



A study on Effect of TDS on Paddy yield

By

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Study project executed by

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In which case the growth of a plant or a crop is good ?

1) Rain water



2) Other sources



Do you know Why?

- **This lead us to undertake and execute this project.**
- And there are certain other objectives to choose this as our study project.

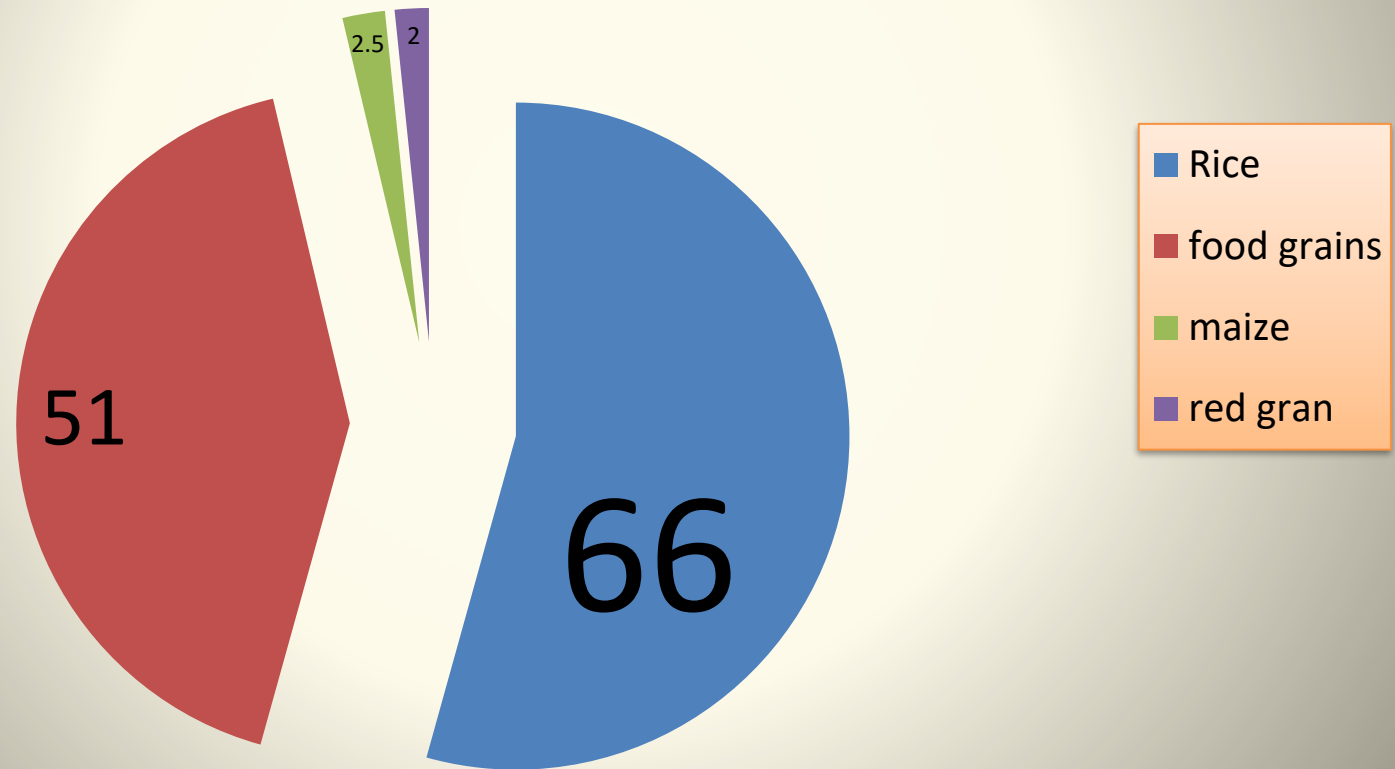
Objectives(Targets)

One of the 8 MDGS is sustainable – development (Sensitize farmers regarding this) –Need of the hour

Still today agriculture caters 55% of the work force

Paddy is the major crop cultivated in Telangana since ancient ages(in order to make the farmers to get the best from their industry)

share of crops cultivated in telangana (in Mtonnes)



