

NUTRITIONAL DEFICIENCIES

PLANT HEALTH

NITROGEN (N)	NORMAL 4.9% MILD 2.5% SEVERE 1.9%	SYMPTOMS	TREATMENT – Apply Nitrogen fertiliser at rates indicated based on leaf analysis – Foliar application of 0.5kg urea per 100 litres of water will give a quick, but short term response – Address any root damage if possible
		DIAGNOSIS	
		– Leaves become pale green, turning yellow in severe cases – Discolouration is uniform across the whole leaf – Use leaf test to confirm deficiency level – May be insufficient soil levels of N – Check for root damage that could prevent N uptake	
POTASSIUM (K)	Young leaves develop small whitish spots Older leaves develop straw coloured burnt areas	SYMPTOMS	TREATMENT – Apply Potassium fertiliser at rates indicated based on leaf analysis – Foliar application of 2kg potassium nitrate per 100 litres of water will give a quick, but short term response
		SYMPTOMS	
		– Young leaves develop small white spots – Older leaves develop straw coloured areas & leaves eventually fall off – Use leaf test to confirm – May be insufficient soil levels of K – May be too much Ca or Mg in the soil suppressing uptake of K	
MAGNESIUM (Mg)		SYMPTOMS	TREATMENT – Apply magnesium oxide (where soil pH is 5.5 – 6.5) – Apply dolomite (where soil pH is <5.5) – Foliar application of 1kg magnesium sulphate per 100 litres of water will give a quick, but short term response – Symptoms may persist over winter despite Mg application, but disappear in warm weather
		DIAGNOSIS	
		– Distinctive pattern with vein area remaining green with rest of leaf yellowing – More often seen in cooler winter months & on older mature leaves – Use leaf test to confirm – May be insufficient soil levels of Mg – May be heavy lime, gypsum or potassium fertiliser applications suppressing uptake of Mg	
MANGANESE (Mn)	All veins remain dark green	SYMPTOMS	TREATMENT – Foliar application of 100g manganese sulphate plus 100g urea per 100 litres of water will give a short-term response – Never apply single applications of more than 1 t/ha of lime or dolomite per application on sandy soils, or 2 t/ha on other soil textures. – Where heavier rates are required, divide into multiple applications at 6 to 12
		DIAGNOSIS	
		– Lightening of the leaf tissue and darkening of all vein areas – Often seen in recently mature leaves – Use leaf test to confirm – Often caused by heavy lime or dolomite applications which make soil alkaline and inhibit uptake of Mn – More common in coarse sandy soils	
ZINC (Zn)		SYMPTOMS	TREATMENT – Foliar application of 100g zinc sulphate heptahydrate per 100 litres of water will give a short-term response – Correct long term by applications of zinc sulphate to the soil as indicated by the leaf analysis and/or soil reports
		DIAGNOSIS	
		– Seen in new leaves, bright yellow/green leaf colour between the veins, vein area remains green – Leaves are smaller and closer together on stem than normal – Use leaf test to confirm – May be insufficient Zn in soil – Possibly indicates conditions which suppress uptake of zinc including high pH or excessive levels of P or N	
BORON (B)	Typical lumpy & creased fruit caused by boron deficiency Boron is a micronutrient needed for successful pollination & fruitset	SYMPTOMS	TREATMENT – Foliar application of 100g Solubor per 100 litres of water will give a short-term response – Correct long term by applications of borax or Solubor to the ground under the vines – CAUTION: Excessive rates of boron can be toxic
		DIAGNOSIS	
		– May cause flower drop – Developing fruit can become lumpy and creased – Similar symptoms can result from viral disease, insect damage or poor pollination due to other causes – Use leaf test to confirm	