

HOMESTEAD NOTES

He grows his plants indoors

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With forecast of higher petroleum prices, the nation's businessmen, agricultural and industrial alike, have looked for more ways to save fuel. Operating with more and more fuel efficiency has been a major concern for greenhouse owners for a long time. Donald Pratt of the Avondale area of Chester County talked about operating greenhouses in the light of rising fuel costs.

Pratt's Greenhouses have been open to the public for many years for both walk-in

which run east and west down the length of the house were cut out in sections to form north-to south aisles instead. Pratt explained that hanging plants over the newly directed aisles will not shade the pots placed on the benches between the aisles. Now, Easter Lilies and other holiday plants are positioned in this large glass house to get as much sunshine as possible.

The largest single house, measuring 40 by 170 feet, was also built with glass. However, cypress wood was used instead of redwood. In addition to being a more durable lumber, the cypress also is thinner lumber throughout, blocking less sun than



Potted and hanging plants share the sun. Note that the cement carnation benches have been cut to make north-south aisle.

retail sales and for the Chester County Pennsylvania Farmers Association tours. Over the years since the family owned the operation, dating back to 1931, many technical innovations have been put into practice with changes coming quickly after the energy crisis a few years ago, according to Pratt.

On the thirteen acre site Pratt owns in New Garden Township, southeast of Toughkenamon, eight greenhouses, constructed from many kinds of building materials, cover 26,500 square feet.

Pratt took the time to give a guided tour of the greenhouses as they now exist and to explain the changes in greenhouse construction and renovation over the last half century.

Although Pratt's now handles a primarily wholesale foliage and flowering potted plants and vegetable and flower garden plant pack business, for many years his operation was a carnation growing enterprise. The first greenhouse was constructed on the site in the early 1920's, Pratt surmised. His father bought the business in 1931. This first house was built with redwood lumber and glass and measures 50 by 100 feet. It was equipped with cement planting benches which look like four-foot wide cement troughs which run the length of the house.

Besides the obvious drawback of having to replace the glass which gets broken from time to time, much in this house has to be painted. The old pipes used to transfer heat, as well as the wooden rafters and sashes between all the glass require many hours of painting.

After Pratt's switched to plants for potting and planting rather than carnations for cutting, the cement benches

the older greenhouse. Although the grade for the roof of a glass house is the same, 26 degrees, Pratt pointed out the advantage of having smaller bars of wood across the top of the cypress house and the increased light available. The cypress and glass house is used all year round for the high-light crops such as geraniums, marigolds and impatiens presently growing there. Foliage plants in general require less light and are grown in other houses at Pratt's.

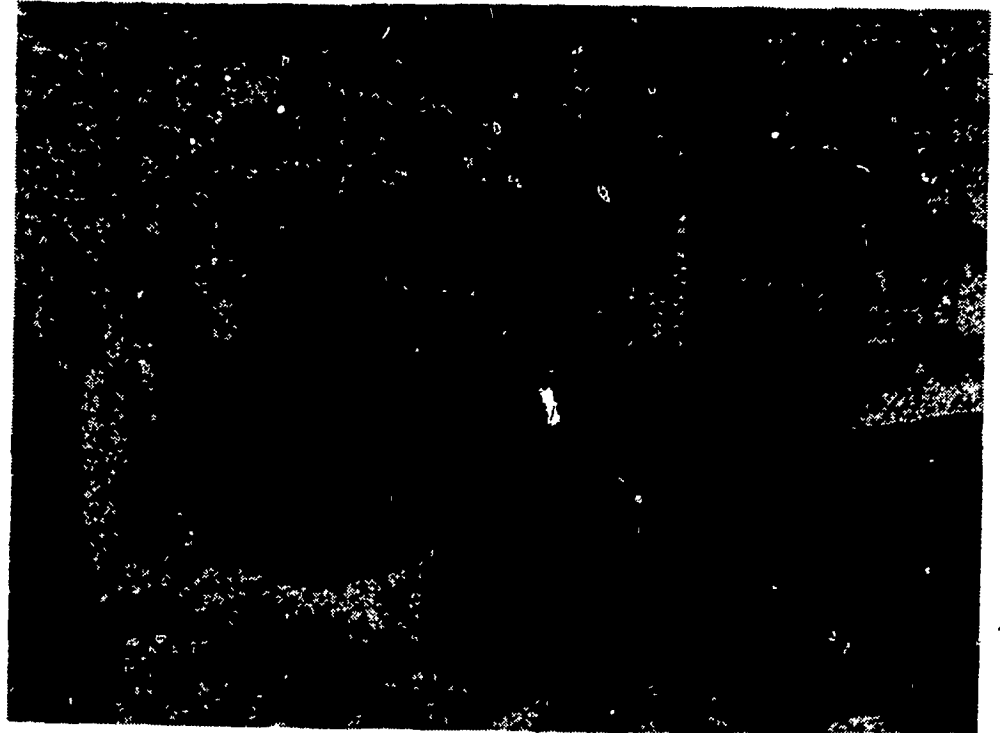
The third glass house Pratt built from aluminum and glass. It is the smallest of the glass houses measuring 30 by 95 feet. Recalling the building process with humor in hindsight, Donald Pratt said that while building he got nothing done by trying to figure out which piece went where.

