

## EFFICIENT USE OF GREENHOUSE SPACE

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The commercial flower grower is urged constantly to gear his cultural program for increased production. Frequently, increased vigor and production is the chief asset of new varieties introduced. More saleable flowers can be produced by the strict adherence to improved insect and disease control practices now recommended. Labor-saving devices have increased greenhouse efficiency. New equipment such as cooling units and CO<sub>2</sub> injectors have influenced production. --The one part of greenhouse production that has not changed to any great extent is bench arrangement in the greenhouse.

Why are bench arrangements in the greenhouse in 1963 similar to bench arrangements thirty to forty years ago? There are several logical explanations. Many of the greenhouses in use in 1963 were built years ago, and in some cases the original cement benches are still being used. "Permanent" benches were not intended to be rearranged, and once a bench system is installed, rearranging the benches is neither easy nor cheap. Also, many growers are perfectly satisfied with the present bench layout, and can see no reason for anything different. Perhaps very few of us ever have spent much time figuring out the most efficient way to arrange benches in the greenhouse to get maximum production area and still have all parts of the bench accessible.

Figures are available for comparing the production area of a house having the conventional bench arrangement with one having the peninsular bench arrangement. These data were reported by Carl Gortzig of the Erie County Extension Service in Upstate New York, and were obtained from a commercial range.

The conventional bench arrangement is shown in Figure 1, and the peninsular arrangement is shown in Figure 2. Both greenhouses are the same size - 68' X 101' or 6,868 sq. ft. The production area with the conventional bench arrangement is 4,753 sq. ft., or 69% of the ground area. The production area with the peninsular arrangement is 5,333 sq. ft., or 76% of the ground area. (The greenhouse plans are not drawn to scale.)

There are disadvantages with the peninsular arrangement. In the conventional arrangement shown in Figure 1 there are twelve benches, ninety-eight feet long. In the peninsular arrangement there are twenty-eight benches, each thirty-two feet long, plus the end-of-walk benches. It is much easier and cheaper to pull black cloth over the long benches than over the peninsular benches. It would be difficult to have mum plants at various stages of development in the house with peninsular benches, unless a black cloth partition was erected, running down the middle of the house.

A big disadvantage of the peninsular arrangement is the convenience in moving plants in and out of the greenhouse. A cart can be pushed down the center aisle and the furthest pot would be only thirty-two feet away. Anyone who has carried potted plants is acquainted with the advantages, for both man and plants, of short distances.

