JYOTI

SMARTCHEM TECHNOLOGIES LIMITED

IRRIGATION WATER ANALYSIS - A REQUIREMENT OF PRECISION AGRICULTURE

What is irrigation water analysis?

Quality of irrigation water is a critical aspect of successful agriculture- similar to quality of soil. Quality assessment is done by subjecting sample/s of irrigation water for various parameters, particularly chemical parameters, to decide its suitability to grow crops, more so sensitive ones.

What are the risks of not knowing quality of irrigation water?

Irrigation water of poor quality, if not assessed and corrective measures not taken, may affect the crop severely as given below:

- Poor quality water slows down plant growth. In severe cases, it kills the plants.
- High soluble salts injure roots and burn leaves.
- High level of certain parameters interferes with bioavailability of nutrients.

Does irrigation water testing help in fertilizer recommendation?

In open field crops, normally nutrients in irrigation water are not considered for giving correction to fertilizer doses. However, if the contents are very high, particularly micronutrients such as B, Fe etc, then suitable correction will have to be given. In crops that are grown in green houses or in artificial media, then the nutrients from irrigation water will have to be suitably considered in nutrition management.

What should be the frequency of irrigation water analysis?

Normally, it is sufficient if analysis of irrigation water from a given source is carried out once in 2-3 years. However, if any contamination is suspected, then immediately analysis is recommended to be done. Moreover, depending on the customer requirement, analysis can be taken up more frequently/ accordingly.

What is the recommended procedure for water sampling and dispatching to the laboratory for analysis?

For collecting sample from surface source, follow the procedure given below:

Take a clean container, preferably empty drinking water bottle. Rinse it 2-3 times with the water to be sampled to avoid any contamination. Then fill it and cap it tightly. Label properly - with name of the farmer, source of water, date of sampling, parameters to be analysed (if one wants to specify).

If sample has to be collected from borewell, then start the bore well if it is not running, run for 5 minutes and then collect sample and label as mentioned above.

Arrange to send the samples to the lab preferably within 2-3 days.

Which are the parameters recommended for irrigation water analysis?

The following are the parameters recommended for irrigation water analysis.

Surface source: pH, EC, Ca, Mg, SO_4, HCO_3, CO_3, NO_3, PO_4, Cl

Ground source: In addition to above parameters, include Fe, Mn, B, Fluoride
Other parameters such as SAR and Adjusted SAR will be derived from the above.

Which laboratory or laboratories can take up water analysis?

Our own Diagnostic Laboratory in Pune carries out analysis of irrigation water for all the irrigation parameters. However, for any specific/ additional requirement of quality parameters, suitable labs can be recommended.

As a part of our customer support, we should encourage all our farmers for irrigation water analysis.