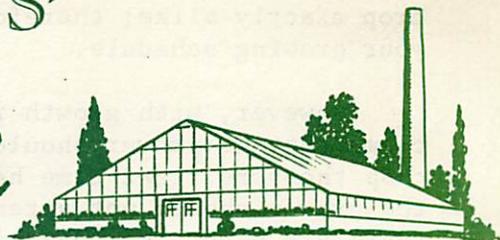


# MINNESOTA STATE FLORISTS'

# Bulletin



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The following articles are summaries of talks presented at the Minnesota Florists' Short Course which was held in St. Paul on February 22, 23 and 24.

## YEAR-ROUND AZALEA PRODUCTION IN THE GREENHOUSE

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Michigan State University

I would like to spend a few minutes discussing research as it is carried out on the university level today.

Basically, the university has three products to offer. Undoubtedly the most important one is the student; the second product is university extension carried on through the extension specialist; and thirdly, the university develops ideas through research.

It has fascinated me how certain ideas in the field of floriculture have been accepted so rapidly while others equally good have been ignored for decades.

For example, one of these ideas that was ignored for so long was bench automatic watering. This idea was suggested in the early 1930's, yet many Michigan rose growers did not use it until comparatively recent years. Since that time they have realized great savings in labor and time and admit they would not be without it again.

On the other hand, at Michigan State we have recently had to install carbon dioxide in our greenhouses in order to keep up with the man in the commercial field. Even now there is very little complete research that truly tells whether carbon dioxide is useful for one or more floricultural crops.

Photoperiodism waited for over 10 years before the floricultural research worker began to experiment with it, so it may be natural that we in research should expect this to happen also on the growers' level. There are very few ideas that can be used without some modification by the greenhouse manager. The grower who does not modify the idea so that it can apply to his operation, where such things as rotation and climatic conditions are usually different, will no doubt be able to say the idea does not work.

An example in point is the poinsettia and cycocel. No two growers grow the crop exactly alike; therefore, you must fit the use of growth regulators into your growing schedule.

However, with growth regulators as with anything else, I want to make it clear that no grower should attempt to use a new growth regulator on his entire crop the very first time he tries it. This can have serious results. Secondly, the grower should not attempt to treat his entire crop the second year because there are never two years in a row where climatic conditions are exactly alike. Therefore, after two or three years of testing, the grower can possibly begin to feel confident enough to treat his entire crop if his past experiences have been successful.

Our interest in the year-round azaleas has grown because we are basically looking for a pot plant to compliment the pot chrysanthemum. Under the normal methods of production, the year-round azalea costs more than the pot mum. Therefore, the azalea may not be bought as readily by the retailer. Research is continuing on the azalea and we are in hopes of finding new ways through growth regulators that will still bring the azalea into flower in shorter periods of time in order to compete favorably with the chrysanthemum.

#### Summer Flowering

When we were first asked by the Michigan florists if we could produce azaleas for summer flowering, there was already one greenhouse in this country that was doing this. This greenhouse is large and because of its size they were able to use precise growing practices. That is, they could take cuttings every two weeks or every month and follow this right through flowering. My opinion is that most azalea growers in Michigan are not large enough to duplicate this type of practice. In our case, it seemed more practical to grow one, two, or even three crops a year. With the use of proper growing and managing operations, we could grow these plants to full bud, place them in a refrigerator, and then after cooling, force them into flowering. At regular intervals a certain number of azaleas would be placed in the refrigerator for periods of four, six or eight weeks, and in this way stagger the flowering of the azaleas throughout the summer period. Let it be known that with this method of growing there is a need for some type of refrigeration because we do not have the facilities of a cool greenhouse in the late spring or summertime.

#### Experiments

We have two groups of experiments on which we can base our findings. The first group of azaleas were cut back on December 10 and were not ready for the refrigerator until April 23. This was a period of 19 weeks from cutback to a bud stage ready for the cooler. These plants were grown at 60° and under the low light conditions in Michigan it took 19 weeks for the buds to develop fully and become ready for the cooler. On April 23 the azaleas were placed in a cooler or refrigerator at 35° without any lights for six weeks. (This should not imply that six weeks of cool temperatures are necessary in order to force the azaleas properly) At the end of the six-week period, or approximately June 4, the azaleas were placed on a greenhouse bench and forced at 60° night temperatures. They flowered from June 26 until July 7. In this experiment five varieties seemed to work especially well: Alaska, Coral Bell, Pericat, Deep Pink, and Red Wing.

In our second experiment, plants were cut back February 8. In this experiment there were some 30 varieties. Half the plants of each variety were grown

at 60° and half were grown at 70°. All of the varieties grown at 70° flowered exceedingly well. However, growing a plant at 70° night temperatures will require a terrific amount of fuel. We are looking for varieties that would do well when grown at 60° night temperatures. At the 70° temperature two-thirds of the varieties were ready for the cooler by May 5 and the rest of the 70° temperature varieties were ready by June 6. Of those varieties grown at 60°, none were ready for the refrigerator until June 6. The plants that were put in the cooler on May 5 were left in the refrigerator for six weeks and then placed on the greenhouse bench and grown at a night temperature of 60°. These plants flowered from July 15 to August 1. Those plants that were put in the cooler on June 6 flowered from August 15 on. Some of the varieties that did well at 60° in the second experiment were Alaska, Chimes, Dorothy Gish, Eclair, Memory Sanders, Red Wing and Weinachten.

What did we learn from these experiments? Remember, we were first interested in those varieties that would flower and grow at 60° night temperatures. Secondly, we realize that flowering takes much longer when the plant is grown during periods of low intensity. Therefore, during the winter it takes approximately 15 to 20 weeks to get the plant to the bud size which is ready for the refrigerator, while during late spring, with good sunlight, varieties like Alaska were ready for the cooler from 8 to 12 weeks after cutback.

This brings up another question. At what size is the bud ready for the refrigerator? We don't know yet. This is something that we are still working on at Michigan State. Last of all, some of our later experiments have shown that compounds like cycocel and phosfon may speed up the bud developing process.

With regard to cultural practices, we in East Lansing find that one of the biggest problems in raising azaleas is that of pH. In our area we have hard water. In order to keep roots on azaleas, I add sulfuric acid to the water. I vary the sulfuric acid when watering so the pH of the water remains around 6.

#### Michigan Practice

We can take a hint or two from several growers in our state who are growing azaleas. Many of them are taking their own azalea cuttings. These cuttings are normally taken in late April or May and rooted under mist. Under this condition they take approximately eight weeks to root. Beginning August 1 the rooted azalea cuttings are then flatted either two by two as done in one greenhouse or four by five as done in another greenhouse in Michigan. These are left in flats until approximately January 15 of the next year at which time the plants are potted in 5½-inch pots. Instead of putting only one cutting in 5½-inch pot, several of our greenhouse growers are placing three or even four cuttings in a 5½-inch or 6-inch pot. In this way, cuttings that are potted January 15 are ready for sale the following Christmas.

I think if we try some of these newer methods of taking cuttings, rooting them in the mist and putting three or four cuttings in a 5½-inch pot, plus the possibilities of using some of these new growth regulators, there is a good possibility that many growers in our state will be able to use year-round azaleas. That is, by beginning to cut back these plants sometime between January and February, adding the growth regulators soon after cutting back, and as soon as the bud is well developed, placing the plants in the refrigerator for four to six weeks, we can have many azalea varieties flowering between June and September.

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