



### International Blackcurrant Conference 2016

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Who are ICL? Some of our Results Soil Health Reducing Fertiliser Leaching What have we lost?





#### **ONE ICL Specialty Fertilizers ÀICL**



### **AICL** ICL NEGEV Phosphate Mining







### **AICL** ICL DEAD SEA WORKS Potassium production

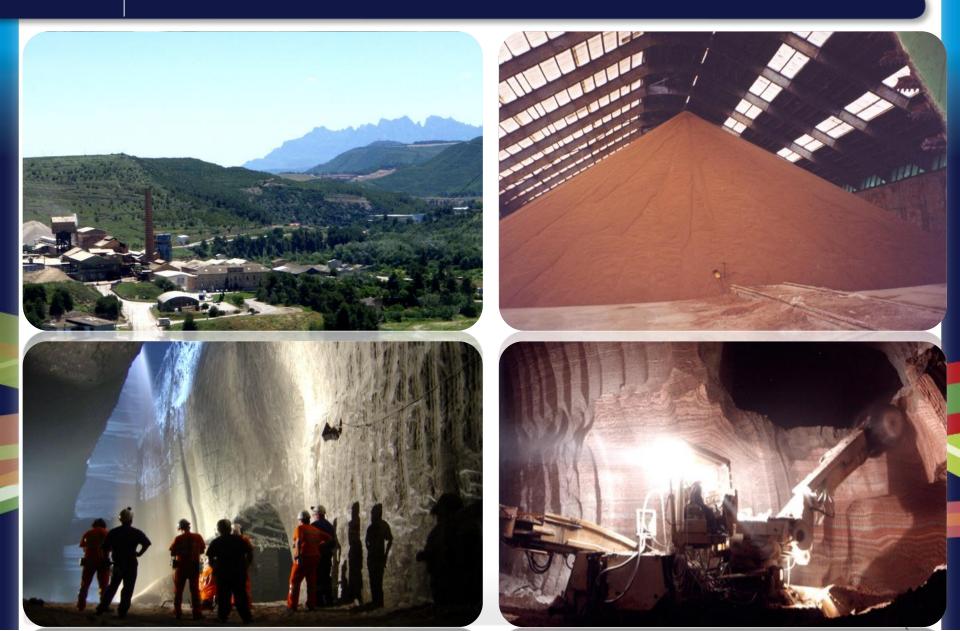




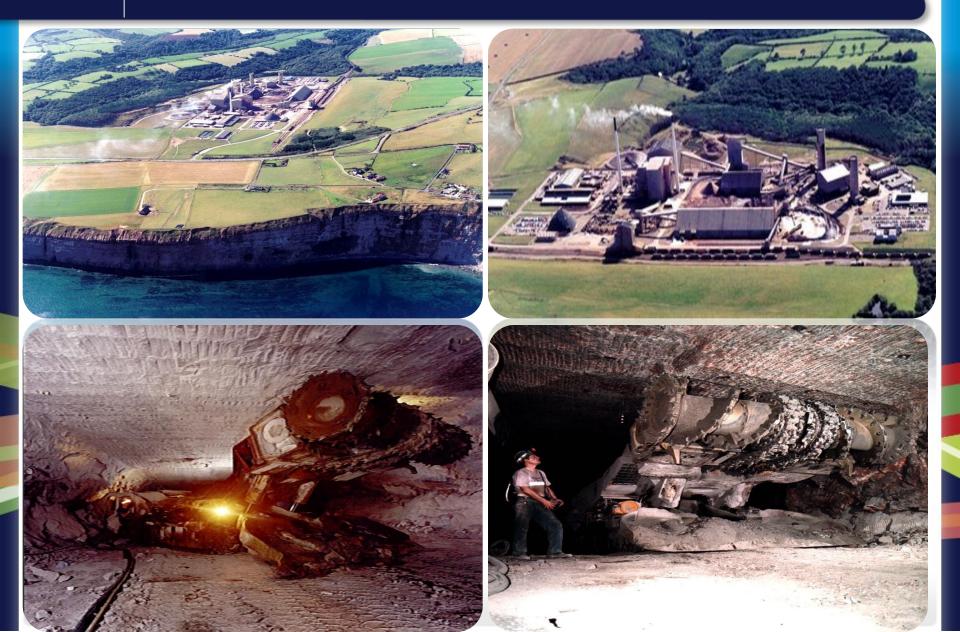




### **AICL** ICL Spain Potassium mining



### **AICL** ICL UK Potassium production



### **AICL** ICL: from source to solution



### **AICL** The next step forward

- Water conservation products -> H2Flo

products: biostimulants adjuvants surfactants wetting agents water conditioners tankcleaners







### **AICL** Reducing water with H2Flo



Where needs take us

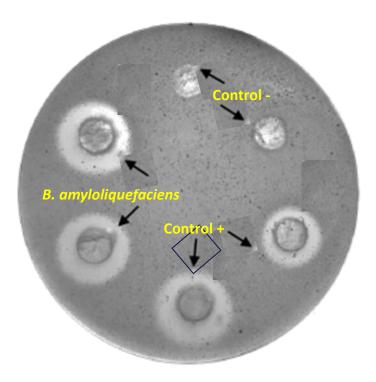
## **AICL** Developing Bio-stimulants

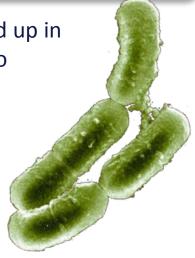




#### Bacillus amyloliquefaciens IT45 - mode of action

**IT45** improves plant nutrition by **solubilizing nutrients** that are locked up in the soil or growing medium. This is particularly evident with regard to phosphorus and metallic ions.





#### PO<sub>4</sub>H<sup>2-</sup> solubilization



### **AICL** Improving root structure







### **AICL** Encourage Soil Organisms







### In a teaspoon full of soil contains more life than there are people on the planet

#### A teaspoonful of soil can contain over 1,000,000,000 microbes





## **AICL** Under your feet



## **AICL** The Good Stuff in the Soil!

- 20-25,000 species bacteria
- 5-10,000 species fungi
- 100-200 species nematodes
- Protozoa (flagellates, amoeba and ciliates)
- Earthworms
- Mites
- Collembolan
- Algae

- Lichens
- Viruses
- Archae
- Actinobacteria
- Mycorrhiza
- Ants
- Termites
- Millipedes
- Centipedes
- Springtails



### **ÀICL**

#### Symbiosis between bacteria and the plant

Root exudates (the product of photosynthesis) are rich in sugars. They attract and nourish the bacteria of the rhizosphere.

The number of Bacteria present increases with the growth of the roots

SYMBIOSIS: bacteria are fed by the plant and in exchange they solubilise nutrients and stimulate the growth of roots. Some can also form a protective shield.



### **AICL** Do we use Bacteria or Fungi?



Woody Stem
Mainly a Fungi root zone



Non Woody Stem
Mainly a Bacteria root
zone



### **AICL** Water Management



### **AICL** Improving water penetration of Soil



#### UNTREATED After 3 weeks of irrigation

#### <u>H2Flo</u>

3 hours of drip. water immediately goes into the soil. 22



## **AICL** Over 50 we have lost (1940-91)

### **Vegetables**

- -49% Sodium
- -16% Potassium
- -24% Magnesium
- -46% Calcium
- -27% Iron
- -76% Copper

### <u>Fruit</u>

- -29% Sodium
- -19% Potassium
- +2% Phosphorous
- -16% Magnesium
- -16% Calcium
- -24% Iron
- -20% Copper
- -27% Zinc



# **Questions?**