



## ANALYSIS REPORT:SOIL NUTRITION

## TEST NEEDS AUSTRALIA

Document No: AR: [REDACTED]	Client ID : [REDACTED]	Crop:Almond	Depth 15cm	Date of test: 20/06/2020
Client Name : <b>Good Almond grower</b>	Sample ID [REDACTED]	Sample Name : ALMOND BLOCK 2	Date of report issued:28/06/2020	Date of sample submission:17/06/2020
Phone: 04- [REDACTED]	Address: <b>Western Victoria Australia</b>	Email: <a href="mailto:sales@[REDACTED]">sales@[REDACTED]</a>	Test: Chemical -Soil	Date Received :17/06/2020

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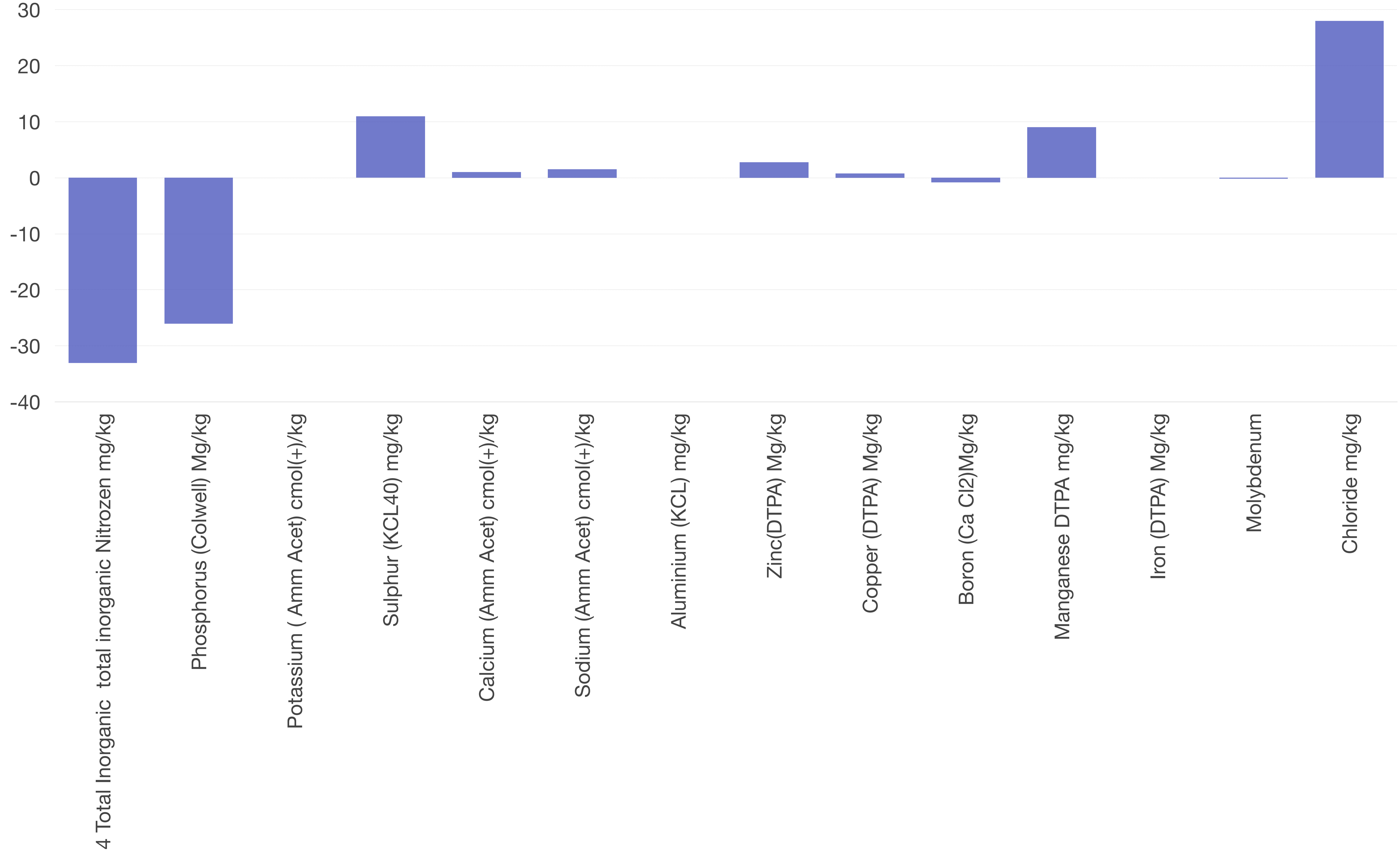
## 2.0 Nutrient results and desirable levels

