

Improving Heating In The Greenhouse

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The use of aluminum foil as an insulating material is not a new idea, but a novel adaptation of this idea in the greenhouse is worth investigating. This is particularly true in the face of increasing costs of fuel whether it be coal, gas or oil.

Holley and Goldsberry¹ in Colorado have shown that the use of aluminum foil as a reflectant of light has improved plant growth during dark winter periods. They have placed the material on the north side of the house so that whatever light is available will be reflected back into the normally dark sides of the bench. The aluminum foil was extended from the eave to the top of the foundation wall. They also mention that some heat saving should be accomplished with the use of aluminum foil.

Several greenhouse operators in the Long Island area of New York have discovered that a considerable saving in heat can be obtained with the use of aluminum foil behind the heating pipes located along the side walls of the greenhouse.

One Long Island grower found that with the use of the foil, only five lines of heat were needed to keep a carnation house at 50°F with 0°F temperatures outdoors. Before installing the foil, six lines of heat were necessary. It was also noted that snow that had drifted against the outside of the insulated foundation wall did not melt as rapidly as that against a similar non-insulated wall. This would

indicate that a substantial amount of heat is lost through non-insulated foundation walls.

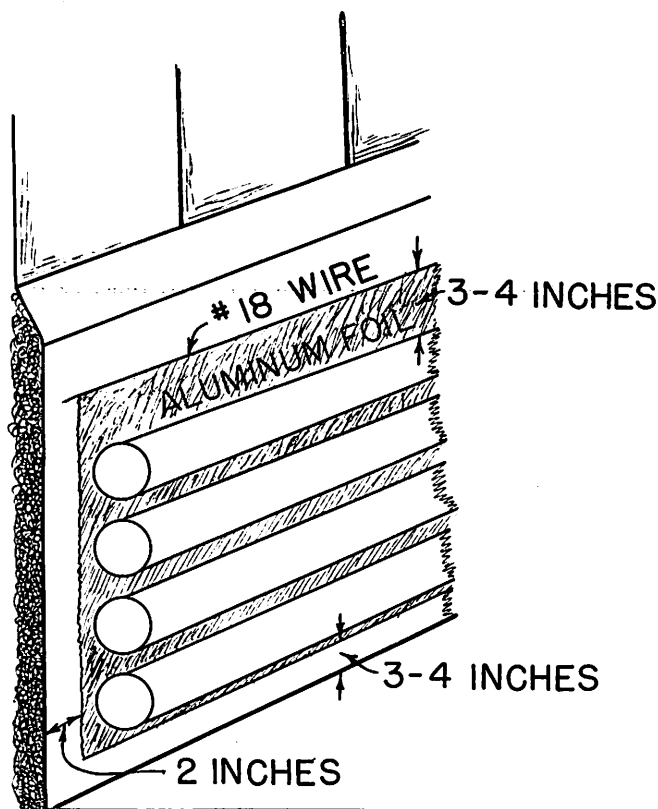
The installation of the aluminum foil is quite simple. However, a few rules must be followed or it is possible to run into serious trouble. The illustration shows the method of installation that may be followed. A piece of regular greenhouse wire (No. 18) may be run behind the pipes for supporting the aluminum foil. Aluminum foil of a width sufficient to extend three to four inches above and below the heat pipes is stapled to the wire. If additional weight should be needed to stretch the foil tight a lath runner can be stapled to the bottom of the foil.

It is important that there be an air space separating the foil from the greenhouse wall. It is also important that the foil does not extend completely to the floor of the greenhouse. There should be a three to four inch space between the bottom of the foil and the floor. Both of these air spaces are needed so that some air movement will take place between the foundation wall and the foil. Too thorough an insulating job may cause freezing of the wall followed by subsequent cracking. Should the wall freeze, glass breakage may result.

The type of aluminum foil used will be dependent upon what is available in your local area. The household aluminum foil used for wrapping sandwiches is too thin and too narrow for practical use. One of the building-trade types of material that has some body to it would appear to be excellent for the job. The manufacturers of sisal-kraft paper have such a material. (Note: Although trade names are mentioned there is no specific recommendation implied over other materials that will do as good a job.)

If this method of increasing the efficiency of heating has proven worthwhile on Long Island, where the winters are relatively mild, an appreciable saving in fuel consumption should be realized in areas of severe winter cold, such as upstate New York.

¹ Holley, W. D. and K. L. Goldsberry. 1958. Reflected solar energy for winter use in the greenhouse. Colo. Flowers Growers Assoc. Bul. 100, May.



**The use of Aluminum Foil
as a heat saver
will be demonstrated
at the
Short Course
January 13, 14 and 15**