





Ascogel



Global food security is at risk!

- Extreme environments challenge agricultural sustainability
- More than 850 million people go to bed hungry
- Chemical emissions exacerbating climate change
- Water is now a scarce commodity in many countries

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Hydrophobic soils

High temperatures create gasses that coat soil particles making them become solid over time.

Light rains fail to penetrate these soils, and heavy rains result in soil erosion, flooding and landslides





Hydrophobic soils as a result of wildfires

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Plant materials that burn hot release a waxy substance that penetrates the soil while still in gas form.

It takes very high temperatures to produce this gas which coats soil particles when it cools and becomes solid.

To the naked eye, hydrophobic soils look like their non-hydrophobic counterparts. But biologically speaking, these soils have become latent disaster zones.





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Replanting damaged areas

- Natural regeneration of forests devastated by wildfires can take up to 20 years if not assisted
- Surface cover is essential for carbon sequestration
- Reduces impact of raindrops falling on bare soils
- Shelters soil surface particles from wind erosion
- Reduces speed of water flowing over the land
- Root structures protect soil from land movement

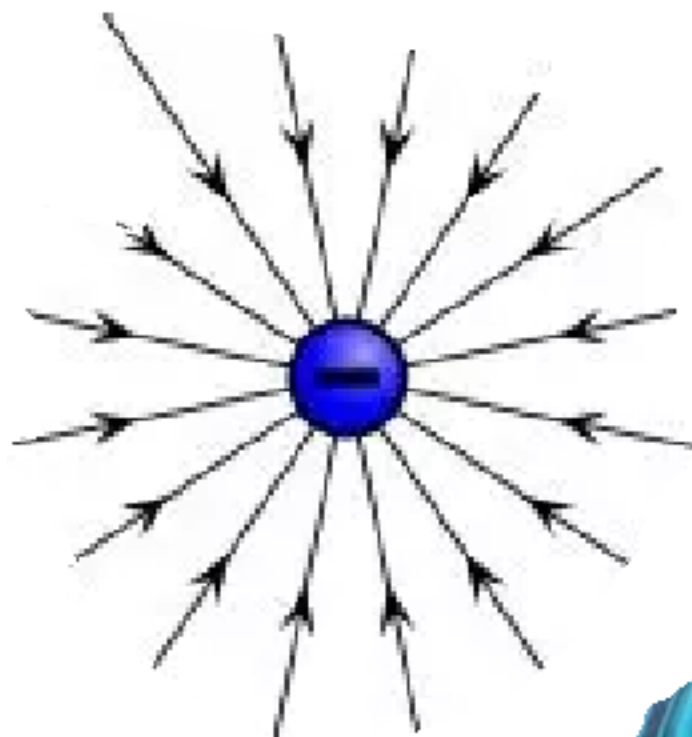
Ascogel ameliorates soil water stress during periods of drought

The logo for Ascogel, featuring the word "Ascogel" in a bold, black, sans-serif font. The text is set against a blue, circular background that has a torn-paper edge effect. Inside the blue circle, there are faint, stylized molecular or atomic structures with pink and blue spheres.

Electrical forces push inner structures of Ascogel particles away from their center via electrical repulsion.

Small voids are created inside the particles that draw in water causing rapid swelling of the gel.

When water is taken up by the plant, the particles within the gel shrink and are then ready to repeat the process.



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Holds up to 400 times its physical weight in water and contains:-