Name	Result	Desirable level	Diference
Nitrate Nitrozen Mg/kg 13 Ammonium N Mg/kg	17	50	-33
4 Total Inorganic total inorganic Nitrozen mg/			
Phosphorus (Colwell) Mg/kg	12	38	-26
Phosphrous Buffer index	81	190	-109
Potassium ( Amm Acet) cmol(+)/kg	0.78	0.8	0
Sulphur (KCL40) mg/kg	23	12	11
Calcium (Amm Acet) cmol(+)/kg	16	15	1
Magnesium(Amm Acet) cmol(+)/kg	12	9	3
Sodium (Amm Acet) cmol(+)/kg	1.9	<0.5	1.5
Calcium /Mg Ratio	1.3	1.5	0
Aluminium (KCL) mg/kg	<9	1	0
Zinc(DTPA) Mg/kg	4.0	1.2	2.8
Copper (DTPA) Mg/kg	1.8	1	0.8
Boron (Ca Cl2)Mg/kg	1.0	1.8	-0.8
Manganese DTPA mg/kg	13	4	9
Iron (DTPA) Mg/kg	34	>30	0
Molybdenum	<0.01	0.17	-0.17
Chloride mg/kg	40	12-18	28

### 2.1 Note: Nutrient Level:

Soil is with low inorganic N, there is less likely organic N stored in the soil due to poor OM. Leaf test may show some adequate N in the leaf. Soil is lacking Phosphorus too, however due to low P Buffering index ,soil allowed all applied phosphorus to make it available to plants, leaf test may show P at adequate level ,K level is normal . Although, soil test is showing high Sulphur , due to balanced Ca level soil PH stands at desired level.Ca and Mg levels are ok . Ca:Mg ratio is slightly below , so there is room to feed Ca to improve the overall nutrition .Soil is slightly above in Zn ,Boron is less or it must have absorbed , but soil is high in manganese and copper. Attention needed on sodium and Cu levels . traces of Molybdenum is needed to inject.

