Fertilizer Packets

Inorganic Chemical Fertilizer – Continuem Pak 18-9-9 +9 Sulfur

Transplant Fertilizer Packs - Nutrient Delivery Systems

Fertilization At Planting: *Why it makes a huge difference in plant establishment & long-term growth in forestry and habitat regeneration projects*.

Nursery seedlings, whether container-grown, such as pictured or bare-root, have a compromised ability to supply moisture and nutrients to establish and maintain healthy development. This is because, when initially planted, their root system is not yet integrated into the soil they need to draw their resources from. Without an adequate root system in the position to uptake site resources, plants alter their metabolic processes in order to conserve what little they currently have.
This phenomenon is commonly referred to as "Transplant Shock." Once plants begin the biological transition, the effects can alter the growth pattern for their entire life cycle.

There is no more critical period in a plants' life than the establishment phase. Seedlings lacking adequate nutrients during the establishment phase can turn into stunted forests down the road. The first 12 months after transplanting is a critical time for seedlings. Without the ability to continue to grow roots and foliage, the plant is incapable of producing the stores of carbohydrates required for early spring growth. Without these energy reserves, the seedlings will not only miss that early period of development, but the future growth pattern of the tree will also become modified. As buds develop during the latter part of the growing season, future growth patterns are defined that determine how many leaves/needles are

formed, how many lateral branches are grown, and how much energy will be spent on new growth. When "Transplant Shock" occurs, the natural drive for survival will limit the development of the number of branches and foliage that is being programmed into future growth. The amount of carbohydrates allocated for development is easily observed by the size of newly formed buds. If energy reserves are abundant, then fat buds will assure that growth will be closer to the plants "full genetic potential". If the buds are small, the outcome will be less growth with fewer lateral branches and less foliage. A pattern of handicapped growth of both the roots and shoots will reduce biomass accumulation and require a much longer period for stands to mature.

Fertilization at planting with RTI Planter Paks is part of a successful silviculture regime. Properly implemented, using RTI's Planter Paks at the time of planting will eliminate "Transplant Shock" by providing a supplemental source of plant nutrients that is readily available to the seedlings. This reduces the plant's use of energy to search out nutrients and allows them to put more resources into growing a strong root system. In turn, the greater abundance of resources taken up by the larger root system allows the plant to maximize the development of foliage required to produce carbohydrates for current season and future growth.

RTI Planter Paks are designed to be dropped into the planting hole next to the transplanted seedling. The biodegradable packets contain 10 grams, 20 grams or 30 grams of a controlled release and/or "Organic" fertilizer depending on the type. When soil conditions are suitable for root growth the nutrients slowly release for up to two years, assuring that seedlings receive an adequate supply of nutrients while they are developing roots and becoming established. The nutrient delivery system is so efficient that a paper published in the American Journal of Soil Science noted that less than 1% of the nitrogen contained in the Planter Paks was leached, the rest was used by the plants.

Once planted, nursery seedlings must rapidly grow their root system to capture the site and to support early growth.

Control vs. Fertilized at planting

The pine seedling planted with an RTI Planter Pak has a greater root surface area, more photo synthesis capacity and a greater amount of carbohydrates in storage to drive early spring development.

Planter Paks are a cost-effective alternative to herbicides and other vegetation management practices. The treated seedlings can outgrow much of the competing vegetation, ultimately saving you the cost of further intervention. In addition, using RTI Planter Paks can increase survival and provide greater resistance to drought and early frosts as well as quicker recovery from animal browsing if it occurs.