

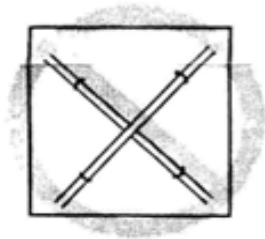
WARNING: Additional protection is provided by the use of a ground fault circuit interrupter (GFCI). The National Electrical Code requires the use of GFCIs* devices for all outdoor and certain indoor power receptacles, especially where associated with water. We strongly urge you to take advantage of this extra protection for all Gro-Quick soil warming cable installations. These cables should not be used in direct contact with plastic containers.



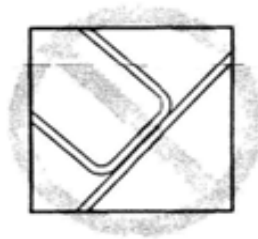
PREPARATION AND PLANNING

Please read through all directions before installation begins. A few minutes spent now for proper preparation and planning will assure a correct and trouble free installation.

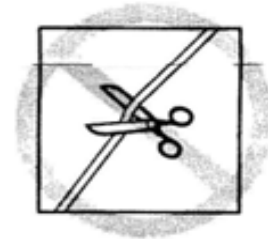
1. Using the area of your planting bed, select the-proper cable length from the chart.
2. For areas not listed in the above chart, consider using more than one cable. For example, if the planting area is 4½ square feet, use one (1) 6 ft. cable, and one (1) 12 ft. cable. A surplus of heating ability, such as using a 24 ft. cable, is not necessarily desirable. Excessive heating capacity could result in overheating and excessive cycling of the thermostat.
3. DO NOT attempt to use a single cable in more than one flat/tray/bed. The warming cable must not be exposed by trying to use a cable in more than one flat/tray/bed. To do so could result in overheating, failure and possibly hazardous conditions.
4. DO NOT ATTEMPT TO LENGTHEN, SPLICE OR SHORTEN THE CABLE. ANY ALTERATION COULD RESULT IN OVERHEATING AND FAILURE OF THE CABLE.



DO NOT CROSS CABLE



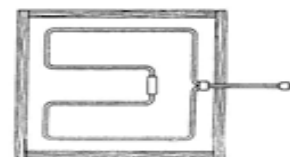
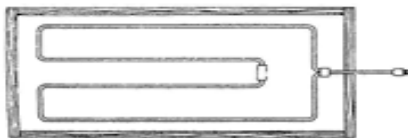
DO NOT ALLOW CABLE TO TOUCH SIDE BY SIDE



DO NOT CUT CABLE

5. GRO-QUICK SOIL WARMING CABLE MUST NEVER BE ALLOWED TO TOUCH, CROSS ITSELF OR OVERLAP. IF ALLOWED TO DO SO, CABLE WILL OVERHEAT AND MAY FAIL.

6. Gro-Quick soil warming cables are in the form of a continuous loop, starting and ending at the electrical power cordset connection. The desired pattern of placement is to have runs and open loops so that the cable is always approximately three inches from itself. Refer to typical patterns below.



7. Note that more cable is used around the perimeter and less in the center of any pattern. This will create a more uniform temperature throughout the planting area. An exactly uniform cable pattern will produce a warmer center and cooler perimeter all around. The depth of burial and moisture content of soil will also affect temperature uniformly.

INSTALLATION INSTRUCTIONS

8. Decide where electrical power cordset connection is to be for convenient power supply, especially if more than one cable is being used.

9. Gro-Quick soil warming cables are equipped with a thermostat located near the midpoint of the cable. The thermostat cannot be adjusted. Also refer to step 25 below.)

10. In general, the best location for thermostat will be half way between center of area and outer edge of area.

11. Do not apply power to Gro-Quick soil warming cable while coiled. A cold unit will be stiff— once the unit has been completely straightened, it may be energized to facilitate installation in cooler weather.

12. Best results will be achieved by attaching the cable to hardware cloth; this will hold the cable at a uniform depth, maintain spacing and permit easy adjustment when required. Obtain a piece of this material (metal or plastic mesh) having openings about $\frac{1}{2}$ inch square. Piece together as required to fit planting area.

13. For a seed flat installation, use lumber or rigid insulation board for bottom. Be sure that flats, sashbeds, window boxes, etc. have adequate drainage openings in bottom. Soil warming cables must not lay in standing water.

14. Examine the flat, sashbed, window box for and remove any nails, screws or sharp metal objects which might cut or damage cables.

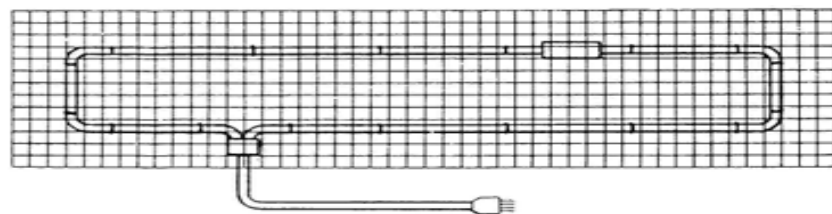
15. Add $\frac{1}{2}$ to $\frac{3}{4}$ inch of level soil or non-flammable bedding material. Soil warming cable must not be placed in direct contact with wood or other flammable surfaces or materials.

16. Loosely attach cable to hardware cloth (screening with 2, 4 or 8 squares to the inch) using string, twine or wire ties at each end and center of loops plus every six to nine inches of straight run.

