

Engineering Progress for 1954

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Greenhouse Construction

Still the biggest news in greenhouse construction is the ever increasing use of aluminum. There have been some changes and developments in the past year, all pointed toward the improvement of this method of construction. There are now several different types of aluminum construction available from different firms.

Aluminum offers several distinct advantages over wood, but its greatest value is still in its durability and low maintenance cost. Costwise, aluminum still continues to run from about the same to slightly higher than wood and steel construction.

The big problem with aluminum is that in certain types of bar design, considerable condensation will occur on the underside of the bars. Some manufacturers have spent considerable time and money in the perfection of a bar design that will not readily cause condensation. Others recognize the problem of condensation and solve it by the design of special drip grooves, condensation channels and similar devices. Some manufacturers either are not aware of the problem, or do not choose to recognize it and hence make no provisions for solving the problem. Consequently, if anyone is considering aluminum construction, it will be well worth his while to check into the matter of "condensation control" before making the investment.

The outlook for 1955 is for a continued increase in the use of aluminum. With this increase in use, it is logical to expect that sometime in the not too distant future, the price of aluminum construction will be nearly comparable to wood.

A few other developments have taken place in wood and steel construction. These have been chiefly in structural design and have been aimed at methods of construction which are simpler and easier to erect. These changes, of necessity, come about slowly, but progress is being made.

The ever present problem of bench construction is still with us. Still wanted is a strong durable type of bench construction that will stand up under repeated steam sterilizations, and yet be easy and cheap to construct.

Greenhouse Heating

There have been very few changes in greenhouse heating since last year.

Now available is Cornell Experiment Station Bulletin 906, entitled "Greenhouse Heating." This bulletin brings together all the advances in greenhouse heating that have been made since 1946. It also explains how to figure how much piping is needed to heat a greenhouse, how that piping should be arranged, and discusses some of the different control systems. This bulletin can be obtained from the Mailing Room, College of Agriculture.

Some new developments have come about in heating control systems. Systems now range from a simple control valve with thermostat, to very complex systems with a wide variety of types of controls. Caution - it still should be kept in mind that the control system and the system of piping should be closely integrated for complete satisfaction. Let someone who is thoroughly familiar with greenhouse heating look over your system before you install controls.

Soil Sterilization

The use of steam for soil sterilization is steadily increasing. Many of the present hot water boilers can be converted for producing steam for the sterilizing process. Many of the new hot water installations going in are designed so that they can be used for steam sterilization.

For those who do not want to convert, or for those who cannot convert, portable steam sterilization equipment is available. There has been an increase in the number of these units in use over the past year. Another new portable boiler has been developed for this use recently. It appears that the use of portable steam sterilizing equipment will increase in the next year.

Flower Grading Equipment

The work on the development of a mechanical flower grader, which has been in progress here at Cornell over the past two years, is completed. The next step now is the acceptance of this equipment by the florist industry. It is expected that the advancement of grading and the use of this equipment will go hand in hand since this equipment eliminates the old problem of increased labor requirement caused by grading.

Irrigation

Very few changes have occurred in the irrigation picture. Aluminum is still "king" as far as equipment is concerned. There have been some new developments in rotating nozzle design in the past year, which may be of some interest to the florist industry.

Bulb Storages

Although there have been no new developments in bulb storages over the past year, there has been some interest in better control of conditions in storage. Providing the requirements of the bulbs in storage are known, equipment is available to do the job. Such equipment ranges from mechanical ventilation systems to complete refrigeration systems. The equipment used will be determined by a balance between the control desired and the investment possible.

Labor and Mechanization

Just started here at Cornell is a study of the labor requirements for commercial greenhouse operation. This study will include a breakdown of all the individual operations required in a commercial greenhouse range and the relative magnitude of each. It is hoped that the information obtained will be helpful in determining the areas where mechanization will be most needed and where new mechanical equipment can most economically be used.

Agricultural Engineering Facilities

The new Agricultural Engineering Building currently under construction at Cornell is scheduled for completion sometime late in 1955. With these expanded facilities, and through the cooperative efforts of the departments of Agricultural Engineering and Floriculture, it is hoped that progress can be made in the study and solution of some of the problems of an engineering nature which are being encountered in the commercial florist industry.