

Build a backyard solar dryer

WINTER HAVEN, Florida — If you love the tangy, sweet taste of dried apricots and peaches, or enjoy the spicy flavor of dried peppers and onions, a backyard solar food dryer may be just the thing for you.

For less than \$20, you can build this energy-efficient device. All you need for the project are simple handtools — hammer, drill, pliers, clamps, and handsaw; inexpensive materials—string, aluminum foil, glue, and wood for a frame; and a little bit of do-it-yourself ingenuity.

Free, detailed instructions are available from the U.S. Citrus and Subtropical Products Laboratory in Winter Haven, Fla., where SEA researchers designed, built and tested the dryer as part of a cooperative effort with the Department of Energy.

The unique feature of the dryer is a low-cost, curved focusing surface that concentrates radiation from the sun just enough to dry foods but not enough to cause them to overheat or burn. The focusing surface is made from ordinary household aluminum foil drawn over strings held taut by a framework of laminated wood curves or parabolas. These parabolas are glued into a framework designed to support the dryer at an angle that best catches the sun's rays. The dryer focuses 16 sq. ft. of insolation—incoming solar radiation—onto 5.3 sq. ft. of drying surface.

The dryer is covered with polyethylene (clear plastic) with slit openings arranged at the top and bottom to allow controlled air to flow upward from the base, through a perforated aluminum shelf on which the food is dried, and then out the top. This plastic covering protects the food from dust, birds, insects, rain, and

prevents the re-entry of moisture. Chemical engineer Charles J. Wagner and research chemist Richard L. Coleman (project leader) have simplified what might have been a difficult phase of the construction by forming the parabolic curves with thin wooden strips placed according to pattern, then glued and secured with clamps.

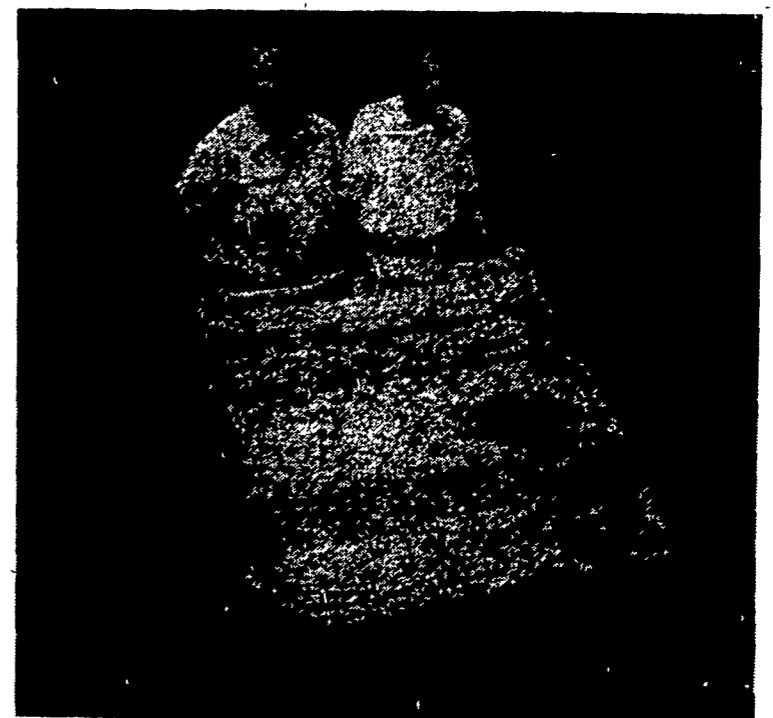
"The parabolic aluminum reflector increases the drying rate of foods," says chemist Robert E. Berry, laboratory director. "Some products that previously took 3 to 5 days for solar drying can be dried in 1 to 1½ days. With this model, we have beaten the high cost of previous designs which used parabolic solar-concentrating mirrors."

"Parabolic reflectors have been used as solar energy focusing devices throughout history," says Coleman. "Now, as the cost of fossil fuels continues to climb, the application of solar energy is not only popular, but necessary."

The researchers have evaluated sundrying of tropical and subtropical fruits and vegetables for several years. Wagner has found that peaches, mangos, green peppers, onions, mushrooms, plantains, and grapes can be successfully preserved by home drying. Some food products need pretreatment, such as blanching and/or slicing.

