Transplanting a tree is an art and a science. Many factors must be weighed, including timing, age, species, pre-treatment, antitranspirants, and site.

Timing is the paramount consideration of transplanting. In general, the earlier in the spring the tree is moved after the frost is out of the soil, the greater the degree of success will be. The only exception to this rule is northern native pine and spruce, e.g. Pinus strobus, parviflora, sylvetris or Picea glauca, which are best moved in late August.

Deciduous trees become more difficult to transplant after dormancy breaks and growth commences.

Bare root trees should be transplanted any time after the frost is out of the soil prior to bud swell. The root system should never be allowed to totally dry out. Protection is afforded by covering the root system with chips or straw, or simply healing in.

Balled and burlapped trees can be transplanted from the time the frost goes out of the soil into early stages of growth or elongation when the temperatures are still cool. Since the root system remains in the same soil, success is higher, and shock to the tree is considerably less than with bare root.

Pine and spruce are best moved in late August or early September.

Potted trees, those trees dug from the field and planted in containers and held for current year's sales, should be treated as balled and burlapped for transplanting considerations.

Container grown trees are easiest to transplant and have the highest degree of success. They not only have been in the same media, but are simply popped out of the container. The plant is subject to little or no transplant shock. Therefore, container trees can be moved throughout the entire season. One thing to keep in mind when transplanting container grown plants, and this applies for several of the ericaceous plants, is to slice into the root system with a knife to stimulate root growth.

It must be stressed, transplanting before dormancy breaks is most desirable. Transplanting during early stages of growth is acceptable for balled and burlapped and potted trees. Transplanting after leaves fall from deciduous trees in the autumn is acceptable, but also less desirable.

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Douglas Chapman is horticulturist for Dow Gardens, Midland, Michigan.
Container grown trees suffer the least shock during transplanting. Their root systems are often pruned, allowing for easier transplantation. Spruce trees are more susceptible to transplanting failure due to their high root mass. Container grown trees, however, are often used for transplanting because they are easier to handle and have a higher survival rate.

Shrub transplanting can also be successful, especially if the shrub is well-branched and pruned before transplanting. Shrub transplanting is often used to move shrubs from one location to another, or to plant new shrubs in a garden or landscape.

Root pruning can be a useful tool in transplanting. It involves cutting back the roots of a tree or shrub to reduce the amount of root mass that needs to be transplanted. This can help to reduce transplanting stress and increase the chances of survival.

Sub-surface drainage is a critical consideration when transplanting trees and shrubs. It involves creating a system of drainage pipes below the surface of the soil to help move excess water away from the roots. This can help to prevent root rot and other problems associated with waterlogging.

The mechanics of transplanting are complex and depend on a variety of factors, including the size and type of tree or shrub, the soil conditions, and the time of year. With careful planning and attention to detail, however, transplanting can be a successful process that leads to healthy, well-established trees and shrubs.
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the plant was growing in the nursery. One exception would be with transplanting large trees. Here the weight of the ball would often cause the soil to compact under the tree. This settling often results in the tree being planted 4 to 5-in. too low. For large trees transplanting slightly higher than the depth at which it was growing is paramount. After backfilling completely, a saucer of earth should be developed around the base of the tree. This saucer of earth is extremely helpful in that it collects moisture and, therefore, on sites where watering is difficult, provides maximum chance to collect and supply water.

When moving large trees, our greatest success results when the plant is mulched heavily. Mulching not only reduces evaporation and frost heaving but also limits weed growth and, therefore, competition.

When considering fertilization at the time of planting, the experts remain at odds. One recommends working fertilizer into the soil; another, no fertilizer for the first year. Generally speaking, our experience has shown that working dehydrated manure, e.g. sheep or cow, into the soil not only provides some soil conditioning but also a small amount of nutrients. Organic matter certainly has been one factor in assisting us with plant success.

Watering has been and remains paramount in transplanting. At the time of transplanting, one should water thoroughly, soaking the root ball as well as the soil surrounding the ball. This eliminates air pockets. Watering the plant provides sufficient moisture for 5 to 7 days. A thorough watering every 7 to 10 days dramatically increases the success ratio. More frequent watering not only encourages root rot but dramatically decreases transplanting success. More trees rail from overwatering than from underwatering.

Staking of trees—to stake or not! Most agree that evergreens, e.g. pines, spruce, should be either staked or wired in place. This reduces the opportunity for the tree to blow over or becoming loose in the ball. Our experience has shown some desirability to stake 2 to 3-in. trees. Whether this truly helps the tree or simply provides another barrier to keep lawn mowers from the tree trunk is a moot point and certainly not one that has been heavily researched. But in moving large trees, we still feel staking has a place.

The degree of transplanting success certainly includes a science, e.g. time, species selection, mulching, and hole preparation; an art—lacing a ball so that the soil does not become loose around the root system; and luck. If weather conditions are favorable, again, the degree of success is increased, although transplanting can be done almost any time of the year with some success. One must still follow good practices for consistent results, e.g. timing, species selection, site preparation, and watering.