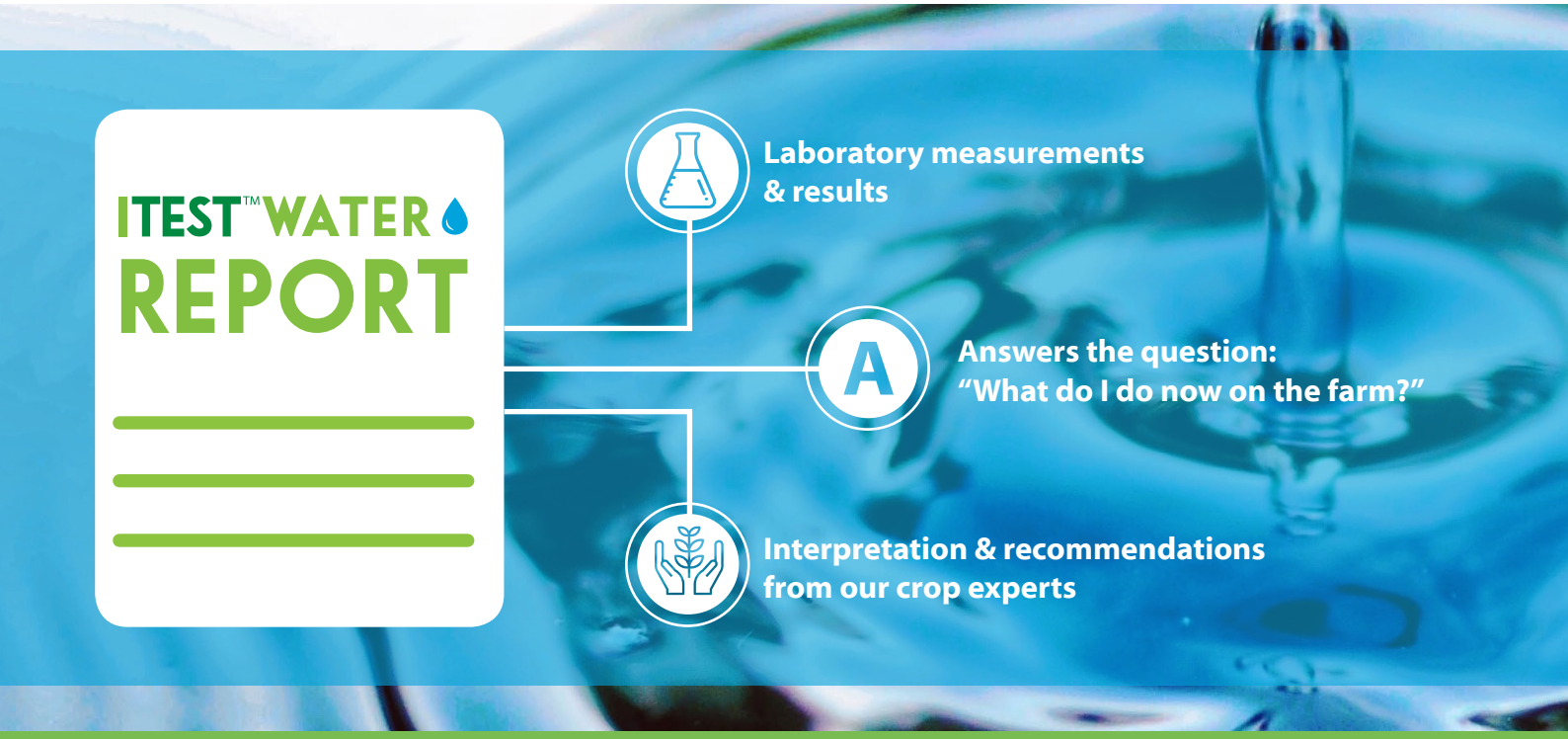
ITEST™ WATER SERVICES

Precision analysis and interpretation of water & corrective recommendations

Agri Technovation™'s ITEST™ WATER range of services helps farmers manage one of the most valuable resources known to humanity. As much as water can make or break a crop, it can also influence soil chemistry, fertilization practices and the long term sustainability of soil.

Success is extremely dependent on water quality and regular testing of water sources is a critical step towards success for a farmer. Identifying pitfalls that can negatively affect crop production will enable a farmer to get on track and stay on track.

Understanding your water through the Agri Technovation™ ITEST™ WATER range of services will help in this regard.



