

forests and woodlands of the United States annually. Each individual owner of farm land knows that most of the posts which have to be replaced are rotten and that if he could stop the rot he could save himself a lot of work. It is, of course, impossible to keep a fence post dry. The fence can not be protected from the weather. Unless durable woods in a class with cedar, redwood, catalpa, black locust, or white oak are available the only businesslike way to handle the problem is to protect the fence post from decay by treating it with a wood preservative.

Prevention of excessive weathering and avoidable decay not only saves immense quantities of raw material, but also untold numbers of hours of replacement labor, which could be used much more pleasantly or productively.

REGINALD H. COLLEY.

BULB Culture Makes Progress Rather remarkable progress has been made during the past 10 years in the acquirement of information on bulb culture by the rank and file of our plantsmen. Still more remarkable has been the change in the general attitude toward the production of bulbous stocks in America. Instead of questioning whether these various items can be grown here, the only doubt now is whether it can be done at a profit, and even that doubt is fast disappearing.

The gladiolus, the freesia, the caladium, the tuberose, and the calla lily, have long become characteristically American. No one has thought of going abroad for commercial stocks of them for a long time. Ere long the Regal and other lilies will be with us in such abundant supply as to satisfy our demands.

Impatience is sometimes expressed at the slowness with which such an easily-produced bulb as the Regal lily has become available commercially, but no surprise should be occasioned by a delay of 8 or 10 years in the production of a new crop. It should be remembered that stocks must be worked up, costly mistakes corrected, and experience acquired. These matters take years to accomplish.

Daffodils

The country has had experiences, both commercial and experimental, with daffodil stocks extending over a period of 15 years or more, and with some of the older varieties a great deal longer than that. In southern Illinois and the cape region of Virginia experiences have been had extending over a period of 30 years or more. In the latter region it has been with stocks imported in colonial days. All of these experiences have been an asset in the establishment of the industry of American production of these stocks.

Experiences and experiments have demonstrated the possibility of producing stocks of daffodils in various sections of the country equal to those grown anywhere. One of the most astonishing things in connection with recent experiences with the commercial varieties of daffodils is that the crop is about as adaptable as oats. It is being produced satisfactorily on sands, peats, and clays in the Northwest;

on various types of soils on the Atlantic coastal plain; and even on the northernmost of the southern sands.

Handling in storage has been a rather difficult problem in the warmer sections but it is gradually being learned that protection from undue exposure, with abundant aeration, accomplishes the desired result.

The Polyanthus group of daffodils, adapted to the warmer sections of the country, seem to present the least difficulty. Even the oriental type of the "Chinese sacred lily" can be duplicated on our muck and peat soils, and Paperwhites of perfect form, firmness, and performance are now grown on both heavy clay and sandy loams.

Tulips

Tulips have also proved to be even more adaptable to soil conditions than daffodils. They demand fresh, clean soil each year, but will succeed on clays and sands when proper fertility is supplied

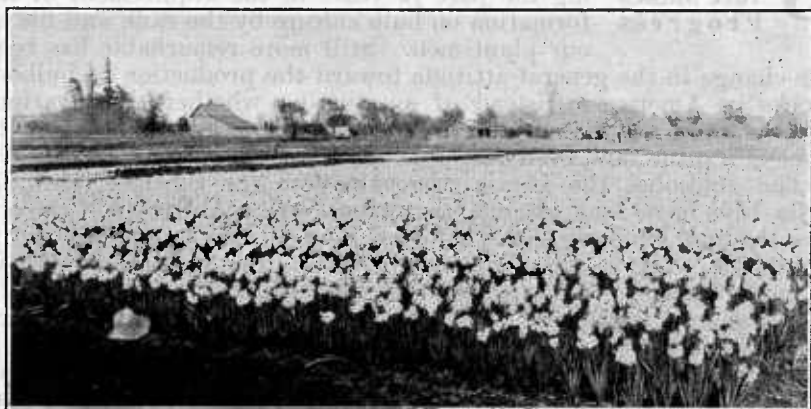


Fig. 28.—Elvira narcissus the second year after setting. When dug, this area yielded at the rate of more than 1,000 bushel lug boxes of bulbs per acre. Plant introduction garden, Bellingham, Wash.

and moisture is controlled. Successes are recorded for the Pacific Northwest, Michigan, and the Northern Atlantic coastal plain.

In the warmer sections the great difficulty again has been with storage during the dormant season, but it has been learned that if provision is made to reduce ventilation after the bulbs are dry, the coats can be saved, excessive desiccation prevented, and the bulbs preserved in good condition.