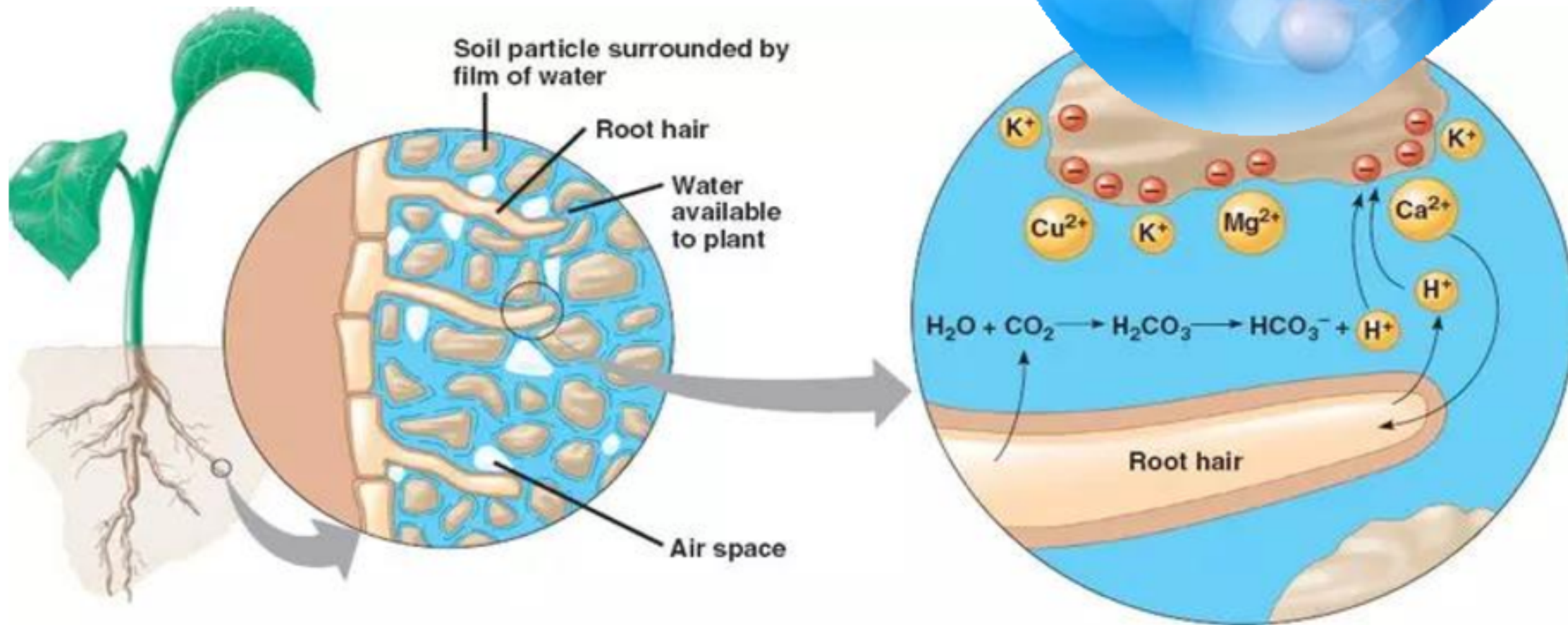
- **Saponins to release arid soil surfaces from hydrophobicity**
- **Betaines for improved recovery from biotic and abiotic stresses**
- **Polysaccharides to feed soil and plant life, plus alginic acids for improved nutrient assimilation**



Nutrient leaching is a major concern.

Percolating rainwater removes high levels of nutrients in low CEC soils. Ascogel creates a colloidal zone around plant roots to hold nutrients until required by plants.

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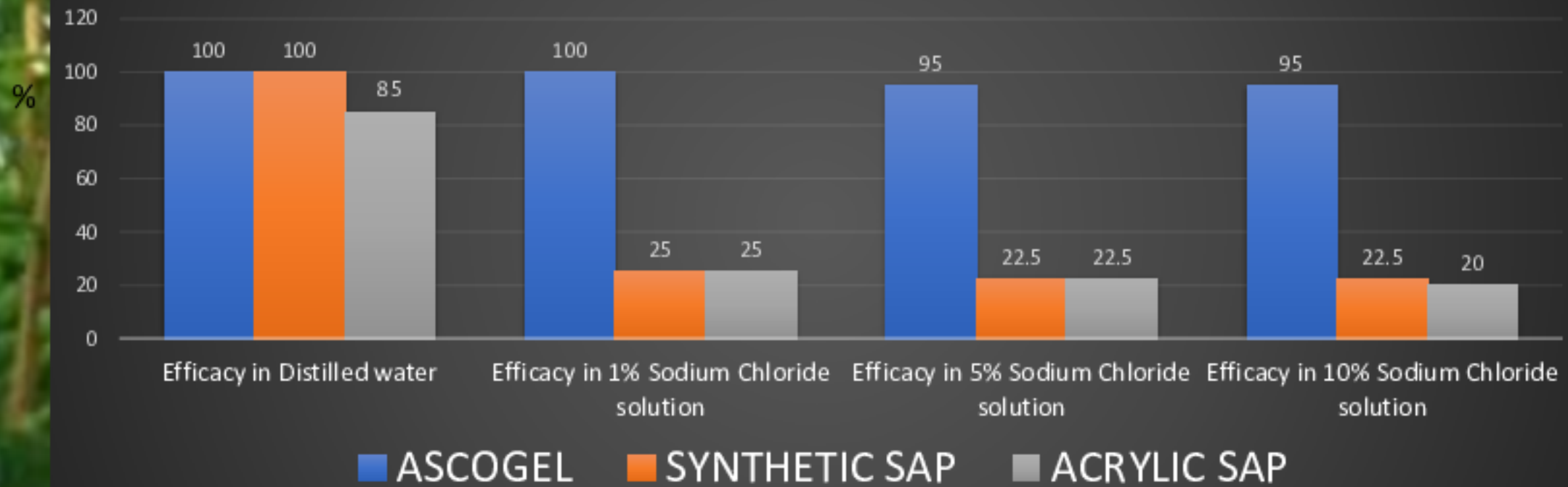
Not all polymers are the same!

