

NURSERY 'KNOW HOW' : #3 Quality Potting Mix

McHort

KNOW HOW

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Quality Potting mix is, put simply, the inter-relationship of three key factors, chemical, physical and biological, precisely defining a potting mix. Quality results when the correct balance of suitable stable components and ingredients are used.

Quality is compromised even when superior components are selected if the critical blend and balance is not correctly engineered.

Not all potting mixes are equal and not all potting mixes are capable of growing quality plants. You should specify to your supplier exactly what you require and be prepared to check the accuracy attained regularly. Mix specification and consistent adherence to the specification is critical.

A more detailed look at each key factor will illustrate quality issues.

Chemical properties are expressed and measurable as pH, conductivity, Nitrogen stability, toxicity, nutrient balance, amount and longevity.

pH

Most ornamentals are happy in a mix pH 6 - 6.5 (5 - 5.5 for acid lovers). Adjustment of mix pH is achieved by adding calculated amounts of liming materials; e.g. Ag. Lime and Dolomite lime. Each variant in base mix components; i.e. bark to pumice ratio, has the potential to change the liming requirement to achieve the same pH point. Low levels of lime input may require additions of Calcium as Gypsum and/or Magnesium as Kieserite to ensure adequate supply of these elements to your crop. Small particle sized liming materials will alter mix pH faster but may not hold it in the desired range for long enough. Use liming agents with fine particle size for short term crops and a mixture for longer term crops.

Conductivity or soluble salts level in your mix should not exceed Ec. 2.0 when potting pot grown G.O.L.'s, Ec. 1.2 if potting up cuttings or seedlings.

Ec. is quantified using a 1:1.5 water extract method. Fertiliser type and rate has a bearing on the salinity generated. Soluble types are very fast acting with poor longevity and a high salinity risk. Slow release and coated types are longer lasting and produce less salinity. Blending different fertiliser types may be advantageous but must be used on an informed, thoroughly trialled basis.

Nitrogen stability, especially in relation to composted mix ingredients, is laboratory tested and reported as N.D.I. Look for a result 0.7 - 1.0 N.D.I., but always read in conjunction with Ec. The result can be fudged by high soluble Nitrogen fertiliser additions. A high salinity reading may indicate this.

Toxicity is assessed by sowing fast germinating seeds and counting emergence and survival. The most common causes of toxicity are by-products from incomplete composting, too much soluble fertiliser or contaminations. Woody, more mature plants are more tolerant than young tender seedlings. Ammonium toxicity is a problem in cool Spring conditions for a number of annual seedling crops. The toxicity is often as a result of using either Urea or ammonium fertilisers at too high a rate. A laboratory test will identify Ammonium toxicity. Levels of Ammonium greater than 50 ppm are of concern.

Nutrient balance, amount and longevity relates specifically to your crop, vigour, stage of growth, cultural practice and, ultimately, how much you want to spend. Significant savings can be made with careful and informed selection. Crop performance can be seriously depressed by getting the equation wrong, by either too much or too little!

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Physical properties to consider are Water Holding Capacity, Air Fill Porosity and component stability. These factors describe the precise relationship of air to water to solid matter in a given mix. The W.H.C. is an expression of total water held in a mix after draining. Selected components in the mix should remain stable for the entire production cycle of the crop and not be prone to excessive breakdown or shrinkage. Most crops will be happy with 45-55 WHC and 18-25 AFP. Container shape and size should be considered when engineering the growing media. Shallow containers with a large relative surface area can accommodate a lower AFP and higher WHC especially when growing annual seedlings at a high density; e.g. annuals in punnets or cell trays.

Irrigation management has a powerful effect on crop performance, so your management capabilities and how they relate to the potting mix are equally critical. Re-wettability of a mix is a serious issue. Many consider re-wetting agents as essential but test first! Add one with your fertiliser inputs only if necessary. The rate applied will determine how long it remains effective. Use a rate of 0.5kg/m³ for short term crops and 1kg/m³ for longer term woody crops. Higher rates offer little tangible benefit. Granular formulations are preferred to liquid forms. Liquid forms require repeated applications and increase the risk of crop injury due to toxicity. Ultimately, plant roots fill the air spaces that would potentially fill with water. No amount of wetting agent helps!

McHort, McPherson Horticulture
Mobile: 021 782250
Email: info@mchort.co.nz
www.mchort.co.nz



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Heat in a fresh mix is a healthy sign
Temperatures above 35—40 C, however, will need careful management. Spread out a hot heap to dissipate the heat. Apply cooling water, if necessary. Avoid building any potting mix into a heap higher than 1.5m. A bark based mix that is delivered and remains cold is of far greater concern! The lack of heat might indicate very little microbial activity and a consequent lack of disease suppression.

Microbial issues

A good mix will be rich in diversity and amount of beneficial organisms, fungi and bacteria. The composting process not only enriches beneficials, but also usually reduces the pathogen population. This is a significant and real bonus not usually associated with peat mixes. Composted materials are probably less likely to contain either pests or weed seeds. The pasteurising effect during composting usually takes care of that. Additional beneficials can be added to any potting mix. *Trichoderma* is one such organism, more are becoming available. These include bacteria, amino acids, brassinosteroids and glycosides. McHort are developing uses for a number of commercial products in this area including Seamac PCT, Numax, Terra-Sorb and VitaZyme. Bark and wood waste composted mixes will support larger and more viable populations than peat based mixes.

Impartial, quality, advice is available from McHort. We don't make or sell potting mix, so you can be sure that we will only recommend a potting mix specification for your exact needs. Call today for a free consultation; our knowledge and experience in this field is simply unrivalled.

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