go with that option). We know that your time is valuable and that you can't spend your day at the plumbing or hardware store when you should be tending your crop. That's why our Benchwarmer kit is shipped complete.

The only surprise you'll get while installing is how easy it is!



A typical bench top application.

Available Options:

(Ask about costs when you order)

Roll-N-Grow Mat for Benches

We've developed a special automated machine that mates our original BioTherm Microclimate tubing with "holding rails" spaced every 2' on center, which is ideal for most general bench heating applications. Other spacings are available for crops that might require more intense heat delivery.

Roll-N-Grow Mesh for floors

BioTherm MicroClimate tubes are woven directly into a "weed mat" fabric and shipped on a roll just like standard ground cover fabric. The BioTherm tubing is woven in on 3" centers, which provides optimum even heating for gently warming crops like bedding, perennials in flats, or potted crops produced on the floor. This is the most cost effective and simple way to get warm floors in your operation.



of water treatment your system may require.

Benchwarmer works great on floors.

Roll-N-Grow prototype showing ease of rolling mat for application or storage.

Piping for Kits

Choose this option and your Benchwarmer kit will arrive with all the piping parts included. It means that you won't need to run back and forth to the hardware supply house and piping store to put your systems together.

Extra Zones

With our multiple bench kits, we offer the upgrade of multiple zone control. This option will allow you to operate each bench at a different temperature automatically.

Heater

For those who want everything included in their kit! Although a locally purchased domestic water heater is usually adequate, we will ship our high quality heater with your Benchwarmer kit. Call **800-438-4328** for advice on heaters if you decide to purchase one locally.

Manual Shut-Off

Some growers don't really need multiple zones—just the flexibility of being able to shut off each bench manually is all that is required. With this option, we will include a high quality shut-off valve per bench.

Digital Display

Upgrade your thermostat to a fully functional electronic setpoint control. This unit simply snaps on the front of the base unit. It will display the actual temperature of the soil, the setpoint you are trying to maintain, and has a highest and lowest memory function. You will need to purchase a digital display per zone.

Water Treatment and Test Kit

Protect your new Benchwarmer system and keep it trouble-free from corrosion build up. Our special water treatment treats the water that courses through the system to balance the pH, inhibit corrosion and scavenge the free oxygen in the water. We recommend our water test kit to ensure a proper nitrite level in your system. The test kit also determines the amount

www.trueleaf.net

The TrueLeaf Benchwarmer heating system allows me to produce a variety of plants

in one greenhouse, it gives me the ability to regulate the heat and it saves fuel.

— Jeanne Dickinson,
Co-owner and grower of M.R. Dickinson & Son

In Bridgeton, New Jersey the outdoor growing season falls between May 15th and October 15th. So to keep going and growing, Randy and Jeanne were trying to produce indoors with small electric mats and trays with dome lids. This option became expensive and time consuming and could not accommodate their growing needs. So Randy and Jeanne took action. They purchased a new greenhouse, installed a TrueLeaf Benchwarmer heating system and received the results they were looking for.

Jeanne says she "isn't the typical grower".

What did TrueLEaf have to accomplish? Jeanne grows herbs for her farm stand and farmer markets. In one greenhouse, she must germinate seeds and propagate in the spring and fall months and also maintain plants in the midst of winter.



Typical 3 bench installation with optional ball valve for manual bench shut-off and temperature zoning with zone valve.

Benchwarmer heating system

Randy and Jeanne Dickinson asked themselves this question: When you have a farm to run, a short outdoor growing season and trying to expand your indoor greenhouse business, what do you do?



Jeanne said that soil temperature is critical, she is very busy and needed a reliable system to save her time, money and produce results.

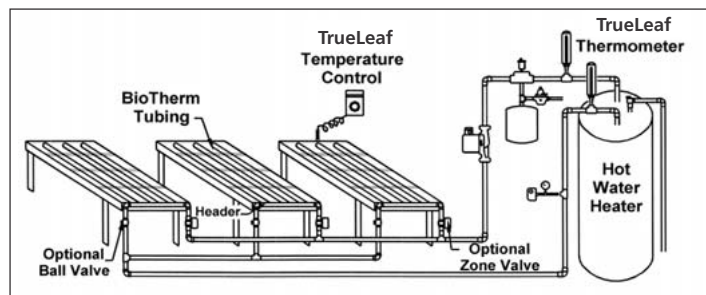
What did Jeanne determine about her Benchwarmer heating system?

Out with the old and in with the new! Jeanne's not going back. She can produce a variety of plants in one greenhouse efficiently and easily. Use one system for various applications, and can set flats or pots right on the BioTherm tubing.

It's easy and produces very uniform growth. She can set a different temperature per bench, using system controls that are very accurate and therefore provide the optimum temperatures desired. Jeanne sets the control and walks away. It's an incredible timesaver!

And the fuel savings?

With various growing needs and temperatures needed, Jeanne's Benchwarmer system provides heat where the plants need it, at the roots. So there's no need for alternate heating methods which generated high fuel costs in the past. Randy and Jeanne are producing efficiently and effectively. TrueLeaf is proud to be a working part of their environment.



P.O. BOX 750967 PETALUMA,
CA 94975 • 1-800-438-4328
707-794-9660 FAX: 707-794-9663
E-MAIL: INFO@TRUELEAF.NET
WWW.TRUELEAF.NET