

Dichondra in California

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INTRODUCTION

Today, almost 30 years after the first known use of dichondra for a ground cover, over 50 percent of the home lawns in the Greater Los Angeles Area are primarily dichondra. Few, however, are pure dichondra but instead mixtures with grasses, especially bermuda and annual bluegrass. The difficulty of maintaining a pure stand is the problem for the average home owner or gardener.

HISTORY

Dichondra was first used intentionally as a ground cover about 1935. In 1939 plants, identified as *D. repens*, were being grown for sale by C. J. Pegler & Son, Nurseyemen of Sierra Madre, California.

However, the same species, presumably, was reported as a lawn weed many years earlier. According to one report (1), it was known as a lawn weed in Golden Gate Park, San Francisco, at least as early as 1916. Apparently it was a fairly common lawn used from San Francisco southward long before the first gardeners began to culture it.

Seed of dichondra was unobtainable during the early years of its use and propagation was entirely by vegetative methods. Usually it was sold as flats of sod which were cut into plugs to be set at 6 to 12 inch spacings in the prepared lawn surface. As dichondra lawns increased in popularity, many nurserymen began growing it for sale.

Popular articles and advertisements appearing at that time touted dichondra as the solution to practically all lawn problems. Claims were made that dichondra lawns needed mowing only twice a year or not at all. It was said that weeds and common bermuda would be crowded out by dichondra. Diseases and pests were claimed to be non-existent. Dichondra is still a popular ground cover today, but anyone who has maintained a dichondra lawn knows that these early claims were not true.

TAXONOMY

Dichondra belongs to the *Convolvulaceae* (Morning Glory) family, and the cultivated form is generally considered to be *Dichondra repens*.

The genus *Dichondra* may be represented in California by several native or introduced species. Jepson (2) lists only one species, *D. repens*, describing it as naturalized from the tropics and found in scattered localities. Munz (3) lists a second species, *D. occidentalis*, in addition to *D. repens*. Both species are considered to be native to California by Munz, but he questions the correctness of the identification of the cultivated ground cover as *D. repens*.

The only recent thorough taxonomic study of the genus is reported by Tharp and Johnston (4). They distinguish two subgenera as follows: fruit very deeply bilobed, the carpels usually 1-seeded—subgenus *Dichondra*; fruit entire or merely emarginate, often with two seeds in each carpel—subgenus *Capsularia*.

Included in the subgenus *Dichondra* are several species often considered to be varieties of *Dichondra repens*. *D. argentea* and *D. occidentalis* are two distinct species included in the subgenus *Capsularia*. Twelve species in all are recognized by these workers of which four or more may be in California. However, they do not consider *D. repens* as one of the

North American species, but refer to herbarium specimens from Australia and New Zealand only.

If this separation of species is justified and correct some question may be raised as to the present nomenclature of cultivated dichondra. Cytological and genetic studies are being conducted to try to clarify this question.

It may be that our dichondra ground covers consist of more than one species. Considerable variation in form and growth habit is known in our cultivated material. In the remainder of our discussion, we will be referring to this cultivated ground cover only, accepting for the present the specific name of *D. repens*.

Dichondra appears to be highly self-pollinating. Commercial seed sources may consist of collections of relatively homozygous but distinct types.

Leaf size and plant height are environmentally induced characteristics as well as genetic variations. During winter when weather is cool and days are short, dichondra tends to produce short petioles and small leaves. As days become long and temperatures increase, leaves become larger and petioles longer. Similarly, dichondra grown in the shade will have larger leaves, longer petioles and more open growth than it will in full sun.

COMMERCIAL SEED PRODUCTION

The first production of dichondra seed was in Los Angeles County about 1944 to 1946. Later, production spread to other Southern California counties and became a profitable business for a number of growers.

In the early days of seed production, the retail price of dichondra was high. The great difficulty of harvesting was the main reason for the high cost of seed. Before seed production could be practical and economical, special seed harvesters had to be constructed. For the most part, growers developed their own harvesting equipment, using various combinations and modifications of sweepers and vacuum pickers. One grower listed a price of \$5.00 for 20,000 seeds (less than one-half ounce). He suggested, however, that 20,000 seeds be used to plant 1000 sq. ft. of lawn. Over the years wholesale seed prices have fluctuated from less than \$3.00 per pound to over \$16.00 per pound, depending on supply.

Dichondra seed contains a high percentage of hard seeds. These hard seeds may not germinate until they have been in the soil for many months. A sulfuric acid dip was used at first to overcome this problem. This was not entirely satisfactory as the acid treated seed lost its viability in a short time. Today mechanical scarification is used instead of the acid treatment. The scarified seed can be stored for long periods without appreciable loss of viability.

Dichondra flowers in the spring from late March through May and June. Seed matures by late June or July. Extreme temperatures, either hot or cold, during the flowering period, will greatly reduce flower production and seed yield. Seed fields should therefore be located in areas where moderate temperatures, approximately 60° to 70°F, are normal during this flowering period.

Maximum seed yields are obtained if production fields are seeded in the spring as soon as frost danger is over. The fields will develop a thick stand during the summer and flower in the following spring. Seed yields vary greatly from a few hundred pounds per acre to as high as 2000 pounds or more. The cost of bringing an acre to first harvest may be as high as \$1000. Weed control is one of the most costly operations. Mowing at regular intervals gives good cultural control of many upright annual weeds.

METHOD OF HARVESTING

Dichondra produces one to two seeds on a short stem hidden below the leaves. As the

seed matures, the stem curves downward until the seed is in contact with the soil. Thus, the mature seed lies on the soil surface often partially covered with dead leaves and it is necessary to eliminate much of the foliage so that the seed can be dried and reached by the harvesting machines. In the past this was accomplished entirely by withholding irrigation water until the plants wilted and dried. This often required a period six weeks or longer. As a result, recovery was poor when irrigation was resumed following harvest.

Many growers today use a defoliant in conjunction with drying to shorten the pre-harvest preparation period. Two defoliants commonly used are weed-killing oils and Diquat. The dichondra fields are dried until the plants wilt and turn blue-green in color. The defoliant is then applied and after the plants wither, the leaves and stems on the surface are raked off. The direct sunlight quickly dries the seed.

Harvesting follows as soon as the seeds and stems are sufficiently dry to permit easy seed pick up. Large quantities of trash are also picked up which must be removed in the subsequent cleaning process. If the fields are to be rejuvenated, water is returned as soon as seed harvest is completed. This should be done as quickly as possible to give the plants full advantage of the long warm summer days for recovery and regrowth.

LITERATURE CITED

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