Originally built for the highlight carnation needs, this aluminum and glass house now is shaded by a black screen called saran cloth to lower the light level for foliage plants. These plants are grown in this particular house because it is close to the loading area, thus cutting down on handling labor.

Three years after building the glass and aluminum house, Pratts raised their first plastic house. A small house measuring 16 by 95 feet, it is the smallest of the eight. In 1958, a single layer of plastic was in order. After the energy crisis in the early 1970's however, Donald Pratt explained that a double layer of plastic was being used in building greenhouses. In 1974, Pratts added the double layer to this house.

This house is now used for propagation, starting seedlings and transplanting.

In 1968 Pratt decided to build a fiberglass house rather than one from glass or plastic because fiberglass was supposed to last for twenty years, be less



Donald Pratt examines some of the lilies used for buds in one of the old glass houses. The greenhouse is used for high-light crops.

expensive than glass and need not be replaced as is the case with all plastic houses. This house is one of the larger ones measuring 20 by 150 feet. The fiberglass itself is opaque, rather than clear as glass, but does not cloud as rapidly from year to year as plastic does.

To increase fuel efficiency in the fiberglass house, several renovations, or additions of materials, were used later. Last year Pratt placed a corrugated, heavy plastic liner inside the fiberglass layer. They also placed a one-inch thick sheet of styrofoam against the base of the wall from a height of four feet off the ground to a depth of three inches into the ground. Over the styrofoam layer, a sheet of heavy foil was added. The foil lining reflects the heat from the pipes which run along in front of the styrofoam area and keeps moisture and light away from the foam. Both light and moisture deteriorate foam.

After experimenting with fiberglass, Pratt decided to use double plastic, in 1974, to construct a house using two 40 by 150 foot sheets of six mil plastic to raise a house with dimensions of 30 by 14 feet.

The first half of the house was built in that year, then it was finished in 1976. The idea behind using two layers of plastic is to create a layer of air between the two sheets which act as an insulation factor. To keep the two sheets of plastic a few inches apart from each other a very small 12 horsepower blower circulates the air between the layers.

Pratt estimates that the double layer of plastic saves 35 per cent in fuel costs over the glass or single layer plastic houses.

Although the plastic used in greenhouse construction is much heavier, or thicker, than that generally used for other purposes such as packaging, it still does not last very long. Pratt uses an ultraviolet resistant plastic which will cloud and become brittle after two years. Regular plastic will deteriorate in nine months, he mentioned by way of comparison.

Even considering the cost of replacing the plastic every two years, Pratt says the double plastic house is most economical in the long run.

One year after finishing the first double-

poly house, Pratt built two more double-poly houses which are gutter-connected—built side by side with a center wall serving as a side wall for each individual house. The two houses together measure 42 by 96 feet with each house 21 feet wide.

Although only a sheet of plastic separates the two halves of this "double" house, the temperature is much colder in one half than in the other. The north side is cooled for plants such as cyclamen, cineraria, Christmas Cactus and primrose while on the south side of the plastic dividing sheet the sun fills the house with warmth for hanging plants. In this house hanging plants are arranged on wood A frames which run from floor to near ceiling height.

Rather than having side walls which slope in as they rise in a hoop form, the newest plastic houses have side walls which rise straight up for several yards before bending in toward a final curved peak. Pratt pointed out that a 21 foot wide top makes a brighter house than a 30 foot wide top. The wider the top, the less the sunlight that filters across to the north side of a house which runs east to west in its length.

The plastic houses use hot air heat with blowers rather than pipes which can freeze or must be drained. They are "super light" in Pratt's words with less framework and high side walls. Their interiors are uncluttered with pipes and they have a porous floor made of stone, cement and water (no sand) which allows for drainage into a central drainpipe under the floor.

Pratt says he keeps up with the energy saving trends by attending conferences and shows and by reading trade papers. He is optimistic of the future for the greenhouse business. He says, "When there is a depression and money is not so easy to get, people do less travelling and spend more time at home. They buy plants for the home and for their yard or garden."

Donald Pratt is convinced there will always be a demand for plants. His task as a greenhouse owner is to continue to find ways to use fuel more efficiently.



At Pratt's, there are a variety of greenhouses, including glass, plastic and fiberhouse.