Hyacinths

Hyacinths have always been looked upon as a proverbially difficult item to produce and one, above all others, that America could not grow. After 10 years of experience the writer has no hesitancy in saying that they present no insurmountable difficulties.

There is practiced with the hyacinth an artificial propagation. This process must be learned, but it is simple and the same in principle as propagation from cuttings generally. Details of procedure

vary a little, but they are not complicated nor are the conditions of success any more exacting than those required to grow many of our common plants from cuttings.

Experimental stocks of hyacinths are now in their third propagation from imported bulbs and seem to hold up well both in Virginia and the State of Washington. One commercial success is chronicled on Puget Sound, where it is considered that the hyacinth has succeeded even better than tulips or daffodils on the same farm.

Lilies

It is considered that at the present time as much real progress is being made in the production of lily stocks in this country as in any

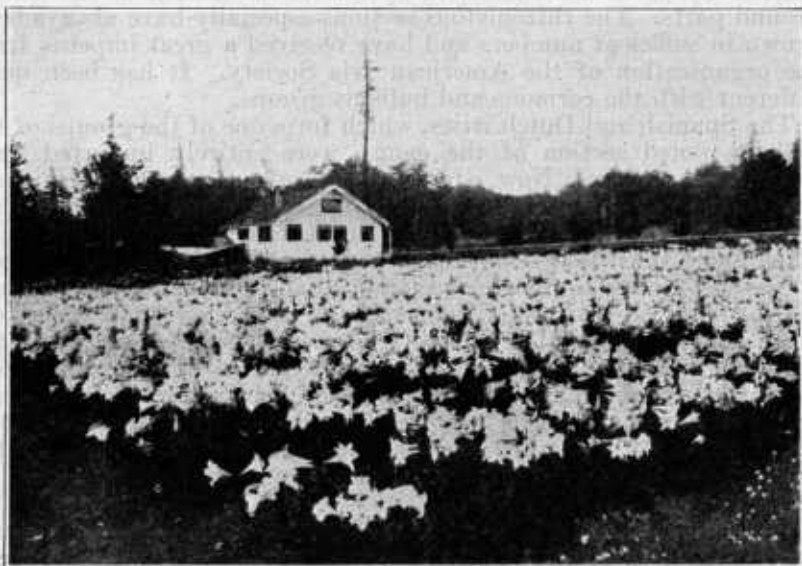


FIG. 29.—The Easter lily (*Lilium longiflorum*) in a commercial planting near Seattle, Wash.

other group of bulbs. The ready propagation from seed, from scales, and from layered and heeled-in stems is giving a great impetus to the culture in several sections of the country and under very diverse conditions.

Material for propagation is scarce and high priced, but when once a little is secured it works up in numbers very rapidly, often as high as a hundredfold at a vegetative propagation, and many hundredfold from seed.

Culture of lilies must be looked upon generally as a three-year task, i. e., it takes about that time to produce merchantable stock in most cases. This, coupled with the necessity of gaining experience with each item and starting with a limited quantity of stock, are the deterrent factors to rapid progress. Stocking the market may, therefore, be some distance away, but good healthy progress is being made in that direction. There are a dozen or more growers in the country

to-day that marvel at their own success, which eclipses even their fondest expectations of five or six years ago.

All of this, however, is not supplying the market—far from it. There are some years of struggle ahead with little or no income, and there are discouragements, due to unforeseen causes, but the start has been made. Enough experience has already been gained to prove that a baker's dozen of good commercial lilies can be produced in quantity in our northern tier of States on both coasts, at many inland points, and some of them are on our Gulf coast.

Iris

The iris, although a single genus, is an exceedingly diverse group, most easily divided into sections by the characteristics of the underground parts. The rhizomatous sections especially have always been grown in sufficient numbers and have received a great impetus from the organization of the American Iris Society. It has been quite different with the cormous and bulbous groups.

The Spanish and Dutch irises, which form one of the groups of the bulbous-rooted section of the genus, were entirely imported until about 10 years ago. Now, after 10 years of experience and a great deal of adverse criticism, a number of growers have sensed the requirements and accomplished the production of first-class stocks. This, again, has been done under very diverse conditions. Success is scored on both the northern and median sections of the Atlantic coastal plain, in southern California, and northwestern Washington.

Here again the greatest difficulty has been with storage during the dormant season. The growing has not been so difficult when good stock was planted, but, with overexposure causing excessive desiccation, the planting stock has so often been devitalized. The neglect of the inroads of the tulip or iris aphid, easily controlled by the application of tobacco products, has also contributed largely to failures, especially in California.