MISCHLER'S GREENHOUSES

CONVENTIONAL BENCH

ARRANGEMENT

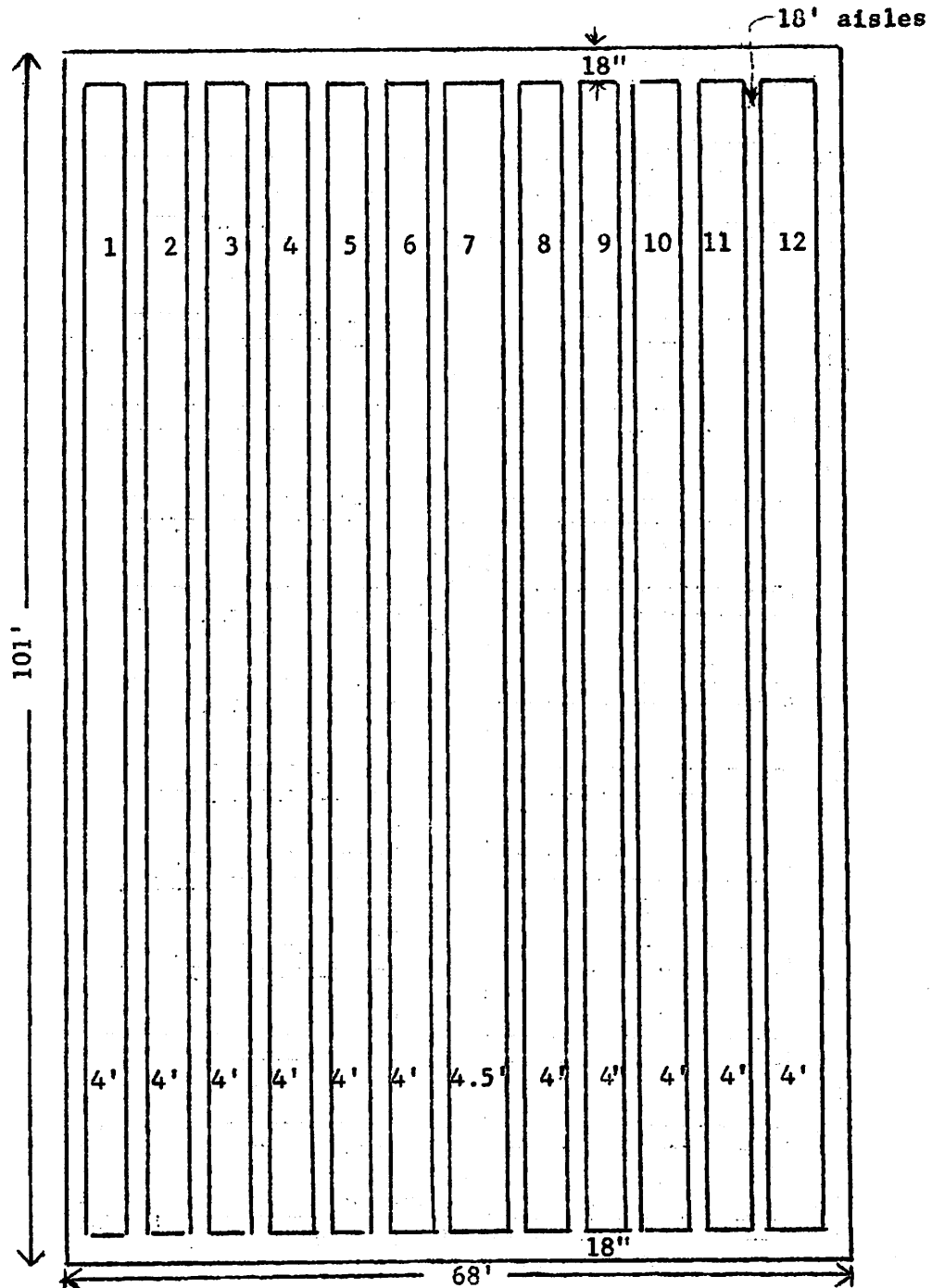


Figure 1.

11 - 4'x98' benches @ 392 sq. ft. = 4,312 sq. ft.  
 1 - 4.5'x98' bench @ 441 sq. ft. = 441 sq. ft.  
 Total production area - - - = 4,753 sq. ft.  
 Total greenhouse ground area - = 6,868 sq. ft.  
 Production area = 69% of ground area.