## 2.2 Nutrient graph





Nitrate Nitrogen Mg/kg 13 Ammonium N Mg/kg

### 3.0 Fundamental test results

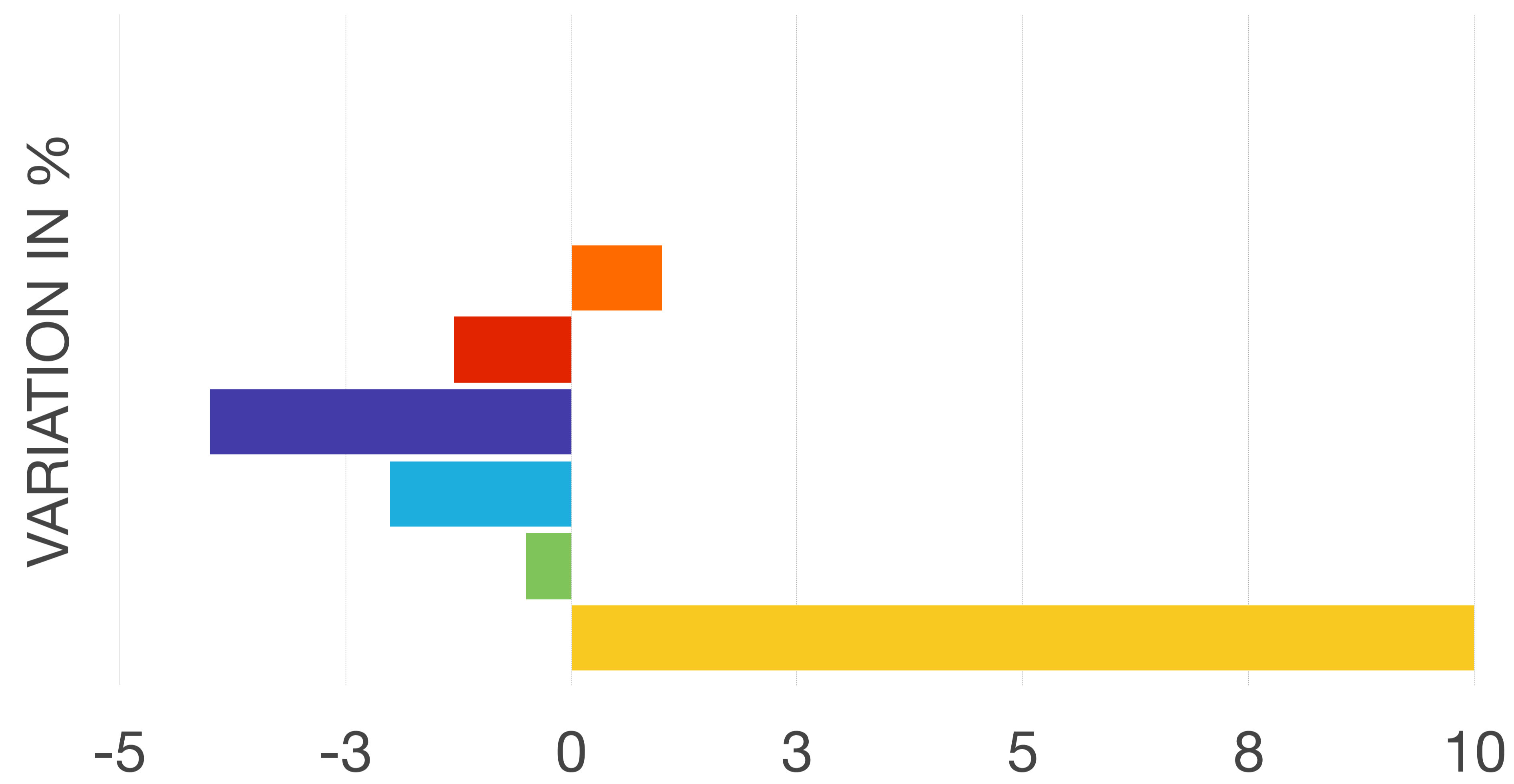
#### FUNDAMENTAL TEST RESULTS

TEST NAME	Result	Desirable Level	VARIATION IN %
pH (1:5 water)	7.5	6.5 - 7.5	0
pH (1:5 Cacl <sub>2</sub> )	6.5	6	0
Electrical conductivity dS/m 1:5 Water	0.17	< 0.5	0
Electrical conductivity ( Sat.Ext)dS/m	1.1	> 0.05	1
Organic carbon %	0.5	1.5 to 2	-1
Organic matter %	0.9	6	-4
Total Nitrozen%	1	2.8	-2
Carbon :Nitrozen Ratio	0.5	0.5	-1
CEC in cmol(+)/kg	30.1	20 cmol(+)/kg	10

### 3.1 Note Soil Chemistry

Soil PH is perfect for almond .Soil conductivity is manageable however less Organic matter can results in nutrient disorders in future, specially during crop growth stages . improving OM is highly recommended . C:N ratio can be improved . CEC is good due to clay nature , it can be even improved with proposed soil improvement .

**3.2 Cation exchange : Cation exchange capacity is good as per the test results , however soil amendments needed to improve Organic carbon**



■ pH (1:5 water)

■ Electrical conductivity ( Sat.Ext)dS/m

■ Total Nitrozen% 1 2.8

■ pH (1:5 Cacl2)

