

Daltons Limited Growing Media: Production, Management, and Quality Control[®]

Graham Saltiel

Daltons Limited, PO Box 397, Matamata

A BRIEF FAMILY HISTORY

Daltons Limited is a family-owned company established 54 years ago by Mr. John (JD) Dalton and his wife Mrs. Francie Dalton. The core business at that stage was river shingle for roading, milk tanker tracks, and building projects. From this start, general freight was then undertaken with transport plying between the Waikato and Bay of Plenty. Eventually the freight division of the business was sold and the present site of 100 acres was purchased for its deposits of sand and pumice. Over 2000 years ago Lake Taupo erupted and huge deposits of sand, pumice, and silt were left in the old original river bed of the Waikato River.

Since quarrying began at Hinuera, the diverse product range has been widely used. It very quickly became evident to JD that this Hinuera sand was perfect for the ready-mixed concrete industry and two major projects; the Kaimai Rail Tunnel (over 4 km long) and the Arapuni Dam refurbishment, are testimony to this. Today the sand division still has a major role to play within the business, especially now that there are recognised uses for the many by-products of sand production.

One of these by-products is Daltons pea sand, widely used for roading, horseboxes, and the like. Because of the high pumice content in the pea sand, and its unique physical characteristics, nurserymen were soon encouraging the manufacture of potting mix. In 1977, with the assistance and advice from people, such as, Mr. Peter Fraser and Mrs. Noelene Parr, the manufacturing of Daltons potting mix began under the direction of Mr. Neil Dalton. Today, Daltons Limited is a market leader in potting mix manufacturing and bark processing.

MANUFACTURING: THE REASONS FOR A PEAT SUBSTITUTE

The buying in of Hauraki peat and a small-scale bark processing operation enabled Daltons Limited to begin manufacturing a good quality potting mix. However it soon became apparent that peat was subject to many factors that influenced the mix quality. The weather played a major part in the decision of whether to harvest or not and the physical properties changed somewhat depending on the mining depth or length and place of storage. This made it very difficult to produce a consistent mix for our customers and, therefore, led to the purchase of the fibre making technology from Forest Products Ltd.

Over the next few years Daltons Limited developed a purpose-made peat substitute, specifically for horticulture, being both consistent and predictable. This resulted in complete control over each base material going into a mix and gave Daltons Limited the ability to custom blend a mix to suit any plant species, management procedures, and climatic conditions, etc.

Bark fibre has the same physical properties as peat. Bark is consistent in quality, has properties that help promote root growth, assists in water absorption while maintaining its structure within a container and with an added percentage of

pumice or sand, makes an excellent propagation medium. With our team of qualified mechanics and engineers, Daltons Limited has been able to build purpose-made machinery that enables us to process raw materials to most specifications.

INNOVATIONS

Daltons Limited has taken the initiative and introduced many innovations in our quest for the best possible quality and results. Trichoprotection™ (*Trichoderma* species) (Agrimm Technologies Ltd., Christchurch) was introduced in all commercial and retail mixes and it is still exclusive to Daltons Limited in the retail bagged products. Many commercial growers include Trichodry™ (*Trichoderma* species) (Agrimm Technologies Ltd., Christchurch) in their custom-made mixes with great success and the home gardener can rest assured that all Daltons Limited mixes are chemical free and environmentally friendly.

Daltons Limited has clear lamination over their retail bags to enhance the appearance of each product and to prevent undue marking in transit and in handling. Acting on suggestions by the Consumer Institute, Daltons Limited introduced a date of manufacture stamp and information panel. Daltons Limited is still the only manufacturer to inform the customer of the date of manufacture and in doing so has ensured correct stock rotation and correct product usage by retail outlets and aided in management and traceability of raw material source when required.

The greatest advantage of the date of manufacture stamp is undoubtedly the prevention of any consumer using an out-dated mix, resulting in inferior growing results and negative feelings towards both the retailer and the mix manufacturer.

QUALITY ASSURANCE

In 1998 Daltons Limited implemented our "Quality Assured Potting Mixes" programme, in conjunction with Southern Horticultural Products Ltd of Christchurch and with assistance from Mr. Donald McPherson of Caraan Agencies. Each heap of raw material is numbered and given a unique identification code. Each week all product is tested for pH, temperature, conductivity, moisture content, toxicity, and particle size. Regular growing trials are conducted on all base materials and stock mixes; client mixes are tested regularly. These, along with germination tests are photographed and stored permanently for reference. On a regular basis product samples are sent to R.J. Hill Laboratories, Hamilton, for a complete analysis and raw materials are submitted to NZ Plant Protection: Agriquality NZ, Auckland; Plant Wise, Lincoln; and Agrimm Technologies Ltd, Christchurch for analysis of pathogen levels and *Trichoderma* species effectiveness. Every quarter, R.J. Hill Laboratories carries out a comprehensive audit on site with regard to manufacturing procedures, methods, and record keeping. R.J. Hill Laboratories also undertake to verify the accuracy of the temperature probes, pH, and EC meters and test weight scale balances used by Daltons Limited against their laboratory equipment.

SOILLESS MEDIA

One cannot dispute the quality of Mother Nature's own soil but demands and sheer volume rules it out as a container mix. A lack of consistency, availability, and coupled with its lack of structure in a container led to the use of soilless media. There is a large range of raw materials available to the horticultural industry. In New Zealand we are able to choose from bark, peat, coir fibre, and bark fibre, green waste,

pumice, and sand. This gives endless opportunities for the manufacturers to provide a mix for any given plant type, situation, or condition. Communication between grower and manufacturer is one of the essential ingredients for a successful mix. The manufacturer must be fully informed as to what a grower wants, what he/she expects from his/her crop, what the management issues are, what the irrigation system is, is the crop outside or under cover, is the under cover situation heated, and so on? Once a mix has been formulated, blended, and is in use by the grower, then communication is continued so that both parties can have input based on crop progress and management issues. As this communication takes place then small adjustments can be made in successive mixes and the goal of achieving absolute quality becomes closer.

MEDIA MANAGEMENT AND STORAGE

Once a mix is formulated and manufactured it is then imperative that the best possible performance is achieved. Management of the mix plays no small part in achieving this. The manufacturer must take care in using the correct ingredients and nutrient blend. The correct procedures must be followed in blending, batch mixing, recording, and delivering. The transport must be clean, the load covered, measured, and tipped where required.

Ideal storage is on a concrete base and roofed so there is ample airflow over and around the mix. If the mix is covered with a tarpaulin or polythene it is our recommendation that adequate airspace is left between the cover and the mix. Always have a barrier between the mix and the ground. Correct storage of the mix has an effect on fertiliser longevity. Ideally, store the mix in a long low heap to prevent any heat generation. Alternatively, if the mix is stored high, covered with no allowance for airspace, then some heat can be generated, which in turn can accelerate nutrient release whilst in storage. It must be realized that the mix still needs correct management even when in a container and in the nursery. Care must be taken that the standing out area is clean to eliminate any invasion of "nasties" via the ground. Overwatering should be avoided to prevent nutrient loss and a simple exercise can be undertaken to determine irrigation volume and time.

Retail bagged product should be inspected on arrival for any damage. Ideally the storage and display areas should be cool and under-cover, not in direct sunlight, as heat will accelerate nutrient release. Rotate stock and take out of rotation any product that is old, according to the date of manufacture stamp.

Nurserymen and manufacturers must have mutual confidence in each other and must use all communication avenues available in order to maintain contacts in respect to all aspects outlined above, so that together, optimum results are achieved. Working together as a team is the recipe for success.