AGRI TECHNOVATION™ RECOMMENDS THAT:

1. Each individual water source be analyzed - significant variations in water quality can be found even for instance from two boreholes in close proximity to each other, or from two withdrawal points some distance apart from the same canal.

2. Samples be taken at least twice a year (e.g. every winter and every summer) since water parameters can vary significantly between seasons.

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Specialized to succeed

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ITEST™ Water Service	Purpose	Results given	Use Cases
ITEST™ Water Irr Fruit, Grains or Vegetables	Determine the influence of inorganic compounds (e.g. salts and minerals) in the water on crop production, soil chemistry and fertilization practices. Identify crop tolerance towards specific element levels in the water. Identify chemical constituents (such as high levels of bicarbonates) that may react with the agrochemicals used in spray mixes or influence cation ratios in the soil.	pH, EC, Total Dissolved Solids, K, Ca, Mg, Na, Cl, S expressed as SO4, HCO3, CO3, P expressed as PO4, NH4, NO3, Fe, Mn, Cu, Zn, B, SAR, Irrigation Class, plus recommendations from an agriculturalist.	Analyzing water resources used for irrigation before planting crops. Determining if the water is suitable and can be tolerated by the crop planted or to be planted. Options for pre-treatment and other practices which could mitigate non-ideal water properties. Identify effects of water quality on optimal fertilization programmes.
ITEST™ Water E. Coli & Plate Count	Determine the levels of E. Coli and other microbial contamination in water.	Total Coliforms, E.coli, Total Plate Count.	Identify possible contamination of water by human and animal waste, which could make the water unsuitable or non-ideal e.g. for fresh produce production.
ITEST™ Water Human & Animal Consumption	Determine the levels of parameters that influence the safety of drinking water for humans and animals (excluding heavy metals - see below)	Aesthetic and Operational Significance: Na, K, Zn, NH4, NO3, pH, EC, Dissolved Solids, Cl, Al, B, CO3, HCO3, Total Alkalinity, Ca, Ca Hardness, Mg, Mg Hardness, Total Hardness, P expressed as PO4 Chronic Health Significance: Fe, Mn, Cu and F Acute Health Significance: S expressed as SO4, NO3-N and NO2-N Microbial Determinants: E. Coli, Total Coliform and Heterotrophic Plate Count.	Evaluation of safety of a water source for drinking by humans or animals (for parameters other than heavy metals).
ITEST™ Water Global GAP	Determine quality and safety of water according to Global Good Agricultural Practices (Global-G.A.P.) Standards.	As for ITEST™ Water: Human & Animal Consumption above, plus As for ITEST™ Heavy metals below.	GlobalG.A.P./ environmental and safety compliance. Evaluation of safety of a water source for crop production, and for drinking by humans or animals

ITEST™ Water Service	Purpose	Results given	Use Cases
ITEST™ Water Heavy metals	Determine the levels of a range of typical heavy metal contaminants in the water.	Co, Cr, Ni, V, As, Hg, Se, Cd, Pb, Sb	Identification of possible heavy metal contamination and water remediation options. Evaluation of safety of a water source for crop production, or for drinking by humans or animals from a heavy metals point of view.
ITEST™ Water Total Organic Carbon	Determine the level of organic carbon present in water.	Total Organic Carbon	Quantification of organic carbon level in water, which may for instance - *result in reduced efficacy of crop protection (e.g. herbicide) spray solutions, or *be an indication of contamination from biological sources (e.g. human or animal waste).
ITEST Water Spray Water Properties	Determine general properties and pH buffering response of water that is used in spray tank mixes.	pH, EC, TDS, visual appearance, particles left on 63 and 100 micron screens respectively, titration curves with up to 3 commercial buffer solutions	Determining the type and quantity of buffer solutions needed to buffer spray mixes to ideal pH ranges. Avoid using the wrong buffer, or too much of it, or using a buffer but not getting the required result.
ITEST™ Water Particle Size Distribution	Identify and quantify clay, silt and sand particles present in irrigation water	Size fraction distribution of solids in the water between clay, silt and sand and detailed size fraction distribution of silt component. Calculated quantity of silt put down through irrigation annually.	Determining the amount of solids (clay, silt or sand) present in water (pre- or post-filtration). Design appropriate filtration systems to avoid blockages of irrigation systems. Or, to avoid putting down solids particles with the water which could negatively affect the soil physical properties over time.

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