What is TDS(Total dissolved solids)

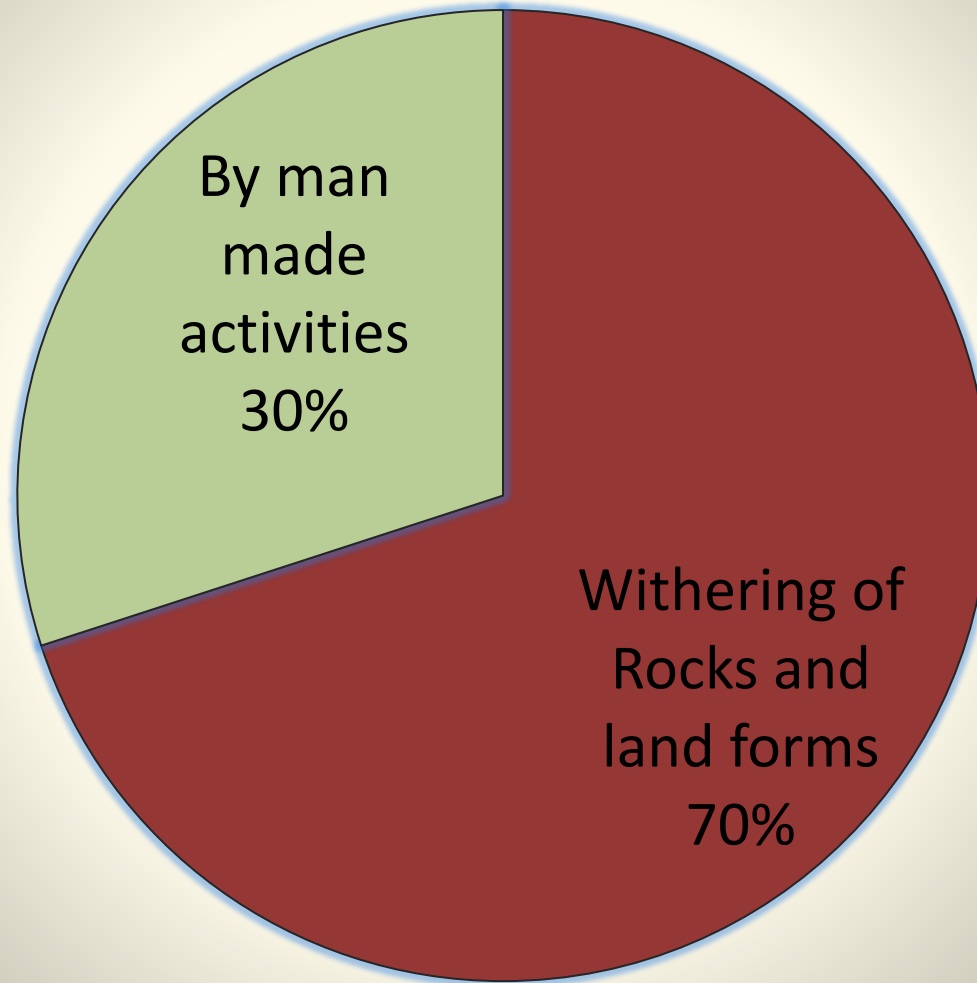
- It is the quantitative measure of dissolved salts in a solvent by its conductance values.
- In solvents ions are(produced by the dissociation of salts) are power carriers.
- The TDS are expressed in ppm-units
- As per UN norms the suitable TDS of irrigated water < 500ppm