Comparative study of various water retaining polymer features

	Poly carbohydrate	Semi bio-polymer	Synthetic chemical
	ASCOGEL	COMPETITOR	COMPETITOR
PRODUCT NATURE	NATURAL BIO-POLYMER	SEMI-NATURAL	SYNTHETIC
SALINE RESIDUE	NONE	SODIUM	POTASSIUM
SALINE EFFECT	NONE	INCREASED ALKALINITY	INCREASED ALKALINITY
EFFICACY IN SALINE SOILS	EXCELLENT	FAIL	FAIL
TEMPERATURE TOLERANCE	EXCELLENT	GOOD	POOR
HARMFUL RESIDUES	NO RISK	MEDIUM RISK	HIGH RISK
PRODUCT COST	LOW	HIGH	HIGH

Comparative study of absorption

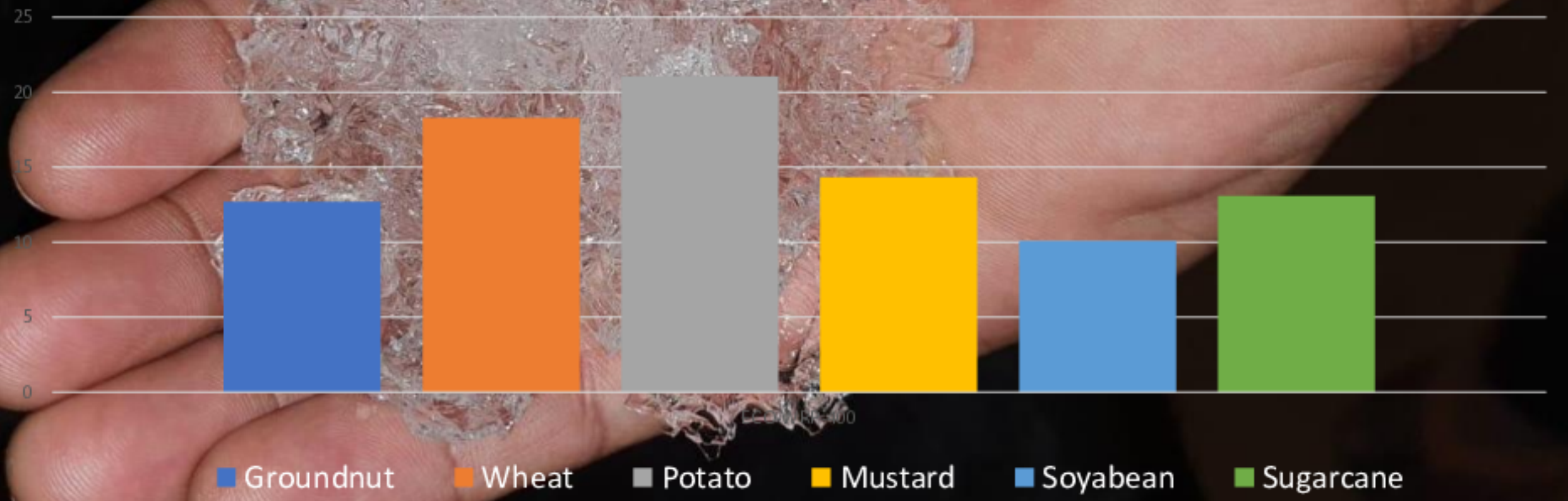
Performance in saline arid soils





Increasing yield and quality of crops

ASCOGEL % YIELD INCREASE OVER CONTROL





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Trials conducted during 2019/2020 – 2020/2021 seasons

Crop	Dose kg/ha	Study period (Year)	% Yield over control	Irrigation
Onion	2.5	1	67.9	Drip
Cauliflower	2.5	1	100	Drip
Tomato	2.5	1	52.3	Drip
Sugarcane	2.5	1	13.1	Foliar
Soybean	2.5	1	10.1	Foliar
Mustard	2.5	2	14.3	Rainfed
Wheat	2.5	2	18.27	Rainfed
Groundnut	2.5	2	12.7	Rainfed
Potato	5.0	2	21	Rainfed

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How to apply Ascogel

- Add 1 kilo of Ascogel per 250 - 300 liters of water to create a pourable gel.
- Pour gel into furrow and lightly cover with soil then place crop seeds or modules directly above the gel.
- A typical application rate would be around 500 ml of gel per plant.



Possible delivery options

Ascogel





BIO-MEMBRANE for the binding and control of dust
mix 1 kg per 400 liters of water



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BIO-MEMBRANE to retain gasses
within slurries
mix 1 kg per 400 liters of slurry



**Sustainable technology
for global food security**

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