**MISCHLER'S GREENHOUSES  
PENINSULAR BENCH  
ARRANGEMENT**

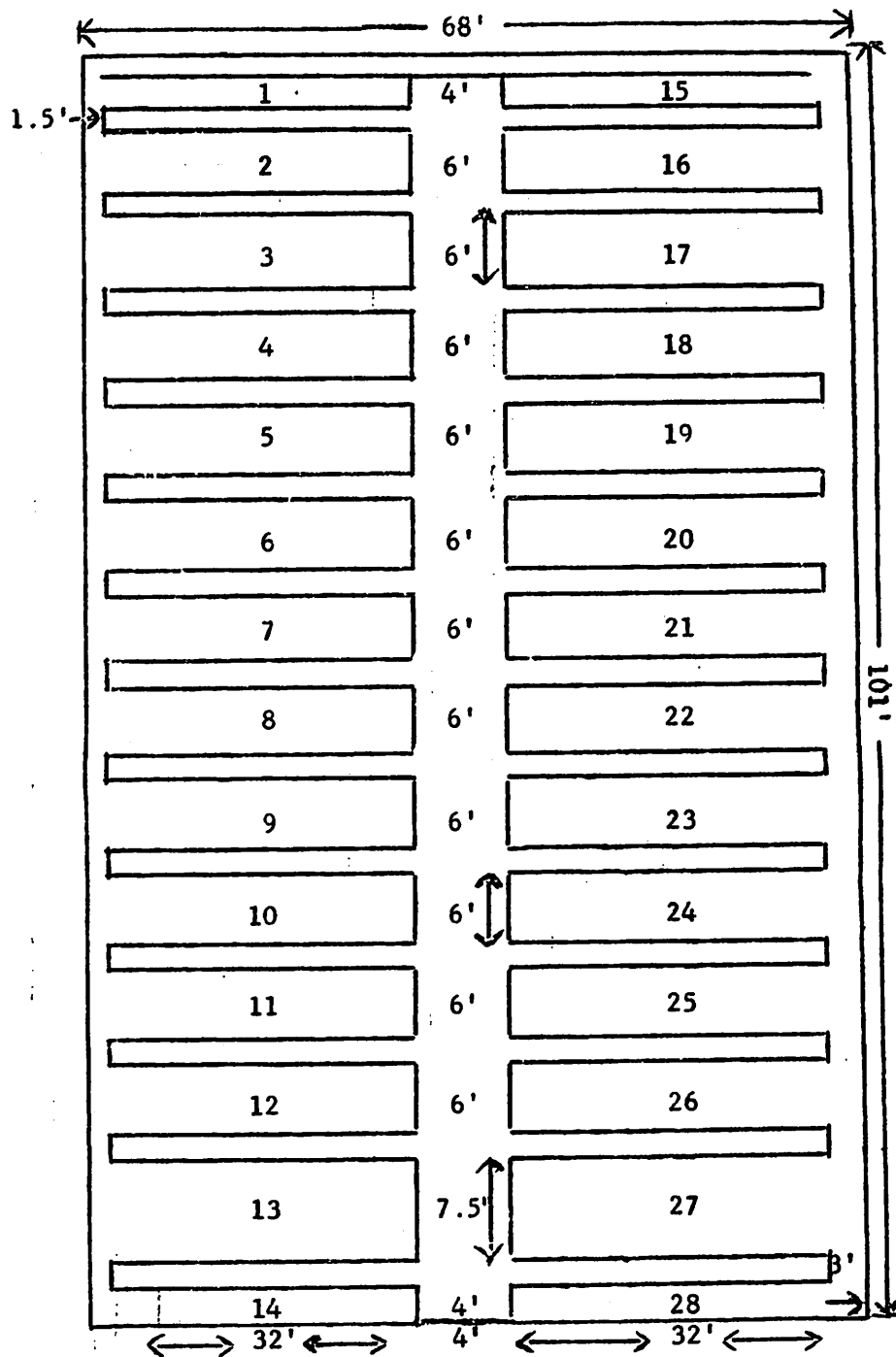


Figure 2.

22 - 6'x32' benches @ 192 sq. ft. = 4,224 sq. ft.  
 4 - 4'x32' benches @ 128 sq. ft. = 512 sq. ft.  
 2 - 7.5'x32' benches @ 240 sq. ft. = 480 sq. ft.  
 26 - 3'x1.5' end of walk benches @ 4.5 sq. ft. = 117 sq. ft.  
 Total production area - - 5,333 sq. ft.  
 Total greenhouse ground area 6,868 sq. ft  
 Production area = 76% of ground area.

This article is not intended to criticize the conventional arrangement and promote the peninsular arrangement, or vice versa. Just a few of the advantages and disadvantages of each method have been discussed here, and every reader perhaps could add several more to the list. If a grower is in the process of erecting a new greenhouse he may want to give bench arrangement some extra consideration.

Jimmy Melton, New River Nurseries in Hubert, North Carolina, has a peninsular arrangement in one of his houses in which he is presently growing pot mums. Most of the benches in the greenhouse range at State College are on the peninsular style, except the lack of end-of-walk benches and side benches would make them "islands" rather than "peninsulas". However, the convenient center aisle is there. There are undoubtedly several ranges in the state where an interested grower could observe the peninsular arrangement.

In a late issue of the Bulletin we shall present three bench arrangements for a cut flower house.