WHAT IS BROADLEAF P4 & HOW DOES IT WORK?

For optimum growth plants need 3 things from the soil or compost:

MOISTURE, AERATION, NUTRIENTS.

Broadleaf P4 helps improve availability of all three. At the same time it can extend intervals between irrigating by treble and more, saving time & money.

Broadleaf P4 is a granular polymer that can absorb hundreds of times its own weight of water.

When the granules come into contact with water they absorb it, swelling to form discrete particles of water-charged gel.

Incorporated into soil or compost, the polymer acts as thousands of tiny reservoirs of 'contained' rain or irrigation water. Soil and compost water-holding capacity is greatly increased and the roots of the growing crop colonise the gel particles, from which they can extract over 95% of the stored water as required, over a prolonged period of time.

This dramatically reduces plant losses to moisture stress and improves establishment & growth. Soil and compost are also easier to re-wet, reducing the need for wetting agents. Wilted plants recover quicker when water is applied after drought stress.

Because the polymer holds water so efficiently, losses by evaporation and percolation are reduced, so fewer nutrients are leached away. In fact, dissolved nutrients can be absorbed into the polymer and extracted from it by plant roots unimpeded, further improving nutrient usage.

The presence of the gel particles increases the porosity of soils and compost, counteracts compaction and creates a permanently open, well aerated structure. This promotes development of strong, extensive root systems which are better able to support vigorous, robust top growth. It also alleviates waterlogging by facilitating drainage of surplus water beyond field capacity (so long as a drainage channel exists).

Broadleaf P4 is inert, safe for all plant species in all types of growing media and is non-contaminating; is durable in most growing conditions and crop production systems, giving several years of environmental benefit; has unlimited drying out and re-hydrating capacity.

HOW TO USE FOR BEST RESULTS

Broadleaf P4 is a free flowing granular material and blends readily with any growing medium. To provide its full benefit from the start of the growing cycle, 'P4' must be (1) uniformly mixed throughout the growing or planting medium and (2) fully hydrated (charged with water). Wherever rainfall will not accomplish this it can best be achieved by irrigating initially to field capacity and one or 2 hours later (during which time the polymer will be hydrating) irrigate again to fully restore field capacity. This will ensure that both the polymer and the surrounding soil or compost are adequately charged with water.

COMPOSTS/POTTING MIXES
Ensure even distribution of the P4 throughout the compost. This provides the additional benefit of a better textured/aerated growing medium.

SOIL
For shallow planting (vegetables, annuals, ground cover, etc.) blend the P4 granules with the soil to a depth of 20 or 30 cms depending on the depth of root penetration of the vegetation to be grown. For pocket planting see section on tree planting. P4 does not dissolve and infiltrate like fertiliser, so it must be placed in the soil profile where the roots will be active.

The *guidelines for* RATES *of application are* set *out in the following sections.*
N.B. 1 gm/litre is pro-rata equivalent to 1 Kg/m^3.

Propagating

1. *Seeds and Cuttings.*
Striking improvements in germination rate and root growth are achieved when P4 is blended at 1 gram per litre of propagating medium.

2. *Plugs/Modules.*
Mix 1 gram of P4 per litre of compost. This creates a very superior seed environment with a much better balance between water supply and aeration. Plants will also get away better after transplanting.

For very small cells we can supply Broadleaf P4 'Medium' (particle size 0.5 - 1.0 mm), which provides a more uniform mix with very fine compost.

Pot and Container Plants, Window Boxes, Hanging Baskets

Broadleaf P4 improves constancy of moisture supply & aeration, and also reduces leaching. Longer intervals between irrigating, stronger, more uniform growth and earlier market or display readiness are typical benefits.

Application guidelines:

1 gram of P4 per litre of compost.
Full grown container plants or hanging baskets on display, with their well developed leaf canopy and greater demand for water will benefit from the higher rate of 1.75 gms/litre. In addition, a 3 cms layer of pre-hydrated gel in the base of the container or basket (under the compost) will help to further extend watering intervals. NB: it will take 2 -3 weeks for the base layer of gel to become fully colonised by the roots and thus make available to the roots the extra water supply, so be sure to account for this when watering during that period.

Border Soil

Broadleaf P4 makes an immediate and long lasting improvement in structure, available water-holding capacity and porosity of hardworking soils. A single application will go on working for several years.

