

## PROPAGATION OF ILEX AQUIFOLIUM FROM CUTTINGS

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Of the many existing varieties of Ilex aquifolium I have, for the purpose of this discussion, selected the variety commonly referred to as French, English, or Blue Stem English holly. Also, botanically speaking, this is probably not a true variety; this group of hollies produces trees of quite distinct qualities, marked by excellent foliage and berry characteristics. This is the variety most widely planted in the commercial holly orchards of the Pacific Northwest (1) and it is the one that we have used mostly in our own holly orchard at Point Reyes, and from which we are propagating for the nursery trade. Due to the fact that this type of holly produces, at an early age, large amounts of parthenocarpic berries (that is, berries with sterile seeds) it is sometimes referred to in the nursery trade as "self-fertilizing" and thought of as "bi-sexual". However, to the best of my knowledge, all Ilex aquifolium are strictly dioecious plants, which require pollination by male plants for fertile seed production.

As to the various uses of holly for landscaping purposes, its many possibilities are often overlooked in this part of the country, considering the very prominent place it holds in this respect all over the eastern and midwestern part of the United States, where vast numbers of holly are used in the nursery trade. I would suggest one excellent use, that is, as a hedge material. There is nothing more beautiful than a hedge of English holly at any time of the year, particularly around Christmas time.

Holly will grow well over a wide range, temperature and climate-wise, and in many types of soils. For good, lustrous foliage appearance and berry set a deep, well-drained soil, rich in organic matter is very desirable.

Our propagation of holly is carried out by taking cuttings only from a number of our best trees that have established a good record for themselves with regard to foliage appearance, berry production, etc. We take particularly good care of these trees and try to keep them at a high nutritional level. Only terminal growth cuttings are taken from current season's matured wood, beginning in September and continuing until February or Early March. Terminal growth cuttings give better formed young trees. The cuttings are approximately 4" long and stripped of most leaves except for one or two full leaves at the tip. Then, following the sanitary procedures of the U. C. system, they are submerged for ten minutes in a "decontamination solution" prior to hormone treatment. One of these consists of the submersion of the bases of bundled cuttings 1-1/2" deep into a solution of 50 ppm of indolebutyric acid in 10% ethyl alcohol for 24 hours and then rinsed off with water prior to sticking. The other method is to dip the cuttings into a more concentrated solution of 7000 ppm of indolebutyric acid in 50% ethyl alcohol for 10 seconds, followed by sticking immediately into the medium.

As a medium we are using a mixture of either one-half sand and one-half peat moss, or of two-thirds of Sponge Rok (perlite) and one-third peat moss by volume. We put about 250 cuttings into one flat. The flats are placed in a fiberglass-covered greenhouse under intermittent mist with bottom heat at 65° F. The mist system is controlled by a light-energized interval switch which we have built ourselves according to a design obtained from the University of Connecticut(2). We are finding this to be a great improvement over the conventional control by a time clock. When substantial root formation is noticed, normally around 100 days, the flats are moved away from the mist into an unmisted bench in the same house, watered by hand, and given an occasional liquid feeding according to the U. C. system. Approximately 125 days is required for a good, heavy root system ready for potting. The percentage of rooted cuttings is seldom less than 100%. A 90% take we consider low on holly. During the past propagating season we propagated approximately 25,000 cuttings in this manner.

#### Literature Cited

- (1) Roberts, A. N. and C. A. Boller. 1947. Suggestions For Growing English Holly in Western Oregon. Ore. Agr. Exp. Sta. Bul. 409.
- (2) Whitaker, I. H. and S. Waxman. 1960. Instructions for a Light-Operated Interval Switch. University of Connecticut. Mimeo. Rpt.

VOICE: Is there a cultivar name for this variegated variety?

MR. CARL SCHMIDT: The variegated variety, Ilex aquifolium, commonly called silver-variegated, is the only one I know, there are many varieties but I don't think any of those variegated ones is a true variety. The holly has a great tendency to sport. You can do almost anything with them, by a little grafting, changing colors and variegation, etc.; they're very easy to change around. For that reason it's very hard to find a real true variety of Ilex aquifolium.

MR. MARTIN USREY: Carl, have you had experience with other hollies outside of Ilex aquifolium?

MR. CARL SCHMIDT: Somewhat limited. We are rooting a lot of I. cornuta.

MR. MARTIN USREY: Those are easy to root, but I mean like I. opaca.

MR. CARL SCHMIDT: Just very little, more or less in a sort of experimental way. We had occasionally a few plants and we fooled around with some oriental hollies in that fashion. I wouldn't be able to report to you.

MR. MARTIN USREY: I. opaca is the American holly.

MR. CARL SCHMIDT: Oh, the Eastern Holly. We have a few of those. We planted them in our own landscaping scheme around our place and

propagated them very easily. I would say about the same way - they propagate very easily, but we have never done it for the nursery trade because there's no market for them now, in this area.

MR. GERD SCHNEIDER: Do you think your location at Point Reyes gives you a great advantage in growing Ilex to other places in central California?

MR. CARL SCHMIDT: I think it's an excellent location for the appearance of the holly. Holly will grow almost anywhere. After all, the holly is a native of the near East and you find it all through southern Europe in a rather dry area, and it grows very well in the California valley areas. However, for lush and quick growth and early berry set, I believe that the coastal areas are very desirable. I think that the hollies like to be close to salt water; that is my feeling.

VOICE: Did you ever use Hormodin 3 on holly?

MR. CARL SCHMIDT: Yes, I have, but we find it more convenient to use a liquid than powder, and it works very well with us, so we never changed back to the powder, but we do use Hormodin on other materials.

VOICE: What is the potting compost you use?

MR. CARL SCHMIDT: Our potting compost is 2/3 of silty sand and 1/3 fir bark; we add some chemicals to it under the U.C. system, such as phosphate and potassium.