One potent influence inhibiting the accumulation of stocks of these groups of iris has been the commercial situation. There is little use to expect the grower to produce bulbs of Spanish and Dutch iris to sell for \$35 per 1,000 when the cut flowers command a price which will net him 50 to 100 per cent more. The cutting of the flowers, of course, reduces the vitality of the bulbs which, when finding their way onto the forcing benches, perform poorly.

Both growers and dealers realize that the round bulb in Spanish or Dutch iris is the most desirable for the forcing benches; however, little effort has yet been made to put this character of bulb, and this only, on the market. We are just beginning, after 10 years of experience, to put the right kind of material on the market.

The beautiful English iris, another bulbous group, has always been conspicuously absent from American gardens. We have learned that they too can be perfectly grown on Puget Sound, and one instance has recently been called to the writer's attention wherein one variety has thrived in a private garden in Massachusetts for a dozen years. Seedlings have already been produced in this country which seem to be vastly superior to the imported stocks.

The Palestine group of cormous-rooted iris and their hybrids are becoming so well understood that it is possible to grow them now not only on the Pacific coast but in our eastern humid regions as well, by simply digging them at the close of the growing season and carrying them dry on the shelves until planting time comes around again in late fall.

Miscellaneous Bulbs

Experimental experience, and in several cases commercial as well, is accumulating rapidly on many of the so-called lesser bulb stocks. *Leucojum*, *ixia*, *sparaxis*, *babiana*, *watsonia*, *montbretia*, *nerine*, *amaryllis* varieties, *ranunculus*, *anemone*, *fritillaria*, etc., are in some cases in sufficient quantity to supply a large portion of the demand.



FIG. 30.—Representatives of the Red Cross selling daffodil flowers at the Bellingham (Wash.) plant introduction garden during the war

Muscari, *scilla*, *eranthis*, *ornithogalum*, *chionodoxa*, *galanthus*, *puschkinia*, *crocus*, etc., have received less attention commercially. Experimental cultures show conclusively that there are no insurmountable difficulties in the production of any of these, while some are even weedy in their nature.

Forcing Quality

There is no mystery about the production of bulbous stocks that will force in contradistinction from good stocks with other qualities. A daffodil, a tulip, a hyacinth or a lily grown to proper size and firmness has a flower in it. If placed under suitable conditions of fertility, temperature, and moisture, it will produce that flower. That there is some mysterious secret process through which bulbs must be put after being properly matured is one of the fallacies which

have grown up in some quarters around a foreign article concerning the production of which little information was available.

Daffodils, tulips, or hyacinths, after being dug, need to be dried out so that they will not mold. In the case of the tulip there is danger that the drying may be carried too far and wilt the bulb and crack the skin. With the daffodil of any variety, or the hyacinth, there is less danger of too much drying. This, coupled with storage in the shade and not in stuffy, superheated situations, is all there is to the matter.

Of course, there are certain accelerating processes that may be employed to induce early flowering. The bulbs may be grown the last year in a region which has an early season. If the bulbs mature early they will force early the next season. A similar result may be accomplished by digging the bulbs before they are thoroughly mature with or without subjection to 10 to 20 per cent above the ordinary atmospheric temperature for a week or 10 days.

With our varied climate, from the short season of our northern tier of States to the early-maturing conditions from Virginia and Oregon south, these stocks will mature so as to force early enough without resort to any such artificial measures.

Experience over a period of 10 years in the production of these stocks and their subsequent forcing under glass has uniformly shown that properly grown stocks of any of these bulbs run true to form. When produced in America they force just the same as they do when grown elsewhere.

DAVID GRIFFITHS.

BUTTER and Egg Market- ing Methods

Efficiency in marketing and merchandising dairy and poultry products is not obtained by "hit-and-miss" methods. Neither is it a "rule-of-thumb" proposition. Rather it is obtained by employment of methods which meet present-day conditions. Then why do "hit-and-miss" and "rule-of-thumb" methods continue? Why are not the more modern and scientific methods employed?

In many country communities the housewife or the farmer takes the eggs and farm-made butter to the country store where a price is paid or merchandise needed in the farm household is offered in trade for the butter and eggs. No grading for quality of the eggs or butter takes place. No premiums for higher quality eggs or butter are offered. No incentive is offered the producer to produce the best. One flat price is paid to all patrons. This is a "hit-and-miss" method. If the product sold is of ordinary or poor quality the producer "hits" a good price for it, but if it is of extra fine quality he usually "misses" the premium price that he should receive.

The situation is similar if it be cream or poultry that the farmer markets, although he may take the poultry to a local produce buyer and the cream to a local cream buyer. Here standardization or grading for quality is usually not employed and flat prices are paid for all qualities so long as they are of fair marketable quality.