

MANAGEMENT ACTIONS V	HEAVIER SOIL	LIGHTER SOIL
Application Rates of recommended amendements	per hectare divided by 100 = rate per 100m ² Per hectare divided by 10000 = rate per m ²	
TEC (Total Exchange Capacity)	<p>HIGH Means there is a high proportion of clay present.</p> <p>Soils are heavy and can be slow draining so soil structure is important (organic matter & calcium)</p>	<p>MEDIUM. There is less clay in these loam and sandy loam soils</p> <p>They are generally better drained and easier to leach than the higher TEC soils.</p>
pH	<p>alkaline Due to high magnesium, potassium and sodium – calcium is generally low.</p>	<p>neutral to slightly acidic Magnesium and sodium are lower but potassium is high – calcium is still low.</p>
Organic Matter	<p>Low in most samples. Important for soil structure. Use compost rather than manure because it has less potassium which is already high. Apply 1-2cm deep in greenhouse and always work in with some nitrogen to speed up breakdown. Work in at least 3 weeks before planting. (field crops use at least 20m³/ha)</p> <p>Blend fertiliser and trace elements with an organic base eg humates are ideal. This will keep the nutrients available to the plants for longer.</p>	
Sulphur	High in most samples. Can indicate poor drainage or may be from a recent gypsum application.	Levels are good. Sulphur will leach from well drained soil and may be needed in fertiliser in future.
Phosphorus	High in all samples. Soil levels build up because P does not leach. Even at high levels it is important to apply some fertiliser P at seeding or with the seedlings at planting because phosphorus is important for establishment and early root growth. Use MAP because it is acidic in these alkaline soils.	High in most samples except for the newer soils. Soil levels build up because P does not leach. Even at high levels it is important to apply some fertiliser P at seeding or with the seedlings at planting because phosphorus is important for establishment and early root growth.

Calcium	Although pH is high calcium is low and needs to be increased to improve soil structure and drainage. Lime and gypsum are used or a combination of the two. Liquid calcium is also recommended to provide available Ca and to enhance leaching of sodium and salts.	Calcium is low and needs to be increased to improve soil structure and drainage. Lime dolomite and gypsum are used or a combination of these.
Magnesium	Is usually high and tends to make soil tight and sticky – high Mg soils set hard. Reduce Mg by adding calcium.	Mg is good to high in these samples
Potassium	Potassium is generally very high so fertiliser K is not needed. Plenty of available K will be supplied in compost for maintenance. Use composted green organics rather than manure.	Potassium very high in most samples so fertiliser K is not needed. The exceptions are the newer soils that still need some sulphate of potash. Plenty of available K will be supplied in compost for maintenance. Use composted green organics rather than manure. High potassium will suppress the uptake of magnesium in this soil so test levels with a leaf test and apply magnesium foliars if necessary.
Sodium	Exchangeable sodium is high (sodic soil). These soils tend to disperse when wet and then set hard when dried. High sodium can suppress the uptake of potassium into the plants even when soil K levels are adequate. Leaf test and use K foliars if necessary. Reduce sodium by adding calcium (lime / gypsum) and by adding liquid calcium followed by leaching. The soils may need to be deep ripped to incorporate the calcium and open them up for leaching.	Exchangeable sodium is good to high

EC – salinity	High levels of soluble salts. The soil needs to be opened up and leached to flush the salts out of the root zone.	Acceptable levels of soluble salts.
Chlorides	Chlorides are a measure of the amount of sodium chloride present.	Chloride levels are good due easy leaching in lighter soils
Boron	When drainage is poor, boron can build up in the soil to levels that are toxic to boron sensitive crops. Boron can be leached but is more difficult to move out than salt. Ensure that crops have good calcium nutrition – use liquid calcium on the soil and calcium foliars on the leaves to minimize the boron effect.	Boron can be lower in lighter soils and should be added in the fertiliser program where indicated. Boron is essential for healthy flowering and fruit set so apply in foliars as well.
Trace Elements	Trace element levels vary so include them in the preplant fertiliser if necessary and apply as foliars during the crop based on leaf testing.	Trace element levels vary so include them in the preplant fertiliser if necessary and apply as foliars during the crop based on leaf testing.

Notes prepared by Phil Barnett - ProAg



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