

# The effect of **Broadleaf P4** on extension growth of apple trees

The commercial planting of an apple orchard represents a substantial financial investment and quick establishment and strong extension growth during the first year after planting will help to shorten the time to economic crop-bearing and a return on the investment.

Broadleaf P4 water-storing polymer was tested on the planting of an orchard at Ash, Canterbury to assess its effect on establishment and growth. The site is level, with 52-68 cms fine sandy loam overlying clay/sand.

Soil analysis revealed 62 mg/kg P, 210 mg/kg K and 140 mg/kg Mg. 5 tonnes per ha of ground chalk were applied to raise the pH from 6.1 to 6.5. The site was sub-soiled, ploughed and cultivated prior to planting. No fertiliser was added.

The apple cultivar is 'Coxes Orange Pippin' bench-grafted onto EMLA 9 virus-free rootstocks, planted in single rows 1.83 m apart with 3.66 m between the rows. Every 9th tree is a pollinator (cv: 'Discovery'). Fifteen rows (1094 trees) were planted with Broadleaf P4 incorporated into the soil backfill at the rate of 0.1% (1 gram per litre of planting pocket capacity) in a 30-litre pocket. The rest of the orchard, 13 rows (842 trees) was planted in similar fashion but with no polymer added. All planting took place during the last week of March.

During the summer a standard orchard spray programme was used. Increased growth and improved foliage condition was noted throughout the polymer treated area. Of the 1094 trees given Broadleaf P4 treatment. 26 (2.376%) were dead at season's end, compared with 143 dead (16.983%) of the 834 without polymer.

During the subsequent winter period 20 trees from each of the treated and untreated areas were selected at random throughout the orchard and measurements taken for extension growth of the central leaders and side-shoots.

The results are shown below:

	<u>P4-treated trees</u>	<u>Trees without P4</u>
Central leader growth (total for 20 trees)	826 cms (+191.87%)	283 cms
Side-shoot growth (total for 20 trees)	1956 cms (+222.77%)	889 cms
Total extension growth (total for 20 trees):	2782 cms (+212.72%)	889 cms
Average extension growth per tree	139 cms (+212.72%)	44.45 cms