■ Organic carbon %

■ Carbon :Nitrozen Ratio 0.5 0.5

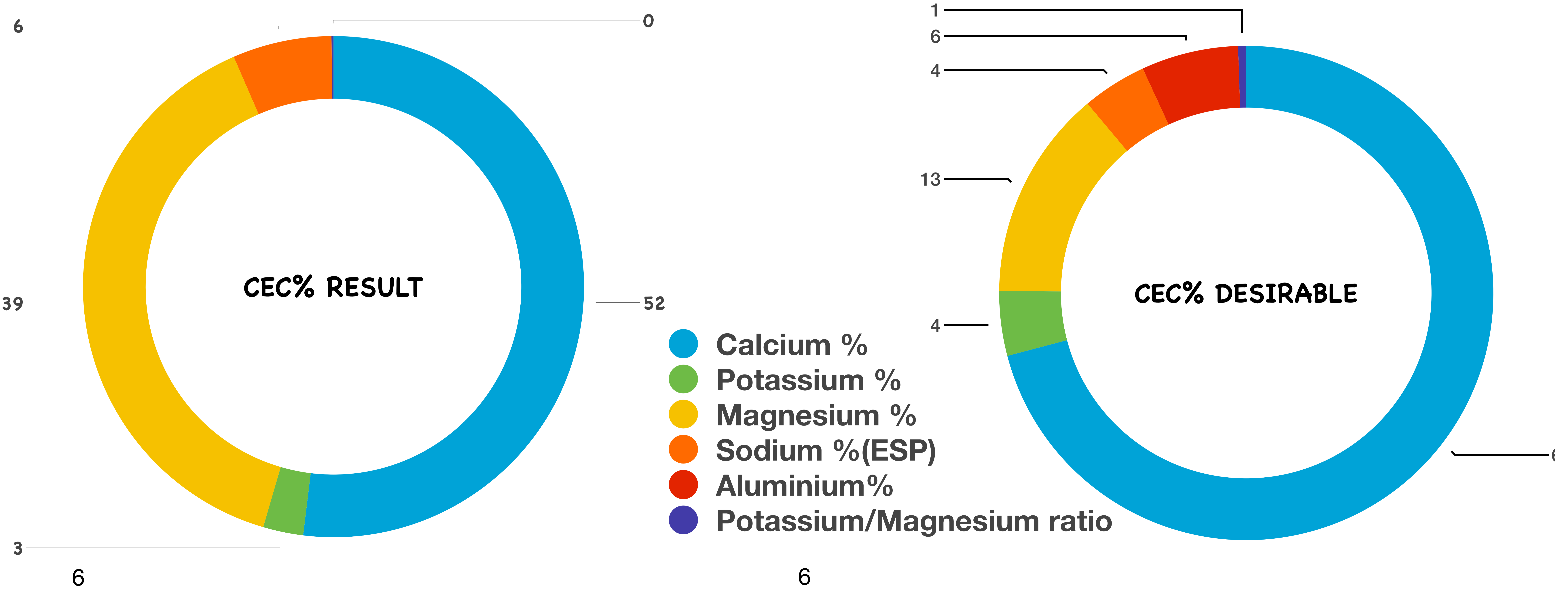
■ Electrical conductivity dS/m 1:5 Water

■ Organic matter %

■ CEC in cmol(+)/kg 30.1 20 cmol(+)/kg

### 3.3 Cation results and desirable levels

Exchangeable cation balance	Result CEC in %	Desirable CEC in %
Calcium %	52	67
Potassium %	2.6	4
Magnesium %	39	13
Sodium %(ESP)	6.4	4
Aluminium%	<1	6
Potassium/Magnesium ratio	0.13	0.5



#### 4.0 Soil Biology test results **NA**



#### 4.1 Note Soil Biology -NA

The soil indicators were all good. Resulted at 93.4 % indicates the biology at a desirable level. The total mass of microbes in your sample was good. Biomasses of other key desirable microbe groups were also good. Protozoa, which were good here, are important for nutrient transfer and cycling between soil trophic levels, and can be sensitive to agrochemicals, particularly herbicides. True anaerobes were elevated, which indicates that this soil was recently waterlogged, or compacted. Microbial diversity was fair. The fungi to bacteria ratio was fair indicating an unbalance between both groups. These results suggest that management practices should initially focus on building microbial diversity. Re-test periodically, and once biomass has improved concentrate on minimising True anaerobes, building microbial diversity and biomasses of any key desirable groups that remain low.



### **General Note on Soil Biology: NA**

Test Needs measures the biomasses of key microbial groups directly from your sample. It uses molecular ('DNA type') technology to analyse the unique cell membrane 'fingerprint' of each microbe type to identify and quantify key groups important to soil processes. This method is more accurate and precise than other methods, such as direct microscopy or plate culture, because it uses chemical extraction to remove the maximum amount of microbial material from the sample and is repeatable to 0.01% between replicate analyses. It measures organisms that are alive or recently dead (within a few days). Always compare your results with a control sample. Guide values are included as a help, but because a large number of factors affect microbiology the guide levels may not be optimal for your specific conditions.

### **5.0 Recommendation:**

**Applying soil amendments to increase the organic matter is a better option , there is a room to improve soil biology, leaf testing is recommended to know the N and K level in the leaf , Phosphorus levels can be increased by direct application of Rock Phosphate or marine Phosphate such as bone meal, removing copper and manganese from the soil ,up to a normal levels is highly recommended . Trace elements like molybdenum can be applied through drip or foliar . Anaerobic condition of clay can be improved by cultivation, such as loosening the soil/composting etc.**

### **Disclaimer:**

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