

Chip Budding Magnolias: Part I

by Charles Tubesing

Chip budding, a very old grafting method, has increased dramatically in use in the last ten years, particularly in English nurseries, and to a lesser extent in North America. The primary reason for this upswing in popularity is the proven superiority of chip budding over conventional T-budding in the field.

Chip budding is simple to learn, and the aftercare is uncomplicated, which makes it an ideal technique for amateurs. In this first article, I will discuss the reasons for grafting, as well as the particular advantages that chip budding has over other grafting techniques. In subsequent articles, I will describe in detail the making of a chip bud, aftercare of the graft, compatible combinations of stock and scion, selection and production of stocks, and selection, storage, and shipping of scions. Although this series is concerned with the chip budding of magnolias, most of the statements, except those which refer to particular stock/scion combinations, apply equally well to other woody plants.

Reasons for Grafting. Chip budding is done for the same reasons as other types of grafts. Grafting is usually resorted to when seeds are not available or seedlings cannot be depended upon to display the desired characteristics, and when cuttings are

impossible or impractical to root. In the case of magnolias, it is possible to grow an "average" representative of any non-hybrid species from seed, provided seeds are available. If, however, you intend to propagate a superior clone of a species, such as *Magnolia acuminata* 'Miss Honeybee,' or a hybrid cultivar, such as *M.* 'Picture,' it is necessary to make use of a form of vegetative propagation, such as cuttings or grafting, to obtain a new plant identical to the mother plant.

From a commercial point of view, grafting is much more labor-intensive than cutting propagation.

Consequently, a nurseryman is not likely to produce any plant by grafting that he can root in satisfactory percentages from cuttings. Indeed, since only a small percentage of nurseries in North America do any grafting at all, the inability to be propagated from cuttings is the "kiss of death" for any wide commercial production of a cultivar of *Magnolia*. This is made clear by a look at those magnolias that are readily available from garden centers and retail nurseries in British Columbia: *M. × soulangiana* cultivars, *M. stellata* cultivars, *M.* 'Merrill,' *M. sieboldii*, *M. quinquepeta*, and *M.* 'Ricki' all are propagated from cuttings.

Fortunately, there are no such constraints on the magnoliophile, who isn't concerned if it takes an hour to make five grafts or a dozen cuttings. His only limitations are the material he can acquire and its hardiness in this area. In reference to those magnolias which do propagate readily from cuttings, many amateur growers will find it more convenient to chip bud

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them onto seedlings than to set up and maintain an environment to support cuttings while they root. In addition, because it already possesses an established root system, a grafted plant has a head start, and grows faster than a rooted cutting in the first and often the second year after propagation. This advantage should serve as a strong inducement to all of us, for who isn't eager to see his magnolias bloom as soon as possible? Finally, it must be admitted that there are many cultivars of magnolia which do not root readily from cuttings, and if we want to propagate these clones, we must graft them.

Advantages of Chip Budding. There are several advantages of chip budding over other forms of grafting that make it attractive to both professional and amateur propagators. Chip budding is the easiest grafting technique to learn, requiring only normal dexterity. It is possible to achieve a high percentage of "takes" soon after learning the method. Chip budding may be performed using materials normally present in the home or available at any drugstore or supermarket. Budding may be done outdoors onto stocks planted in the ground, or indoors onto potted stocks, and no grafting case or tent is necessary.

A major advantage of chip budding is the wide season over which it may be successfully executed. You can chip bud outdoors beginning in spring when the buds on the stocks are swelling, using scion wood selected earlier while fully dormant and stored in the refrigerator. Chip budding can proceed through the summer, using inactive buds present on the previous year's or older growth. Near the end of the summer, buds can be used from the bottom third to half of the current year's growth. In this manner, chip budding can proceed outdoors until about the middle of September in

much of North America and England, as long as the temperatures remain warm enough for the union to knit completely before leaf fall.

If chip budding is to be done indoors, using potted stocks, you can bud even later since higher temperatures can be maintained to speed callusing to completion before the onset of dormancy. You can also begin to chip bud earlier in the year indoors, bringing in the stocks from cold storage in January to force them into growth far ahead of their brethren outdoors. This enables you to get more growth from the scion the first year.

As a commercial practice, chip budding serves as an alternative to "T" or shield, budding, and offers several advantages over that method. T-budding, in simplified terms, consists of slicing a shield-shaped piece of bark containing a bud from the scion cultivar, and inserting it under the bark of the stock through a T-shaped incision. In contrast, in chip budding a small piece of bark and wood is removed from the stock, and is replaced by a similar piece, containing a bud, from the scion cultivar. Because it requires that the bark of the stock and scion separate readily from the wood, T-budding is possible only when rapid growth is occurring, as it is in early to mid-summer. Because it is not necessary to "lift" the bark in chip budding, it may be performed over a much longer period during the year, as noted earlier.

A second advantage of chip budding over T-budding is in the superior graft union formed. Because chip budding is essentially a replacement of stock tissue with scion tissue, the cambium of the scion is placed in close contact with that of the stock, resulting in rapid formation of a strong union. In T-budding, however, new tissue is added where none has been removed. Consequently, the cambial tissues of