Coleman and Wagner have also studied the effect of focused insolation on moisture content of muscadine grape varieties, which make excellent raisins. The researchers expect to find some differences in drying times between fresh, deseeded, and pretreated grapes.

Information on pretreatment for sundrying foods is available from the researchers, along with detailed, illustrated directions on the construction of the solar dryer. Write to the U.S. Citrus and Subtropical Products Laboratory, P.O. Box 1909, Winter Haven, FL 33880.



An inexpensive, easy-to-build solar fruit and vegetable dryer, demonstrated by Charles J. Wagner (left), SEA chemical engineer, and Richard L. Coleman, SEA research chemist, uses curved aluminum foil mirror to reflect enough solar energy to dry produce 2 to 3 times faster than conventional sun-drying.

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Franklin Co. Conservation Board meets

CHAMBERSBURG — Objectives for 1982 were set at the June 4 meeting of the Franklin County Conservation District Board of Directors.

One of the major changes was the district's responsibilities under Level 5 of the Bureau of Soil and Water Conservation's erosion and sedimentation control program.

Three county landowners were approved for conservation planning assistance. They are: Larry Rosenberry, Lurgan Township;

Mervin Frey, Montgomery Township; and B-J Nursery, Hamilton Township.


Tour plans have been finalized. The tour will be held on July 7 to visit the cannery operation and cropland terraces at P. Paul Bert's farm, dairy operation at Ken Schoenberg's farm, and a visit to the gypsy moth problem areas. The public is invited to attend. Anyone wishing more information should contact the district office at (717) 264-8074.

Applicants are still being taken for the Solar Water Heater workshop to be held July 10 and 11 at the Chambersburg Recreation Center. More information on this workshop can be obtained by contacting Beverly Kauffman at 264-8074.

Executive Assistant Beverly Kauffman will be attending workshops on the erosion and sedimentation control program, Level 5, at State College on June 17 and 18.


John Akers, district conservationist for the Chambersburg Field Office of the USDA Soil Conservation Service, gave a report on his office's activities for the month.

During the semicentennial celebration of the Franklin Institute in Philadelphia, the ice cream soda was introduced by Robert M. Green.



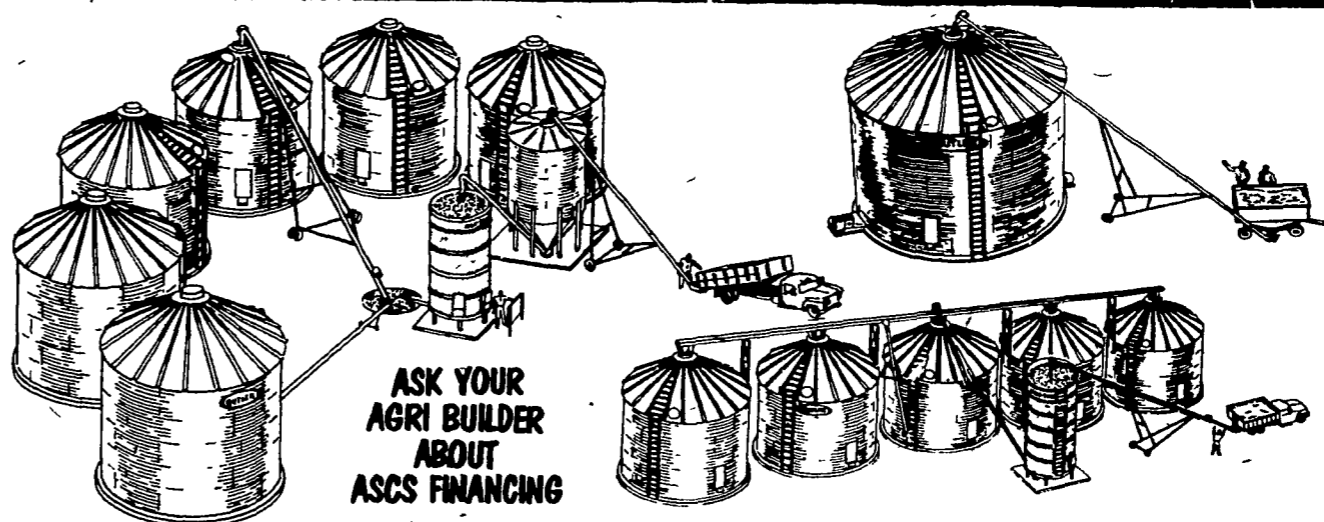
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