Application guidelines:

For high-density planting of shrubs, ground cover, bedding etc, apply 100 grams/m^2 and cultivate into the top 20 or 30 cms. For field sowing or planting (e.g. carrots, onions, brassicae, strawberries) P4 can be drilled into the seed row or precision placed in the soil at each plant station. For row drilling, 100 gms/m^2 would cover, e.g. 20 metres run of row at 5 cms scatter width. For placement at each plant station 2-5 gms per plant, depending on crop, soil and climatic conditions, would be suitable treatment rates.

Tree and Shrub Planting

Whether bare-root or container grown stock, trees & shrubs will better survive transplanting and require much less frequent irrigating with Broadleaf P4 at their roots. Greatly reduced transplanting losses & much increased extension growth are major benefits.

Application guidelines:

1 gram of P4 per litre of planting pocket capacity, well dispersed throughout. For shrubs or ground cover planted to a high density, apply as per recommendations for 'Border Soil'.

Interior Landscaping

Container plants in places of work and leisure will require much less watering when Broadleaf P4 is on the job day and night, metering a supply of moisture steadily and reliably as required. These high value plantings will look better and last longer.

Application guidelines:

As for 'Pot and Container Plants' at potting up. To apply in situ: work dry P4 granules as deeply as possible into the compost, taking care to minimise root damage. Where container grown plants are to be set into a larger bed, mix the granules into the surrounding bed.

Grassed Playing Surfaces

Broadleaf P4 improves soil structure as well as water-holding capacity, for stronger, deeper root growth and reduced watering requirement.

Application guidelines (new seeding or turfing):

ESTABLISHMENT RATE, apply 20 gms/m^2 and cultivate into the top 5 cms. Sow seeds or lay turf & irrigate to field capacity to fully charge the soil and polymer with water (unless there is adequate rainfall to accomplish this). This rate will assist rapid establishment.

MAINTENANCE RATE, apply 50 gms/m^2 for fine turf, 100 gms/m^2 for coarse turf and cultivate into the top 20 or 30 cms. Proceed as for 'Establishment Rate'. This will assist rapid establishment and also reduce irrigation and fertiliser requirements for the longer term.

SAND BASE CONSTRUCTION: As for 'Maintenance Rate', above.

Cane, Bush and Soft Fruit

These can be highly susceptible to drought and subsequent loss of crop size. Broadleaf P4 will maintain the moisture supply much longer, improve soil structure and help you achieve high-grade results even on marginal-grade soil.

Application guidelines:

100 grams m^2 cultivated into the top 20-30 cms applied in the row or individual planting station. For application to established crops cultivate into the soil as close to the plants as possible, taking care to minimise root damage.

Arid & Semi-Arid Conditions

Where hot, dry conditions cause very high rates of evapo-transpiration, P4 application rates should be adjusted according to the salinity of the irrigation water, as indicated below:

	Electrical Conductivity in $mS./cm^{-1}$		
	4	7	16
Increase foregoing rates by:	x2	x3	x4

Conversion Table:

1 gm/litre is pro-rata equivalent to 1 kg/m^3 or 1.7 lbs/yd^3. 100 gms/m^2 is equivalent to 1000 kgs/ha or 3 oz/yd^2 or 8 cwts/acre.

Further Information

The foregoing application recommendations are by no means exhaustive and there are many other plants/crops for which Broadleaf P4 will be beneficial. A guide for treatment can be taken from this leaflet or by contacting us direct, at which time all possible assistance is assured.

Specification

Chemical type	Polyacrylamide
Drybulk density	0.76 approx.
pH of absorbed water	Unaffected
Water-holding capacity in litres/Kg of dry product:	
De-ionised water	Up to 400
10% seawater	Up to 50
Time to achieve full absorption	60 minutes
Usable temperature range	1 - 50°C
Particle size range	0.5 - 2.8mm

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Broadleaf® P4

Water-Storing Granules

Stores water at plant roots *right* where it's needed, with the following benefits:

✓ Up to 75% less watering

✓ Improved plant growth

✓ Far fewer transplant losses

✓ Less fertiliser wastage

✓ Better soil & compost structure

✓ Improved root growth

✓ Years of benefit

✓ Environmental compatibility

Ideal for: *Propagating, Potting-up, Planting-out, Growing-on.*

Suitable for: *all plant species and all growing or planting media.*

Beneficial for: *Horticulture, Landscaping, Sportsfield/Golf-Course Construction, Forestry, Land Reclamation.*