TDS \propto Conductance \propto Salinity of water

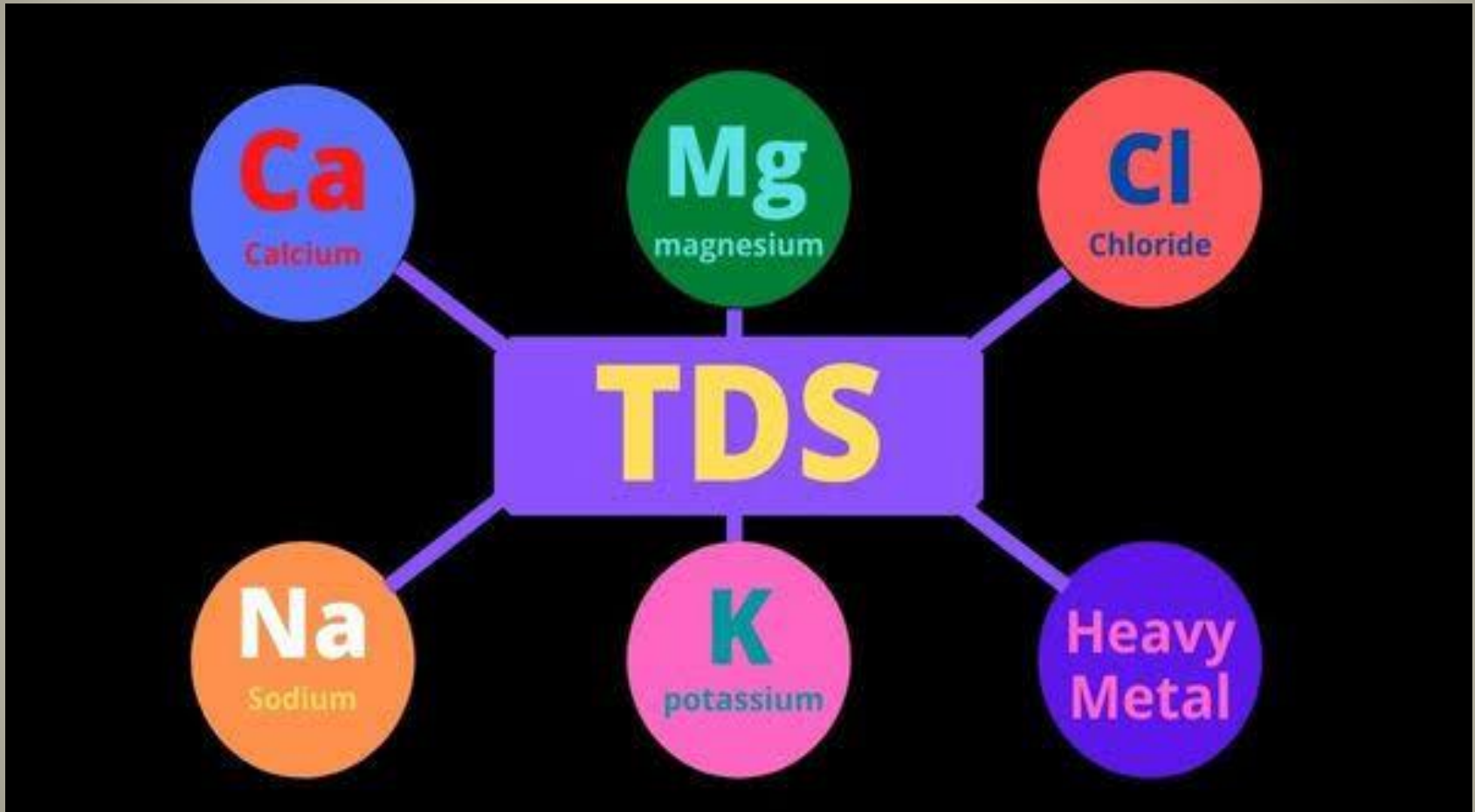
How higher TDS affect growth

- High levels of salts in water will obstruct absorption of nutrient in take by plants/crop-abnormal growth.
- It also imbalances osmotic pressure in plant/crop-undeserved changes may occur

Where do dissolved solids come from



TDS particles



Chlorides, Carbonates, Bi carbonates of Ca, Na, K, Mg , Organic molecules, heavy metals like Pb, As, Hg etc.



TDS IN PPM

Total Dissolved Solids in Parts Per Million



More than 500 ppm of TDS not suitable for irrigation as per UN – norms.