17. Place hardware cloth into flat, with the warming cable facing down. This will help protect warming cable from being moved or damaged by tools used to place, cultivate or remove plants or seedlings. Remember thermostat position or mark with stick.

18. Add about three more inches of soil and level.

19. Connect to electrical power supply as required by local building code. If an extension cord must be used, use only a properly sized Listed or Certified cord suitable for outdoor use.



20. The point of connection to power must be protected from entry of water or foreign matter by appropriate means.

21. Disconnect power to soil warming cable while seeding, cultivating, watering and harvesting the planting bed to avoid the possibility of electrical shock.

22. Add water as might be required to achieve growing conditions. Apply power to Gro-Quick soil warming cable(s). Insert a soil thermometer to the approximate depth of the cable and monitor the temperatures at several locations.

23. When temperature has reached its maximum, check for uniformity by moving thermometer from place to place within planting area. Always insert thermometer to same depth.

24. If temperature uniformity is unsatisfactory, the soil over hardware cloth must be removed and the cable pattern adjusted to put more cable where cooler and less where warmer. Replace soil that was just removed. Repeat steps 21-23 until satisfactory.

25. If the temperature of planting area is uniform, but too high or too low, the temperature may be regulated by repositioning the cable to be closer to or farther away from the thermostat respectively.

26. To make these adjustments first unplug the soil warming cable and remove the soil immediately above the thermostat. Snip string or PVC tape attaching soil warming cable to hardware cloth in vicinity of thermostat, creating slack in cable. Looking down at the thermostat, lift hardware cloth slightly and reposition the cable in relation to the thermostat. If there temperature was too high, position heating cable(s) closer to thermostat, but not touching it. If the temperature was too low position heating cable(s) farther away from thermostat. Replace soil that was just removed. Repeat steps 22-25 until desired temperature is achieved. Never allow cables to touch themselves or thermostat.

27. For a window box or outdoor sashbed the installation of rigid insulation board under and around planting bed is desirable in order to reduce heat lost to the surroundings. Remember to provide adequate drainage. Extra sash and/or burlap covering will help for overnight cold snaps.

28. For starting seeds in small pots or cups, about an inch of level soil above cable is suggested, followed by placement of desired containers plus more level soil so that one-half inch or less of container height is seen. Be aware that plastic containers transmit heat very slowly from heated soil outside to potting mixture inside and accurate temperatures will be difficult if not impossible to achieve. Merely placing containers atop heated planting bed would work no better than placing the same container upon a nearby shelf.

29. Since Gro-Quick soil warming cable performs all day and all night unless switched off, moisture level in soil must be maintained by more frequent watering or sprinkling. Moisture is required to promote the flow of heat from Gro-Quick soil warming cable throughout planting bed. When sprouts and leaves appear water may be lost even more rapidly. It is recommended that the planting bed be kept moist at all times. Use caution – overwatering can cause damping-off of sprouts or drowning of seeds.

30. The use of plastic tools or implements for seeding, cultivating and harvesting the planting bed is encouraged. In any case, use care not to contact or disturb buried cable or thermostat.

31. When planting bed is not in active use, disconnect power to soil warming cable in order to conserve energy.

32. Those desert plants that need higher temperatures do not need so much moisture and may suffer from an excess, but usually grow better in sandy mixtures. If desired, place only one inch of level soil over hardware cloth plus two to three inches of sandy mixture. Water at spots which will keep soil below sand properly moist. Any water will generally pass straight down through sand, similar to the action of a dry well. Perform any temperature tests before sandy mixture is placed to save labor and intermixing, confirm after sandy mixture is in place. Refer to steps 24-26 for correction advice.

OPERATION

33. If temperature of planting bed decreases while in use, verify that electrical power is available to Gro-Quick soil warming cable and that sufficient moisture is present at cable level of planting bed. Beyond these possibilities, the thermostat may be malfunctioning (remaining open, not permitting electric current flow for operation.) Disconnect power and remove soil which is above thermostat, note moisture content locally. Place an ice cube over center of thermostat, apply power. If this action does not cause a temperature increase within an hour, the Gro-Quick soil warming cable has probably ceased to function. Discontinue use and disconnect power to avoid electric shock.

MAINTENANCE AND INSPECTION

34. It is assumed that harvesting the product of the planting bed will remove a large percentage of the soil mixture placed over the Gro-Quick soil warming cable. Disconnect power and remove remainder of top covering with board or trowel. Gently lift hardware cloth with soil warming cable attached and tap to remove clumps that may have formed. Remove entire hardware cloth assembly and hose down, but keep plug dry. Check cable for obvious damage to any portion of insulation especially where any discoloration of cable or local distortion of hardware cloth may be found. Check for water within thermostat pod, usually an indication that insulation has been damaged. Check power cordset for any sign of damage also. Replace damaged units.

35. Consider altering the cable pattern by wider spacing if thermostat had to be closer to active cable as in step 26.

36. When off-season sprouting or forced blooms are attempted, extra wattage per square foot may be required. Recalculation is suggested according to experience.

37. Gro-Quick soil warming cables can feel cool to the touch even when operating correctly. Monitor planting bed temperature with an accurate thermometer; do not depend upon sense of feel for localized conditions can fool the senses. Cables will cycle on and off in normal use, sometimes more than once in a minute.

38. Gro-Quick soil warming cables have electrical insulation that will resist attack by acids or alkalis in water solutions suitable for plants. Avoid cable contact with any solution containing petroleum (oil).