Methodology (Process flow of SSP)

Selection of Paddy fields for study



Collection of water samples(3 times)
and measuring of TDS -Observation



Survey-Interview–Questionnaire-
Tabulation-Interpretation-Analysis

Selection of fields-Collection of water samples

- Randomly selected(5-10) paddy fields surrounding villages of our college.
- And Our team members as per viability visited the same fields for 3 times from sowing to till the harvest for collection of samples.
- Measured the TDS of water in the field by using the TDS conductivity meter(Avg. of three values at different times is tabulated) .

Sample survey Questionnaire

Name of the village

Name of the farmer-Age-Education-contact details

Source of water-Area of paddy sown-

Usage of fertilizers & insecticides-Enquiry

Enquiry of paddy yield by Ascertaining it with Procurement receipt

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
1	Y. Chinna Narsaiah	Balkonda	Canal	238	25	
2	Barkam Mallesh	Balkonda	Pond	774	25	Low yield
3	J. P. Saianna	Balkonda	Borewell	471	22	Low yield
4	J. Suresh	Srirampur	Borewell	600	19	Low yield
5	M. Mallaiah	Perkit	Borewell	530	25	Low yield

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
6	M. Linganna	Balkonda	Borewell	512	18	Low yield
7	A. Narasaiah	Gamzal	Borewell	431	30	
8	A. Muttanna	Gamzal	Borewell	760	23	Low yield
9	A.P. Muttanna	Gamzal	Borewell	745	22	Low yield
10	D. Saikrishna	Gamzal	Borewell	740	27	

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
11	A. Chinnaiah	Gamzal	Borewell	676	30	
12	D. Muttanna	Gamzal	Borewell	714	31	
13	J. Srinivas	Gamzal	Borewell	811	23	Low yield
14	K. Gangaram	Gamzal	Borewell	740	28	
15	SK. Rahim	Gamzal	Borewell	336	34	

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
16	N. Lingaiah	Gamzal	Borewell	504	34	
17	Kota Vijay	Andranagar	Borewell	500	33	
18	K. Satish	Andranagar	Borewell	575	28	
19	Pulli Swami	Andranagar	Borewell	409	34	
20	Poshty	Andranagar	Borewell	322	35	

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
21	G. Rajendhar	Andrangar	Borewell	366	32	
22	U. Kashiah	Andranagar	Borewell	644	25	Low yield
23	Ramanujalu	Nandipet	Borewell	783	24	Low yield
24	G. Akeshwar Rao	Nandipet	Borewell	744	25	Low yield
25	S. Sadanand	Nandipet	Borewell	770	25	Low yield

Tabulation

S.No	Name of the farmer	Village	Water Source	TDS in PPM	Crop Yield (Quintal per ac.)	Remarks
26	V. Satish	Nandipet	Borewell	608	26	
27	T. Anand	Nandipet	Borewell	702	25	Low yield
28	K. Srinivas	Makloor	Canal	450	33	
29	K. Vekateshwar	Makloor	Canal	433	33	
30	K. Srinu	Makloor	Canal	440	32	

Data interpretation- Correlation- Analysis

TDS VS
Yield

More
Burden

- From the data collected it is quite evident that the fields which have higher TDS, yielded less than average crop(<25 Quintal per acre) .
- Lower TDS yielded good crop
- TDS is inversely related with crop production.

Data interpretation- Correlation- Analysis

TDS VS Yield

- It is also observed that in spite of higher TDS of irrigated water, the yield is good
- Si no 10,11,12 &14 TDS VS Yield

TDS VS Yield

- Form the Table there-- Low TDS and Low Yields—Bad agricultural practices like Bad seeds-barren lands-
- Si No.1,3 TDS VS Yield

Solutions(What can be done)

Rain water harvesting-Dilution of solvents-
Bring down TDS

Judicious use of fertilisers-low residues left

Substitute synthetic fertilisers with bio
fertilisers-Complete dissociation-low residues

Soil replacement-makes the soil neutral-TDS
will be restored

Conclusions

- Sensitization of farmers towards water sustenance.
- Agriculture and Geological departments should work together - prepare the TDS maps- Govt should take initiation
- Created awareness on TDS of water.
- We learned many things from the farmers-industry (pains and gains involved in it)

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References

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Thank you



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CHEMISTRY IS UNIVERSE-UNIVERSE IS CHEMISTRY**